Submarine Ring of Fire 2014 - Ironman Cruise Report

R/V Roger Revelle Cruise RR1413
November 29 – December 21, 2014
Guam – Guam
JASON Dives J2-797 – J2-801

Chief Scientists: Craig Moyer and William Chadwick
R/V Revelle Captain: Tom Desjardins
JASON Expedition Leader: Tito Collasius

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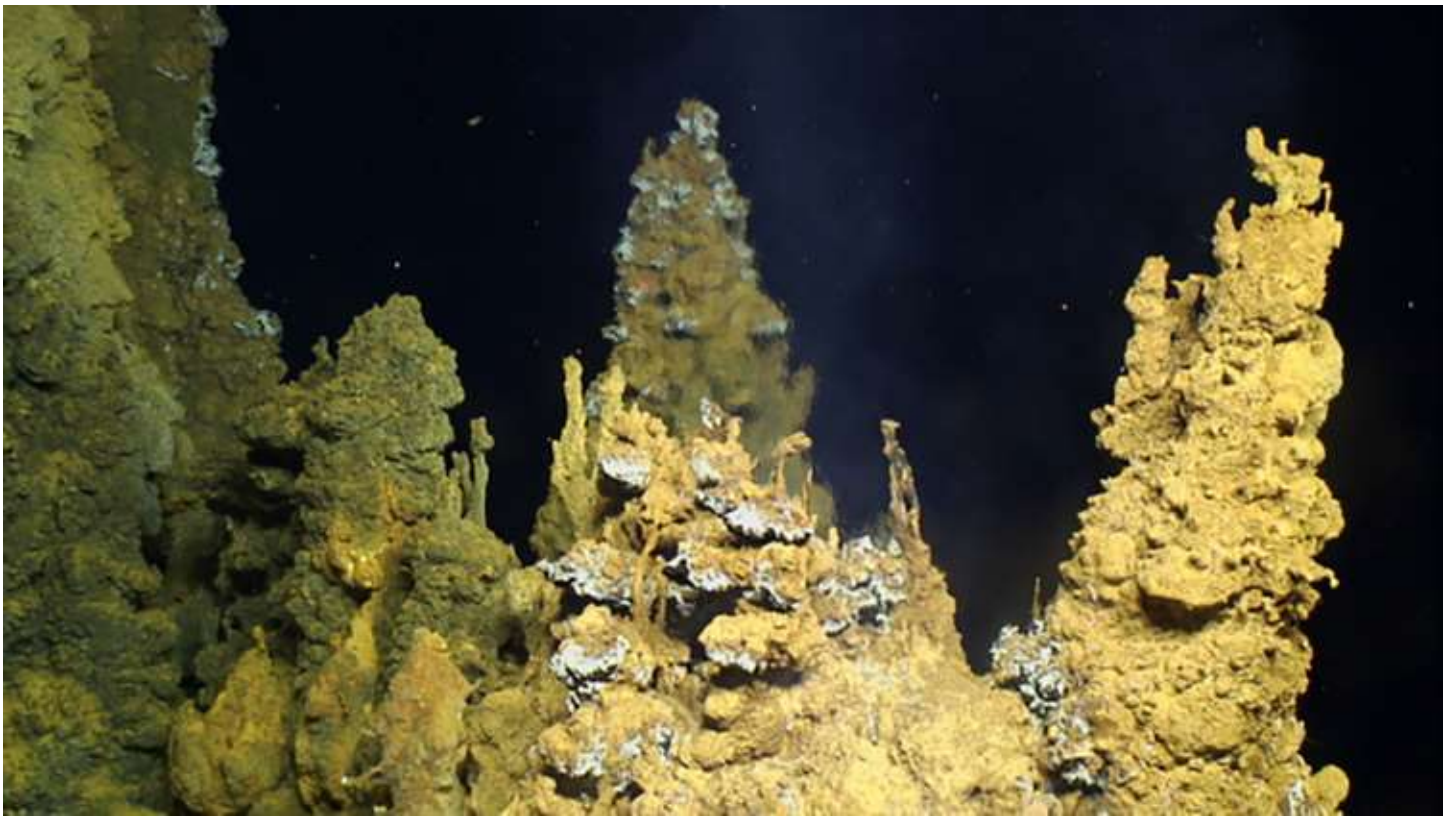

Sulfide chimneys coated with iron-based microbial mat at the Urashima vent site.

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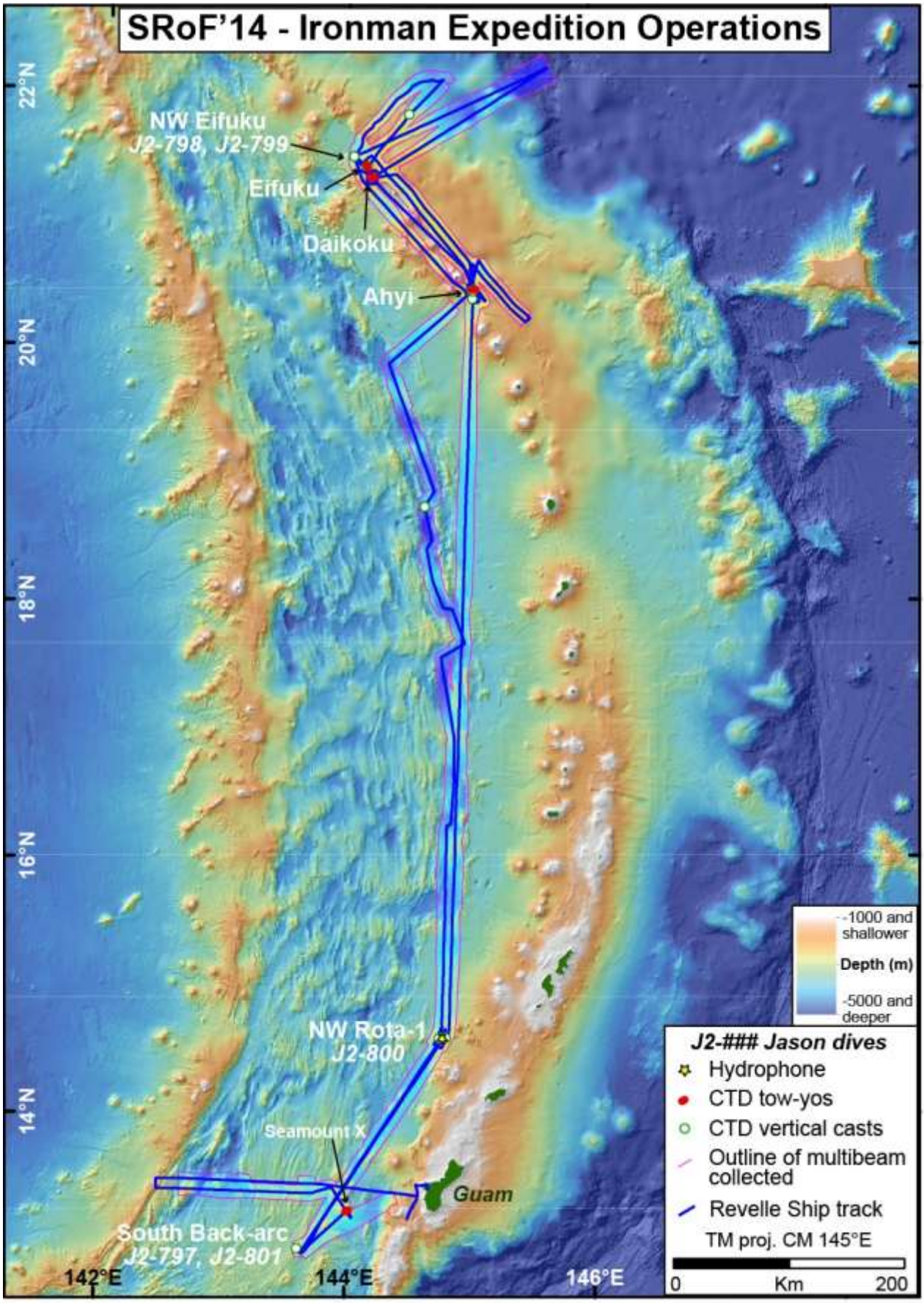
SRoF'14 - Ironman Expedition Operations
NW Eifuku
J2-798, J2-799
Eifuku
Daikoku
Ahyi
NW Rota-1
J2-800
Seamount X
Guam
South Back-arc
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22°N
20°N
18°N
16°N
14°N
142°E
144°E
146°E
-1000 and shallower
Depth (m)
-5000 and deeper
J2-### Jason dives
Hydrophone
CTD tow-yos
CTD vertical casts
Outline of multibeam collected
Revelle Ship track
TM proj. CM 145°E
0
Km
200

1 - SRoF2014 - Ironman Cruise Summary

Bill Chadwick and Craig Moyer, Co-Chief Scientists

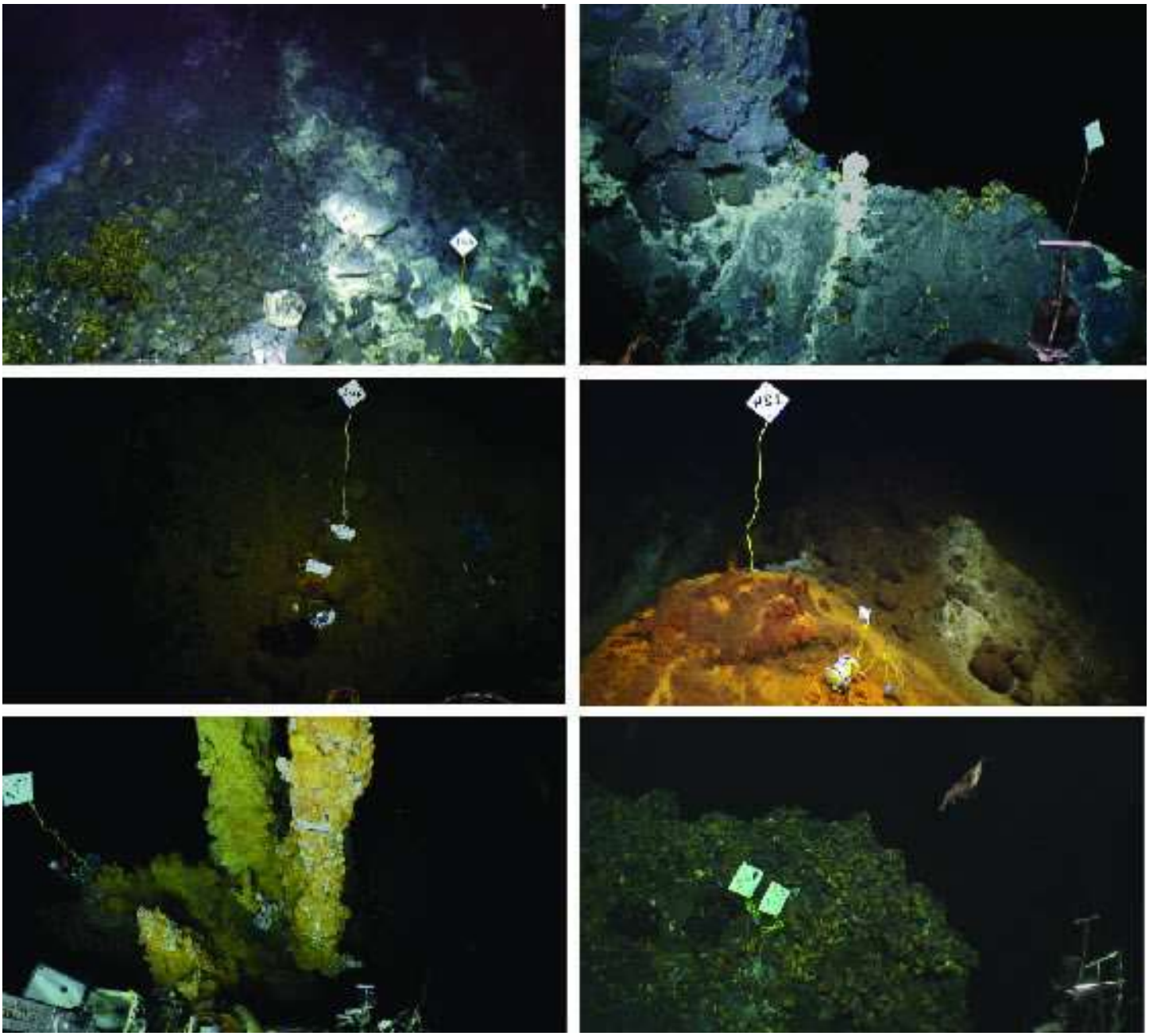
The “Submarine Ring of Fire 2014 – Ironman” Expedition was a cooperative venture with two science parties with overlapping interests and goals. Craig Moyer from Western Washington University led a group funded by the National Science Foundation to conduct research on iron-oxidizing bacteria at hydrothermal vents. Bill Chadwick led a NOAA/PMEL group funded by the NOAA Ocean Exploration and Research Program and focused on the chemical and biological impacts of hydrothermal vent emissions from active submarine volcanoes in the Mariana arc.

The NSF-funded group was a predominately microbiological team from Western Washington University, Bigelow Marine Labs, and University of Delaware with a focus on the better understanding the ecology and evolution of hydrothermal microbial mat systems driven by a novel class of microbes called *Zetaproteobacteria,* which have been determined to function as ecosystem engineers. The objectives that were met during the expedition include: (1) The fine-scale collection of microbial mat samples using the BioMat Syringe or BMS sampler. These samples will be used for DNA and RNA molecular microbiological analyses. The sites that we were able to collect samples from were the orange/yellow iron-type mats found at Snail, Urashima, NW Rota-1, and NW Eifuku vent sites, as well as a few from the white or sulfur-type mats found also at NW Rota-1 and NW Eifuku Seamounts. (2) General microbial mat sample collections for archival purposes. This includes using our combined team-standardized methods for (i) flash freezing in glycerol and storage at -80°C for downstream enrichment culturing, (ii) maintaining at -20°C in glutaraldehyde for SEM, which allows for mat morphology analysis and (iii) maintaining at 4°C in paraformaldehyde for FISH microscopy investigations. Individual participants had the option of selecting additional subsamples for their own specific analyses when appropriate, but one complete set of microbial samples using our standardized techniques was collected by the group for use by all participants. (3) Seafloor photo-mosaic mapping using the new lighting and camera systems available on ROV Jason II at both Snail and Urashima Vent areas. (4) The combined microbial sampling along with mapping, fluid chemistry and geological sampling was invaluable allowing for a much greater understanding of the microbial communities in terms of geochemical and geophysical parameters.

The PMEL objectives that were met during the expedition include: (1) We collected ship-based multibeam sonar bathymetric data in the Mariana arc and back-arc to expand pre-existing coverage (which was especially poor in the back-arc). The R/V Revelle’s EM122 system (12 kHz) is particularly suited to surveying in the back-arc where depths extend down to 4000-5000 m. The new data will be valuable in planning and executing future exploration and research in the Mariana region. (2) In addition, we re-surveyed the bathymetry around Ahyi Seamount, which erupted in April-May 2014. The re-survey showed major depth changes at the summit and on the flanks of the seamount due to the eruption. CTD casts and tows discovered that Ahyi now has a robust hydrothermal system that did not exist before. (3) We also collected high-resolution multibeam bathymetry at NW Eifuku Seamount with the Jason ROV to better define the physical environment on the seafloor and put the ROV observations in context. Unfortunately, this survey was only partially completed due to limited dive time. (4) In addition, we collected water-column acoustic reflectivity data with Revelle’s EM122 sonar system to image CO_2 bubble plumes over the summits of several seamounts. No bubble plumes were observed over NW Rota-1 Seamount (which had previously produced robust bubble plumes in 2010) because its eruptive activity was in hiatus. However, CO_2 bubble plumes were imaged for the first time over NW Eifuku, Ahyi, and Daikoku Seamounts. (5) Geologic, chemical, and biological samples were collected during five Jason ROV dives at three dive sites: Snail and Urashima vents in the southern Mariana back-arc (focused on iron-oxidizing bacteria), NW Eifuku Seamount (focused on how mussels have adapted to a highly acidic environment), and NW Rota-1 Seamount (focused on how the chemosynthetic ecosystem responds to the waxing and waning of volcanic activity). In addition, high-resolution imagery (both still images and HD video) was collected to document the physical environment on the seafloor and where samples were taken. Coordinated chemical and biological sampling at all three dive sites will be used to better understand the links between environment and the health, diversity, and populations of chemosynthetic biological communities at each site. (6) CTD casts and tows were collected between ROV dives at multiple seamounts to document the hydrothermal output from each site. These water-column data revealed that significant changes had occurred at multiple sites over the last decade, including newly rejuvenated hydrothermal systems at Ahyi and Eifuku Seamounts, the discovery that eruptive activity at NW Rota-1 had stopped, but Daikoku Seamount was discovered to be in eruption for the first time (based on high levels of dissolved hydrogen). Overall, these observations suggest that the Mariana Arc seamounts are much more dynamic and active than had been previously thought. (7) One of our objectives was to compare several independent measures of CO_2 output at NW Rota-1 Seamount, including the imaging of bubble plumes with multibeam water-column data, the recording of eruptive output with an in-situ hydrophone, the analysis of water-column chemistry via CTD casts and tows, and visual observations on the seafloor. Because NW Rota-1 was found to be in an eruptive hiatus during our expedition, we were not able to collect new data to accomplish this task. However, we may be able to make some of these comparisons with data that was collected at other sites or in other years.

For both groups, some of our initial objectives during the cruise could not be met due to limited Jason ROV dive time caused by problems with inclement weather (high winds and seas) and problems that developed during the cruise with the fiber-optic cable being used with Jason. Seven days were lost due to weather and another four days were lost due to problems with the Jason cable. Despite these problems, we were able to accomplish many of our cruise objectives.

We are grateful to the funding agencies that supported our exploration and research, and we greatly appreciate the support from the Scripps Institution of Oceanography, the captain and crew of R/V Revelle, the Woods Hole Oceanographic Institution, the National Deep Submergence Facility, and the Jason ROV team. Thanks to all for making this cruise a success.



Markers deployed on this expedition: (top-bottom; left-right) Mkr-144 NW Eifuku: Champagne; Mkr-145 NW Eifuku: Razorback; Mkr-146 NW Eifuku: Upper YellowCone; Mkr-124 NW Eifuku: Lower YellowCone; Mkr-125 Urashima: Ultra-no-chichi; Mkrs 123/140 NW Eifuku near Mkr-145. (See section 5.4 for marker deployment information).

2 - Operations Log

Red-Jason ops; Blue-CTD ops; Purple-Multibeam ops; Orange-Hydrophone ops; Green-Plankton Net						
UTC is 10 hours behind local Guam time						
UTC date	**UTC time**	**Guam date**	**Guam time**	**Event Log - SRoF-14 - Ironman Expedition**	**latitude (N)**	**longitude (E)**
2014 - 11 - 28	22:00	11-29	08:00	Depart Guam	13-25.242N	144-39.950E
2014 - 11 - 29	04:15	11-29	14:15	On site at Snail Vent (S. back-arc)	12-57.234N	143-37.008E
2014 - 11 - 29	04:40	11-29	14:40	USBL Pole lowered	12-57.273N	143-37.057E
2014 - 11 - 29	04:22	11-29	14:22	XBT-001	12-57.258N	143-37.026E
2014 - 11 - 29	05:15	11-29	15:15	USBL Elevator deployed	12-57.180N	143-37.123E
2014 - 11 - 29	10:30	11-29	20:30	USBL calibration completed		
2014 - 11 - 29	13:39	11-29	23:39	V14B-test CTD Deployed (to ~600m)	12-57.070N	143-37.125E
2014 - 11 - 29	14:11	11-30	00:11	CTD on deck	12-57.109N	143-37.074E
				13-hour delay due to CTD wire fraying and ROV manipulator/hydraulic line problems.		
2014 - 11 - 30	03:18	11-30	13:18	Begin Jason Dive J2-797 (Snail/Urashima sites; S Back-arc)	12-57.117N	143-37.085E
2014 - 11 - 30	03:21	11-30	13:21	Medea deployed	12-57.118N	143-37.085E
2014 - 11 - 30	20:25	12-1	06:25	Elevator recovery hook up	12-56.975N	143-36.901E
2014 - 11 - 30	20:36	12-1	06:36	Elevator on deck	12-56.887N	143-36.871E
2014 - 12 - 1	14:07	12-2	00:07	Medea on deck	12-55.338N	143-39.872E
2014 - 12 - 1	14:16	12-2	00:16	Jason on deck, End Dive J2-797	12-55.337N	143-39.948E
2014 - 12 - 1	14:35	12-2	00:35	XBT-002	14-24.925N	144-40.037E
2014 - 12 - 1	14:47	12-2	00:47	USBL Pole raised	12-55.755N	143-40.517E
2014 - 12 - 1	14:55	12-2	00:55	Start multibeam data logging during transit from Snail to NW Rota-1. (MB line 0049)	12-56.574N	143-41.352E
				Arrive NW Rota-1. Decide making a Jason dive is not possible due to Typhoon passing south of Guam and limited time before weather worsens here. Will have to head north next.		
2014 - 12 - 2	01:12	12-2	11:12	Multibeam re-survey NW Rota-1 south to north over summit. SOL 49.		
2014 - 12 - 2	02:17	12-2	12:17	Multibeam EOL 51. End of bathy survey over summit.		
2014 - 12 - 2	02:46	12-2	12:46	Water column line over NW Rota summit. SOL 54		
2014 - 12 - 2	04:46	12-2	14:46	Water column survey complete. EOL 60		
2014 - 12 - 2	05:00	12-2	15:00	USBL Pole lowered		
2014 - 12 - 2	05:00	12-2	15:00	Transponder is on the CTD rosette for tracking.	14-36.043N	144-46.446E
2014 - 12 - 2	05:34	12-2	15:32	CTD V14B-01 deployed (NW Rota1)	14-36.040N	144-46.465E
2014 - 12 - 2	06:27	12-2	16:28	CTD V14B-01 on deck	14-36.040N	144-46.479E
2014 - 12 - 2	07:50	12-2	17:50	Begin launch of hydrophone mooring at NW Rota-1.		
2014 - 12 - 2	09:33	12-2	19:33	Mooring anchor deployed E2014	14-36.149N	144-46.324E
2014 - 12 - 2	10:29	12-2	20:29	CTD V14B-02 Deployed (NW Rota1)	14-35.820N	144-45.429E
2014 - 12 - 2	10:53	12-2	20:53	CTD Max Depth 1200m	14-35.826N	144-45.394E
2014 - 12 - 2	11:41	12-2	21:41	CTD on Deck	14-35.831N	144-45.393E
2014 - 12 - 2	12:02	12-2	22:02	Begin multibeam survey of NW Rota1 (SOL 61). Official start of survey line 62.		

Red-Jason ops; Blue-CTD ops; Purple-Multibeam ops; Orange-Hydrophone ops; Green-Plankton Net						
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2014 - 12 - 2	15:03	12-3	01:03	End NW Rota 1; begin transit/survey to Ahyi		
2014 - 12 - 3	20:11	12-4	06:11	End multibeam logging of transit from Rota to Ahyi at increased speed (12 kts).		
2014 - 12 - 3	20:15	12-4	06:15	XBT-003	20-27.001N	145-01.185E
2014 - 12 - 3	20:36	12-4	06:36	CTD V14B-03 deployed (Ahyi)	20-26.744N	145-01.755E
2014 - 12 - 3	21:10	12-4	07:10	CTD V14B-03 Max Depth 500m	20-26.742N	145-01.765E
2014 - 12 - 4	21:33	12-4	07:33	CTD V14B-03 on deck	20-26.742N	145-01.768E
2014 - 12 - 3	21:48	12-4	07:48	Begin multibeam logging at Ahyi (SOL 128).	20-26.893N	145-01.713E
				WCD line 136 see strong anomaly near Ahyi summit		
2014 - 12 - 4	00:58	12-4	10:58	End multibeam and water column logging (EOL 138).	20-26.160N	145-01.860E
2014 - 12 - 4	01:11	12-4	11:11	CTD V14B-04 Deployed (Ahyi)	20-26.163N	145-01.847E
2014 - 12 - 4	01:20	12-4	11:20	CTD Max Depth 200m	20-26.162N	145-01.848E
2014 - 12 - 4	01:35	12-4	11:35	CTD On Deck	20-26.161N	145-01.849E
2014 - 12 - 4	02:32	12-4	12:32	CTD V14B-05 deployed (Ahyi)	20-26.374N	145-01.763E
2014 - 12 - 4	02:40	12-4	12:40	CTD V14B-05 @190m	20-26.378N	145-01.762E
2014 - 12 - 4	03:08	12-4	13:08	CTD V14B-05 on deck	20-26.375N	145-01.765E
2014 - 12 - 4	03:12	12-4	13:12	Begin EM122 water column survey (SOL 143).		
2014 - 12 - 4	04:43	12-4	14:43	End EM122 water column (EOL 147). Continue logging EM122 bathymetry at Ahyi.		
2014 - 12 - 4	04:57	12-4	14:57	End EM122 multibeam logging (EOL 150).		
2014 - 12 - 4	05:20	12-4	15:20	CTD T14B-01 deployed (Ahyi)	20-27.006N	145-00.948E
2014 - 12 - 4	05:22	12-4	15:22	Tow CTD on deck	20-27.006N	145-00.947E
2014 - 12 - 4	05:25	12-4	15:25	Tow CTD redeployed	20-27.004N	145-00.945E
2014 - 12 - 4	08:31	12-4	18:31	CTD T14B-01 on deck	20-27.010N	145-03.217E
2014 - 12 - 4	09:22	12-4	19:22	Begin multibeam logging at Ahyi to continue bathy survey (SOL 154).		
2014 - 12 - 4	11:53	12-4	21:53	Continue multibeam logging on transit from Ahyi to NW Eifuku (full speed 12 kts) (SOL 160)		
2014 - 12 - 4	19:15	12-5	05:15	Arrived at NW Eifuku		
2014 - 12 - 4	19:23	12-5	05:23	End multibeam logging (NW Eifuku) (EOL 176)		
2014 - 12 - 4	21:52	12-5	07:52	Elevator Deployed	21-29.239N	144-02.546E
2014 - 12 - 4	22:30	12-5	08:30	Begin Jason J2-798 (NW Eifuku)	21-29.239N	144-02.544E
2014 - 12 - 4	22:38	12-5	08:38	Medea Deployed	21-29.238N	144-02.546E
2014 - 12 - 5	23:18	12-6	09:18	Elevator Off Bottom	21-29.256N	144-02.545E
2014 - 12 - 6	00:00	12-6	10:00	Elevator On Surface	21-29.144N	144-02.490E
2014 - 12 - 6	00:18	12-6	10:18	Elevator On Deck	21-29.323N	144-02.701E
2014 - 12 - 6	08:21	12-6	18:21	Medea on deck (Jason recovery aborted)	22-04.883N	144-46.688E
2014 - 12 - 6	08:50	12-6	18:50	Medea redeployed after failure to recover Jason. Medea and Jason lowered to 800 m.		
2014 - 12 - 6	11:27	12-6	21:27	Logging multibeam while towing Jason/Medea (Lines 177 - 306) at 1 knot toward NE.		
				It took 3 days for the weather to improve enough to recover Jason and Medea - and no science ops were possible except multibeam.		
2014 - 12 - 9	02:15	12-9	12:15	Reeling in cable to bring Medea aboard. Discovered cable badly damaged at ~250 m w/o. Subsequently not able to dive for 4 days		

Red-Jason ops; Blue-CTD ops; Purple-Multibeam ops; Orange-Hydrophone ops; Green-Plankton Net						
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				while cable is cut, inspected, and tested.		
2014 - 12 - 9	04:40	12-9	14:40	Jason on deck. Ship's location is over trench after towing to NE for 3 days.	22-04.079N	144-45.564E
2014 - 12 - 9	05:00	12-9	15:00	XBT 005	20-02.872N	144-44.334E
2014 - 12 - 9	06:35	12-9	16:35	Stopped multibeam logging (EOL 306).	21-49.000N	144-30.000E
2014 - 12 - 9	06:58	12-9	16:58	CTD V14B-06 deployed (background)	21-49.011N	144-30.034E
2014 - 12 - 9	07:54	12-9	17:54	CTD at 3050m	21-49.018N	144-29.993E
2014 - 12 - 9	09:32	12-9	19:32	CTD V14B-06 on deck.		
2014 - 12 - 9	10:12	12-9	20:12	Begin multibeam logging while transiting back to Eifuku from the trench (SOL 312).		
2014 - 12 - 9	12:15	12-9	22:15	XBT 007	21-26.837N	144-11.110E
2014 - 12 - 9	12:33	12-9	22:33	End multibeam logging (EOL 318).		
2014 - 12 - 9	13:33	12-9	23:33	CTD T14B-02 Deployed (Eifuku)	21-24.070N	144-09.098E
2014 - 12 - 9	15:36	12-10	01:36	CTD tow on deck	21-25.414N	144-08.419E
2014 - 12 - 9	15:40	12-10	01:40	Begin multibeam logging along east edge of existing MB coverage heading S to Ahyi.		
2014 - 12 - 10	01:52	12-10	11:52	XBT 008	20-33.563N	144-59.067E
2014 - 12 - 10	02:19	12-10	12:19	Ahyi survey at summit (SOL 339) - WCD and multibeam		
2014 - 12 - 10	02:40	12-10	12:40	No pinging. Problem with multibeam system. Power-cycled the TRU (transceiver unit). Ran BIST (Built-in Self Test).		
2014 - 12 - 10	04:14	12-10	14:14	Passed BIST test. Ben noticed external trigger button checked so the system was not logging.		
2014 - 12 - 10	04:40	12-10	14:40	Multibeam system working again.		
2014 - 12 - 10	05:24	12-10	15:24	CTD V14B-07 deployed (Ahyi)	20-22.640N	145-01.654E
2014 - 12 - 10	05:36	12-10	15:36	CTD V14B-07 @ 500m	20-22.638N	145-01.655E
2014 - 12 - 10	06:21	12-10	16:21	CTD V14B-07 on deck	20-22.640N	145-01.656E
2014 - 12 - 10	07:30	12-10	17:30	CTD V14B-08 Deployed (Ahyi)	20-26.218N	145-01.774E
2014 - 12 - 10	07:45	12-10	17:45	CTD V14B-08 On Deck	20-26.221N	145-01.773E
2014 - 12 - 10	08:18	12-10	18:18	Logging EM122 water column data at Ahyi (SOL 341).		
2014 - 12 - 10	08:30	12-10	18:30	CTD V14B-09 deployed	20-26.150N	145-01.739E
2014 - 12 - 10	09:02	12-10	19:02	CTD V14B-09 on deck	20-26.148N	145-01.732E
2014 - 12 - 10	09:12	12-10	09:12	End EM122 water column data logging (EOL 342).		
2014 - 12 - 10	09:25	12-10	19:25	Logging EM122 WCD and multibeam at Ahyi.		
2014 - 12 - 10	09:56	12-10	19:56	End EM122 data logging (EOL 343).		
2014 - 12 - 10	10:14	12-10	20:14	CTD ops canceled due to weather.		
2014 - 12 - 10	10:47	12-10	10:47	Logging EM122 data - bathy and WCD (Ahyi) (SOL 344)		
2014 - 12 - 10	12:01	12-10	22:01	End survey at Ahyi (EOL 346). Head NE to start "east of Ahyi" survey. Do not sure lines 347 and 348.		
2014 - 12 - 10	13:45	12-10	23:45	Official "east of Ahyi" survey (SOL 349).		
2014 - 12 - 10	21:45	12-11	07:45	End EM122 logging.		
2014 - 12 - 10	22:00	12-11	08:00	Back deck ops after rough weather. Repairs to Jason.		
2014 - 12 - 11	05:25	12-11	15:25	Complete deck ops.		

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2014 - 12 - 11	05:32	12-11	15:32	Leaving Ahyi transit toward NW Eifuku. Logging EM122 (SOL 367)		
2014 - 12 - 11	13:09	12-11	23:09	On site at Daikoku for CTD. Stop EM122 logging (EOL 381).		
2014 - 12 - 11	14:30	12-12	00:30	CTD T14B-03 tow deployed (Daikoku)	20-32.421N	145-06.920E
2014 - 12 - 11	17:46	12-12	03:46	CTD tow on deck	20-16.723N	145-26.644E
2014 - 12 - 11	18:00	12-12	04:00	Moving to Jason wire test site NW of Daikoku		
2014 - 12 - 11	20:04	12-12	06:04	Jason wire testing. Test weight deployed.	20-35.175N	145-08.660E
2014 - 12 - 12	00:25	12-12	10:25	End wire test (failed).		
2014 - 12 - 12	01:35	12-12	11:35	Plankton Net Cast Deployed (NW Eifuku)	21-29.253N	144-02.488E
2014 - 12 - 12	02:13	12-12	12:13	Plankton Net Cast @ 1560m	21-29.256N	144-02.490E
2014 - 12 - 12	02:21	12-12	12:21	Logging EM122 WCD over NW Eifuku - stationary over Champagne site during plankton net cast. Saw large plume in WCD (Lines 382; 383).		
2014 - 12 - 12	02:48	12-12	12:48	Plankton Net Cast on deck	21-29.255N	144-02.490E
2014 - 12 - 12	02:59	12-12	12:59	End EM122 WCD logging.		
2014 - 12 - 12	02:59	12-12	12:59	Logging multibeam bathy out to 7000m position to the east at the trench for another Jason cable inspection test. (Lines 384 - 401)		
2014 - 12 - 12	05:51	12-12	15:51	XBT 009	21-42.880N	144-34.113E
2014 - 12 - 12	11:31	12-12	21:31	End multibeam logging. (EOL 401). Z=7024m.		
2014 - 12 - 12	11:35	12-12	21:35	Begin Jason cable test at trench site.		
2014 - 12 - 12	17:45	12-13	03:45	End wire test. Decided need to cut ~4000 m of cable off.		
2014 - 12 - 12	17:48	12-13	03:48	Logging EM122 multibeam on way back from the trench to the arc (SOL 402).		
2014 - 12 - 13	01:50	12-13	11:50	Logging EM122 WCD and bathy at Daikoku. (Lines 419 - 424)		
2014 - 12 - 13	03:01	12-13	13:01	End EM122 logging.		
2014 - 12 - 13	04:00	12-13	14:00	CTD T14B-04 deployed (Daikoku)	21-19.667N	144-11.374E
2014 - 12 - 13	04:19	12-13	14:19	Logging EM122 WCD during tow-yo at Daikoku (Lines 424 - 428).		
2014 - 12 - 13	05:42	12-13	15:42	CTD tow T14B-04 on deck	21-18.938N	144-11.457E
2014 - 12 - 13	05:55	12-13	15:55	End EM122 WCD logging.		
2014 - 12 - 13	06:31	12-13	16:31	Logging EM122 multibeam bathy mapping at Daikoku (SOL 429).	21-16.915N	144-13.627E
2014 - 12 - 13	09:12	12-13	19:12	End of bathy survey at Daikoku (EOL 437). SOL 438 for transit Daikoku to NW Eifuku		
2014 - 12 - 13	09:56	12-13	19:56	End EM122 bathy logging (EOL 438). NW Eifuku		
2014 - 12 - 13	12:11	12-13	22:11	Jason J2-799 Deployed (NW Eifuku)	21-29.278N	144-02.514E
2014 - 12 - 13	12:13	12-13	22:13	Medea Deployed	21-29.278N	144-02.513E
2014 - 12 - 13	21:26	12-14	07:26	Medea On Deck	21-29.484N	144-02.571E
2014 - 12 - 13	21:36	12-14	07:36	Jason On Deck (dive duration weather limited)	21-29.480N	144-02.549E
2014 - 12 - 13	21:46	12-14	07:46	USBL Pole Raised	21-29.461N	144-02.541E
2014 - 12 - 13	22:34	12-14	08:34	CTD V14B-10 Deployed (NW Eifuku "double" profile over Champagne and Yellowcone)	21-29.230N	144-02.481E
2014 - 12 - 13	00:35	12-14	10:35	CTD on deck.		

Red-Jason ops; Blue-CTD ops; Purple-Multibeam ops; Orange-Hydrophone ops; Green-Plankton Net						
UTC is 10 hours behind local Guam time						
UTC date	**UTC time**	**Guam date**	**Guam time**	**Event Log - SRoF-14 - Ironman Expedition**	**latitude (N)**	**longitude (E)**
2014 - 12 - 13	01:07	12-14	11:07	Plankton Net Cast Deployed w/MAPR-72	21-29.228N	144-02.480E
2014 - 12 - 14	02:14	12-14	12:14	Plankton Net Cast @ 1550m	21-29.229N	144-02.481E
2014 - 12 - 14	02:48	12-14	12:48	Plankton Net Cast on deck	21-29.230N	144-02.481E
2014 - 12 - 14	04:30	12-14	14:30	CTD V14B-11 deployed (Eifuku summit crater)	21-24.753N	144-08.749E
2014 - 12 - 14	04:35	12-14	14:35	Logging EM122 WCD and multibeam during CTD at "big" Eifuku. (Line 439)		
2014 - 12 - 14	04:46	12-14	14:46	CTD @ 443m	21-24.742N	144-08.751E
2014 - 12 - 14	04:55	12-14	14:55	End EM122 WCD. Continue logging multibeam on way to Daikoku.		
2014 - 12 - 14	05:12	12-14	15:12	CTD on deck.	21-24.741N	144-08.751E
2014 - 12 - 14	06:53	12-14	16:53	Logging EM122 WCD at Daikoku (Lines 440 - 441).		
2014 - 12 - 14	07:12	12-14	17:12	End EM122 WCD logging.		
2014 - 12 - 14	07:13	12-14	17:13	Logging EM122 multibeam. Heading to Ahyi. (Lines 442 - 446)		
2014 - 12 - 14	13:41	12-14	23:41	End EM122 logging (EOL 446).		
2014 - 12 - 14	15:26	12-15	01:26	XBT 010	20-21.122N	144-55.052E
				Begin transit from Ahyi to NW Rota-1 along the back-arc, while collecting multibeam bathy.		
2014 - 12 - 14	15:32	12-15	01:32	EM122 multibeam mapping from Ahyi to back-arc where will start official survey. (SOL 447)		
2014 - 12 - 14	16:05	12-15	02:05	EM122 multibeam mapping. Official start of Back-arc survey (SOL 449).		
2014 - 12 - 15	03:50	12-15	13:50	Arrive at area for CTD dunk test. (Do not use MB lines 474 - 476)		
2014 - 12 - 15	04:10	12-15	14:10	CTD V14B-12 deployed in Back-arc (Dunk test) "Clean bottle" test.	18-45.120N	144-38.157E
2014 - 12 - 15	04:25	12-15	14:25	CTD @ 750m	18-45.121N	144-38.157E
2014 - 12 - 15	04:46	12-15	14:46	CTD on deck	18-45.123N	144-38.155E
2014 - 12 - 15	04:54	12-15	14:54	Logging EM122 multibeam resuming Back-arc survey. (SOL 477)		
2014 - 12 - 15	05:18	12-15	15:18	XBT 11		
2014 - 12 - 16	03:39	12-16	13:39	End EM122 multibeam logging (EOL 526) / arrive at NW Rota-1 summit.	18-42.196N	144-38.790E
2014 - 12 - 16	04:23	12-16	14:23	Hydrophone mooring release code sent.		
2014 - 12 - 16	04:35	12-16	14:35	Mooring on surface.		
2014 - 12 - 16	06:00	12-16	16:00	Mooring on deck. (Did not re-deploy)		
2014 - 12 - 16	08:45	12-16	18:45	CTD V14B-13 deployed. (NW Rota1) "Clean-bottle" test #2.	14-36.07N	144-48.61E
2014 - 12 - 16	09:39	12-16	19:39	CTD on deck.		
2014 - 12 - 16	09:40	12-16	19:40	Logging EM122 WCD and multibeam at NW Rota-1 summit. (SOL 527		
2014 - 12 - 16	11:30	12-16	21:30	End EM122 logging (EOL 531).		
2014 - 12 - 16	20:30	12-17	06:30	USBL Pole lowered	14-36.055N	144-46.474E
2014 - 12 - 16	20:45	12-17	06:45	Jason J2-800 deployed (NW Rota-1)	14-36.056N	144-46.475E
2014 - 12 - 16	20:47	12-17	06:47	Medea deployed	14-36.056N	144-46.475E
2014 - 12 - 17	05:00	12-17	15:00	Medea on deck	14-36.042N	144-46.467E
2014 - 12 - 17	05:10	12-17	15:10	Jason on deck (dive duration weather limited)	14-36.044N	144-46.323E

Red-Jason ops; Blue-CTD ops; Purple-Multibeam ops; Orange-Hydrophone ops; Green-Plankton Net						
UTC is 10 hours behind local Guam time						
UTC date	**UTC time**	**Guam date**	**Guam time**	**Event Log - SRoF-14 - Ironman Expedition**	**latitude (N)**	**longitude (E)**
2014 - 12 - 17	05:14	12-17	15:14	USBL Pole raised	14-36.075N	144-46.397E
2014 - 12 - 17	05:15	12-17	15:15	Logging EM122 multibeam on the way to Urashima vent in S back-arc (SOL 532).		
2014 - 12 - 17	09:45	12-17	19:45	End EM122 logging (EOL 522) for transducer test (BIST).		
2014 - 12 - 17	15:55	12-18	01:55	USBL Pole lowered	12-55.303N	143-38.849E
2014 - 12 - 17	16:10	12-18	02:10	Jason J2-801 deployed (Urashima S back-arc)	12-55.303N	143-38.895E
2014 - 12 - 17	16:11	12-18	02:11	Medea deployed	12-55.303N	143-38.895E
2014 - 12 - 17	23:56	12-18	09:56	Elevator Deployed	12-55.345N	143-38.944E
2014 - 12 - 18	08:35	12-18	18:35	Jason and Medea on deck (weather limited)	12-55.411N	143-39.101E
2014 - 12 - 18	09:50	12-18	19:50	Elevator on deck, USBL Pole raised	12-55.247N	143-38.828E
2014 - 12 - 18	10:03	12-18	20:03	Logging EM122 multibeam between Urashima and Seamount X (SOL 542).		
2014 - 12 - 18	10:11	12-18	20:11	XBT 012	12-56.415N	143-40.281E
2014 - 12 - 18	12:31	12-18	22:31	End EM122 logging at Seamount X summit (EOL 546).		
2014 - 12 - 18	12:58	12-18	22:58	CTD T14B-05 Deployed (Seamount X)	13-14.699N	144-00.522E
2014 - 12 - 18	13:44	12-18	23:44	Logging EM122 WCD and multibeam.		
2014 - 12 - 18	15:08	12-19	01:08	Stop logging EM122 data.		
2014 - 12 - 18	15:40	12-19	01:40	CTD on deck	13-15.233N	144-01.895E
2014 - 12 - 18	16:32	12-19	02:32	Logging EM122 multibeam. (Sol 550). Will survey Seamount X; Forecast and N of Gardner data in back-arc (E->W and W->E).		
2014 - 12 - 18	17:20	12-19	03:20	Over Seamount X logging multibeam.		
2014 - 12 - 18	17:38	12-19	03:38	XBT 013	13-19.937N	143-57.642E
2014 - 12 - 18	17:40	12-19	03:40	Coming up on Forecast (Line 552)		
2014 - 12 - 19	03:28	12-19	13:28	End EM122 logging (EOL 573). W edge of back-arc data gap.		
2014 - 12 - 19	03:30	12-19	13:30	ADCP survey continuing W to crest of W Mariana Ridge.		
2014 - 12 - 19	06:03	12-19	16:03	Logging EM122 mutlibeam (SOL 574).W to E. Data very noisy due to going into high seas.		
2014 - 12 - 19	21:22	12-20	07:00	End EM122 logging and all science ops (EOL 604). Weather too rough to continue.		
				Ship moved to the west coast of Guam to seek calm water and let everyone pack up.		
2014 - 12 - 20	22:00	12-21	08:00	At Navy pier in Guam.		

Abbreviated summary of cruise ops

29 Nov – Depart Guam, transit to Snail/Urashima vents in S back-arc

30 Nov-1 Dec – Jason dive **J2-797** at Snail/Urashima vents in S back-arc

1-2 Dec – Transit to NW Rota-1, conducted ship ops but could not dive with Jason due to typhoon passing S of Guam

2-4 Dec – Transit north to Ahyi for CTD and multibeam ops, then further north to NW Eifuku

4-5 Dec – Jason dive **J2-798** at NW Eifuku. Dive terminated due to weather. Jason recovery aborted due to weather.

6-8 Dec – Bad weather for 3 full days while towing Jason/Medea at 1 knot to ENE toward trench. Multibeam only.

9 Dec – Medea/Jason recovered on deck. Discovered cable badly damaged at ~ 250 m wire-out. Back to arc.

10-11 Dec – Bad weather while assess situation and repair Jason tether on deck. CTD/multibeam at Ahyi and Eifuku.

12 Dec – 1st cable inspection test (failed). Transit to trench for 2nd cable inspection test. Back to arc, CTD at Daikoku.

13 Dec – Cut off ~4000 m of cable. Cable re-termination. Jason repair. Daikoku CTD, Jason dive **J2-799** at NW Eifuku.

14 Dec – Dive duration limited due to weather. Other ops at NW Eifuku, Eifuku, Daikoku, Ahyi.

15-16 Dec – Depart Ahyi for NW Rota, transit south along back-arc to collect multibeam bathy. Recover hydrophone.

17 Dec – Jason dive **J2-800** at NW Rota-1 (start delayed 12 hrs and duration limited due to weather). Transit to Urashima

18 Dec – Jason dive **J2-801** at Urashima vent in S back-arc (duration limited due to weather). CTD @ Seamount X.

19 Dec – Multibeam and ADCP survey west of Guam along line E->W, then back W->E.

20 Dec – Science ops suspended due to weather.

21-Dec – Arrive Guam.

Summary of time lost during cruise: 7 days lost to bad weather, 4 days lost to Jason/Medea cable problems. Also four of the five Jason dives were shortened due to weather.

3 – Cruise Participants

Name	Employer	Expertise	Role
Science Group:			
Craig Moyer	WWU	Microbiology	Chief Scientist, PI
Bill Chadwick	OSU	Geology	Co-Chief Scientist, PI
Shawn Arellano	WWU	Macrobiology	Scientist
Andra Bobbitt	OSU	Data management	Technician
Nathan Buck	UW	Plume chemistry	Technician
Dave Butterfield	UW	Chemistry	Principal Investigator
Dave Emerson	Bigelow Labs	Microbiology	Principal Investigator
Leigh Evans	OSU	Gas geochemistry	Technician
Matt Fowler	OSU	Moorings	Technician
Heather Fullerton	WWU	Microbiology	Post-Doc
Brian Glazer	UH	Geochemistry	Scientist
Kevin Hager	WWU	Microbiology	Graduate Student
Ben Larson	UW	Chemistry	Post-Doc
Anna Leavitt	Bigelow Labs	Microbiology	Technician
Saskia Madlener	OSU	Videographer	Videographer
Sean McAllister	UDE	Microbiology	Graduate Student
Susan Merle	OSU	Mapping	Technician
Sheryl Murdock	UVic	Microbiology	Graduate Student
Joe Resing	UW	Plume Chemistry	Principal Investigator
Kevin Roe	UW	Chemistry	Technician
Jarrod Scott	Bigelow Labs	Microbiology	Post-Doc
Jason Sylvan	USC	Microbiology	Scientist
Verena Tunnicliffe	Univ. of Victoria	Macrobiology	Principal Investigator
Sharon Walker	NOAA/PMEL	CTD/MAPR	Scientist
JASON Group:			
Tito Collasius	WHOI	Jason	Expedition Leader
Casey Agee	WHOI	Jason	Jason team
Fred Denton	WHOI	Jason	Jason team
Robert Elder	WHOI	Jason	Jason team
Scott Hansen	WHOI	Jason	Jason team
Akel Kevis-Stirling	WHOI	Jason	Jason team
Scott McCue	WHOI	Jason	Jason team
James Pelowski	WHOI	Jason	Jason team
James Varnum	WHOI	Jason	Jason team
Korey Verhein	WHOI	Jason	Jason team
Ship Support:			
Matt Durham	SIO	Revelle	Marine Technician
Ben Cohen	SIO	Revelle	Marine Technician

4 - Discipline Summaries:

4.1 Biology-

4.1.1 Microbiology

4.1.1.1 Moyer Lab Cruise Objectives

Participants from Moyer Lab:
Craig Moyer, Professor & Chief Scientist, Western Washington University
Heather Fullerton, Post-doctoral Fellow, Western Washington University
Kevin Hager, Graduate Student, Western Washington University

Overarching goals: Greater understanding of small-scale spatial diversity of iron-oxidizing Bacterial (FeOB) communities, identification of populations within community types, identification of specific *Zetaproteobacterial* operational taxonomic units or OTUs (akin to species or populations). Through the use of the BioMat Syringe (BMS) sampler, the architecture of these mats will be studied in high-resolution detail across various chemical gradients. *Zetaproteobacteria* influence their environment by being the primary producers and establishing the physical structure of the microbial mats through the production of exopolysaccharides, which in turn generates varying microbial mat morphotypes. Functional and phylogenetic diversity will be assessed in greater detail with the goal of correlating these data with localized geochemistry measurements.

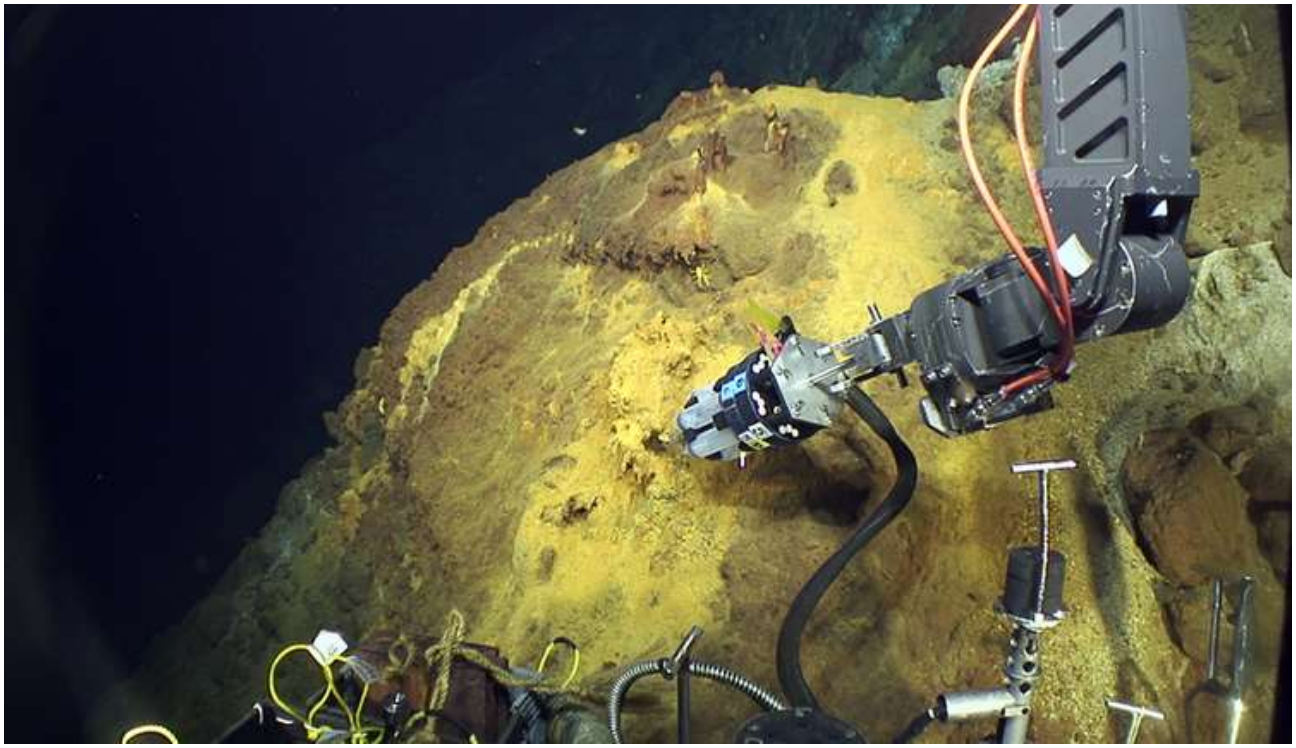
Our specific molecular microbiological techniques include, (1) terminal-restriction length polymorphisms, or T-RFLP fingerprinting using SSU rRNA gene targets, (2) Q-PCR targeting both taxonomic groups and representative functional genes used as indicators of potential metabolic pathways and (3) metagenomics using Illumina NextGen sequencing enabling us to sequence genomes from the entire microbial mat community.

The use of T-RFLP serves two purposes. First, it is a sensitive genotyping method that will yield a microbial community fingerprint to allow us to compare samples from this cruise to samples collected in previous years using cluster analysis. Second, it is a high-throughput screening process to help identify candidate samples for the more in depth Q-PCR and logistically intensive metagenomics analyses.

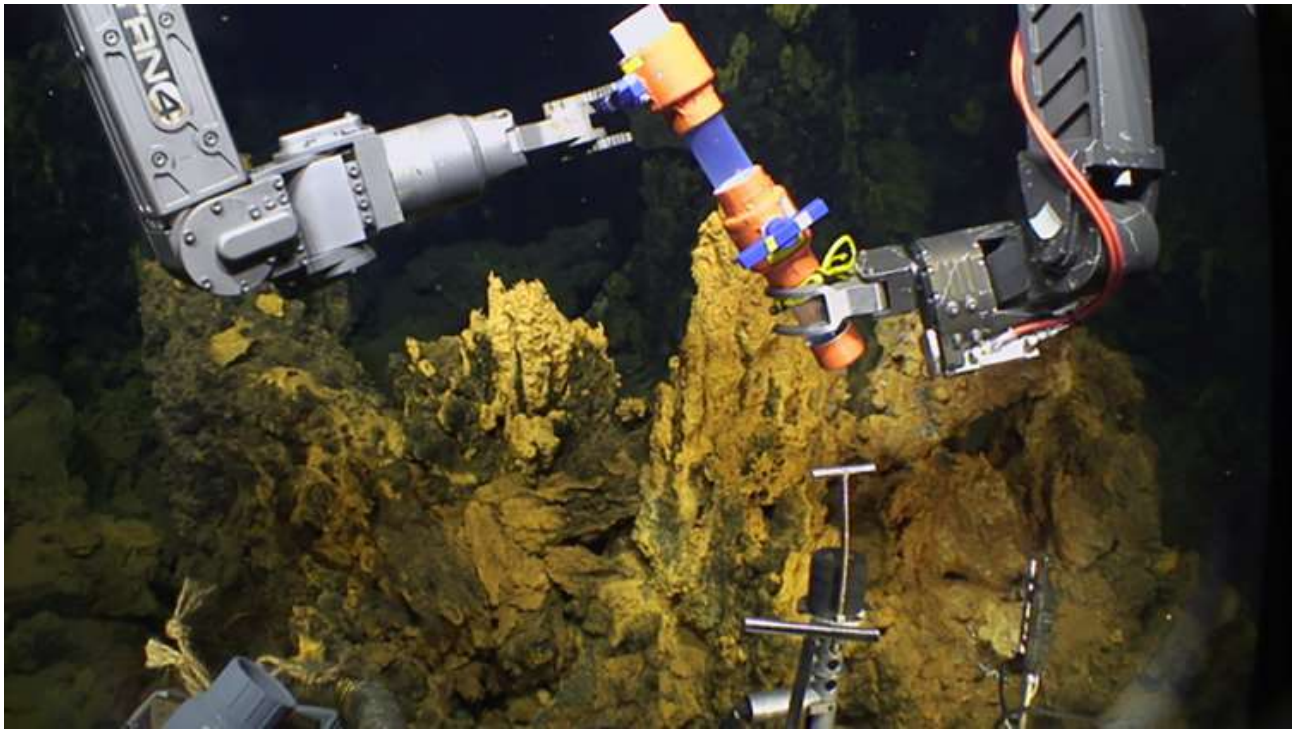
Our Q-PCR approach allows us to estimate the total abundance of both *Bacteria* and *Archaea* as well as groups such as *Zetaproteobacteria* and *Chloroflexi*. In addition, we now have developed novel assays using non-degenerate primers (based on feedback from our previous iron-mat metgenomics) for genes associated with the Calvin Benson Bassham (CBB) and reductive tricarboxylic acid (rTCA) carbon fixation pathways, *cbb*M and *acl*B, respectively. We also have similar assays for nitrogen cycling pathways that include nitrogen fixation (*nif*H) and denitrification (*nir*K). Finally, we also have an assay for detecting arsenic detoxification (*ars*C) and the presence of cytochromes hypothesized to help facilitate iron-oxidation (*cyc*2). Each of these assays will estimate the gene copy number per genomic DNA from each sample. These data can then be assessed using nonparametric multidimensional scaling (NMDS) and analysis of variance statistics.

Finally, we plan to preform comparative metagenomics analysis among different microbial communities along the Mariana Arc and Back-arc to determine a detailed examination of both taxonomic and metabolic diversity. Metagenomics, or environmental genomics, uses next generation sequencing to assay the total genomic content of a sampled microbial community. The sequence analysis uses two different approaches. The first is to do SSU rDNA reconstructions and the second is the assembly and annotation of the metagenome. SSU rDNA reconstruction will be performed with expectation maximization iterative reconstruction of genes from the environment (EMIRGE). The output of this will yield full length SSU rDNA sequences that will be used to construct phylogenetic trees with RAxML to show relationships between samples at our study sites and other microbial taxa. EMIRGE will also provide an estimate for abundance along with a distribution for each of these sequences to compare with other microbial mat communities. These data can then be transformed into rarefaction curves to yielding OTU rank-abundance to aid in assessing evenness and richness. From there, velvet will be used for contig assembly and prodigal will be used to determine open reading frames (ORFs). With the predicted ORFs, BLASTp will be used to identify similar proteins in the NCBI RefSeq database. This process will yield all the known genetic potential of each microbial mat community. These BLAST results can be plugged into a program such as Megan5 to assign a function and phylogeny to each detected ORFS. From the SEED and KEGG hierarchy large scale comparisons of metagenomes can be made with heat maps as a visualization tool. If a specific category proves to be an interesting phenomenon, metabolic pathways in KEGG can be compared between samples with heat maps to show

relative gene abundances. In addition gene coverage data will be used to determine quantitive gene abundance within each sample that can be compared to Q-PCR data.



BioMat cassette sampler at NW Eifuku.



Jason operating the scoop sampler at Urashima.

Below is the list of samples we have collected and preserved for further processing back in the lab using the molecular microbiological methods described above.

Table 4.1.1.1-1

Sample	Site	Date (GMT)	Start Sampling Time (GMT)	Start Sample VV Event Number	Amount	Notes
J2-797 SNAIL and URASHIMA						
J2-797-BM1-D156	Snail Mkr 108	11/30/2014	12:12:21	817	4 x 0.5mL, 1 x 5 mL in 50mL tubes, D1 D5 D6 not combined	
J2-797-BM1-D234	Snail Mkr 108	11/30/2014	12:24:55	837	4 x 0.5mL, 1 x 5 mL in 50mL tubes are all seperated	Note: D4 labled as B4
J2-797-BM1-C12	Saipanda Horn/Active Chimney	12/1/2014	6:42:09	2494	4 x 0.5mL, 1 x 5 mL in 50mL tubes	
J2-797-BM1-C34	Saipanda Horn/Active Chimney	12/1/2014	6:58:04	2518	4 x 0.5mL, 1 x 5 mL in 50mL tubes	
J2-797-LScoop2	Saipanda Horn/Active Chimney	12/1/2014	9:14:12	2696	6 x 10ml (2 are cracked)	Just above previous suction sample
J2-797-BM1-B12	Snap Snap	12/1/2014	11:10:32	2884	4 x 0.5mL, 1 x 5 mL in 50mL tubes	
J2-797-BM1-B56	Snap Snap	12/1/2014	11:13:23	2889	4 x 0.5mL, 1 x 5 mL in 50mL tubes	
J2-797-BM1-B3	Snap Snap	12/1/2014	11:17:07	2895	4 x 0.5mL, 1 x 5 mL in 50mL tubes	
J2-797-Lscoop-1	Snap Snap	12/1/2014	11:24:48	2907	2 x 10ml	
J2-798 NW EIFUKU						
J2-798-BM1-B123456	Mkr 144	12/5/2014	12:13:25	4669	4 x 0.5mL, 1 x 5 mL in 50mL tubes	White "creamy" mat overlayed on sulfur
J2-798-BM1-C12	yellow cone 2014	12/5/2014	14:46:33	4950	4 x 0.5mL, 1 x 5 mL in 50mL tubes	Fluffy lighter mat more yellow on top of darker orange mat
J2-798-BM1-C346	yellow cone 2014	12/5/2014	16:24:36	5124	4 x 0.5mL, 1 x 5 mL in 50mL tubes	Light fluffy mat
J2-798-BM1-D12346	yellow cone 2014	12/5/2014	17:30:40	5234	4 x 0.5mL, 1 x 5 mL in 50mL tubes	Weird clumpy chimney structure
J2-798-Lscoop-3	down from Mkr 124	12/5/2014	20:13:13	5489	6 x 10ml	
J2-798-Lscoop-1	Yellow Cone Mkr 146	12/5/2014	21:54:45	5678	8 x 10ml	
J2-798 NW EIFUKU						
J2-799-BM1-D124	Mkr 146 upper yellow cone	12/13/2014	15:19	12054	4 x 0.5mL, 1 x 5 mL in 50mL tubes	
J2-799-BM1-D56	Mkr 146 upper	12/13/2014	16:21	12174	4 x 0.5mL, 1 x 5 mL in 50mL tubes	

Sample	Site	Date (GMT)	Start Sampling Time (GMT)	Start Sample VV Event Number	Amount	Notes
	yellow cone					
J2-799-BM1-D3	Mkr 146 upper yellow cone	12/13/2014	16:27	12185	4 x 0.5mL, 1 x 5 mL in 50mL tubes	Super light and fluffy
J2-799-BM1-B156	Mkr 146 upper yellow cone	12/13/2014	16:43	12219	4 x 0.5mL, 1 x 5 mL in 50mL tubes	
J2-799-Lscoop-4	Mkr 124 lower yellow cone	12/13/2014	13:57	11898	11 x 15ml	
J2-799-Lscoop-1	Mkr 146 upper yellow cone	12/13/2014	15:57	12125	6 x 15ml	
J2-799-Shrimp	Razorback	12/13/2014	18:49	12438	~9 frozen whole in sea water and ~6 preserved for FISH	
Unfiltered CTD Water	Eifuku	12/13/2014	NA	NA	2L in 4C	Bottle #30 from CTD
J2-800 NW Rota						
J2-800-Lscoop-2	Tip Ice-14	12/17/2014	1:41:41	13356	4 x 0.5mL + lots of tubes	
J2-800-BM1-C124	Tip Ice-14	12/17/2014	2:05:07	13390	a few grams, didn't settle, frozen in suspension	Sulfur mat, very little sample
J2-800-BM1-B12456	Olde Iron Slides	12/17/2014	4:07:12	13639	4 x 0.5mL	Thin Fe mat
J2-800-scoop-8	Olde Iron Slides	12/17/2014	4:22:44	13673	4 x 0.5mL + some more tubes	Fluffy lighter mat more yellow on top of darker orange mat
J2-801 URASHIMA						
J2-801-LScoop1	Golden Horn	12/17/2014	22:32	14355		
J2-801-LScoop8	Golden Horn	12/17/2014	22:49	14390		
J2-801-BM1-D246	Golden Horn (top)	12/18/2014	3:05	14727	4 x 0.5mL, 1 x 5 mL in 50mL tubes	
J2-801-SS	Golden Horn (top)	12/18/2014	3:25	14768		
J2-801-LScoop4	Golden Horn (top)	12/18/2014	3:51	14801		
J2-801-BM1-X126	Golden Horn (base)	12/18/2014	4:11	14835	4 x 0.5mL, 1 x 5 mL in 50mL tubes	
J2-801-BM1-X345	Golden Horn (middle)	12/18/2014	4:56	14920	4 x 0.5mL, 3 x 5 mL in 50mL tubes	

4.1.1.2 Emerson Lab Cruise Objectives

Participants from Emerson Lab:
Dr. David Emerson, Senior Research Scientist, Bigelow Laboratory
Dr. Jarrod Scott, Postdoctoral Research Scientist, Bigelow Laboratory
Ms. Anna Leavitt, Technician, Bigelow Laboratory

For the 2014 Ring of Fire cruise the Emerson Lab established an ambitious range of objectives related to studying the microbiology of iron mats associated with the hydrothermal vents that were the focus of this cruise. Given the technical and weather-related issues that occurred with this cruise not all objectives were met; however many were achieved, at least in some aspect. In addition to these objectives, we were responsible for overseeing the operation and maintenance of the microbial mat sampler.

Primary objectives and outcomes.
1. Collection of multiple samples from different iron microbial mat ecosystems as part of a broad survey of diversity of Fe-oxidizing communities based on amplicon sequencing of 16S.
Samples, primarily from the microbial mat sampler were collected at all the primary sites visited. To the extent possible, the geochemistry of these same sites was determined with the HFS to obtain samples that have some geochemical data associated with them.

2. Systematic sampling of several (2 – 5, depending upon what we find) of selected iron mat systems, doing depth profiles, if possible, and longitudinal samplings.
The only systematic sampling that could be done as part of this cruise was at Golden Horn tower at the Urashima site. This tower is 6 – 7m tall and the base has some sulfide minerals associated with it, but the upper part appears to be almost entirely soft iron oxides, the implication being that it is composed of biogenic oxides. Diffuse venting sites at the base, mid-point area, and summit were sampled for microbiology and geochemistry.

3. Mat morphology analysis.
A sample was collected from the Golden Horn site using a large scoop to try to preserve the natural mat structure for dissection and analysis. This yielded several samples that were embedded in agarose and fixed so that they could be sectioned at a later date. In addition, samples of more hardened minerals were obtained for mineralogical and microscopic analysis.

4. Productivity chambers
Three chambers (#1, #2, #3) were deployed at Yellow Cone site at Eifuku in an area of very diffuse venting, one of these (#3) with an MTR associated with it. These were collected after 8 days. Chamber #3 had a modest amount of microbial growth associated with it, while the other two had little growth. Samples were collected from all three for later DNA analysis. Samples from chamber #3 were processed for estimating microbial growth during deployment; the other 2 chambers did not have enough material for these estimates.

5. Fe-reduction experiments.
Two sets of MPN tubes for FeRB was inoculated from samples collected from Eifuku, and one set from the Golden Horn site at Urashima. The MPN results for the Golden Horn sample were detectable, but very low, approximately ≤ 10^2 cells/cc of mat. Results from Eifuku were more significant with a range of 10^3 – 10^4 Fe-reducers/cc present. An attempt at isolating an Fe-reducing bacterium from one of these sample is ongoing.

6. Isolation of new FeOB.
We attempted several enrichments for FeOB using an artificial seawater medium and zero valent iron. These are done as liquid in petri plates and incubated in anaerobic jars with campypaks. The other enrichments were done in serum bottles with anoxic ASW and additions of $FeCl_2$ and air to create a microaerobic system. Enrichments were done from Snail, Eifuku, Rota, and Urashima. Thus far, one successful enrichment/isolate has been acquired from the Mkr 108 site at Snail. This is a rod-shaped bacterium that does not form any extracellular structures and grows very well on ZVI, but not heterotrophic medium. It is currently being identified and characterized for full growth characteristics.

7. Collection of samples that can be used for later single cell genomic analysis, FISH analysis. We also expect to collaborate with Roman Barco (USC) in collection of some samples that can be used for proteomic analysis.
Samples were collected from all the major sites that we visited and samples were preserved for single cell genome analysis. We were unable to collect any samples for proteomic analysis.

8. Deployment of traps to capture protists.

This was done in conjunction with Cheryl Murdock from University of Victoria. Protist traps were deployed at Eifuku and recovered. (See section 4.1.1.3.)

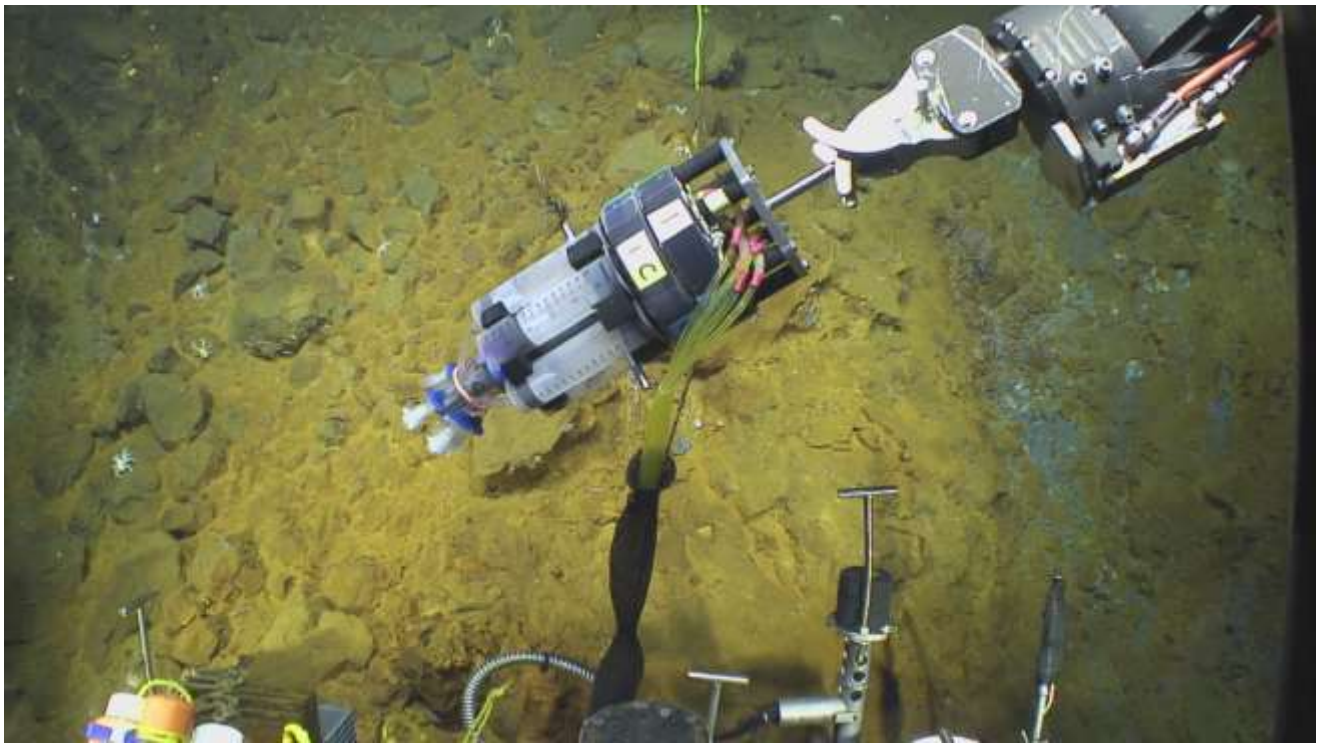
9. *Attempt to concentrate viruses from mat samples using iron-flocculation method and/or filtration.*
This objective was not done due to overall lack of samples that were collected.

10. *Collect bulk samples of iron mat (using suction sampler) and use a series of progressively smaller filters (1000uM to 100uM) to sieve for invertebrates in mats, specifically but not limited to worms, copepods, etc.* One attempt was made at this approach, however we did not find obvious evidence for invertebrates in this sample, whether this was due to technical issues or a lack of meiofauna was difficult to determine.

Use of mat sampler. Overall the mat sampler performed adequately. It was deployed and used on all five dives, in cases where elevators were used, multiple cassettes were utilized. On the first dive J797, a tag line was lost during elevator recovery, resulting in uncontrolled swinging of the elevator, and loss of one cassette containing six syringe samples. Following this a lid was constructed for the elevator box that held cassettes, so the lid could be bungeed close to prevent such losses in the future. This reduced the number of cassettes from four to three, however a fourth cassette (cassette X) was assembled from spare parts during the cruise and deployed on the final dive and worked successfully. We also encountered issues with the solenoid valves nonfunctioning by not closing properly. This problem was remedied for solenoid #3 by blocking this valve unit and then repositioning the cassette head on the unit each time so that the #5 valve could be used to operate the #3 cassette. On the final dive a similar issue was found with the #6 valve. This was remedied by starting sampling of each cassette with the #6 syringe, which once full was OK.

In addition to collecting microbial iron mat and sulfur mat samples at high spatial resolution, the mat sampler was used to collect porewaters from within mats that was prefiltered *in situ*, providing clean, particle free porewater from within the mats for analyses like determination of dissolved organic carbon or dissolved inorganic carbon. Several samples were also collected with syringes pre-filled with RNA later so that RNA could be extracted.

A first for the mat sampler on this cruise was to do *in situ* ferrozine assays from within mats to assess how much Fe(II) was present. The syringe was prefilled with 10 ml of ferrozine and then a small amount of prefiltered fluid water was drawn in, resulting in a colorimetric change, upon return to the surface the Fe(II) concentration of the vent fluid was determined spectrophotometrically.



BioMat cassette sampler with ferrozine at NW Eifuku, J2-799.

Table 4.1.1.2-1 List of all individual syringe samples collected with bio mat sampler.

timeUTC	sample	site	comments	latitude	longitude	depth	hdg	vv
11:45	J797-BM1-A2-07	Mkr 108 site	Cassette A Syringe 1. Sampling site: Fluffy yellow iron mat in hollow cavity (old pillow with Mn crust?)in shimmering water. Jason T > 60C.	12 57.166	143 37.142	2850	343	773
11:47	J797-BM1-A3-08	Mkr 108 site	Cassette A Syringe 3. Sampling site: Fluffy yellow iron mat in hollow cavity (old pillow with Mn crust?)in shimmering water. Jason T > 60C.	12 57.166	143 37.142	2850	343	775
11:52	J797-BM1-A5-09	Mkr 108 site	Cassette A Syringe 5. Sampling site: Fluffy yellow iron mat in hollow cavity (old pillow with Mn crust?)in shimmering water. Jason T > 60C.	12 57.166	143 37.142	2850	343	784
11:54	J797-BM1-A4-10	Mkr 108 site	Cassette A Syringe 4. Sampling site: Fluffy yellow iron mat in hollow cavity (old pillow with Mn crust?)in shimmering water. Jason T > 60C.	12 57.166	143 37.142	2850	343	787
11:58	J797-BM1-A1-11	Mkr 108 site	Cassette A Syringe 1. Sampling site: Fluffy yellow iron mat in hollow cavity (old pillow with Mn crust?)in shimmering water. Jason T > 60C.	12 57.166	143 37.142	2850	343	794
12:00	J797-BM1-A6-12	Mkr 108 site	Cassette A Syringe 6. This one fills the cassette. Sampling site: Fluffy yellow iron mat in hollow cavity (old pillow with Mn crust?)in shimmering water. Jason T > 60C.	12 57.166	143 37.142	2850	343	797
12:12	J797-BM1-D1-13	Mkr 108 site	Cassette D Syringe 14. Sampling site: Smaller than previous clump of fluffy yellow iron mat in shimmering water near last site. Jason T=27C. Sensor readings for area: pH=3.15v; O2=1.51ml/L.	12 57.166	143 37.142	2850	309	811
12:14	J797-BM1-D6-14	Mkr 108 site	Cassette D Syringe 6. Sampling site: Smaller than previous clump of fluffy yellow iron mat in shimmering water near last site. Jason T=27C. Sensor readings for area: pH=3.15v; O2=1.51ml/L.	12 57.166	143 37.142	2850	309	819
12:15	J797-BM1-D5-15	Mkr 108 site	Cassette D Syringe 14. Sampling site: Smaller than previous clump of fluffy yellow iron mat in shimmering water near last site. Jason T=27C. Sensor readings for area: pH=3.15v; O2=1.51ml/L.	12 57.166	143 37.142	2850	309	822
12:24	J797-BM1-D3-16	Mkr 108 site	Cassette D Syringe 14. Sampling site: Smaller than previous clump of fluffy yellow iron mat in shimmering water next to last site. Jason T=57C.	12 57.166	143 37.142	2850	310	837
12:25	J797-BM1-D2-17	Mkr 108 site	Cassette D Syringe 2. Sampling site: Smaller than previous clump of fluffy yellow iron mat in shimmering water next to last site. Jason T=57C.	12 57.166	143 37.142	2850	310	839
12:26	J797-BM1-D4-18	Mkr 108 site	Cassette D Syringe 2. Sampling site: Smaller than previous clump of fluffy yellow iron mat in shimmering water next to last site. Jason T=57C.	12 57.166	143 37.142	2850	310	840

timeUTC	sample	site	comments	latitude	longitude	depth	hdg	vv
6:42	J797-BM1-C1-34	Saipanda Horn	Cassette C Syringe 1. Sample site: bottom of skinny spire near top of Saipanda with soft iron oxide mats and clear flow. Jason T=19.9. Collected more material into Syringe 1 after sample 35.	12 55.333	143 38.950	2928	268	2492
6:44	J797-BM1-C2-35	Saipanda Horn	Cassette C Syringe 2. Sample site: bottom of skinny spire near top of Saipanda with iron mats and clear flow. Jason T=19.9.	12 55.333	143 38.950	2928	268	2495
6:58	J797-BM1-C3-36	Saipanda Horn	Cassette C Syringe 3. About 15cm below samples 34-35.	12 55.333	143 38.950	2928	268	2519
7:00	J797-BM1-C4-37	Saipanda Horn	Cassette C Syringe 4. Same location as sample 36.	12 55.333	143 38.950	2928	268	2522
11:10	J797-BM1-B2-47	Snap Snap	Cassette B Syringe 2. Sample site: Fluffy-orange iron mats on small chimney-like structure with active flow.	12 55.333	143 38.950	2928	253	2884
11:12	J797-BM1-B1-48	Snap Snap	Cassette B Syringe 1. (same location)	12 55.333	143 38.950	2928	253	2887
11:13	J797-BM1-B6-49	Snap Snap	Cassette B Syringe 6. (same location)	12 55.333	143 38.950	2928	253	2889
12:17	J798-BM-B2-11	Champagne Site (at Mkr144)	Cassette B. Syringe 2. (White mat overlaid on sulfur at same location).	21 29.2442	144 2.4851	1606	67	4677
12:18	J798-BM-B1-12	Champagne Site (at Mkr144)	Cassette B. Syringe 1. (same location)	21 29.2442	144 2.4851	1606	67	4681
12:19	J798-BM-B6-13	Champagne Site (at Mkr144)	Cassette B. Syringe 6. (same location)	21 29.2442	144 2.4851	1606	67	4683
12:20	J798-BM-B5-14	Champagne Site (at Mkr144)	Cassette B. Syringe 5. (same location)	21 29.2442	144 2.4851	1606	67	4685
12:21	J798-BM-B4-15	Champagne Site (at Mkr144)	Cassette B. Syringe 4. (same location)	21 29.2442	144 2.4851	1606	67	4687
12:25	J798-BM-B3-16	Champagne Site (at Mkr144)	Cassette B. Syringe 3. Different valve. (same location)	21 29.2442	144 2.4851	1606	67	4696
14:46	J798-BM-C1-17	Yellow Cone (at Mkr146)	Cassette C. Syringe 1. Light yellow mat on top of darker orange mat. (From right of ShrimpTrap2)	21 29.2651	144 2.5188	1579	245	4950
14:55	J798-BM-C2-18	Yellow Cone (at Mkr146)	Cassette C. Syringe 2. (same mat as sample 17)	21 29.2651	144 2.5188	1579	245	4963
15:21	J798-BM-C4-19	Yellow Cone (at Mkr146)	Cassette C. Syringe 4. Repositioned slightly. Sampled thick mat above 30C flow.	21 29.2651	144 2.5188	1579	257	5028
15:31	J798-BM-C6-20	Yellow Cone (at Mkr146)	Cassette C. Syringe 6. Slight reposition-still fluffy mat.	21 29.2651	144 2.5188	1579	253	5049
16:24	J798-BM-C3-24	Yellow Cone (at Mkr146)	Cassette C. Syringe 3. Same as samples 19-20	21 29.2651	144 2.5188	1579	254	5124
17:30	J798-BM-D1-25	Yellow Cone (at Mkr124)	Cassette D. Syringe 1. Sampling fluffy-covered chimney structure 10m from Mkr146.	21 29.2753	144 2.5201	1584	181	5234
17:37	J798-BM-D2-26	Yellow Cone (at Mkr124)	Cassette D. Syringe 2. (same location)	21 29.2753	144 2.5201	1584	181	5253

timeUTC	sample	site	comments	latitude	longitude	depth	hdg	vv
17:38	J798-BM-D4-27	Yellow Cone (at Mkr124)	Cassette D. Syringe 4. (same location)	21 29.2753	144 2.5201	1584	181	5256
17:42	J798-BM-D6-28	Yellow Cone (at Mkr124)	Cassette D. Syringe 6. (same location)	21 29.2753	144 2.5201	1584	181	5262
17:44	J798-BM-D3-29	Yellow Cone (at Mkr124)	Cassette D. Syringe 6. (same location)	21 29.2753	144 2.5201	1584	181	5268
15:08	J799-BM1-C1-09	Upper Yellow Cone - Mkr146	Cassette C. Syringe 1. Bio mat sampler with ferrozine. Location is slightly above the site where the instruments/samples 5-8 were recovered where fluffier mat observed. In crevice with flow. HFS probe measured 10degC.	21 29.2626	144 2.5232	1578	268	12024
15:19	J799-BM1-D1-10	Upper Yellow Cone - Mkr146	Cassette D. Syringe 1. Slight reposition below previous sample in mat with many shrimp. Light-colored mat surrounding good flow.	21 29.2635	144 2.5244	1580	245	12054
15:23	J799-BM1-D2-11	Upper Yellow Cone - Mkr146	Cassette D. Syringe 2. Same location.	21 29.2635	144 2.5244	1580	245	12061
15:25	J799-BM1-D4-12	Upper Yellow Cone - Mkr146	Cassette D. Syringe 4. Slightly left of sample 10-11 location in thick mat with crust on top	21 29.2635	144 2.5244	1580	245	12066
15:44	J799-BM1-C5-15	Upper Yellow Cone - Mkr146	Cassette C. Syringe 5. Biomat sampler with ferrozine. Same flow as sample 13-15.	21 29.2635	144 2.5244	1580	245	12102
15:47	J799-BM1-C4-16	Upper Yellow Cone - Mkr146	Cassette C. Syringe 4. Biomat sampler with geochemistry filter. Same location.	21 29.2635	144 2.5244	1580	245	12110
16:21	J799-BM1-D6-18	Upper Yellow Cone - Mkr146	Cassette D. Syringe 6. Crusty mat on top with flow. Location about 3 meters below sample 17.	21 29.2638	144 2.5243	1581	224	12168
16:22	J799-BM1-D5-19	Upper Yellow Cone - Mkr146	Cassette D. Syringe 5. Same location as sample 18.	21 29.2638	144 2.5243	1580	230	12176
16:28	J799-BM1-D3-20	Upper Yellow Cone - Mkr146	Cassette D. Syringe 3. Same location in light-fluffy mat under the crusty mat.	21 29.2638	144 2.5243	1580	230	12187
16:43	J799-BM1-B1-21	Upper Yellow Cone - Mkr146	Cassette B. Syringe 1. New mat with crusty top and fluffy underneath.	21 29.2638	144 2.5243	1581	230	12219
16:48	J799-BM1-B6-22	Upper Yellow Cone - Mkr146	Cassette B. Syringe 6. Same location.	21 29.2638	144 2.5243	1581	230	12229
16:49	J799-BM1-B5-23	Upper Yellow Cone - Mkr146	Cassette B. Syringe 5. Same location.	21 29.2638	144 2.5243	1581	230	12231
16:55	J799-BM1-C3-24	Upper Yellow Cone - Mkr146	Cassette C. Syringe 3. Biomat sampler with ferrozine. Same location.	21 29.2638	144 2.5243	1581	230	12239
2:04	J800-BM1-C1-21	TipIce	Cassette C. Syringe 1. At the same location at white sediments of TipIce.	14 36.060	144 46.578	526	64	13388
2:05	J800-BM1-C2-22	TipIce	Cassette C. Syringe 2. Same location.	14 36.060	144 46.578	526	11	13391
2:07	J800-BM1-C4-23	TipIce	Cassette C. Syringe 4. Same location.	14 36.060	144 46.578	526	11	13397

timeUTC	sample	site	comments	latitude	longitude	depth	hdg	vv
4:08	J800-BM1-B1-33	OldeIronSlide	Cassette B. Syringe 1. In flow above anemone. HFS temp=11.5C (ambient 7.1).	14 36.0563	144 46.656	567	317	13639
4:09	J800-BM1-B2-34	OldeIronSlide	Cassette B. Syringe 2. Same location.	14 36.0563	144 46.656	567	318	13642
4:11	J800-BM1-B4-35	OldeIronSlide	Cassette B. Syringe 4. Same location.	14 36.0563	144 46.656	567	319	13645
4:16	J800-BM1-B5-36	OldeIronSlide	Cassette B. Syringe 5. Same location. Pulled sample twice to fill.	14 36.0563	144 46.656	567	321	13650
4:18	J800-BM1-B6-37	OldeIronSlide	Cassette B. syringe 6. Moved slightly to large patch of material.	14 36.0563	144 46.656	567	11	13661
3:05	J801-BM1-D6-21	GoldenHorn top	Cassette D. Syringe 6. Normal syringe. Taken in flow at spire slightly below top of GoldenHorn. (Sampling after visit to elevator).	12 55.3431	143 38.9534	2923	176	14727
3:06	J801-BM1-D5-22	GoldenHorn top	Cassette D. Syringe 5. RNA later syringe. Same location.	12 55.3431	143 38.9534	2923	176	14733
3:07	J801-BM1-D1-23	GoldenHorn top	Cassette D. Syringe 1. RNA later syringe. Same location.	12 55.3431	143 38.9534	2923	176	14735
3:10	J801-BM1-D2-24	GoldenHorn top	Cassette D. Syringe 2. Normal syringe. Same location.	12 55.3431	143 38.9534	2923	176	14740
3:12	J801-BM1-D4-25	GoldenHorn top	Cassette D. Syringe 4. Normal syringe. Same location.	12 55.3431	143 38.9534	2923	176	14745
3:16	J801-BM1-D3-26	GoldenHorn top	Cassette D. Syringe 3. RNA later syringe. Same location. Very little sample obtained.	12 55.3431	143 38.9534	2923	176	14752
4:09	J801-BM1-X6-29	GoldenHorn base	Cassette X. Syringe 6. Lighter mats at top of fluffy mat area near the base of GoldenHorn with flow coming from two holes. Veil-like.	12 55.3431	143 38.9534	2929	146	14835
4:11	J801-BM1-X1-30	GoldenHorn base	Cassette X. Syringe 1. Same stuff.	12 55.3431	143 38.9534	2929	146	14841
4:12	J801-BM1-X2-31	GoldenHorn base	Cassette X. Syringe 2. Same place.	12 55.3431	143 38.9534	2929	146	14845
4:56	J801-BM1-X5-34	GoldenHorn middle	Cassette X. Syringe 5. Fluffy veil-like mat with mixture of textures.	12 55.3431	143 38.9534	2928	96	14920
4:57	J801-BM1-X4-35	GoldenHorn middle	Cassette X. Syringe 4. Same material and location..	12 55.3431	143 38.9534	2928	96	14924
4:59	J801-BM1-X3-36	GoldenHorn middle	Cassette X. Syringe 3. Same material and location.	12 55.3431	143 38.9534	2928	96	14929
18:28	J801-BM1-C1-01	GoldenHorn base	Cassette C. Syringe 1. Geochem filter. Pulling water just above mat. Temperature measured at 20.5C before sample.	12 55.3426	143 38.9555	2930	153	13901
18:32	J801-BM1-C2-02	GoldenHorn base	Cassette C. Syringe 2. Ferrozine in syringe. Same location as previous. Color change observed.	12 55.3426	143 38.9555	2930	153	13909
18:38	J801-BM1-B4-03	GoldenHorn base	Cassette B. Syringe 4. RNA later at same location on chimney as samples 1-2.	12 55.3426	143 38.9555	2930	153	13920
18:39	J801-BM1-B5-04	GoldenHorn base	Cassette B. Syringe 5. RNA later syringe. Same location.	12 55.3426	143 38.9555	2930	153	13923
18:40	J801-BM1-C6-05	GoldenHorn base	Cassette B. Syringe 6. RNA later syringe. Sample appears to have been pulled at the same time as Syringe 5 (sample-04).	12 55.3426	143 38.9555	2930	153	13927
20:01	J801-BM1-C5-09	GoldenHorn middle	Cassette C. Syringe 5. Geochem filter- water only. Position 2m higher on the chimney than the previous samples at the base. Jason sensor: Temp=27.5C.	12 55.3426	143 38.9555	2928	132	14068
20:06	J801-BM1-B2-10	GoldenHorn middle	Cassette B. Syringe 2. RNA Later sample. Same location. (Note syringe 1 started to pull prematurely at same time).	12 55.3426	143 38.9555	2928	132	14081

timeUTC	sample	site	comments	latitude	longitude	depth	hdg	vv
20:11	J801-BM1-B3-11	GoldenHorn middle	Cassette B. Syringe 3. RNA Later sample. Same location. Jason sensors: O2=127.6uM in sample site. Ambient O2=131.0uM.	12 55.3426	143 38.9555	2928	132	14089
21:13	J801-BM1-C4-14	GoldenHorn top	Cassette C. Syringe 4. Ferrozine syringe. Pulled just under 20mL. At chimney near top of GoldenHorn. Jason sensor: T=28.06C before sampling.	12 55.3426	143 38.9555	2922	167	14210
21:17	J801-BM1-C3-15	GoldenHorn top	Cassette C. Syringe 3. Geochem filter. Intake tip in flow.	12 55.3426	143 38.9555	2922	167	14219

4.1.1.3 Characterization of Vent-associated Protist Communities

Sheryl Murdock (University of Victoria)

In the decades since the discovery of hydrothermal vents biological investigations in these environments have been focused on either chemosynthetic prokaryotes (bacteria and archaea) or multicellular eukaryotes (macrofauna). Only recently have we begun to think about the unicellular eukaryotes (i.e. protists) that inhabit these environments. What role do they play in ecosystem functioning? How do they cope with the toxicity of the environment? How does the protozoan population respond to changing conditions in dynamic hydrothermal settings? What is the range of various protozoan groups with respect to the source of hydrothermal venting? Are there endemic hydrothermal populations of protists?

My participation in the 2014 Ironman/Submarine Ring of Fire cruise aimed to delve into all of these questions by assessing 18S rRNA gene diversity of bulk community DNA and RNA, isolating previously identified key organisms for single cell genome sequencing, quantifying the abundance of previously identified key groups in various vent and non-vent environments, and attempting to culture previously uncultured protist groups that were dominant in past samples from Mariana vents. This work was to build upon molecular analyses of samples from the 2004 and 2006 Submarine Ring of Fire cruises thus creating a time-series component to the study. The primary objectives were 1) time-series sampling at key vents on NW Rota-1 and NW Eifuku, 2) niche comparisons of protozoan communities (diffuse fluids, plume, mat, background seawater), and 3) sampling for cell sorting and single-cell genomics. Secondary objectives included 1) microscopic observations of protists from vent fluids, 2) collection of animals for parasite investigations, and 3) testing methods for culturing of vent protists.

Due to the series of unfortunate weather and equipment delays the sampling of vent fluids was not carried out in a manner that will be of much use for comparison to previous sampling years, thus the time-series aspect was not achieved. Additionally, the current state of NW Rota-1, which has significantly quieted down from previous samplings, left little opportunity for such time-series investigations in that location. DNA samples from weakly venting fluids with temperatures barely above ambient, and from smoky plumes in the area may provide an interesting opportunity to monitor changes in the protist community in the waters surrounding the now quiet volcano. Plume samples were also collected over the summits of Daikoku, which is now showing signs of intense eruptive activity, and over NW Eifuku. These three plume samples will be valuable in assessing whether subsurface microbes expelled with hydrothermal fluids act as an attractive food source luring in protist predators and linking the subsurface and deep-ocean food webs.

Subsamples of iron mats collected by the Moyer and Emerson groups were preserved for CARD-FISH, a microscopic probing technique that will allow visualization and enumeration of protist groups that have been previously identified as dominant members at the Mariana vents. Microbial mats may provide and excellent source of food and/or shelter for protists but this association has not yet been investigated. Samples were also preserved for CARD-FISH from tissues of shrimp, mussels, scale worms and limpet larvae to test the theory that dense communities of animals serve as habitats for parasitic protists in the hydrothermal vent environment.

By far, the most successful and surprising aspect of protist research on the cruise came from the culturing attempts. While this was not a primary objective and thought to be simply a first pass attempt, the results were very encouraging. Positive cultures resulted from inoculation with diffuse fluids, plume water, and water from within mat sampling devices. Cultures of recently hatched limpet larvae also produced biofilms that appeared to be comprised of protists. Three colonization devices borrowed from Pete Countway (Bigelow) were deployed for five days at NW Eifuku adjacent to 17-34°C diffuse fluids. Material from these devices also yielded positive cultures of what appear to be a fairly uncharacterized group of eukaryotes.

Samples of diffuse fluids and mats were collected for DNA from the Urashima vent area, which has not previously been investigated for protist diversity. This site is in the south near the junction of the volcanic arc and back arc and will add a new dimension to previous arc-scale samplings. Iron mats from this site will be used to test how the addition of iron influences the growth of protists in culture.

Table 4.4.1.3 Summary of Murdock Samples

Log sample #	Location	sample type	DNA	RNA	genomics	CARD-FISH	culturing	counts
J2-797-HFS-05	Marker 114, Snail vent area	Diffuse fluids		x				
J2-797-HFS-20	Marker 108, Snail vent area	Diffuse fluids			x	x	x	x
J2-797-HFS-38	Saipanda Horn, Urashima vent area	Diffuse fluids			x	x	x	x
J2-797-HFS-41	Saipanda Horn, Urashima vent area	Diffuse fluids	x					
J2-797-HFS-42	Saipanda Horn, Urashima vent area	Diffuse fluids		x				
J2-797-SS-44	Saipanda Horn, Urashima vent area	Water from suction jar, iron mat	x				x	
J2-797-LScoop2-45	Saipanda Horn, Urashima vent area	Iron mat		x				
J2-797-LScoop1-50	Snap Snap, Urashima vent area	Iron mat		x				
J2-798-HFS-01	Marker 144, (Champagne area), NW Eifuku	Diffuse fluids			x			x
J2-798-HFS-02	Marker 144, (Champagne area), NW Eifuku	Diffuse fluids	x					
J2-798-BM-B2-11	Marker 144, (Champagne area), NW Eifuku	Fluids from cassette, sulfur mat					x	
J2-798-BM-C1-17	Marker 146, Yellow Cone, NW Eifuku	Fluids from cassette, iron mat					x	
J2-798-BM-C4-19	Marker 146, Yellow Cone, NW Eifuku	Fluids from cassette, iron mat					x	
J2-798-BM-D1-25	Marker 124, Yellow Cone, NW Eifuku	Fluids from cassette, iron mat					x	
J2-798-HFS-31	Marker 124, Yellow Cone, NW Eifuku	Diffuse fluids			x	x	x	x
J2-798-Mbag-37	Razorback, NW Eifuku	Mussels				x		
J2-798-SS-38	Razorback, NW Eifuku	2 scale worms (Branchnotogluma)				x		
		1 gravid shrimp (Alvinicaris)				x		
V14B-06-6	Vertical cast NE of NW Eifuku, east of the arc front	Background water	x					
V14B-06-10		Background water at oxygen minimum	x					
T14B-03-11	Tow-yo line 750m N of the summit of Daikoku	Eruptive plume	x				x	x
T14B-03-17		Background water	x				x	x

Log sample #	Location	sample type	DNA	RNA	genomics	CARD-FISH	culturing	counts
T14B-04-5	Tow-yo line 300m W of the summit of Daikoku	Eruptive plume	x			x	x	x
T14B-04-14		Background water	x				x	x
J2-799-PrTrap104-01	Marker 124, Lower Yellow cone, NW Eifuku	in-situ enrichment	x		x	x	x	x
J2-799-BM1-D1-10	Marker 146, Upper Yellow Cone, NW Eifuku	Iron mat in flow				x		
J2-799-BM1-D6-18	Marker 146, Upper Yellow Cone, NW Eifuku	Reddish iron mat				x		
J2-799-BM1-D3-20	Marker 146, Upper Yellow Cone, NW Eifuku	Fluffy iron mat				x		
J2-799-BM1-B1-21	Upper Yellow Cone, near Marker 146	Soft iron mat				x		
J2-799-PrTrap113-27	Razorback, NW Eifuku	in-situ enrichment	x		x	x	x	x
J2-799-biogeo-28	Razorback, NW Eifuku	Rocks covered in limpet egg cases				x		
J2-799-ShrTrap-31&32	Razorback, NW Eifuku	4 shrimp (Alvinicaris)				x		
J2-799-HFS-33	Marker 144, (Champagne area), NW Eifuku	"Plume" in the area of Champagne	x					
J2-799-PrTrap4-35	Marker 144, (Champagne area), NW Eifuku	in-situ enrichment	x		x	x	x	x
J2-799-HFS-37	Champagne-Golden Lips, NW Eifuku	Fluid over mussels				x		
J2-799-Biomacro-38	Champagne-Golden Lips, NW Eifuku	Mussels				x		
V14B-10-6	2 point vertical cast over Eifuku, plumes of Champagne and Yellow Cone	Champagne plume	x					
V14B-10-10		Background water	x					
V14B-10-14		Yellow Cone plume	x					
J2-800-HFS-1	Phantom, NW Rota	Diffuse fluids			x			
J2-800-SS-8	Arrowhead, NW Rota	Alvinicaris (shrimp)	x	x		x		
J2-800-HFS-10	NW Rota (Styx to Charon, then Menagerie to TipIce)	Background/plume	x					
J2-800-HFS-11	Smokin' Stones, NW Rota	Diffuse fluids			x	x	x	x

Log sample #	Location	sample type	DNA	RNA	genomics	CARD-FISH	culturing	counts
J2-800-HFS-13	Smokin' Stones, NW Rota	Diffuse fluids	x					
J2-800-HFS-16	Menagerie, NW Rota	Diffuse fluids			x			
J2-800-HFS-18	Menagerie, NW Rota	Diffuse fluids	x					
J2-800-BM1-C1-21	TipIce, NW Rota	Iron mat				x		
J2-800-HFS-28	Crab Cavern, NW Rota	Diffuse fluids			x		x	
J2-800-BM1-B1-33	OldIronSlide, NW Rota	Iron mat				x		
J2-801-HFS-8	Golden Horn Spire (Base), Urashima vent area	Diffuse fluids	x					
J2-801-HFS-12	Golden Horn Spire (Middle), Urashima vent area	Diffuse fluids				x	x	x
J2-801-HFS-17	Golden Horn Spire (Top), Urashima vent area	Diffuse fluids			x		x	
J2-801-SS-27	Golden Horn Spire (Top), Urashima vent area	Iron mat						
J2-801-BM1-X6-29	Golden Horn Spire (Base), Urashima vent area	Iron mat				x		
J2-801-BM1-X5-34	Golden Horn Spire (Middle), Urashima vent area	Iron mat				x		
J2-801-HFS-37	Golden Horn Spire (Top), Urashima vent area	Diffuse fluids	x					
J2-801-HFS-43	"Active Chimney" shrimp area, Urashima vent area	Diffuse fluids				x	x	x

4.1.1.4 Rock Microbiology/Vent Biogeochemistry

Jason Sylvan (University of Southern California)

The purpose of rock sampling on this cruise was to study microbial populations on low temperature sulfide structures and on basement rock and to determine how mineralogy influences microbial communities on these structures. In particular, previous work studying microbes on basaltic andesite from Mariner vent field in Lau Basin indicated that microbial communities on this substrate are quite different from the more commonly sampled and studied basalts found at mid-ocean spreading ridges. Therefore, the goal for this cruise was to collect as many basement rock and sulfide structures as possible and to co-sample them for microbiology and mineralogy.

The vent biogeochemistry Sylvan sampled for was to measure dissolved organic nitrogen (DON) in diffuse flow vents and determine the species of DON present. Additionally, incubations were conducted to determine rates of uptake for ammonia, nitrate and dissolved amino acids, a type of DON, by adding ^{15}N labeled substrates and measuring the amount that is incorporated into biomass over time. This was also conducted with select CTD samples from TowYos and vertical casts.

Summary of Rock Sampling

1. Sampling Methods

During RR1314, rock samples were collected with the ROV Jason II using one of the arms to grab the rock at the seafloor. Once in the vehicle's claw, the rocks were placed in bioboxes and the bioboxes closed until surfacing. Two exceptions to this are the samples J2-801-R1-oFe, -oS and -in, all of which were part of the same sulfide chimney that fell onto the vehicle's basket while sampling and came up unsealed in a biobox, and J2-801-R?, which fell into the starboard swing arm milk crate that holds the Major samples while putting the Major sampler away. This sample also came up unsealed. In addition to the samples collected with the arms of the ROV, rock rubble was collected from two scoops (J2-800-Scoop8 and S2-800-LScoop-2) and one slurp sample (J2-801-SS) after the microbial mat material had been removed from above it.

Once on the ship, samples were processed in a flame sterilized rock box with flame sterilized chisels. Sylvan wore gloves, a lab coat and a respiratory mask while sampling. Rock chips were removed from the rocks and placed in containers for DNA (placed in 50 ml centrifuge tube and frozen), RNA (placed in 50 ml centrifuge tube with RNAlater, sat at 4˚C for a day and then frozen), cell counts (placed in 15 ml centrifuge tube with 2.5% gluteraldehyde and stored at 4˚C), single cell genomics (placed in 10%Glycerol/90%ASW solution in 15 ml centrifuge tube) or used for culturing (a slurry was made using rock chips and filtered seawater and then added to media targeting growth of sulfur oxidizers and/or nitrate reducers and then incubated at 4˚C). During

2. Shipboard analysis

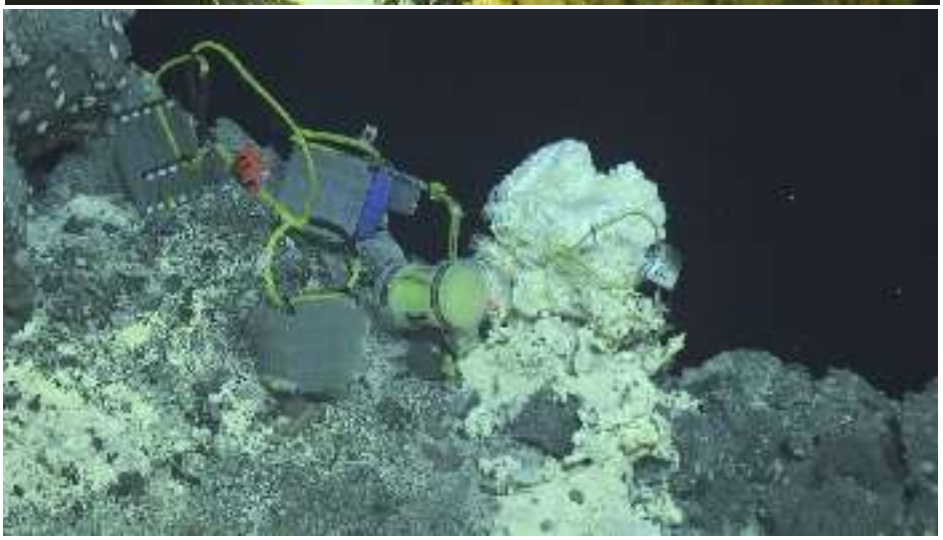
No analyses were conducted on board the Revelle, these will all be done post-cruise.

3. Sampling summary

Due to the limited dive time, rock sampling was somewhat limited. Two sets of samples were collected - a set of sulfides with Fe-oxide layers on the outside, collected from Urashima site during dives J2-797 and J2-801, and a set of seafloor exposed silicates, likely basaltic andesite, collected from NW Eifuku during dive J2-799 and NW Rota during dive J2-800.

4. Rock Descriptions and images

J2-797-Sulfide-52
Sulfide with Fe-oxide coating on most of it but with grey sulfide poking through in places, likely the inner part of the sample (inner sulfide chimney with thick outer layer of Fe-oxide). Could see some very small conduits poking through the Fe-oxide parts.



J2-799-R1 (aka J799-Biogeo-28)
Silicate that was embedded in a sulfur chimney. Chimney part was super friable and fell apart during sampling with the ROV. Likely composed of sulfur. Some bits left on rock, they were yellow-white. Rock itself is dark grey with some oxide staining, silicates on this seamount are basaltic to andesitic so will have to analyze elemental composition to tell.

J2-800-R1
Black, glassy silicate. Friable (easily split with chisel, crumbly, but not falling apart with just touching) with no visible olivine. Possibly basaltic andesite.

J2-800-R2
Silicate, lots of limpet egg cases. Outer layer about, 1 cm thick (J2-800-R2out), had all the limpet egg casings and is similar in features to the other outer layers from J2-800-R3, but an inner layer (J2-800-R2in) did not. Inner layer has some clearish parts, looked similar to anhydrite but not sure what it is.

J2-800-R3
Silicate, black, not much olivine, rusty colored in spots, possible oxide staining. Friable (easily split with chisel, crumbly, but not falling apart with just touching), with many barnacles, appears porous.

J2-800-R3a
Same collection spot as J2-800-R3, but when split this rock had a light grey rock on the inside. Outside (J2-800-R3a-out) is glassy and appears to be same flow as J2-800-R3, but inside (J2-800-R3a-in) is an older flow or xenolith that was overrun by the newer basalt flow.

J2-800-R3b
Same flow as J2-800-R3 and -R3a-out. This rock had streamers on the outside, possibly e-proteobacterial sulfur oxidizers.

J2-801-R1
Sulfide, could not tell if active or inactive at the time of sampling. Collected from the very top of Shar-pen chimney. Had Fe-oxide outer coating (J2-801-R1-oFe), underlain by a grey sulfide layer (J2-801-R1-oS). The inner conduit (J2-801-R1-in) was grey sulfide mixed with pyrite, you could see pathways for fluid flow at one point, and the pyrite as well as the flow paths indicate it was active at some point. Somewhat friable, but not crumbly.

J2-801-R?
Sulfide, looks similar to J2-797-Sulfide-52. Thick outer layer of Fe-oxides with a bit of grey material on inside, likely sulfide. (Sample was found in the basket after the dive, not officially logged. Speculated that the material fell into the basket when Jason dislodged sulfides at 12/18 04:32:57 when this photo was taken between samples J801 BBScoop-32 & Major-33).

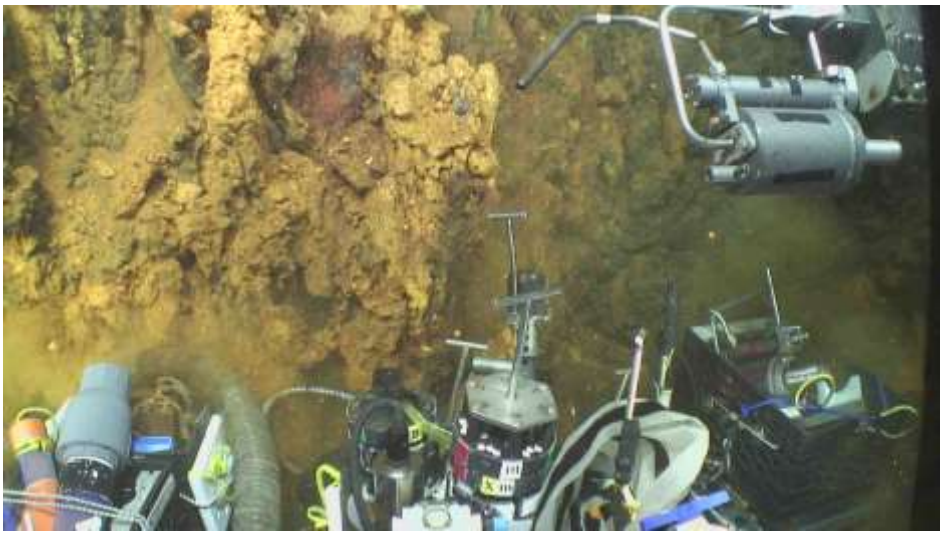


Table 4.1.1.4-1 - Rock samples sorted by Location

sample	site	Depth (m)	Virtual Van EVT #	day collected	temp (deg. C)	comment
J2-800-R3	Barnacles	567	13459	17-Dec-14	7˚C	
J2-800-R3a-out	Barnacles	567	13459	17-Dec-14	7˚C	
J2-800-R3a-in	Barnacles	567	13459	17-Dec-14	7˚C	
J2-800-R3b	Barnacles	567	13459	17-Dec-14	7˚C	
J2-801-R? *	base of Golden Horn	2930	*	18-Dec-14		looks similar to J2-797-Sulfide-52
J2-800-Scoop8	Olde Iron Slides	567	13673	17-Dec-14	7˚C	from Scoop sample; after mat settled, Sean pulled mat off top and gave me material at bottom, mostly rubble, Fe-oxide coated silicates. Looks similar to other NW Rota rocks
J2-800-R1	Phantom	554	12875	17-Dec-14	7˚C	Virtual Van label J800-biogeo-2
J2-800-R1p2	Phantom	554	12875	17-Dec-14	7˚C	Virtual Van label J800-biogeo-2; same sample as J2-800-R1, but different part of rock
J2-799-R1	Razorback	1566	12395	14-Dec-14	3˚C	Virtual Van label J799-Biogeo-28
J2-797-Sulfide-52	Shar-Pen	2928	2969	30-Nov-14	~2˚C	
J2-800-R2out	Smoking Stones	599	13134	17-Dec-14	7˚C	Virtual Van label J800-biogeo-15
J2-800-R2in	Smoking Stones	599	13134	17-Dec-14	7˚C	Virtual Van label J800-biogeo-15
J2-800-Lscoop-2	TipIce	527	13344	17-Dec-14	7.9˚C	from Scoop sample; after mat settled, Craig pulled mat off top and gave me material at bottom, mostly rubble. was already in RNAlater, so no untreated sample for this one
J2-801-SS	top of Golden Horn	2923	14768	18-Dec-14		big, rocky chunks from slurp sample
J2-801-R1	top of Shar-pen	2928	15103	18-Dec-14		VV ID J801-rock-45
J2-801-R1-oFe	top of Shar-pen	2928	15103	18-Dec-14		VV ID J801-rock-45
J2-801-R1-oS	top of Shar-pen	2928	15103	18-Dec-14		VV ID J801-rock-45
J2-801-R1-in	top of Shar-pen	2928	15103	18-Dec-14		VV ID J801-rock-45

*probably while J2-801-Major-33 (MS-Black) was being collected

Summary of fluid and hydrothermal plume sampling

1. Sampling methods

Hydrothermal vent fluids were collected for DON analysis using the titanium Major samplers because these are less likely to be contaminated by DOC than the plastic samplers used by the beast. Two exceptions are J2-799-HFS-P1, collected with the piston sampler, and J2-801-HFS-24, which was a background water sample collected with a bag sample on the hot fluids sampler. All samples were filtered with 0.2 μm syringe tip filters (25 mm diameter), except the two HFS samples, which were filtered with 0.2 μm filters at the time of collection on the beast. Vent fluid samples were collected in acid washed polycarbonate bottles, acidified with 2 ml concentrated HCl per L of sample, placed in a sample bag and frozen.

Hydrothermal plume samples were collected for DON analysis using the Niskin rosette employed by the plume team (Resing et al). These were filtered with 0.2 μm syringe tip filters and placed in a sample bag and frozen. They were not acidified because the plumes had much lower Fe concentrations than the vent fluids, so will not be a problem later (the Fe messed with previous results).

Incubations were conducted to determine uptake rates for nitrate, ammonia and amino acids from 6 samples, 3 hydrothermal plume samples and 3 vent fluid samples. These were conducted by adding ~10% concentration of in situ values for each substrate of ^{15}N labeled substrates. Incubations were stopped 16-24 hours later by filtering samples into silver chloride 0.2 μm filters and collecting the filtrate for regeneration and quantification.

2. Shipboard analysis

No analyses were conducted on board the Revelle, these will all be done post-cruise.

3. Sampling summary

An effort was made to collect at least one hydrothermal fluid sample for DON analysis from each dive and this was successful, with most dives yielding 2 samples. After dive J2-798, when there was a pause in dives due to technical problems and bad weather, hydrothermal plumes were sampled. For the TowYos and vertical casts, an effort was made to collect a few samples from in the plume and one below plume background sample from each cast. Of particular interest, in plume samples from right over Daikoku were sampled during cast T14B-04.

Table 4.1.1.4-2 - DON samples by location

	site	Depth (m)	Virtual Van EVT #	day collected	temp (deg. C)	N uptake assay?	Cell Counts	Comment
J2-798 - NW Eifuku								
J2-798-MS-Black	Yellow Cone	1584	5474	6-Dec-14	24˚C	NH4 (125 ml) + DPA (50 ml)	no	pH 5.36 (VV ID J2-798-Mjr-black)
CTD T14B-02 - TowYo over Eifuku volcano								
bottle 3 (b3)	Eifuku TowYo	385	---	9-Dec-14		no	yes	just south of summit, in plume
bottle 5 (b5)	Eifuku TowYo	384	---	9-Dec-14		NH4 (250 ml) + NO3 (250 ml) + DPA (250 ml)	yes	southern portion of summit, in plume, strongest particle signal
bottle 12 (b12)	Eifuku TowYo	522	---	9-Dec-14		no	yes	below plume background
CTD T14B-03 - TowYo SW->NW ~750 m north of Daikoku Summit								
bottle 8 (b8)	Daikoku TowYo	430	---	12-Dec-14	12	no	yes	a little NW of summit
bottle 10 (b10)	Daikoku TowYo	360	---	12-Dec-14	14	NH4 (250 ml) + NO3 (250 ml) + DPA (250 ml)	yes	direct in plume, N of summit, strong ORP
bottle 11 (b11)	Daikoku TowYo	358	---	12-Dec-14	14	no	yes	direct in plume, N of summit, strong ORP, LSS 0.34
bottle 17 (b17)	Daikoku TowYo	500	---	12-Dec-14	8.7	no	yes	below plume background
CTD T14B-04 - TowYo N->S ~300 m west of Daikoku summit								
bottle 4 (b4)	Daikoku TowYo	382	---	13-Dec-14	14.4˚C		yes	
bottle 5 (b5)	Daikoku TowYo	384	---	13-Dec-14	14.4˚C	NH4 (250 ml) + NO3 (250 ml) + DPA (250 ml)	yes	
bottle 6 or 7 (b6 or b7)	Daikoku TowYo	375	---	13-Dec-14	~14.5˚C		yes	
bottle 8 (b8)	Daikoku TowYo	370	---	13-Dec-14	14.6˚C		yes	

	site	Depth (m)	Virtual Van EVT #	day collected	temp (deg. C)	N uptake assay?	Cell Counts	Comment
bottle 14 (b14)	Daikoku TowYo	678	---	13-Dec-14	?		yes	
bottle 16 (b16)	Daikoku TowYo	504	---	13-Dec-14	~9˚C		yes	
J2-799 - NW Eifuku								
J2-799-P1	diffuse venting at Yellow Cone, different spot than J2-798-MS-black	1580	12087	14-Dec-14	30-33˚C	no	no	pH 5.21
CTD T14V-10 - vertical cast over NW Eifuku								
bottle 15 (b15)	<10 m over Yellow Cone site (plume)	1576	---	14-Dec-14	3˚C	no	yes	high LSS, low ORP for this sample
J2-800 - NW Rota								
J2-800-MS-Red	Brimstone	543	12989	17-Dec-14	102˚C	no	no	10 mM sulfide - will stink upon thawing
J2-800-MS-White	Crab Cavern	565	13582	17-Dec-14	10˚C	DPA (140 ml)	no	ambient background here is 7˚C, Virtual Van ID J800-Major-31
J2-801 - Urashima								
J2-801-MS-Red	"Active Chimney," likely Ultra-no-chichi	2929	15020	18-Dec-14	174˚C	no	no	low sulfide, same site as J2-801-HFS-Pistons#2&3
J2-801-MS-Black	base of Golden Horn	2930	14897	18-Dec-14	74˚C	DPA (160 ml)	no	

	site	Depth (m)	Virtual Van EVT #	day collected	temp (deg. C)	N uptake assay?	Cell Counts	Comment
J2-801-HFS-24	background as vehicle was rising	2375-2262	15138	18-Dec-14	2.1 ˚C	no	no	virtual van ID J801-HFS-48

4.1.1.5 Microbiology – Dr. Clara Chan Lab

Sean M. McAllister, PhD Student, University of Delaware

Cruise summary:

The Dr. Clara Chan lab was successful in its science objectives, focusing on the biogeochemistry of Fe oxide mats at several hydrothermal vent sites. We collected sample, preserving in situ RNA expression at three sites on Golden Horn chimney, Urashima, with thorough geochemistry collected at the same locations. With the help of Jason Sylvan, Anna Leavitt, and others, five Fe(II) addition experiments from fresh mat were completed onboard to assess Fe(II) oxidation activity; a subset of these samples will be used for metatranscriptomics experiments. The Chan lab conducted Fe(II) and total Fe analyses on select geochemistry (hot fluid sampler and CTD) samples from the cruise. In addition to providing Fe concentrations associated with microbial mat samples, these data helped to show the variable Fe conditions at NW Rota-1 and detectible Fe within the plume of the actively erupting Daikoku seamount.

Cruise objectives and sampling outcomes:

1. *In situ* mat sampling with corresponding geochemistry
   Three distinct samples were collected from the Golden Horn Chimney (bottom, middle, top), with two to three replicates each. These were paired with thorough collection of geochemistry data (see Table 1 for summary of key data and corresponding sample numbers).

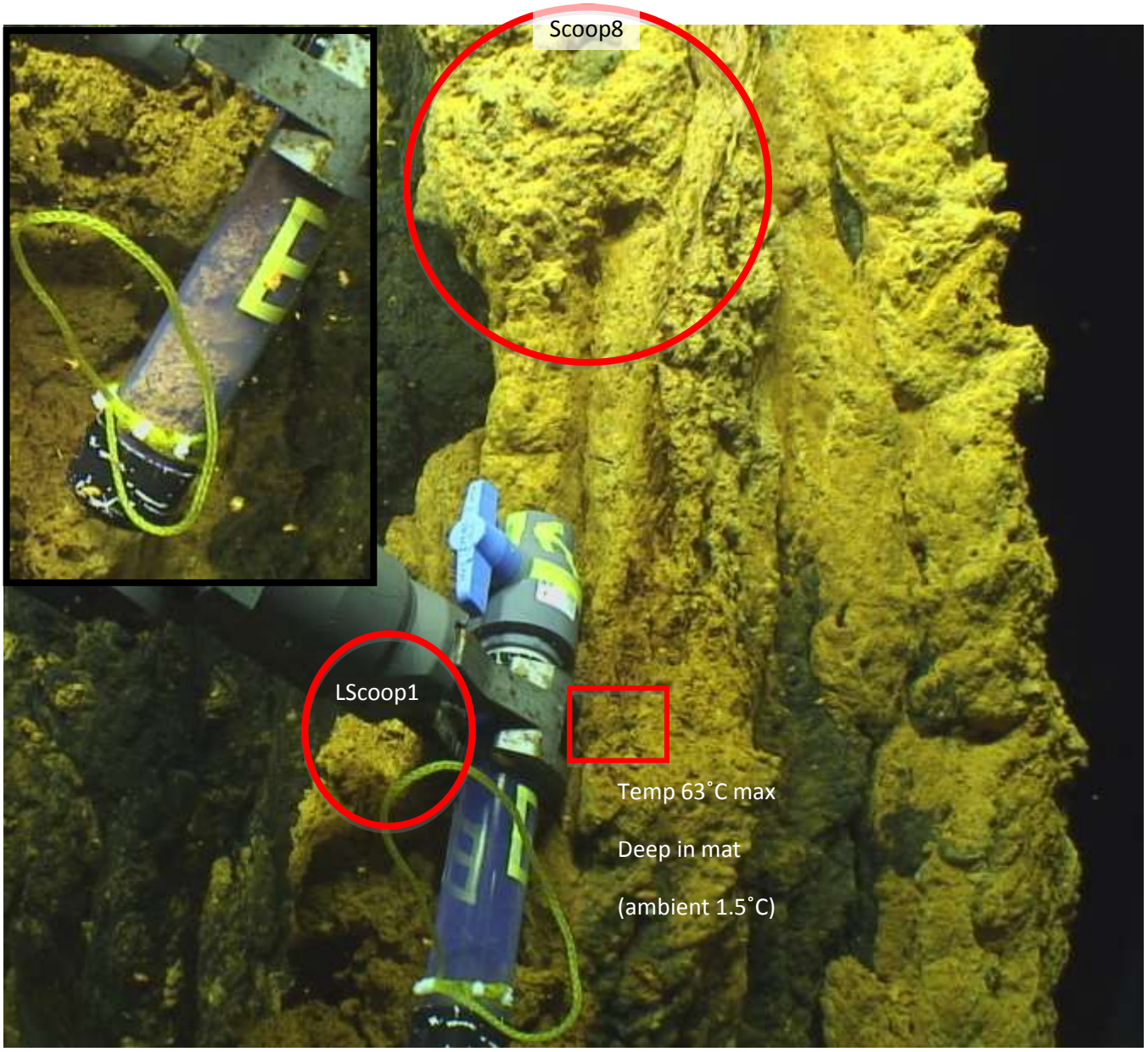
2. Fe(II) addition experiments
   Four bulk samples were collected for use in Fe(II) addition experiments. One sample in particular, collected from the middle of the Golden Horn Chimney, shows promise for downstream analysis by metatranscriptomics (J2-801-scoop8; collection shown in Figure 1).

3. Fe analyses

We analyzed 41 individual samples for Fe(II) and total Fe, filtered and unfiltered. 28 were from the HFS bag and piston samplers; 4 from Major samplers; 4 from geochemistry syringes on the Biomat Sampler; 5 from CTD-T04 over Daikoku. All biomat sampler samples were filtered in situ. Samples for the ferrozine assay were transferred 1:1 into a 80 mM sulfamic acid solution to stabilize the Fe(II) concentration before measuring with the standard ferrozine assay.

Table 4.1.1.5-1. Golden Horn Chimney sampling summary.					
	units	**Base**	**Middle**	**Top**	**Data source**
Mat texture/type		veil	veil	curd/chimlet	visual
Temperature	˚C	20.5	*27*	17	High-T wand
pH		5.68*	*5.9**		HFS
O_2 ambient	µM	132-162	131		O_2 probe
O_2 mat surface	µM	80	128		O_2 probe
O_2 1 cm in mat	µM	52	123		O_2 probe
O_2 HFS	µM	108	*108*	89	HFS
Fe(II) dissolved	µM	163	0.94	116	Cassette C syringes with filters
Fe total dissolved	µM	171	7.6	122	Cassette C syringes with filters
Sample numbers					
RNA samples		B45, B6	B23	D135	
Other mat samples		*X126, BBscoop1*	*X345, LScoop1, Scoop8*	*D246, LScoop4, SS*	
Filtered BM Geochem		C1	C5	C3	
in situ ferrozine samples		C2	none	C4	
HFS sample		B17, BF18, *Sterivex13*	*B19, BF20*	P7, PF8, Sterivex*10*/14	
Major sampler		Black			
Virtual Van reference		13898	14068	14210	
italics= sampling from different location than RNA preservation					
*Reassess after calibration of pH data					

Figure 4.1.1.5-1. Sample collection for J2-801-scoop8-20 (12/17/14 22:48 UTC), of primary interest for the Fe(II) addition experiments. From the middle of the Golden Horn Chimney, in the Urashima vent field.



4.1.2 Macrobiology

Shawn Arellano (Western Washington University)
Verena Tunnicliffe (University of Victoria)

Table 4.1.2-1 Macrobiology Sample List:

Dive	Volcano	UTC	sample	site	Sample	latitude	longitude	Z	notes
J2- 798	NW Eifuku	2:39	J798-Mbag-37	Razorback	Scoop of mussels.	21 29.2502	144 2.5086	1561	pH = 7.2
J2- 799	NW Eifuku	18:32	J799-Biogeo-28	Razorback	Rock with Shinkailepas sp. egg cases	21 29.2458	144 2.5074	1566	Ambient T= 2.73; collected near J799-SPlate4-26
J2- 799	NW Eifuku	18:49 18:56	J799-Bio-31 & J799-Bio-32	Razorback	Moyer Shrimp Traps 4 & 3 (both full)	21 29.2434	144 2.4938	1561	
J2- 799	NW Eifuku	19:39	J799-biomacro-36	Champagne - Mkr144	Mussels scooped from rocks above a white deposits.	21 29.2498	144 2.4857	1608	HFS sensors: pH~5.2. Start 19:39. Stop 19:4
J2- 799	NW Eifuku	19:53	J799-biomacro-38	GoldenLips	Scoop of mussels.	21 29.2567	144 2.4813	1606	NW of previous sample on small ridge. Tmax=2.7 Tavg=2.7 HFS sensor: pH=5.78.
J2-800	NW Rota	21:48	J800-biogeo-02	Phantom	Rock with limpets and egg cases	14 36.052	144 46.514	554	
J2-800	NW Rota	22:36	J800-SS-08	Arrowhead (Brimstone)	Shrimp suction	14 36.058	144 46.535	544	
J2-800	NW Rota	23:53	J800-biogeo-15	Smoking Stones-14	Rock with limpets and egg cases	14.6005719	144.77616	590	
J2-800	NW Rota	2:45	J800-biogeo-24 thru 27	Barnacles	Rocks with barnacles	14 36.0629	144 46.6324	567	at Barnacles marker.

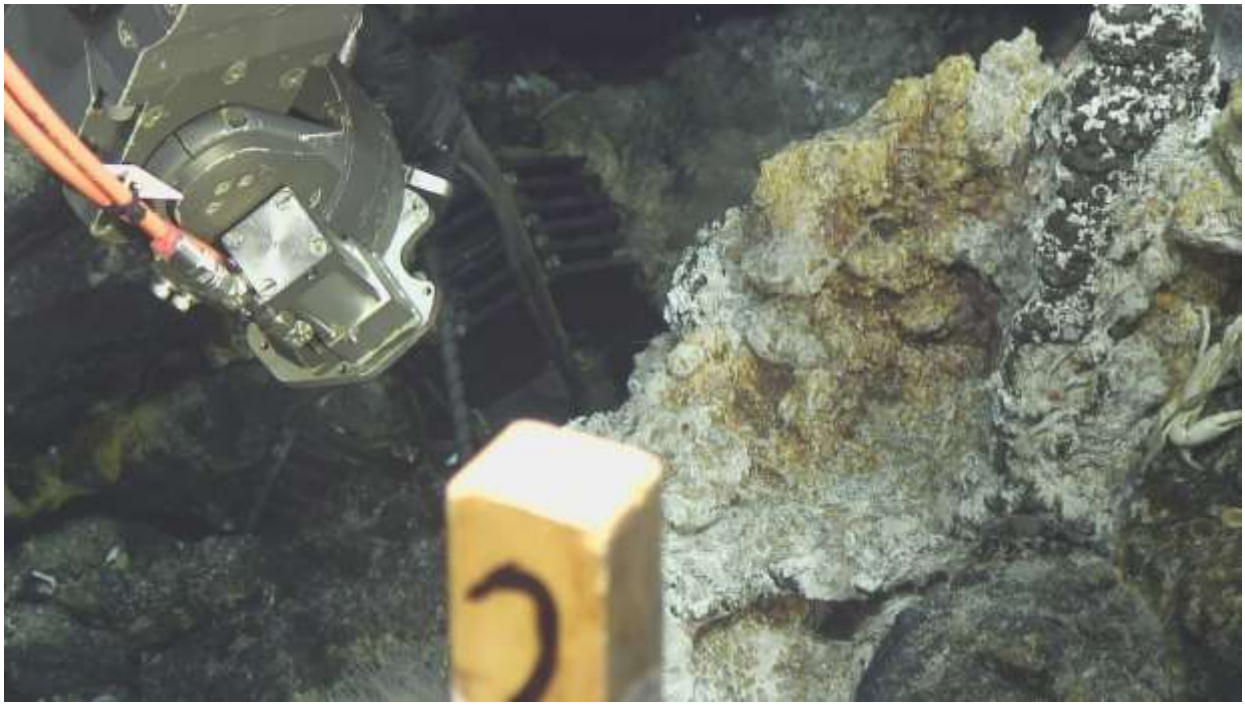
Description

Snail Vent, southern Mariana Backarc

A long dive (J2-797) was conducted at Fryer site (around Snail Vent) on the southern Mariana backarc. We landed very near Snail Vent, where we were tasked to recover two settlement plates for S. Beaulieu (WHOI) that were placed there in 2010. The area appeared to have some activity since the Beaulieu dives (with JAMSTEC) because only one of the sets of settle plates was found; the other was completely buried by fallen rock. A nearby JAMSTEC marker was also covered with fallen rock and the Beaulieu plates that we could recover were completely blackened.

Snail vent had areas of dense macrofauna, including *Phymorhynchus* snails, *Shinkailepas* limpets, *Alvinoconcha* snails, barnacles, crabs (both *Gandolfus* and galatheids), shrimp (*Alvinocaris*), and anemones were scattered all around.

A photomosaic survey of Snail Vent (centered over Stace5 target) was taken to document the fauna. The focus of work at the Fryer Site around Snail vent (Mkr 108, Saipanda Horn, Snap Snap) was microbiology and no macrobiology samples were collected, however there were a few observations of *Gandolfus* crabs on the microbial mats.



NW Eifuku, northern Mariana Arc

The two dives on NW Eifuku circumnavigated the biological activity on the summit. While we did not see the central mussel mass, there did not appear to be major changes in the overall extent and condition of the animal communities. We were more aware of small mussels on the periphery of the field on this trip indicating that recruitment continues to replenish the population. We observed a small bright red shrimp (in iron mats) and shells of a vesicomyid clam that were not previously recorded from NW Eifuku but there was no occasion to sample. Shrimp and galatheid crabs remain the most abundant mobile fauna of this vent community.

The main sampling effort was directed to the mussels. Our study (Rossi & Tunnicliffe, UVic) is to examine how high CO_2/low pH conditions affect the health and reproductive condition of these animals. We retrieved a total of 100 mussels from three collections in pH levels of 7.2, 5, 8 and 5.2. These animals were preserved for several studies: population genetics, symbiont abundance, reproductive condition, tissue health, and shell condition.

NW Rota, southern Mariana Arc

A short dive on NW Rota revealed a marked change in the extent of the animal community apparently as a response to reduced volcanic activity. There were only a few spots of discrete venting but the distributed populations of several species indicate a low level of seepage over much of the summit with the exception of the eastern ridge where previous shrimp colonies were now replaced by abundant barnacles. Notable was the great increase in numbers and egg cases of *Shinkailepas* – the large limpet – compared to our observations in 2010. This species has undergone expansion and retraction over the years of observation; this year, it was occupying the area of Phantom to Brimstone previously dominated by volcanic activity. The shrimp *Opaepele loihi* remains the dominant animal in the community; we collected one sample of ~250 shrimp to continue our time-series of size structure and reproductive condition. The final sampling effort targeted the barnacles now abundant on at “Fault Shrimp”; these animals are of acute interest to systematists who are testing barnacle evolution patterns using this new species of *Neoverruca*.

4.2 Chemistry-

4.2.1 Summary of Fluid Chemistry Goals and Accomplishments

Dave Butterfield (NOAA/PMEL/EOI UW JISAO)

The PMEL fluid chemistry group came into this research cruise with four broad goals. The first was to conduct a detailed study of the chemical environment around the NW Eifuku mussel communities, in order to establish a more accurate measure of the mean and extreme range of fluid chemistry experienced by the mussels. We are interested in both carbonate mineral saturation states for shell formation and the availability of hydrothermal energy sources, such as hydrogen sulfide. Our intention was to collect as many samples as possible in close proximity to mussel communities and tie the chemistry to observations of mussel density and biological measurements of mussel status and growth rates to be determined by Verena Tunnicliffe's lab. We also wanted to use the sensors on the HFS to map chemical properties near the seafloor and in the overlying plume. We had some success with this goal, but were severely limited by dive time available to collect fluid samples and conduct the sensor measurements. We collected sensor data near the seafloor to cover a substantial portion of the area inhabited by mussels, and we have plume data at approximately 50 m above the seafloor for the western part of NW Eifuku summit collected during the truncated ROV-mounted multibeam sonar survey. We collected a good representative set of samples from the Champagne vent area, generally staying away from sites with intense CO2 droplet concentration. We did not sample the CO2 droplets because it was not the top priority, and we didn't complete the higher priority sampling. We also collected a number of samples from the Yellow Cone site. Mussel sampling and associated fluid sampling was limited to two sites, Razor Back on top of the ridge above Champagne, and GoldenLips to the west of Champagne. Overall, we have enough to confirm the results of the 2004 sampling, but probably not enough to do a detailed study of the effect of the chemical environment on mussel ecology.

Our second goal was to revisit NW Rota and conduct time-series sampling of the hydrothermal system there. Although our dive there was relatively short, we completed a transect that covered the main venting areas seen on earlier visits to NW Rota, and collected a good set of fluid samples. NW Rota stopped erupting prior to our visit, giving us a view of how the hydrothermal system evolves as the volcano goes from eruptive to dormant. This was visually quite interesting, for example seeing areas that were formerly completely covered with white mat now in a state of transition to orange mat. We expect interesting chemical results from the samples as well. (Our samples are still in transit in the container as this report is being compiled, so we have no lab results yet).

Our third major goal for vent fluid chemistry was to collaborate with other scientists on board to support the primary NSF-supported goal of studying the biogeochemistry of iron mats around hydrothermal vents. Part of this goal was satisfied by taking coordinated samples with the HFS, major samplers, and gas-tight samplers whenever possible, and that aspect of the cruise was quite successful. Our samplers are designed to sample where there is visible flow and require an adequate flow to work well. The most active mat sites were usually the desired target for iron biogeochemistry work, so this worked out reasonably well. We also tried to collect high-temperature fluids, since they are essential to understanding chemical reactions in the vent environment. We should have a set of samples that will allow us at least to characterize the fluid composition for most relevant constituents (e.g. pH, dissolved iron and other metals, dissolved gases, silica, etc.). We also used the in-situ filtration capability of HFS to concentrate suspended particles for analysis of DNA/RNA from the same sites where chemistry samples were taken. All of this data will help to interpret the data generated by the Moyer and Emerson labs. We made every effort to help get samples for all investigators on board whenever we could (e.g. RNA-preserved or Sterivex filters, portions of HFS or major samplers). We will be analyzing fluid chemistry on a few syringe samples that were taken specifically for biogeochemistry, in collaboration with Sean McAllister. Likewise, Sean analyzed iron (dissolved/total) in some of the HFS samples that we collected. We will be sharing data as it becomes available in the next few months.

Our fourth goal was to measure hydrothermal tracers in the water column to contribute to our understanding of the nature of hydrothermal sources and their impact on the water column. To this end, we sampled nearly all of the Niskin samples taken with the CTD rosette for shipboard gas chromatographic analysis of dissolved hydrogen and methane. In a few cases, we also measured hydrogen sulfide from Niskin samples. We also used the pH and oxygen sensors on HFS to measure water column properties during transects and ROV ascent/descent, as mentioned above in the description of work at Eifuku.

Over the course of the cruise, we collected 55 successful fluid chemistry samples with HFS and titanium major samplers during the five dives completed. In addition, 13 gas-tight samples were collected and processed on board. For collection of microbial material carried by the fluids, we collected 9 Sterivex cartridge filters and 7 47mm flat filters with passive RNA-Later preservation.

Personnel

Dave Butterfield worked on sampler preparation, sample processing and analysis of pH and alkalinity.

Leigh Evans prepared and processed all gas-tight samples.

Ben Larson analyzed vent fluid and CTD-Niskin samples for dissolved hydrogen and methane by gas chromatography.

Kevin Roe worked on sampler preparation, sample processing, and analysis of ammonia, dissolved silica, and hydrogen sulfide.

Sampling and Analytical Methods Description

We include here some details of the methods used to collect and process fluid samples. We used titanium major samplers provided by WHOI throughout the cruise. Prior to each use, the samplers were rinsed, degreased with Saf-Sol spray solvent and lint-free wipes, rinsed again, lubricated with a small amount of Fluorolube grease, cocked and dead volume was filled with a few mL of 0.2 micron-filtered deep seawater collected during the cruise with a Niskin sampler. (This same filtered deep seawater was used to fill the dead volumes of the HFS). [Note that one of the new titanium samplers from WHOI was severely corroded and was not used].

The Hydrothermal Fluid and Particle Sampler was used on every dive. The configuration changed over the course of the dives, as will be described. The top rack of HFS held the piston samplers, in positions 1-8 for the first two dives, and in 1-9 for the final 3 dives. Valve position 12 was always occupied by the SBE63 Oxygen Optode and the AMT deep-sea pH sensor. Position 9 initially had a Sterivex filter, but was switched to take a piston sampler on dive 799, when we eliminated the RNA-Later preservative filters and replaced them with Sterivex filters. Even-numbered piston and bag-type water samplers were filtered. Filters used were acid-cleaned, pre-weighed, 0.2 micron pore size, 47mm polycarbonate membrane filters. We took extreme precautions to prevent RNA-Later (near-saturated ammonium sulfate preservative held in reservoirs within the filter holder) from contaminating water samples. In spite of that, 6 water samples from the first two dives had shipboard ammonia above 100 µM, indicating contamination. At that point, we decided to remove the RNA-Later-containing filter holders and replace them with Sterivex filters.

Table 4.2.1-1. Hydrothermal Fluid Sampler fluid sample list. (Gas samples obtained with HFS sampler, GTHFS, are list in section 4.2.2)

Date UTC	Time UTC	Jason sample ID	Lab sample ID	Site	comments	Latitude (N)	Longitude (E)	Depth	Heading	Virtual Van #
11-30	9:16	J797-HFS-02	J2_797BF24	Mkr 114a site	Filtered bag #24. Tmax=16.7C; Tavg=10; T2=7; Vol=550mL. Area of yellow stained pillows and lava blocks. Background sensors: pH=3.693v; O2=280ml/L.	12 57.135	143 37.159	2845	1	564
11-30	9:20	J797-HFS-03	J2_797B23	Mkr 114a site	Unfiltered bag #23. Tmax=17.5; Tavg=16.0; T2=0; Vol=550mL. Same spot as sample 2.	12 57.135	143 37.159	2845	1	578
11-30	9:21	J797-HFS-04	J2_797RNA16	Mkr 114a site	RNA filter #16. Start 0921. Tmax=21.5; Tavg=13.8; T2=7; Vol=3000mL.	12 57.135	143 37.159	2845	1	591
11-30	9:41	J797-HFS-05	J2_797RNA15	Mkr 114a site	RNA filter #15. Tmax=21.0; Tavg=14.2; T2=8; Vol=3000mL. Stop 20:01.	12 57.135	143 37.159	2845	1	598
11-30	12:40	J797-HFS-19	J2_797B17	Mkr 108 site	Unfiltered bag # 17. Tmax=26; T2=12.3; tavg=34.9; Vol=550mL. Stop 1244 (in area of samples 13-15). Sensor readings for area: pH=3.15v; O2=1.51ml/L.	12 57.166	143 37.142	2850	310	862
11-30	13:07	J797-HFS-20	J2_797P1	Mkr 108 site	Unfiltered piston #1. Start 1302. Stop 1306. Tmax=29.6; Tavg=28.5; T2=8; Vol=603mL. (in area of samples 7-12)	12 57.166	143 37.142	2850	334	897
11-30	13:15	J797-HFS-21	J2_797P3	Mkr 108 site	Unfiltered piston #3. Start 1311. Stop 1315. Tmax=56.9; Tavg=51.9; T2=6.2 Vol=602ml. (Same area as sample 20 but in 60C water like samples 7-12)	12 57.166	143 37.142	2850	338	908
11-30	16:17	J797-HFS-22	J2_797PF2	Mkr 108 site	Filtered Piston #2. Start=16:14:40. Stop=16:16:57. Tmax=182.6C Tavg=162.8C T2=41.2C Vol=478mL (On top of Mrk24 bucket lid; high temp flow surrounded by sulfur mats and shrimp.)	12 57.187	143 37.160	2847	347	1239
11-30	16:18	J797-HFS-23	J2_797P5	Mkr 24	Unfiltered Piston #5. Start= 16:18:21. Stop=16:21:21. Tmax=191.5C; Tavg=175.0C; T2=46C; Vol=473mL. (same location)	12 57.187	143 37.160	2847	347	1253
11-30	16:30	J797-Major-25	J2_797MW	Mkr 24	White Major. (same location)	12 57.187	143 37.160	2847	347	1278
11-30	16:36	J797-Major-26	J2_797MR	Mkr 24	Red Major. (same location)	12 57.187	143 37.160	2847	347	1288

Date UTC	Time UTC	Jason sample ID	Lab sample ID	Site	comments	Latitude (N)	Longitude (E)	Depth	Heading	Virtual Van #
12-01	5:01	J797-HFS-29	J2_797PF4	Baltan	Filtered piston #4. Start 05:01:50. Stop: 5:05:31. Tmax=169.3C; Tavg=163C; T2=51C; Vol=550mL. (High flow area; iron mat and sulfur with macrobio around; first called ""Active Chimney"")	12 55.340	143 30.951	2929	122	2310
12-01	5:06	J797-HFS-30	J2_797P7	Baltan	Unfiltered piston #.7 Start 05:06:41. Stop: 05:10:18. Tmax=160.9C; Tavg=158C; T2=50C; Vol=550mL. (same location)	12 55.340	143 30.951	2929	122	2322
12-01	5:15	J797-HFS-32	J2_797PF6	Baltan	Filtered piston #6. Start: 5:15:36. Stop: 5:19:17. Tmax=161C; Tavg=159C; T2=50C; Vol=530mL. (same location)	12 55.340	143 30.951	2929	122	2343
12-01	7:24	J797-HFS-38	J2_797B21	Saipanda Horn	Unfiltered Bag 21. Start 07:20. Stop 07:24. Tmax=19; Tavg=16.9; T2=7; Vol= 525mL. Same location as sample 34-36 in flow. Background sensors: O2=2.25-2.30 for samples 38-40.	12 55.333	143 38.950	2928	268	2554
12-01	7:26	J797-HFS-39	J2_797BF22	Saipanda Horn	Filtered Bag 22. Start 07:24. Stop 07:30. Tmax=18.7; Tavg=17.4; T2=7; Vol=525mL. (same location)	12 55.333	143 38.950	2928	268	2557
12-01	7:35	J797-HFS-40	J2_797BF20	Saipanda Horn	Filtered bag 20. Start 07:33. Stop 07:35. Tmax=16.5; T2=7.4; Vol=495mL. top 07:30. Tmax=18.7; Tavg=17.4; T2=7; Vol=525mL. (same location)	12 55.333	143 38.950	2928	268	2568
12-01	7:45	J797-HFS-41	J2_797Ster9	Saipanda Horn	Sterivex Filter 9. Start 07:45. Stop=08:09. Tmax=25.9; Tavg=16.7; T2=7; Vol= 3186mL. top 07:30. Tmax=18.7; Tavg=17.4; T2=7; Vol=525mL. (same location)	12 55.333	143 38.950	2928	268	2586
12-01	8:11	J797-HFS-42	J2_797RNA13	Saipanda Horn	RNA Filter 13. Start=08:11. Stop=0:827. Tmax=23.4; Tavg=18.7; T2=7; Vol=3000mL. top 07:30. Tmax=18.7; Tavg=17.4; T2=7; Vol=525mL. (same location)	12 55.333	143 38.950	2928	268	2610
12-01	8:27	J797-HFS-43	J2_797RNA14	Saipanda Horn	RNA Filter 14. Start= 08:27. Stop=08:44. Tmax=22.5; Tavg=17.9; T2=6.5; Vol=3000mL. (same location)	12 55.333	143 38.950	2928	268	2630
12-04	9:12	J798-HFS-01	J2_798P1	Champagne Site (at Mkr144)	Unfiltered piston #1. Start. 09:12. Stop 09:15. Tmax=16.9 Tavg=14.3 vol=400mL T2=6. (At Mrk-144 Champagne area. Flow area to right of a rock.)	21 29.2442	144 2.4851	1608	56	4395

Date UTC	Time UTC	Jason sample ID	Lab sample ID	Site	comments	Latitude (N)	Longitude (E)	Depth	Heading	Virtual Van #
12-04	9:19	J798-HFS-02	J2_798Ster9	Champagne Site (at Mkr144)	Sterivex filter 9. Start 09:19. Stop 09:41. Tmax=26.5 Tavg-18.5 vol=3046mL T2=12.0. (same location)	21 29.2442	144 2.4851	1608	56	4406
12-04	9:42	J798-HFS-03	J2_798PF4	Champagne Site (at Mkr144)	Filtered piston #4 Start 09:42. Stop 09:47. Tmax=26.2. Tavg=25.2 Vol=450mL T2=12. (same location)	21 29.2442	144 2.4851	1608	56	4434
12-04	10:08	J798-HFS-05	J2_798PF2	Champagne Site (at Mkr144)	Filtered piston #2. Start 10:08. Stop 10:11. Tmax=70.9 Tavg=67. T2=25. Vol=451mL. (Champagne 6m NW of Mrk144. 70+C water from hole in sulfur and mat.)	21 29.2442	144 2.4851	1607	59	4475
12-04	10:12	J798-HFS-06	J2_798P3	Champagne Site (at Mkr144)	Unfiltered pison #3. Start 10:12. Stop 10:15.Tmax=63; Tavg=56; T2= 21; Vol=451mL. (same location)	21 29.2442	144 2.4851	1607	59	4483
12-04	10:18	J798-HFS-07	J2_798RNA14	Champagne Site (at Mkr144)	RNA filter 14. Start 10:18. Stop 10:35. Tmax=66.1; Tavg=65.1; T2=22.6; Vol=3001mL. (same location with a slight reposition of nozzle-little white chimlet next to nozzle)	21 29.2442	144 2.4851	1607	59	4491
12-04	11:35	J798-HFS-09	J2_798B17	Champagne Site (at Mkr144)	Unfiltered bag #17. Start 11:35. Stop 11:37. Tmax=17.6; Tavg=17.3; T2=18.5; Vol=303mL. (Moved back to base of Mkr-144 by slab of sulfur)	21 29.2442	144 2.4851	1606	65	4612
12-04	11:41	J798-HFS-10	J2_798RNA16	Champagne Site (at Mkr144)	RNA (later) filter #16. Start 11:41. Tmax=20.0; Tavg=18.90; T2=9; Vol=3007mL. (same location) Sensors: pH=4.7 O2=1.6 for samples 9 and 10.	21 29.2442	144 2.4851	1606	65	4626
12-04	15:46	J798-HFS-21	J2_798B23	Yellow Cone (at Mkr146)	Unfiltered Bag #1. Start 15:46. Stop 15:48. Tmax= 29.0C; Tavg= 27.3C; T2= 5C; Vol= 350mL.	21 29.2674	144 2.5194	1579	255	5072
12-04	15:49	J798-HFS-22	J2_798BF24	Yellow Cone (at Mkr146)	Filtered Bag #24 Start: 15:49. Stop: 15:51. Tmax= 30.5C; Tavg= 30.1C; T2= 7C; Vol= 353. Sensors: pH=5.42 O2=0.51ml/L.	21 29.2674	144 2.5194	1579	255	5078
12-04	15:58	J798-HFS-23	J2_798RNA15	Yellow Cone (at Mkr146)	RNA Later Filter #15 Start 15:58. Stop 16:21. Tmax= 34.0 C; Tavg= 33.6 C; T2= 3-4C; Vol=3000 mL.	21 29.2674	144 2.5194	1579	255	5090
12-04	18:06	J798-HFS-30	J2_798BF22	Yellow Cone (at Mkr124)	Filtered Bag 22 Start 18:06. Stop 18:09. Tmax=22.5; Tavg=21.9; T2=9; vol=450mL. Sensors: pH=5.36 O2=0.29mL/l (same location; tip in yellow mat)	21 29.2739	144 2.5189	1584	183	5295
12-04	18:10	J798-HFS-31	J2_798B21	Yellow Cone (at Mkr124)	Unfiltered bag 21. Start 18:10. Stop 18:13 Tmax=23.0 Tavg=22.7 T2=9 vol=475mL.	21 29.2739	144 2.5189	1584	183	5300

Date UTC	Time UTC	Jason sample ID	Lab sample ID	Site	comments	Latitude (N)	Longitude (E)	Depth	Heading	Virtual Van #
12-04	18:15	J798-HFS-32	J2_798Ster13	Yellow Cone (at Mkr124)	Sterivex filter 13. Start 18:15. Stop 18:32 Tmax=25.3 Tavg=24.0 T2=10 vol=3000mL.	21 29.2739	144 2.5189	1584	183	5307
12-04	20:03	J798-Major-33	J2_798MB	Yellow Cone (at Mkr124)	Black Major fired. (same orifice as samples 30-32)	21 29.2739	144 2.5189	1584	215	5474
12-04	20:31	J798-Major-35	J2_798MY	Yellow Cone (at Mkr124)	Yellow major. (same hole as samples 30-33)	21 29.2739	144 2.5189	1584	215	5520
12-05	7:16	J798-HFS-39	J2_798BF20	Mid-water	Filtered Bag 20. Background water samples after Reson survey.	21 29.4238	144 2.6141	1733	51	6459
12-05	7:20	J798-HFS-40	J2_798B19	Mid-water	Unfiltered Bag 19. Bacground water samples after Reson survey.	21 29.4238	144 2.6141	1725	190	6466
12-13	14:24	J799-HFS-03	J2_799B23	Lower Yellow Cone - Mkr124	Unfiltered Bag #23. Start Time: 14:24. Stop: 14:26. Tmax= 11.6C; Tavg= 11.0C; T2= 4.2C Vol= 400 mL. HFS Sensors: pH=5.24. O2=1.57ml/L. Same location sample #02 taken.	21 29.2746	144 2.5211	1583	170	11947
12-13	14:27	J799-HFS-04	J2_799BF24	Lower Yellow Cone - Mkr124	Filtered Bag #24. Start: 14:27. Stop Time: 14:29. Tmax= 12.3C; Tavg= 12.0C; T2= 4.2 C; Vol= 413mL. Same location as sample 2 & 3.	21 29.2746	144 2.5211	1583	170	11952
12-13	15:36	J799-HFS-13	J2_799P1	Upper Yellow Cone - Mkr146	Unfiltered Piston #1. Start 15:36. Stop 15:39. Tmax= 33.4C; Tavg= 33.2C; T2= 16.2C; Vol= 601mL. HFS sensors T=30C pH=5.21 O2=1.19. Same location as samples 10-12 but moved probe around to find highest flow and temperature.	21 29.2635	144 2.5244	1580	245	12087
12-13	18:38	J799-HFS-29	J2_799PF2	Razorback	Filtered Piston #29. Same location as samples 27-28 (placed on either side of the structure) in flow at top of fragile sulfide structure. HFS sensors: pH=4.45 O2=1.45.	21 29.2498	144 2.5074	1566	173	12411
12-13	18:42	J799-HFS-30	J2_799P3	Razorback	Unfiltered Piston #30. Same location and flow. Start 18:42. Stop 18:45. Tmax=20.6 Tavg=17.9 T2=7 vol=450 mL.	21 29.2498	144 2.5074	1566	173	12417
12-13	19:18	J799-HFS-33	J2_799Ster13	Champagne - Mkr144	Sterivex #13 taken with wand in holster. Start 19:18. Stop 19:30. Tmax=3.0 Tavg=2.7 vol=2196 mL. Sample collection in background while recovering instruments (samples 34-35). 7m to the west of Mkr144.	21 29.2434	144 2.4938	1608	93	12514

Date UTC	Time UTC	Jason sample ID	Lab sample ID	Site	comments	Latitude (N)	Longitude (E)	Depth	Heading	Virtual Van #
12-13	19:47	J799-HFS-37	J2_799B19	Champagne - GoldenLips	Unfiltered Bag #19. Start 19:47. Stop 19:50. Tmax=2.7 Tavg=2.7 vol=473 mL. In clump of mussels. Location is to NW of previous sample on small ridge with mussel density increasing as move west away from sulfides. HFS sensor: pH=5.78.	21 29.2567	144 2.4813	1606	74	12597
12-13	20:00	J799-HFS-39	J2_799BF20	Champagne - GoldenLips	Filtered Bag #20. Start 20:00. Stop 20:03. Tmax=2.8 Tavg=2.7 vol=550mL. Wand in holster while Jason securing basket before ascent. Same location as samples 37-38.	21 29.2567	144 2.4813	1606	74	12634
12-16	21:40	J800-HFS-01	J2_800B17	Phantom	Unfiltered Bag #17. Start 21:40. Stop 21:44. Tmax=9.9 Tavg=9.5 T2=7.8 vol=500mL. In shimmering water with filamentous microbial mats and biota.	14 36.052	144 46.514	555	55	12862
12-16	22:07	J800-HFS-03	J2_800BF18	Brimstone	Filtered bag #18. Start 22:07. Stop 22:11. Tmax=9.2 Tavg=8.9 T2=7.5 Vol=500ml. In crevice on the way to Sulfur Crust in area with high shrimp concentration and bits of sulfur. HFS sensor: pH=6.12.	14 36.0518	144 46.532	551	38	12925
12-16	22:19	J800-HFS-04	J2_800PF2	Arrowhead	Filtered piston #2. Start 22:20. Stop 22:22. Tmax=102.3 Tavg=102 T2=33 Vol=450mL. Intense swarm of shrimp.	14 36.058	144 46.535	544	47	12953
12-16	22:25	J800-HFS-05	J2_800P3	Arrowhead	Piston #3. Start 22:23. Stop 22:26. Tmax=101.6 Tavg=100.6 T2=34. Vol=450mL	14 36.058	144 46.535	544	47	12962
12-16	22:29	J800-HFS-07	J2_800BF24	Arrowhead	Unfiltered Bag #24. Start 22:30 Stop 22:31. Tmax=101.8 Tavg=101.6 T2=33 Vol=450mL.	14 36.058	144 46.535	544	47	12973
12-16	22:38	J800-major-09	J2_800MR	Arrowhead	Red major taken at same location as all other Arrowhead samples with Tmax=102C. Major was re-triggered as taking too long to fill. Sample looked good.	14 36.058	144 46.535	544	47	12989
12-16	23:06	J800-HFS-10	J2_800Ster13	near Charon to TipIce	Sterivex #13. Background sample for Sheryl. HFS wand in holster as we transit. Stervex paused at 1500ml and 23:13. Stop 01:38 near at TipIce. Tavg=6.9 Vol=4516mL. Sterivex #13. This sample was stopped mid-sample then re-started after many other sample	14 36.0287	144 46.5636	584	61	13042

Date UTC	Time UTC	Jason sample ID	Lab sample ID	Site	comments	Latitude (N)	Longitude (E)	Depth	Heading	Virtual Van #
12-16	23:26	J800-HFS-11	J2_800B19	SmokingStones	Unfiltered bag #19. Start 23:26. Stop 23:29. Tmax=10.4 Tavg=10.2 T2=8. Vol=475mL. HFS sensor: pH=5.8 O2=1.0. Area of a lot of smoke around rocks but not very hot temperatures.	14 36.0330	144 46.5698	590	318	13083
12-16	23:29	J800-HFS-12	J2_800BF20	SmokingStones	Filtered bag #20. Start 23:30. Stop 23:32. Tmax=10.7 Tavg=10.4 T2=8.2 Vol=475mL.	14 36.0330	144 46.5698	590	318	13092
12-16	23:34	J800-HFS-13	J2_800Ster14	SmokingStones	Sterivex #14. Start 23:34. Stop 23:46. Tmax=10.7 Tavg=10.0 T2=7.5 Vol=3000mL.	14 36.0330	144 46.5698	590	318	13099
12-17	0:45	J800-HFS-16	J2_800B23	Menagerie	Unfiltered bag #23. Start 00:45. Stop 00:48. Tmax=18.8 Tavg=18.7 T2=11 Vol=476mL. HFS sensor: pH 5.59. O2=0.44. Area of diffuse flow coming through the rocks with filamentous bacteria mat and diverse biology.	14 36.0547	144 46.574	534	70	13262
12-17	0:49	J800-HFS-17	J2_800BF22	Menagerie	Filtered Bag #22. Start 00:49. Stop 00:52. Tmax=19.1 Tavg=18.6 T2=11 Vol=476.	14 36.0547	144 46.574	534	70	13271
12-17	0:53	J800-HFS-18	J2_800Ster15	Menagerie	Sterivix #15. Start 00:53. Stop 01:06. Tmax=19.6 Tavg=19.4 T2=11. Vol=3000mL. Same position as previous HFS samples at Menagerie. HFS sensors: pH=5.67. O2=0.20 for last 3 samples.	14 36.0547	144 46.574	534	70	13279
12-17	3:27	J800-HFS-28	J2_800P1	Crab Cavern@FaultShrimp	Unfiltered Piston #1. Start 03:27. Stop. 03:30. Tmax=10.7 Tavg=10.6 T2=7.9 vol=550mL. HFS sensor: pH=6.0.	14 36.056	144 46.6495	565	52	13549
12-17	3:31	J800-HFS-29	J2_800PF4	Crab Cavern@FaultShrimp	Filtered Piston #4. Start 03:31. Stop 03:34. Tmax=10.5 Tavg=10.4 T2=7.8 vol=550 mL. Same location.	14 36.056	144 46.6495	565	52	13561
12-17	3:36	J800-HFS-30	J2_800B21	Crab Cavern@FaultShrimp	Unfiltered Bag #21. Start 03:36. Stop 03:39. Tmax=10.4 Tavg=10.3 T2=7.7 vol=500mL.	14 36.056	144 46.6495	565	52	13571
12-17	3:43	J800-major-31	J2_800MW	Crab Cavern@FaultShrimp	White major at Crab Cavern. Tmax was 10.4 in this site. Same location.	14 36.056	144 46.6495	565	51	13582
12-17	19:00	J801-HFS-06	J2_801B17	GoldenHorn base	Unfiltered Bag #17. Start 19:00. Stop 19:04. Tmax=14.5 Tavg=13.1 T2=5.1 vol=575mL. Taken at same location as samples 1-5. In the upper part of the fluffy mat. HFS Sensors: O2=108uM pH=5.68 at T=11.8C. Jason O2 in holster=132.5uM.	12 55.3426	143 38.9555	2930	153	13961

Date UTC	Time UTC	Jason sample ID	Lab sample ID	Site	comments	Latitude (N)	Longitude (E)	Depth	Heading	Virtual Van #
12-17	19:05	J801-HFS-07	J2_801BF18	GoldenHorn base	Filtered Bag #18. Start 19:05. Stop 19:08 Tmax=10.0 Tavg=8.2 T2=4.0 vol=575mL. Same location.	12 55.3426	143 38.9555	2930	153	13967
12-17	19:17	J801-HFS-08	J2_801Ster13	GoldenHorn base	Sterivex #13. Start 19:17. Stop. 19:31 Tmax=30.2 Tavg=25.0 T2=9.4 vol=3000mL. Repositioned to upper portion of fluffy mat. HFS sensor: O2=75uM at 38decC (O2=1.69xx).	12 55.3426	143 38.9555	2930	154	13988
12-17	20:30	J801-HFS-12	J2_801B19	GoldenHorn middle	Unfiltered Bag #19. Start 20:30. Stop 20:33. Tmax=10.3 Tavg=8.5 T2=5 vol=575mL. HFS sensor: O2=114uM pH=5.95 (check) at T=7-8degC. Same location.	12 55.3426	143 38.9555	2928	132	14129
12-17	20:40	J801-HFS-13	J2_801BF20	GoldenHorn middle	Filtered Bag #20. Start 20:40. Stop 20:44. Tmax=10.4 Tavg=10.1 T2=4.5 vol=575mL. Wand tip moved slightly to get temperature rise. HFS sensor: O2=108uM. pH=5.9 (check).	12 55.3426	143 38.9555	2928	132	14146
12-17	21:33	J801-HFS-16	J2_801PF8	GoldenHorn top	Filtered Piston #8. Start 21:33. Stop 21:37. Tmax=15.9 Tavg=11.6 T2=5 vol=700mL. In flow near top of chimney. HFS sensor: O2=89uM at T=19C.	12 55.3426	143 38.9555	2922	167	14248
12-17	21:38	J801-HFS-17	J2_801P7	GoldenHorn top	Unfiltered Piston #7 Start 21:38. Stop 21:42. Tmax=12.8 Tavg=12.6 T2=5.2 vol=640mL.	12 55.3426	143 38.9555	2922	167	14258
12-17	21:43	J801-HFS-18	n/a	GoldenHorn top	Sterivex #14. Start 21:43. Stop 21:59. Tmax=14.1 Tavg=12.1 T2=5.3 Vol=3000mL. Same location near top of GoldenHorn. No sample.	12 55.3426	143 38.9555	2922	167	14265
12-18	4:43	J801-major-33	J2_801MB	GoldenHorn base	Black Major. Same location as T=74C measured before sample taken.	12 55.3431	143 38.9534	2930	135	14893
12-18	5:07	J801-HFS-37	J2_801Ster10	GoldenHorn top	Sterivex Filter #10. Start 05:07. Stop 05:23. Tmax=11.8 C; Tavg= 9.6C; T2=4.0C; Vol= 3004mL. HFS sensor: pH=5.68. O2=2.43mL/l.	12 55.3431	143 38.9534	2922	185	14948
12-18	5:34	J801-HFS-38	J2_801PF2	Ultra-no-chichi	Filtered Piston #2. Start 05:35. Stop 05:37. Tmax= 184.2C; Tavg= 179.3C; T2=58.9C; Vol= 554mL.	12 55.3378	143 38.9521	2929	132	14993
12-18	5:38	J801-HFS-39	J2_801P3	Ultra-no-chichi	Unfiltered Piston #3. Start 05:38. Stop 05:41. Tmax= 178.7C; Tavg= 173.3C; T2= 57.3C; Vol= 554ml.	12 55.3378	143 38.9521	2929	132	15000

Date UTC	Time UTC	Jason sample ID	Lab sample ID	Site	comments	Latitude (N)	Longitude (E)	Depth	Heading	Virtual Van #
12-18	5:53	J801-major-42	J2_801MR	Ultra-no-chichi	Red Major. Same location as GTHFS samples 41 and 42. Exhaust verified. Temperature 178-184degC. HFS sensors: O2=2.1mL/l (=94uM) where sampled for samples 40-42.	12 55.3378	143 38.9521	2929	132	15020
12-18	6:08	J801-HFS-43	J2_801P5	Ultra-no-chichi	Unfiltered Piston #5. Start 06:08. Stop 06:11 Tmax=17.3 Tavg=16.3 T2=8 vol=600mL. Location is the shrimp habitat in the flow.	12 55.3378	143 38.9521	2929	123	15049
12-18	6:57	J801-HFS-47	J2_801B23	ascent	Unfiltered Bag #23. Background water sample. Start 06:47. Stop 07:02. Depths 2525-2388.	12 55.314	143 38.91	0	0	15132
12-18	7:01	J801-HFS-48	J2_801BF24	ascent	Filtered Bag #24. Start 07:02. Stop 07:05 Depths 2376-2262.	12 55.315	143 55.315	0	0	15138

HFS sample at NW Eifuku (J799-HFS-37).

Table 4.2.1-2. Hydrothermal Fluid Sampler Configuration

HFS valve position	Type (sampler and filt holder material)	Filtered?	Front Pressure Relief Valve	Back Pressure Relief Valve
1	Piston, PVC, PP	No	20	5
2	Piston, Ti, Teflon	Yes	100	40
3	Piston, Ti, Teflon	No	75	40
4	Piston, Ti, Teflon	Yes	75	40
5	Piston, Ti, Teflon	No	75	40
6	Piston, PVC, Teflon	Yes	20	5
7	Piston, PVC, Teflon	No	20	5
8	Piston, PVC, PP	Yes	20	5
9*	Piston, Ti, Tef	No	75	none
10	Sterivex filter			
11	Sterivex filter			
12	pH and O2 sensors			
13	Sterivex filter			
14†	RNA-Later filter			
15†	RNA-Later filter			
16†	RNA-Later filter			
17	Bag, Tedlar, PVC-PP	No		5
18	Bag, Tedlar, PVC-PP	Yes		20
19	Bag, Tedlar, PVC-Teflon	No		5
20	Bag, Tedlar, PVC-PP	Yes		5
21	Bag, Tedlar, PVC-Teflon	No		20
22	Bag, Tedlar, PVC-Teflon	Yes		5
23	Bag, Tedlar, PVC-PP	No		5
24	Bag, Tedlar, PVC-Teflon	Yes		20

*Position 9 had a Sterivex filter on dives 797 and 798. †RNA-Later filter holders were removed after the first two dives and replaced with Sterivex filters. Positions 11 and 16 were vacant on dive 799.

The filter holder inlet end caps for pistons and bags, as well as the pistons themselves, were cleaned between sampling by flushing with hot water, wiping with Kim-wipes (with ethanol added to the Kim-Wipes to remove any excess Fluorolube or particles), rinsed again with hot water, rinsed with de-ionized water, and then rinsed with filtered deep seawater. The HFPS intake line and manifold were thoroughly rinsed with fresh water between dives and the manifold was flushed with seawater during the descent.

Sample Processing

HFS sample trays were stored in the cold room and samples were processed one at a time.

1. If a gas headspace was present, the entire headspace volume was removed into one gas-tight syringe and the total gas volume measured. Gas was analyzed by GC for hydrogen and methane.
2. An aliquot (10-20 ml) of liquid was removed into a syringe (syringe rinse discarded) and analyzed by GC for hydrogen and methane.
3. An aliquot (20-35ml) was removed into a syringe for hydrogen sulfide analysis by methylene blue spectrophotometry. The same aliquot was used for making a dilution for silica analysis by molybdate spectrophotometry, and for ammonia analysis by indophenol spectrophotometry after acidification and purging with nitrogen gas. We used an alternative phenol-containing reagent for ammonia.
4. An aliquot (35ml) was transferred by syringe to a 30ml bottle, filled to the top from the bottom slowly using a filling tube. pH was measured using the Brinkmann pH electrode at room temperature (21-26°C, recorded manually). Alkalinity titrations done on this aliquot after pH measurement.

5. An aliquot was syringe-filtered (sterile, SFCA, 0.2 micron, lot#17597) into a 30ml hdpe bottle, full, no head space, for major elements. Syringes were acid cleaned.
6. 45-50ml was transferred by syringe into pre-labeled hdpe bottles and frozen for nutrient and N/O isotopic analysis of nitrate to be sent to Annie Bourbonnais. Bottle numbers ("DIN") recorded. Samples were syringe filtered through 0.2micron SFCA unless otherwise noted. The samples were not purged.
7. 45ml was transferred by syringe into pre-labeled hdpe bottles with NaOH solution for N/O isotopic analysis of nitrite by Annie Bourbonnais. Bottle numbers ("BNO2") recorded.
8. 45ml transferred by syringe into a glass bottle with Teflon-lined top (cleaned by rinsing with DIW and baking at 550C for 8 hours, wrapped in aluminum foil) for dissolved organic carbon analysis at UW. Samples that were not in-situ filtered were filtered through 0.2 micron syringe filters unless noted as not filtered (n.f.).
9. Available remaining volume expressed directly from bag or piston or major sampler into I-Chem hdpe bottle for trace metal analysis. Acidified with ultra-pure, sub-boiling distilled HCl (2µl/ml). For some samples, 3ml was transferred to a small tube for on-board iron analysis by ferrozine method (Sean McAllister).
10. For selected samples, variable volumes were given to: a) Sheryl Murdock for cell counts and microbial/protist incubations and analysis; b) Jason Sylvan for Organic Nitrogen analysis.
11. For selected high-temperature samples, aliquots were saved for sulfur isotope analysis (45ml in glass vial, filled from bottom, plus 0.5ml 10wt% Cd acetate solution, capped, no headspace).
12. For selected samples from NW Rota, 20ml glass vial filled slowly from bottom, preserved with 50µL 37% formaldehyde for sulfur dioxide analysis.
13. For selected samples, 10ml of sample was injected through a rubber septum into an evacuated glass vial, to be analyzed total dissolved inorganic carbon by Giora Proskurowski at University of Washington.
14. Filters (when present) were rinsed with a few mL of DIW in the HFS filter holders, excess water was suctioned off, and the filter placed in a clean, covered slide labeled with filter number and sample number. Filters were air-dried in a laminar flow hood and then placed in a dessicator box.

Frozen samples were shipped to Seattle by Fed Ex immediately after the cruise and arrived in Seattle still frozen. Unfrozen samples were sent in the container shipment.

For geochemistry samples collected with the Bio-Mat Sampler syringes, we sub-sampled for gases (~10ml), H2S and Si (~10ml), trace metals and cations (~17ml), anions (2ml), DIC (10ml), nutrients/N isotopes (40ml), and pH/alkalinity (18ml).

Note that Dive J2-798 did not have a normal recovery, and this affected sample quality for that dive, particularly for samples with very high gas content. When the sampler decompresses, piston samplers can first expand to their full volume by pushing water out the back side of the piston through a pressure relief valve. If excess gas pressure is high enough to overcome the higher pressure relief valve on the sample, then gas will vent out the top of the piston. Because the ROV returned to a depth of 800 meters after being at the surface, samples that expanded when decompressed would contract again when recompressed, resulting in seawater being pushed into the sample container until pressure equalized. The check valve only prevents sample escaping, not entering the sampler. So, samples that had enough gas pressure to force the piston to expand have been diluted with seawater, up to a maximum of approximately 1:1 in the extreme.

Oxygen and pH sensors

A Seabird SBE63 oxygen optode (serial number 00442) and a deep-sea pH sensor from AMT (serial number 28 used on dives 797-799, refurbished in June 2013, previously deployed with HFS in 2013 and 2014 cruises and calibrated before and during the cruise; serial number 31 used on dives 800-801), were both plumbed in line on valve position 12. Fluid is pumped through the sensors to take a measurement and the data are recorded in the HFS log file. We used both sensors during descent/ascent through the water column and for spot measurements in low-temperature vents and in near-bottom waters near vent sites. The oxygen sensor perfomed reliably throughout the cruise. The pH sensor was stable and gave appropriate values for background pH. We replaced the pH sensor with a newly refurbished and calibrated sensor prior to the start of dive 800 at NW Rota. The new sensor (s/n 31) was noisy and did not give reasonable results at depth. We will examine the data and the sensor more closely post-cruise.

Table 4.2.1-3. Vent Fluid Sample Splitting

		Sample Splitting Information, Dive 797 at Snail/Urashima																		
Jason sample#	lab sample#	HFS filter ID	Sample volume mL	gas head mL	gas-H2O mL	pH/Alk mL	H2S/Si mL	Majors mL	DIN mL	DIN #	BNO2 mL	BNO2 #	DOC mL	TM mL	Fe-ship	DIC Giora	Microbio	DON Jason S.	Nuts UW	S isotope
J797-HFS-02	J2_797BF24	G13-104	553		35	35	25	35	60	501	60	612	80	220						3
J797-HFS-03	J2_797B23		45			10		35												
J797-HFS-19	J2_797B17		593		45	35	38	35	55	504	55	606	80	250						
J797-HFS-20	J2_797P1		480		20	37	40	35	50	509 n.f.	50	610	45	200	3					
J797-HFS-21	J2_797P3		118		15	35	18	35						15						
J797-HFS-22	J2_797PF2	G13-105	35					35												
J797-HFS-23	J2_797P5		370		20	35	30	35						250						
J797-Major-25	J2_797MW		610		15	35	25	35	60	539, n.f.	60	611, n.f.	80	250					50	
J797-Major-26	J2_797MR		660		20	35	25	35	100	502, 511	100	0 not filt'd, 6	40	250						45
J797-HFS-29	J2_797PF4	G13-106	698		30	35	30	35	50	507	45	601	90	200	3					
J797-HFS-30	J2_797P7		538		20	35	25	35	50	518	50	603	90	230	3					
J797-HFS-32	J2_797PF6	G13-107	475		30	35	25	35	50	505	50	602	95	110						45
J797-HFS-38	J2_797B21		573		45	35	25	35	60	527	60	604	80	110	3		120			
J797-HFS-39	J2_797BF22	G13-103	515		35	35	30	35	60	532	60	615	80	180						
J797-HFS-40	J2_797BF20	G13-102	433		40	40	25	35	50	503	50	616	80	110	3					

		Sample Splitting Information, Dive 798 and 799 at NW Eifuku																	
Jason sample#	lab sample#	HFS filter ID	Sample volume mL	gas head mL	gas-H2O mL	pH/Alk mL	H2S/Si mL	Majors mL	DIN mL	DIN #	BNO2 mL	BNO2 #	DOC mL	TM mL	Fe-ship	DIC Giora	Microbio	DON Jason S.	Nuts UW
J798-HFS-39	J2_798BF20	G13-113	305		30	35	30	35	50	593				125					
J798-HFS-40	J2_798B19		425		40	70	30	35						250					
J798-HFS-01	J2_798P1		469	340	12	40	45	35	50	516	50	619	42	145			50		
J798-HFS-03	J2_798PF4	G13-118	462	570	10	35	37	40	45	598	45	643	50	200					
J798-HFS-05	J2_798PF2	G13-117	727	800	10	35	32	35	45	506	40	622	90	425		15			
J798-HFS-06	J2_798P3		787		7	35	37	70	45	537	45	626	90	450	8				
J798-HFS-21	J2_798B23		330		25	35	35	35	50	525	45	697	40	50					15
J798-HFS-22	J2_798BF24	G13-116	275		22	35	35	35	45	581	40	683		60	3				
J798-HFS-30	J2_798BF22	G13-115	335		20	35	35	35	45	519	45	634		120					
J798-HFS-31	J2_798B21		332	4	25	35	30	35	45	587 n.f.	32	617 n.f.		125	5				
J798-Major-35	J2_798MY		626		10	35	40	35	50	513	50	621	90	300	6	10			
J799-HFS-03	J2_799B23		Empty																
J799-HFS-04	J2_799BF24	G13-122	134		10	35	10	15						32	3	13			
J799-HFS-13	J2_799P1		266		10	35	30	35						70	6	20		60	
J799-HFS-29	J2_799PF2	G13-120	250											250					
J799-HFS-30	J2_799P3		363	670	10	35	20	35	50	550	50	699	40	120	3				
J799-HFS-37	J2_799B19		343		12	35	20	35	50	551	40	693		75	6	10	60		
J799-HFS-39	J2_799BF20	G13-119	225		12	35	40	35	60	552				30	3	10			

		Sample Splitting Information, Dive 800 at NW Rota																		
Jason sample#	lab sample#	HFS filter ID	Sample volume mL	gas head mL	gas-H2O mL	pH/Alk mL	H2S/Si mL	Majors mL	DIN mL	DIN #	BNO2 mL	BNO2 #	DOC mL	TM mL	Fe-ship	DIC Giora	Microbio	DON Jason	SO2	S iso
J800-HFS-16	J2_800B23		98		10	18	20	18						17			15			
J800-HFS-17	J2_800BF22	G13-125	196		10	35	20	18	55	568				55	3					
J800-HFS-28	J2_800P1		339		12	35	35	35	50	569	35	138	35	86			16			
J800-HFS-29	J2_800PF4	G13-121	225		13	35	39	18					30	90						
J800-HFS-30	J2_800B21		284		10	35	20	36	45	586			35	100	3					
J800-major-31	J2_800MW								40	556	40	189	80							
J800-HFS-01	J2_800B17		269		10	35	35	35	45	563			35	54			20			
J800-HFS-03	J2_800BF18	G13-112	156		10	18	20	18					35	55						
J800-HFS-04	J2_800PF2	G13-123	238	110	12	35	16	35					36	65	3				36	
J800-HFS-05	J2_800P3		71		7	18	10	18											18	
J800-HFS-07	J2_800BF24	G13-126	202		10	18	20	30	48	574			35	18	3				20	
J800-major-09	J2_800MR		539	100		35	30	35	55	557	45	160	73	50	3			150	18	45
J800-HFS-11	J2_800B19		293		10	35	20	18	45	592			35	30			100			
J800-HFS-12	J2_800BF20	G13-124	141		10	35	20	18						55	3					

		Sample Splitting Information, Dive 801 at Urashima																
Jason sample#	lab sample#	HFS filter ID	Sample volume mL	gas head mL	gas-H2O mL	pH/Alk mL	H2S/Si mL	Majors mL	DIN mL	DIN #	BNO2 mL	BNO2 #	DOC mL	TM mL	Fe-ship	DIC Giora	Microbio	DON Jason
J801-major-3	J2_801MB		713		0	35	30	35					50	60	3			500
J801-HFS-38	J2_801PF2	G13-131	313		25	35	30	35	60	561				125	3			
J801-HFS-39	J2_801P3		386		22	35	50	35	45	573	35	144	35	115	3	11		
J801-major-42	J2_801MR		728		20	35	30	35	50	567	50	687	80	245	3			180
J801-HFS-43	J2_801P5		494		22	35	30	35	45	579	35	184	37	125		10	120	
J801-HFS-47	J2_801B23		377		22	35	30	35	45	585	60	700	40	110				
J801-HFS-48	J2_801BF24	G13-129	212		22	35	30											125
J801-HFS-06	J2_801B17		10	failed sample										10				
J801-HFS-07	J2_801BF18	G13-101	233		12	35	35	35	40	571	30	104		43	3			
J801-HFS-12	J2_801B19		348		22	35	35	18	45	572				80	3		110	
J801-HFS-13	J2_801BF20	G13-122	227		24	35	30	35	45	584	40	170		18				
J801-HFS-16	J2_801PF8	G13-111	253		22	35	33	35						125	3			
J801-HFS-17	J2_801P7		392		22	35	30	35	40	580	37	163	40	125	3	10	15	

4.2.2 Gas Sampling

Leigh Evans (NOAA/PMEL/EOI – OSU)

A total of 13 gas-tight samples were collected during the cruise. 10 of them were connected to the manifold of HFS and 3 were taken as discrete hand-held samples. The sample information is shown in the table below and includes the gas-tight bottle number stamped on the titanium sampler, the color or HFS position, the vent site and the measured temperature and total gas content. We did not attempt to sample the pure liquid CO2 at NW Eifuku, but sampled warm fluids in the Champagne area with liquid droplets venting nearby.

For now only total gas concentration is known. For each sample several portions of each gas were sealed in glass ampules. The main analyses will be helium isotopes, carbon dioxide, sulfur gases, methane and hydrogen.

The samples at Active, Snail and Urashima are new to the collection of the Helium Isotope Lab at PMEL.

Dive	GTB	sampler	Vent	Vent (degC) Temperature	[gas] m-mole/kg
J2-797	9	red	Snail mkr24 HFS27	190 max	3.54
J2-797	7	stbd HFS	Urashima HFS31	161	19.19
J2-797	5	port HFS	Snail mkr24 HFS24	174	4.85
J2-798	5	port HFS	Eifuku Champagne mkr 144 HFS04	26.2	186.14
J2-798	7	stbd HFS	Eifuku Champagne mkr 144 HFS08	66.1	358.14
J2-799	5	port HFS	Eifuku Champagne Golden Lip HFS40	2.8	3.77
J2-799	7	stbd HFS	Eifuku Upper Yellow Cone mkr146 HFS14	33.4	46.84
J2-800	5	port HFS	Eifuku Arrowhead HFS06	101.6	90.37
J2-800	7	stbd HFS	Eifuku Smoking Stones HFS14	10.5	6.55
J2-800	9	red	Eifuku Crab Cavern@Fault Shrimp HFS32	10	3.50
J2-800	2	green	Eifuku Menagerie HFS19	19.6	6.87
J2-801	5	port HFS	Active HFS40	178 - 184	23.93
J2-801	7	stbd HFS	Active HFS41	178 - 184	23.17

4.3 Water Column Operations

4.3.1 CTD

Sharon Walker (NOAA/PMEL/EOI)
Joe Resing (NOAA/PMEL/EOI – UW)
Nathan Buck (NOAA/PMEL/EOI – UW)

The goals of water column CTD operations during this cruise were to: (1) assess the current level of eruptive/hydrothermal activity at sites of known volcanic eruptions, primarily NW Rota-1, which had been erupting near-continuously between 2004 and 2010 when we last sampled there, and Ahyi volcano, which was recently erupting in April/May 2014; (2) to estimate the flux of hydrothermal components and CO_2 from an erupting volcano by conducting CTD tows downstream and perpendicular to the plume originating from the eruptive vent; and (3) to re-visit other sites in the area, if time allowed, to assess how these systems may have changed over time.

A total of 18 CTD casts were completed during this cruise (13 vertical casts and 5 tows, summarized in Table 4.3-1 using PMEL's CTD system: a Seabird 9*plus* CTD, with auxiliary sensors for optical backscatter, oxidation-reduction potential (ORP), pH, oxygen, and altitude above the seafloor. Water samples were taken at select times and depths and subsampled for: helium, hydrogen, methane, hydrogen sulfide, Total CO_2, nutrients, pH, scanning electron microscopy, particulate matter chemistry, iron (II), and dissolved and Total dissolvable trace metals. Table 4.3-2 shows a summary of the number of samples of each type that were collected from each CTD cast. The pH anomalies described below are in-situ values from the CTD-mounted pH sensor. Discreet water samples analyzed for pH in the lab provide more accurate, well calibrated pH values and are also noted.

CTD instrument deployed from R/V Revelle.

Table 4.3.1-1 CTD deployments (white: CTD Casts; green: CTD Tow-yos; yellow: Double CTD cast)

Cast	Station Name	Lat (deg) S	Lat (min) S	Long (deg) W	Long (min) W	Start time	End time	bottom depth	Comments
0	V14B-test	12	57.1120	143	37.0830	29-Nov-2014 13:39	29-Nov-2014 14:11	2854	test cast at "Snail" site (backarc) CTD to >600 m only (bottom depth 2854 m)
1	V14B-01	14	36.0440	144	46.4830	02-Dec-2014 05:34	02-Dec-2014 06:27	567	NW Rota - 50m south of Brimstone (altimeter not charged, bottom depth 590-600 m)
2	V14B-02	14	35.8280	144	45.3990	02-Dec-2014 10:29	02-Dec-2014 11:41	1420	1-2 km west of NW Rota summit - CTD to 1205 m (bottom depth = 1420 m)
3	V14B-03	20	26.7400	145	1.7790	03-Dec-2014 20:36	03-Dec-2014 02:33	524	Ahyi volcano - ~1 km N of summit
4	V14B-04	20	26.1620	145	1.8580	04-Dec-2014 01:11	04-Dec-2014 01:35	267	Ahyi summit - over crater S of summit ridge
5	V14B-05	20	26.3790	145	1.1730	04-Dec-2014 02:32	04-Dec-2014 03:07	217	Ahyi summit - over crater N of summit ridge
6	T14B-01(start)	20	27.0060	145	0.9550	04-Dec-2014 05:27			
	T14B-01(end)	20	27.0050	145	3.2270		04-Dec-2014 08:22		Ahyi - Flux experiment tow - across current ~ 1 km N of summit
7	V14B-06	21	49.0090	144	29.9950	09-Dec-2014 06:55	09-Dec-2014 09:32	3083	background cast (NE of Eifuku)
8	T14B-02(start)	21	24.0830	144	9.0960	09-Dec-2014 13:33			
	T14B-02(end)	21	25.4200	144	8.4250		09-Dec-2014 15:34		Eifuku - tow across summit (SE->NW)
9	V14B-07	20	22.6470	145	1.6680	10-Dec-2014 05:26	10-Dec-2014 06:20	2009	background near Ahyi - CTD to 505 m (bottom depth = 2009 m)
10	V14B-08	20	26.2260	145	1.7840	10-Dec-2014 07:30	10-Dec-2014 07:44	110	Ahyi summit - bottom depth too shallow to get to plume - NO BOTTLES TRIPPED
11	V14B-09	20	26.1470	145	1.7330	10-Dec-2014 08:30	10-Dec-2014 09:07	190	Ahyi summit
12	T14B-03(start)	21	19.5980	144	10.7600	11-Dec-2014 14:30			
	T14B-03(end)	21	20.0380	144	12.6250		11-Dec-2014 17:46		Daikoku - Flux experiment tow ~750 m downstream (North) of summit
13	T14B-04(start)	21	19.6560	144	11.3770	13-Dec-2014 04:01			
	T14B-04(end)	21	18.9290	144	11.4590		13-Dec-2014 05:40		Daikoku - Flux experiment tow ~300 m downstream (West) of summit

Cast	Station Name	Lat (deg) S	Lat (min) S	Long (deg) W	Long (min) W	Start time	End time	bottom depth	Comments
14	V14B-10	21	29.2410	144	2.4860	13-Dec-2014 22:34		1622	NW Eifuku "double profile" - first part over Champagne vent
		21	29.2680	144	2.5140		14-Dec-2014 00:38	1585	then moved ship slightly to be over "Yellow Cone" site
15	V14B-11	21	24.7470	144	8.7620	14-Dec-2014 04:30	14-Dec-2014 05:09	457	Eifuku - summit crater
16	V14B-12	18	45.1470	144	38.1540	15-Dec-2014 04:09	15-Dec-2014 04:45	4600	"clean bottle" test - CTD to 750 m (bottom depth ~4600 m)
17	V14B-13	14	36.0720	144	48.6060	16-Dec-2014 08:47	16-Dec-2014 09:38	2000	"clean bottle" test #2 - CTD to 1000 m (bottom depth ~2000 m)
18	T14B-05(start)	13	14.6960	144	0.5370	18-Dec-2014 12:57			
	T14B-05(end)	13	15.2340	144	1.9070		18-Dec-2014 15:37		Seamount X

Table 4.3.1-2 CTD bottle samples.

Cast	Cast #	Type	Station Name	Helium	H_2 and CH_4	pH	Nutrients	Total CO_2	Total Metals	Dissolved Metals	SEM	XRF	Fe(II)	H_2S
V14B-01	1	Vertical	NW Rota	5	5	28			11	2	1	2		
V14B-02	2	Vertical	NW Rota	6					6					
V14B-03	3	Vertical	Ahyi	9	12	28	8	8	16	9	4	8		
V14B-04	4	Vertical	Ahyi	2	2	6			2					
V14B-05	5	Vertical	Ahyi	5	6	21	8	4	8	4	1	3		
T14B-01	6	Tow	Ahyi	16	15	27		12	20	9		8		
V14B-06	7	Vertical	BKGRND	21	6	28	21	16	21	31		10		
T14B-02	8	Tow	Eifuku	8	10	22	8	9	10	4	1	4		
V14B-07	9	Tow	Ahyi BKG	6	5	19	7	6	10					
V14B-09	10	Vertical		7	7	23	10	5	10	6	2	6		
T14B-03	12	Tow	Daikoku	13	11	27	11	11	19	7	2	7		
T14B-04	13	Tow	Daikoku	12	11	28	4	4	17	8	2	8	4	9
V14B-10	14	Vertical	dbl vertical	9	9	28		9	10	5		6		
V14B-11	15	Vertical	Eifuku	7	4	17			7	3		3		
V14B-12	16	Vertical	Soak Cast						21					
V14B-13	17	Vertical	Bottle Test						21	27		6		
T14B-05	18	Tow	SMT X	9	9	18			13	6		4		
Totals				**135**	**112**	**320**	**77**	**84**	**222**	**121**	**13**	**75**		**9**

XRF are samples collected on 0.4 uM polycarbonate filters for chemical analysis by X-Ray Fluoresence Spectroscopy; SEM are samples collected on 0.4uM filters for Scanning Electron Microscopy;

NW Rota-1: Two CTD casts, one near the summit [V14B-01] and one west of the summit [V14B-02], detected no hydrothermal or eruptive plumes. This was consistent with the multibeam mid-water data that did not image bubble plumes coming from the summit (see EM122 mid-water data section). However, ORP anomalies in data from MAPRs deployed on the hydrophone/ADCP/MAPR mooring at the summit for the duration of this cruise showed hydrothermal activity is still present. Jason dive J800 confirmed the absence of eruptive activity and found that diffuse hydrothermal venting was supporting thriving biological communities.

Ahyi: Plumes with significant particle ($dNTU_{max}$= 1.5), ORP (ΔE= -80 mv) and pH (-0.6) anomalies were seen at 130-150 m water depth over the summit of Ahyi volcano, and deep particle layers (>400 m water depth) were seen downslope at two casts about 1 km north of the summit [V14B-03 and T14B-01(downcast)]. Discreet water sample pH measurements revealed pH anomalies to be no more than -0.1 pH unit and resolving discrepancies between the pH sensor and discreet measurements will be addressed. While we could not definitively confirm if eruptive activity was continuing at Ahyi, it is possible there was still a lower (not detected by seismic stations) level of activity ongoing, there was certainly a vigorous hydrothermal system seven months after the April/May 2014 event. Currents (see ADCP current monitoring section) were steady enough to direct the plume towards the north which allowed us to conduct one Flux Experiment tow approximately 1 km north of the summit [T14B-01]. Figure 4.3.1-1 shows the particle plume (dNTU), potential density contours, CTD tow trackline, bottle sample positions (□) and ORP anomalies during tow T14B-01 at Ahyi.

NW Eifuku: One vertical cast [V14B-10] was completed at NW Eifuku to collect plume samples in the water column above the two sites that were the focus of the ROV dives – "Champagne" and "Yellow Cone". These sites are located about 70 m apart on the seafloor. The ship was moved from one position to the other during the cast so that samples could be obtained from directly over each site. Similar to previous years, particles were nearly absent ($dNTU_{max}$= 0.005) in the plumes at NW Eifuku, but both ORP and pH sensors registered significant anomalies (ΔE= -80 mv; ΔpH= -0.15) within 50 m of the seafloor. Discreet pH measurements revealed pH anomalies to be ≈ -0.1 pH unit, consistent with the pH sensor data.

Eifuku: Eifuku volcano was one of the sites that did not have signs of hydrothermal activity during our initial survey of the Mariana arc volcanoes in 2003. Given the dynamic nature of the volcanoes in this region, and its nearby location, we completed one tow and one vertical cast at Eifuku [T14B-02 and V14B-11] to see if anything had changed. A layer of increased particle concentration ($dNTU_{max}$= 0.1; centered ~370 m), accompanied by generally decreasing ORP directly over the summit suggested that there was an active hydrothermal system at Eifuku. However, Daikoku volcano, ~11 km to the southeast of Eifuku, has been a site with intense hydrothermal plumes within the same depth range (350 – 400 m) and where pools of liquid sulfur were observed and sampled on the seafloor during previous cruises. A more significant ORP anomaly (ΔE= -8 mv) during vertical cast V14B-11 at the summit of Eifuku strengthens the probability that while the plume from Daikoku almost certainly contributes to the particle layer in the area (see below), Eifuku is also hydrothermally active. Figure 4.3.1-2 shows the particle plume (dNTU), potential density contours, CTD tow trackline, bottle sample positions (□) and ORP anomalies during T14B-02 at Eifuku.

Daikoku: Daikoku was selected as an alternate site for the Flux Experiment based on the previous intensity of plumes seen there and the likelihood that activity at Daikoku may have been contributing to the plume seen over Eifuku 11 km away, implying Daikoku was robustly active. The first Flux Experiment tow [T14B-03] at Daikoku was located ~750 m north of the summit. Multiple plume layers of varying intensity at the summit depth (between ~320-420 m) all had particle, ORP and pH anomalies ($dNTU_{max}$= 0.1 to 1.0; ΔE= -50 mv; ΔpH= -0.4). The most intense layer was centered ~350 m. pH anomalies from discreet samples were much higher, reaching -0.8 pH units, probably reflecting precipitation of metal sulfides and oxidation of H_2S prior to the collection of the discreet samples. Samples taken for Total CO_2 will help resolve this issue. Several particle layers ($dNTU_{max}$= 0.086, with no ORP or pH signals) were found below 420 m depth during the initial downcast of tow T14B-03 to the west and slightly north of the summit. The intense layers over the summit along with multiple deep particle-only layers suggested Daikoku was actively erupting. Bathymetry differences (see multibeam mapping section), bubble plumes (see EM122 mid-water data section) and unusually high hydrogen concentrations in the discreet samples confirmed an active eruption in progress. The second Flux Experiment tow [T14B-04] was positioned to the west and ~300 m downstream of the summit (see ADCP current monitoring section). Figure 4.3.1-3 shows the particle plume (dNTU), potential density contours, CTD tow trackline, bottle sample positions (□), ORP and pH anomalies from tow T14B-03. The fully shaded area is the bathymetry profile under the tow trackline, the semi-transparent area is the

bathymetry profile across the summit of Daikoku along a line parallel to the tow trackline. Figure 4.3.1-4 shows the particle plume (dNTU) from tow T14B-04 relative to the new, larger crater at the summit of Daikoku.

Launching of CTD instrument over Ahyi seamount.

Figure 4.3.1-1 Ahyi T14B-01

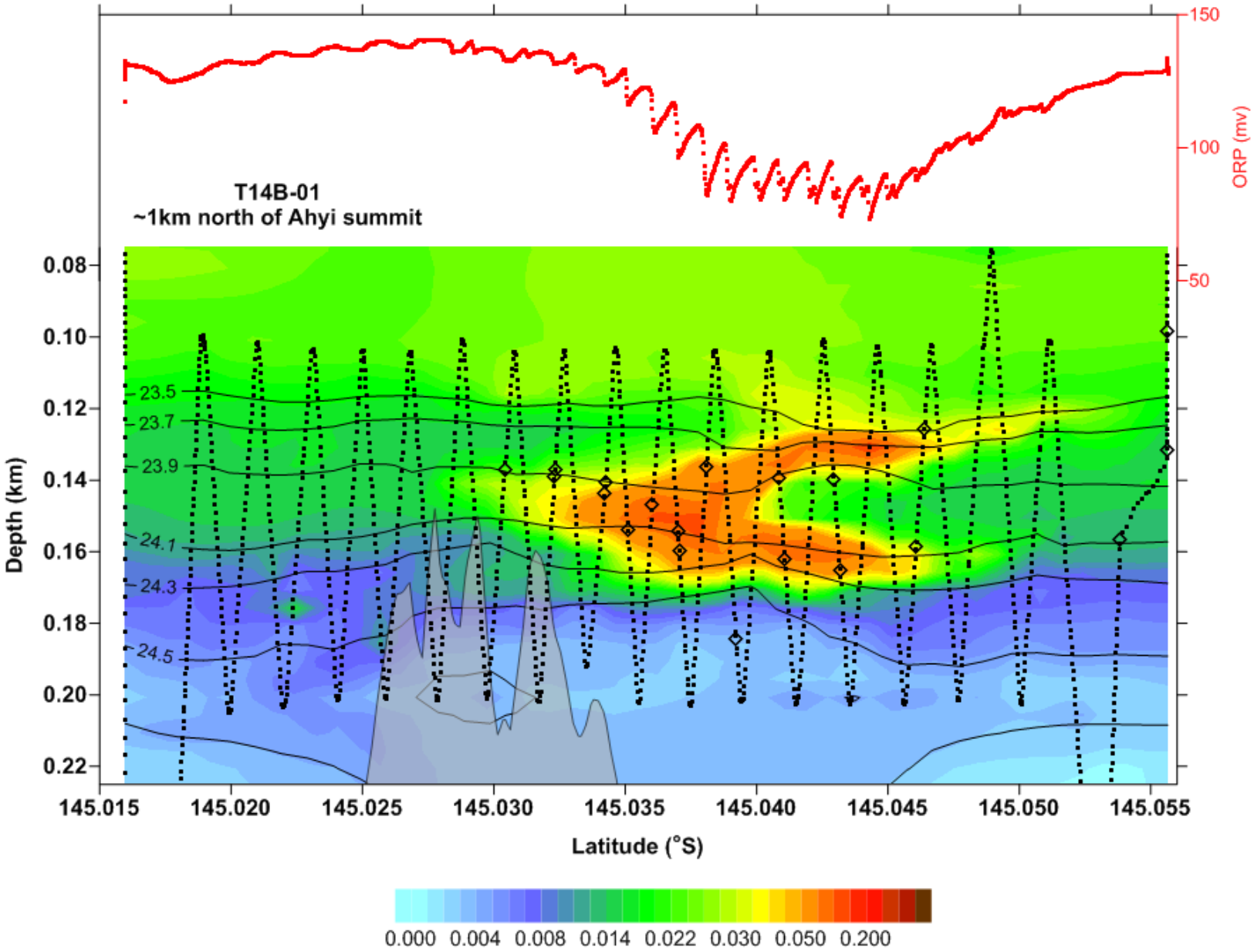


Figure 4.3.1-2 NW Eifuku T14B-02

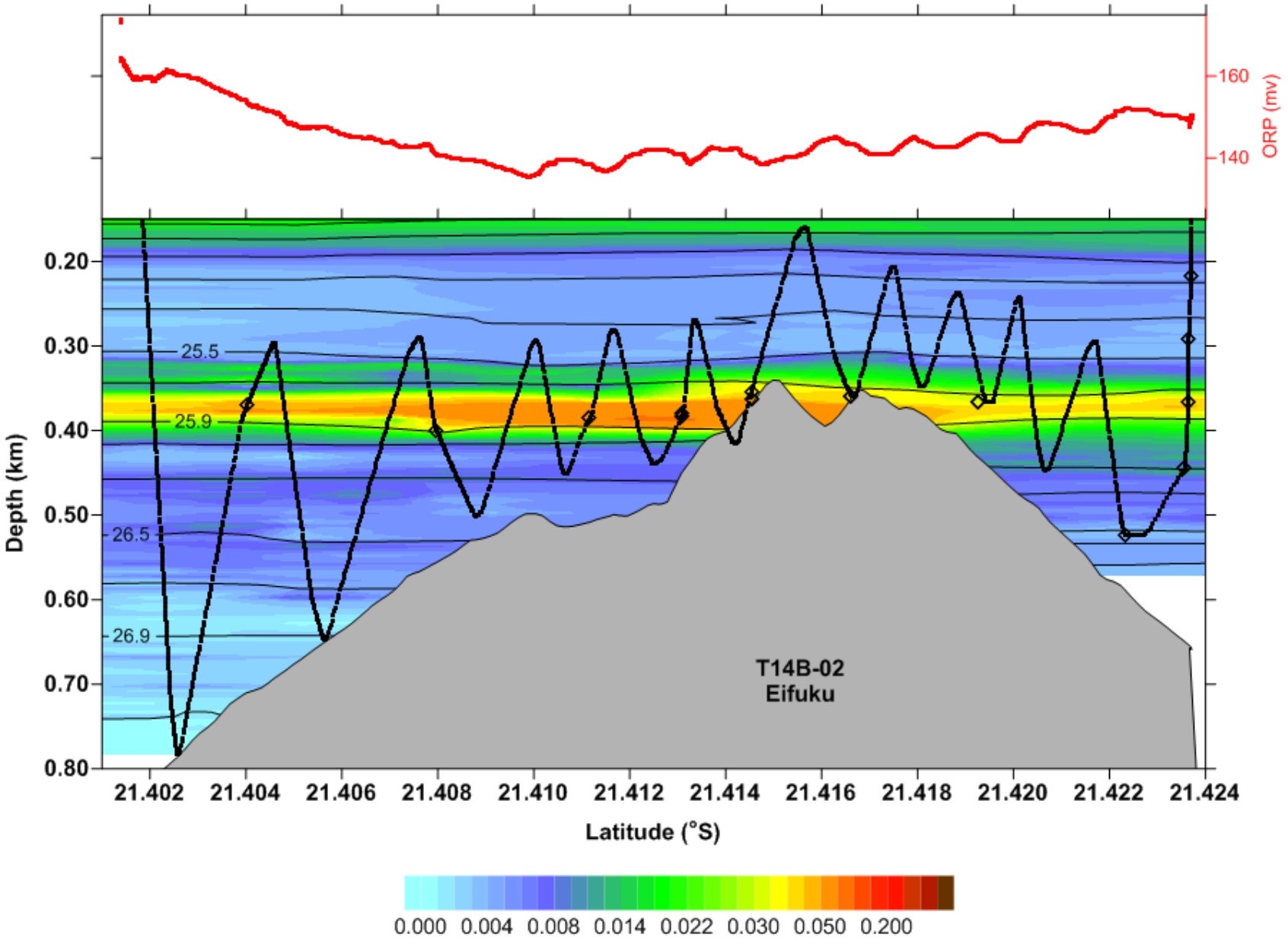


Figure 4.3.1-3 Daikoku T14B-03 (west of summit).

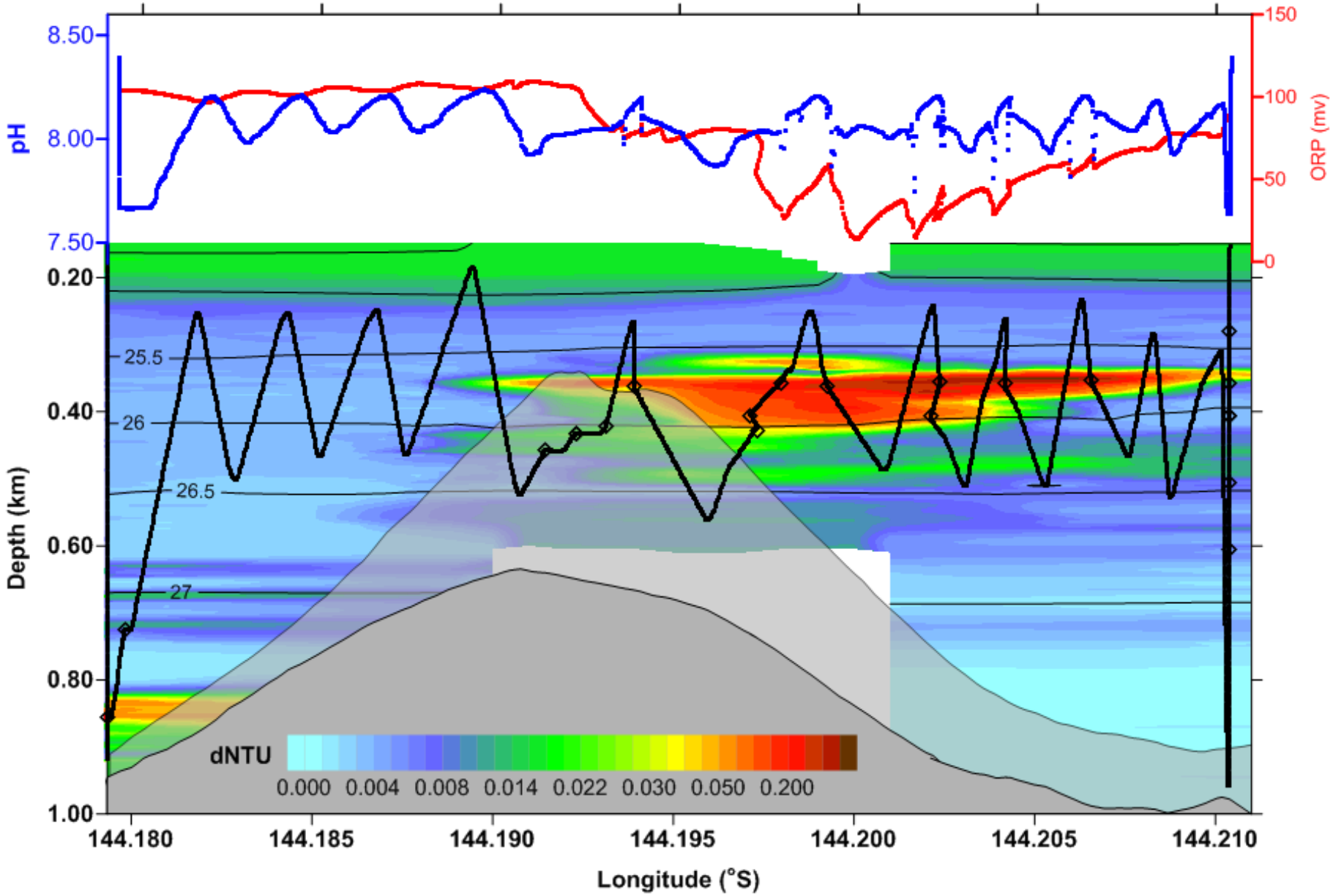
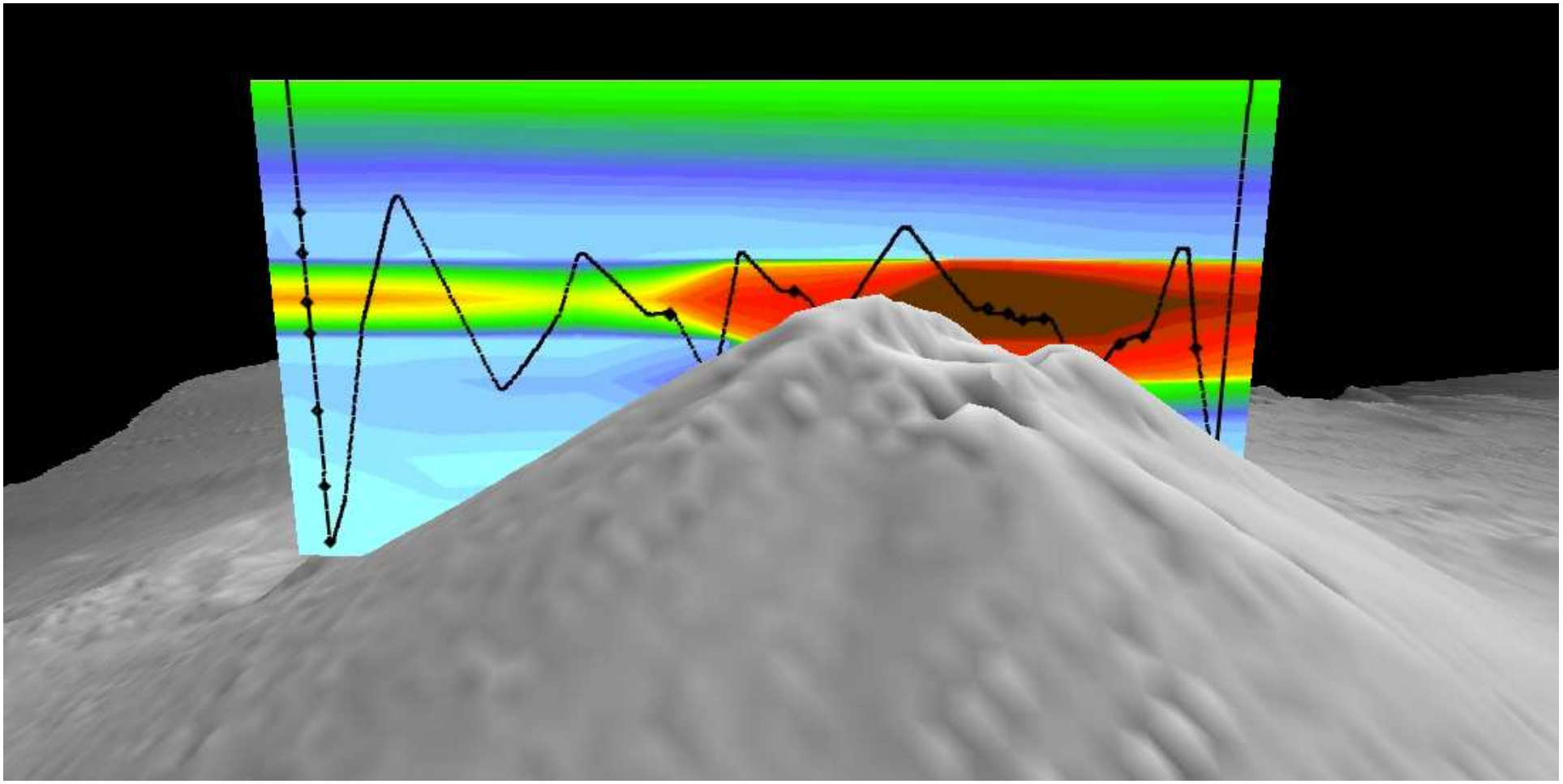


Figure 4.3.1-4 Daikoku T14B-04 relative to the summit of Daikoku.



4.3.2 Acoustic Doppler Current Profiling

Joe Resing and Nathan Buck (NOAA/PMEL/EOI UW/JISAO)

The R/V Revelle's RDI 75KHz Acoustic doppler current profiling (ADCP) provided measurements of ocean current velocities and directions (vectors). ADCP data were collected during the cruise to provide an understanding of the oceanic currents in the region of the Mariana Arc to aid in our understanding of the near and distal fate of hydrothermal plumes. We used these data in real-time in conjunction with towed CTD casts to enable chemical fluxes from shallow island arc volcano systems of the Marianas to be estimated. The ADCP data also provide better understanding of regional currents, and, when combined with regional scale circulation models, will enable us to predict the long range transport of the hydrothermal effluent from the arc.

The RDI 75KHz ADCP that was operated in narrowband mode. Current data was collected for the duration of the cruise using the University of Hawaii data acquisition system (UHDAS), a suite of programs developed by the University of Hawaii's Currents program, which performs at sea data acquisition, processing and monitoring. Post processing was done using a collection of python data processing packages and strict procedures called 'CODAS processing,' which were also developed and distributed by the UH Currents program. Further details concerning ocean currents data can be found at the Joint Archive for Shipboard ADCP (http://ilikai.soest.hawaii.edu/sadcp/) which "is responsible for the acquisition, review, documentation, archival and distribution of shipboard ADCP sets."

Current profiles typically reached a maximum depth of ~625 meters, were processed to 5 minute averages and 16 meter depth bins. Final processed data were extracted as NetCDF files using COADS conventions and provide x, y, z, u and v as well as ancillary parameters such as latitude, longitude, time ship speed, etc .

Currents were assessed during the cruise to determine the most likely location of hydrothermal plumes originating from potentially active volcanoes and for selecting sampling locations for CTD operations. Specifically CTD tows were conducted at a heading roughly perpendicular to the current direction – a sampling strategy which should optimize chemical flux estimate calculations. Figures 4.3.2-1 and 4.3.2-2 display transects for CTD tows conducted at Ahyi (T14B-01) and Daikoku (T14B-03) volcanos, respectively. Arrows represent five minute averages of current direction and magnitude averaged over the plume depths. The corresponding towed CTD data can be seen in (Figures 4.3.1-(1-4)).

At Ahyi the hydrothermal plume was found from 100 to 175 m depth where currents averaged 0.23 m/s at a direction of 25 degrees over the time interval of the CTD tow (Figures 4.3.2-3). At Daikoku average currents at the plume depths, 320 – 420 m, were 0.165 m/s at a direction of 21 degrees. (Figures 4.3.2-4)

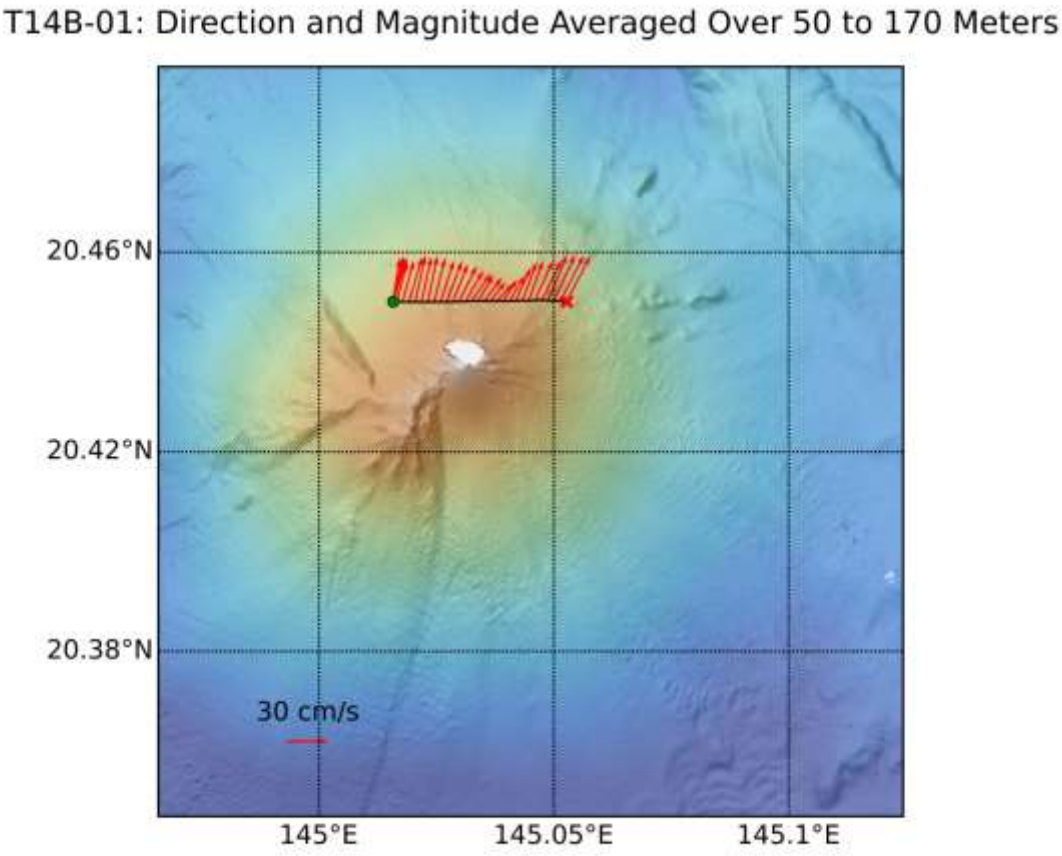


Figure 4.3.2-1. CTD tow transect for Ahyi towyo T14B-01. The green dot and red X represent the transect beginning and ending points, respectively. The red arrows represent average current direction and magnitude over observed plume depths, in this case 50 to 170 meters.

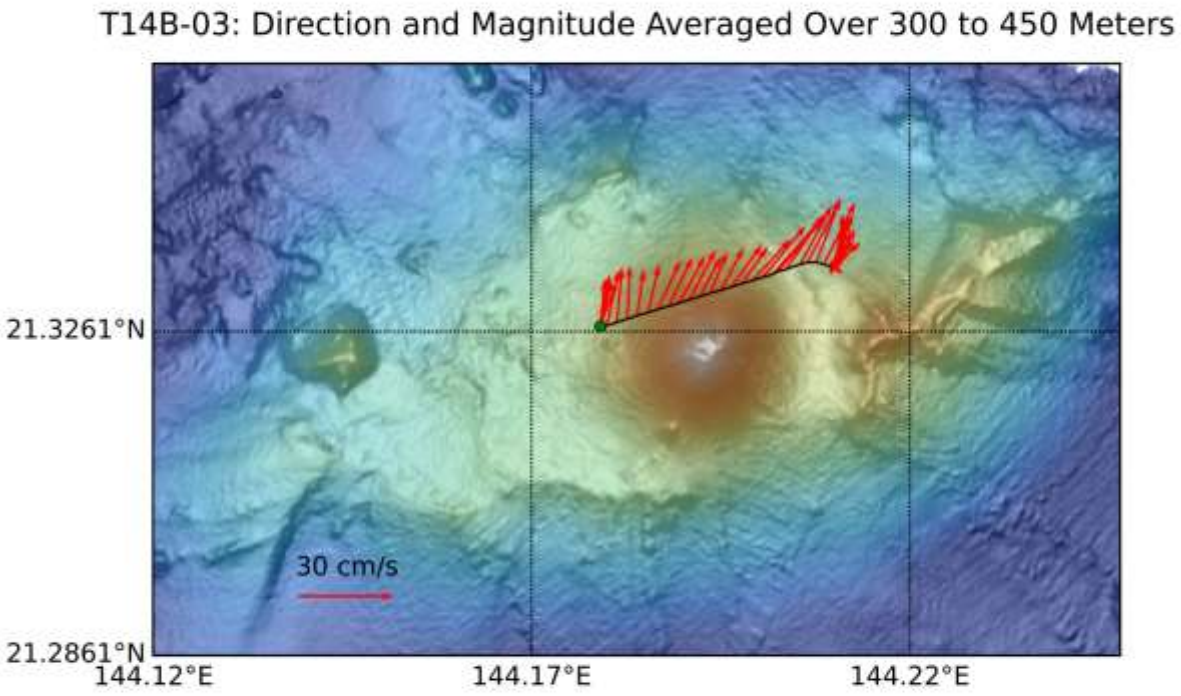
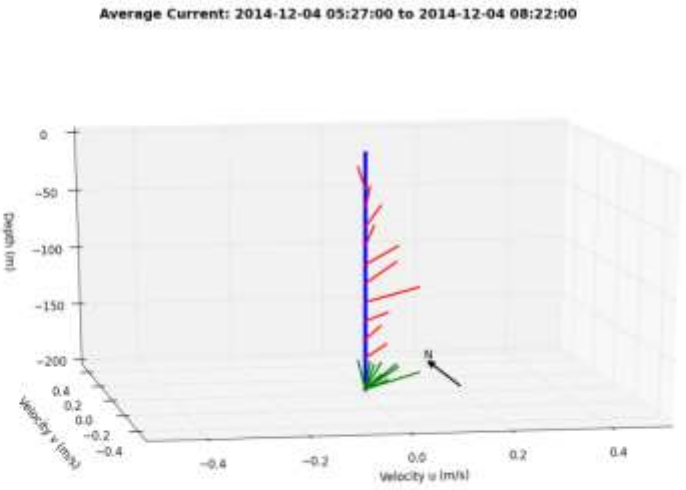


Figure 4.3.2-2. CTD tow transect for Daikoku towyo T14B-03. The green dot and red X represent the transect beginning and ending points, respectively. The red arrows represent average current direction and magnitude over observed plume depths, in this case 300 to 450 meters.

A



B

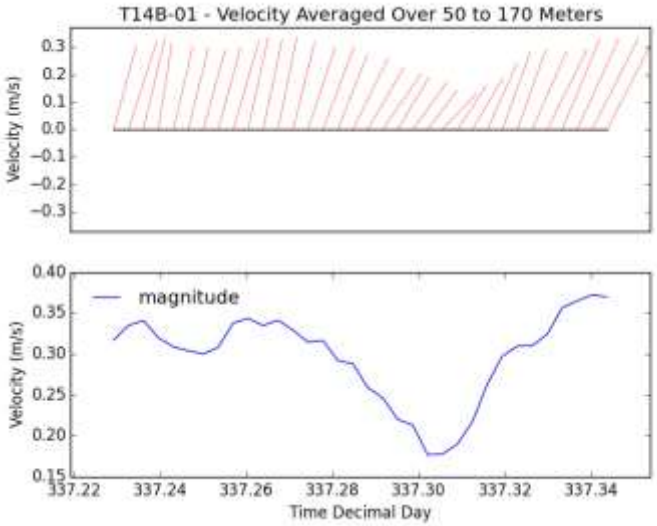


Figure 4.3.2-3. **Average currents during time the interval of towed CTD operations around the summit of Ahyi Submarine volcano** (Tow T14B-01)**.** A. Current direction and magnitude at different depth intervals between 16 and 192 m. The red bars show velocity and direction of currents binned at 16M intervals, green bars show the projections of the red bars onto the bottom of the plots to aid in visualizing directions. B. Average current velocity and direction over 50 170m depth interval and broken into 5 minute time bins during the time interval of the CTD tow. Red bars represent current direct and have a length relative to total magnitude (m/s).

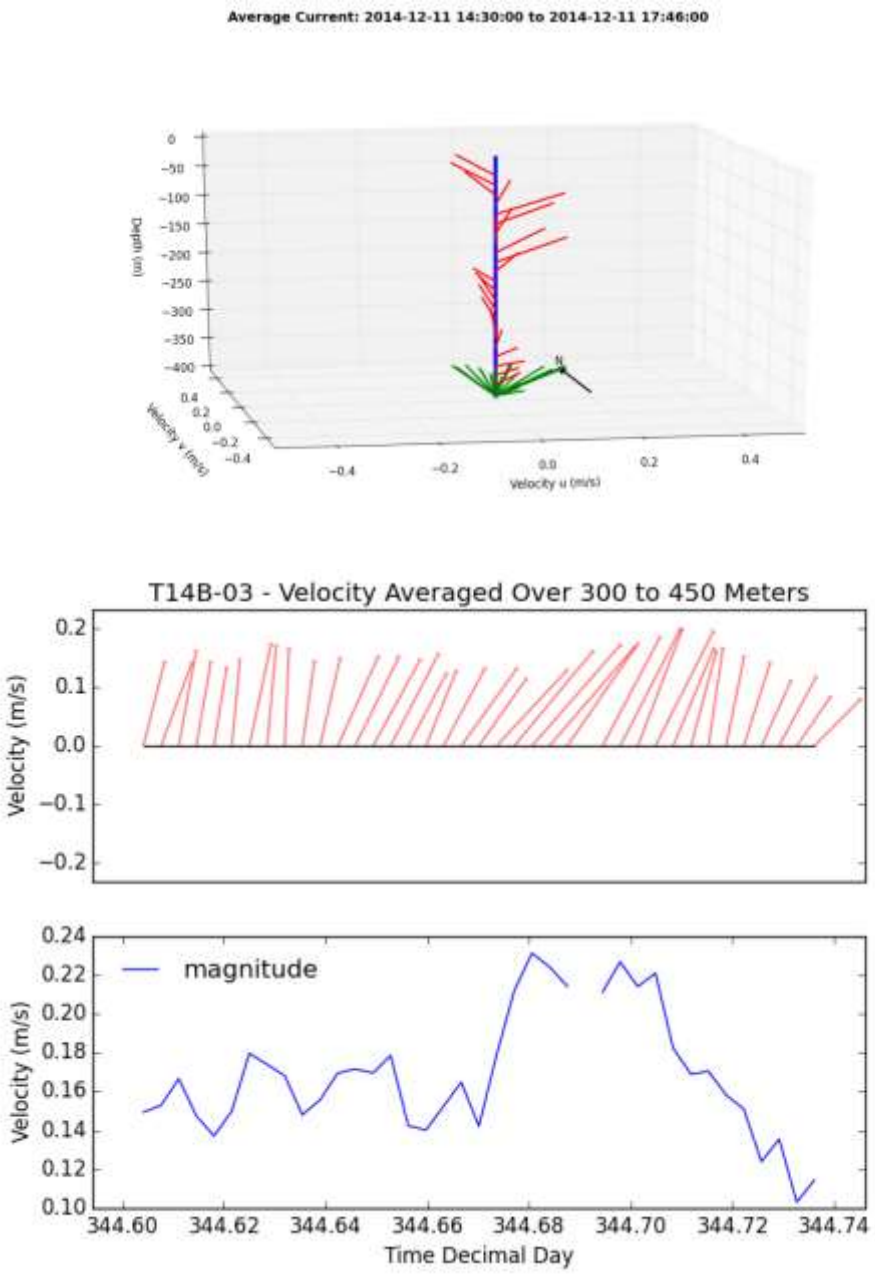


Figure 4.3.2-4. **Average currents during time the interval of towed CTD operations around the summit of Ahyi Submarine volcano** (Tow T14B-01)**.** A. Current direction and magnitude at different depth intervals between 16 and 400 m. The red bars show velocity and direction of currents binned at 16M intervals, green bars show the projections of the red bars onto the bottom of the plots to aid in visualizing directions. B. Average current velocity and direction over 300 to 450m depth interval and broken into 5 minute time bins during the time interval of the CTD tow. Red bars represent current direct and have a length relative to total magnitude (m/s).

4.4 Geology/Mapping

Bill Chadwick (NOAA/PMEL/EOI – OSU/CIMRS)

Geologic observations during this cruise included visual observations during the ROV dives, high-resolution Reson multibeam sonar data collected with Jason at NW Eifuku seamount, and the EM122 multibeam sonar data collected by the ship (both repeat mapping of selected sites to look for depth changes, and collecting bathymetric data in new areas, such as the Mariana back-arc). Many of our geology goals for the cruise were not achieved because of the problems we had with weather and the Jason cable, which severely limited our ROV dive time.

NW Rota-1
When we first arrived with the ship at NW Rota-1, we did not have time for a Jason dive, because a typhoon was passing south of Guam and we had a very limited weather window. So we conducted a CTD cast and a bathymetric re-survey of the seamount. The CTD cast showed only a very weak hydrothermal plume and the repeat bathymetry showed very little depth change since the previous survey in March 2010, suggesting that the eruptive activity must have shut down soon after that visit, and that the volcano has probably been quiet since then. Amazingly, it had been active during all previous visits between 2003-2010, and this was the first visit when it was not. When we returned on our way back south we were able to fit in a short Jason dive (J2-800) – much abbreviated due to weather – which confirmed that NW Rota-1 seamount was indeed no longer volcanically active, although it was still hydrothermally active. During the Jason dive we traversed from west to east and visited the vicinity of the five eruptive vents that were active in 2010, then the Iceberg area and finally further east to the Fault Shrimp area. There was clear evidence for new pillow lavas near the Phantom and Charon eruptive vents, that had clearly been erupted since our last visit in March 2010 (but probably soon after that). It was hard to recognize the other eruptive vents (Sulfur, Brimstone, and Styx), but we surely passed nearby. Phantom and Charon vents had milky diffuse hydrothermal effluent coming from them and were surrounded by lots of vent animals, which was new. In fact, it was striking how much the NW Rota biological species has spread since 2010 in the absence of volcanic activity. In particular the Alvinocaris shrimp and the limpets had greatly increased their populations and areas of colonization. We had intended to collect a Reson multibeam sonar survey of the summit of NW Rota-1 to compare with earlier high-resolution surveys, but we were not able to due to the weather only allowing us one short dive.

NW Eifuku
A somewhat systematic visual and photographic traverse was made around the Champagne vent site to better map its size and extent, but further analysis of those data are needed. It was noticeable that the high-CO2 vents in the Champagne field were associated with deposits of elemental sulfur on the seafloor, and that the mussels did not colonize on the sulfur, only on surrounding rocky outcrops. During Jason dive J2-798 we conducted a Reson multibeam survey. The survey plan consisted of 8 lines, each 600 m long and at a spacing of 100 m, to be flown at an altitude of 60 m. The lines were oriented SW-NE. We started the survey at the NW-most line, but unfortunately we were only able to finish 3 lines before the dive had to be aborted due to weather. We were not able to resume the survey later, so only a partial survey was collected. The 2014 Reson partial survey seems to agree pretty well with our previous lower-resolution Imagenex sonar survey collected with the ROPOS ROV in 2004.

Daikoku
After the CTD team found evidence for new eruptive activity at Daikoku seamount, we resurveyed the seamount with the ship's multibeam and found a large new crater at the summit. This new crater is in the same area where we had found two smaller craters that were investigated by the ROPOS ROV in 2004 and were mapped by Jason's SM2000 multibeam sonar in 2006. These two smaller craters were not large enough to be clearly resolved by earlier ship-based multibeam sonar. The new larger crater seems to have engulfed the two smaller ones and occupies much of the summit.

Ahyi
We collected a bathymetric resurvey with the ship at Ahyi seamount, because it erupted in April-May 2014. One bathymetric line was collected by the NOAA ship Hi'ialakai in May, which revealed major depth changes at the summit, but was spatially very limited. During this expedition we were able to re-survey the entire seamount, which will allow for a more complete analysis of the changes caused by the eruption.

Mariana back-arc
On our way north-to-south from the vicinity of Ahyi seamount back down to NW Rota-1 seamount, we collected multibeam sonar bathymetry in the Mariana back-arc with the R/V Revelle's EM122 system, from about 20°N to 15.6°N. We hope to be working in this part of the back-arc in future years, and this new bathymetry will be very valuable for planning and executing that work. These and other mapping results are described in the next section of this report.

4.5 R/V *Revelle* EM122 Multibeam Seafloor and Mid-Water Mapping Operations

Susan G. Merle (NOAA/PMEL/EOI – OSU/CIMRS)

Over 31,000 km^2 of seafloor were mapped with the EM122 multibeam system on board the R/V *Revelle* during the RR1413 SRoF'14 – Ironman expedition (Figure 4.5-1).

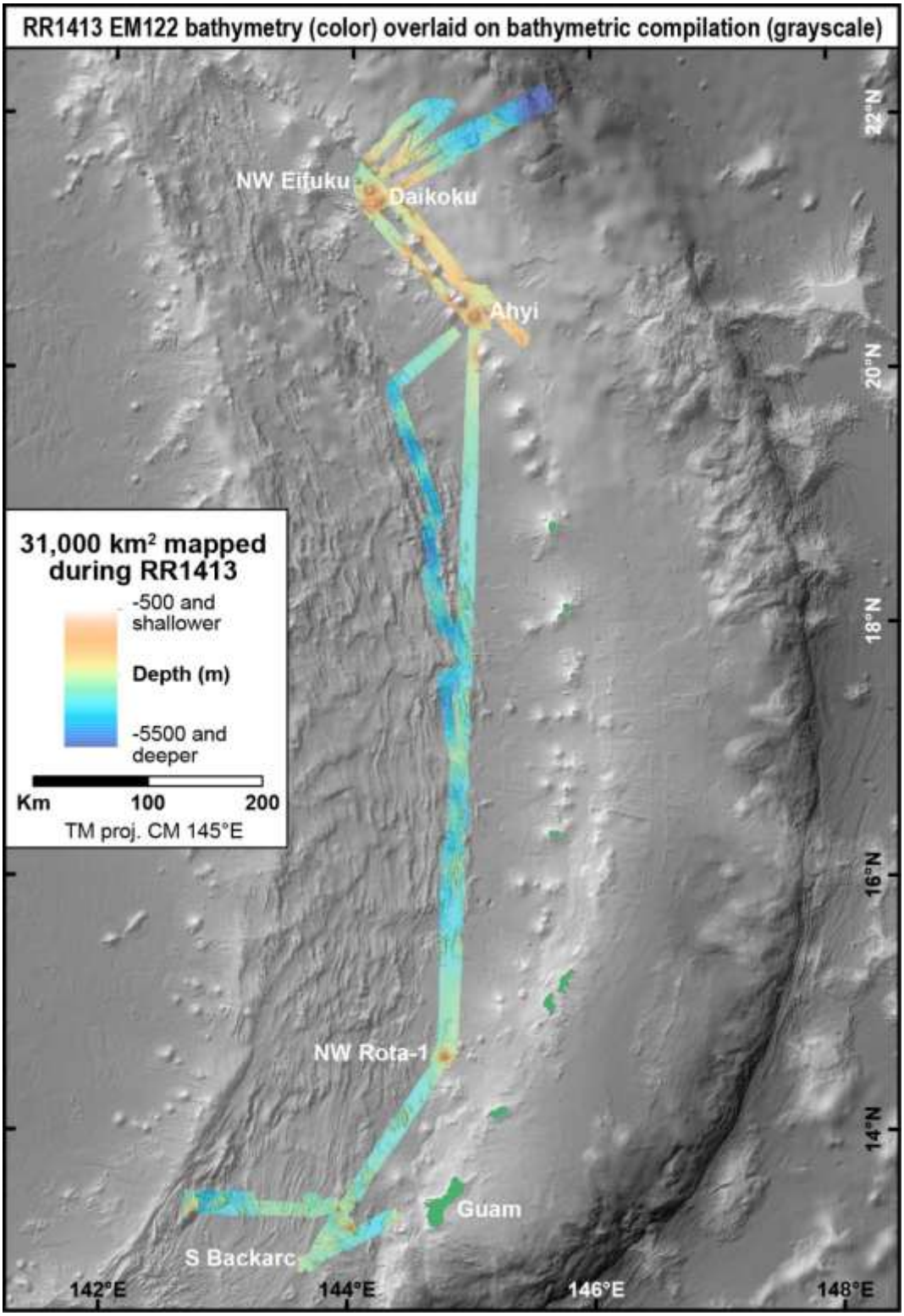


Figure 4.5-1. RR1413 EM122 bathymetry data (color data) overlaid on previous bathymetric compilation (grayscale), showing the 31,000 km2 mapped during the expedition.

EM122 multibeam bathymetry, backscatter, and mid-water data were collected during transits, while mapping specific sites, between dives, and most times during CTD operations. 261 hours of the 528 total hours of the expedition were spent logging EM122 multibeam or mid-water data. Due to weather and mechanical issues with the ROV cable, there were many instances when multibeam mapping was the only operation that could be executed. Weather also affects the quality of the bathymetry data, and unfortunately there are large segments of mapped data that are very poor quality due to bad weather (the area to the east of Ahyi is an example).

Planned Surveys (Bathymetric and Mid-Water) and Transits

After visiting the South Backarc sites (Snail and Urashima) the R/V *Revelle* headed north to NW Rota where a line was run over the seamount to look for any depth changes, and to observe the water column data that would indicate whether or not NW Rota was still active. Comparing the 2014 data with the 2010 data indicated there was very little change in the bathymetry, except possibly a small landslide just downslope of the formerly eruptive vents (Figure 4.5-2, left). The NW Rota-1 water column data did not display any eruptive vent plumes. Next a transit line was run straight from NW Rota-1 to Ahyi, collecting bathymetry on the way. At Ahyi a bathymetric survey was run over the entire seamount to use for surface differencing with previous data collected here in 2003 and 2004, because of the eruption there in April-May 2014. The NOAA ship *Hi'ialakai* ran a single multibeam line over the summit of Ahyi in May 2014, revealing depth changes due to a new eruption crater at the summit and a landslide down the southern slope. A more complete re-survey was performed on this expedition to better document those earlier results (Figure 4.5-2, right). Mid-water data showed bubble plumes rising from the summit at Ahyi, specifically out of a little pit crater near the summit (Figure 4.5-3). A full bathymetric re-survey was also conducted at Daikoku. Bathymetric changes at Daikoku since the 2003/2004 surveys were a set of new craters near the summit, consistent with the CTD evidence for renewed eruptive activity there (Figures 4.5-4 and 4.5-5a). There were also plumes evident (at least 2) in the mid-water data in the area of the new craters and beyond (Figure 4.5-6a, 4.5-6b). The mid-water data also imaged the liquid CO_2 bubbles rising from the seafloor at NW Eifuku (Figure 4.5-6c). After finishing up with the ROV dives at NW Eifuku, a multibeam survey was conducted down the axis of the back-arc from 20.0° to 15.6°N.

Other Data Quality Issues

In addition to bad weather and high seas degrading the quality of the bathymetry data, there appeared to be some inherent problems with the EM122 system on the R/V *Revelle* as well. There was some discussion with the marine technician at sea regarding the system calibration numbers entered by Scripps technicians, and whether or not the values were given the proper sign (positive or negative). There are actually 2 sets of values that are entered into the calibration: transducer offsets and MRU (motion sensor) offsets. Those issues have not been resolved at this point. The data often exhibit a washboard appearance, especially on the outer edge of the swaths. Where tracks overlap the data look worse as well – magnifying the outer edge artifacts (Figure 4.5-5b). There were also instances when a large number of beams near nadir displayed no depth values, thus creating a hole in the data near nadir. The NW Rota-1 survey show those data gaps. Those nadir data gaps are also apparent in a good portion of data collected along the back-arc. All those problems with the data quality were exacerbated when the weather was bad, possibly because the increased ship motion was not properly being corrected for by the system.

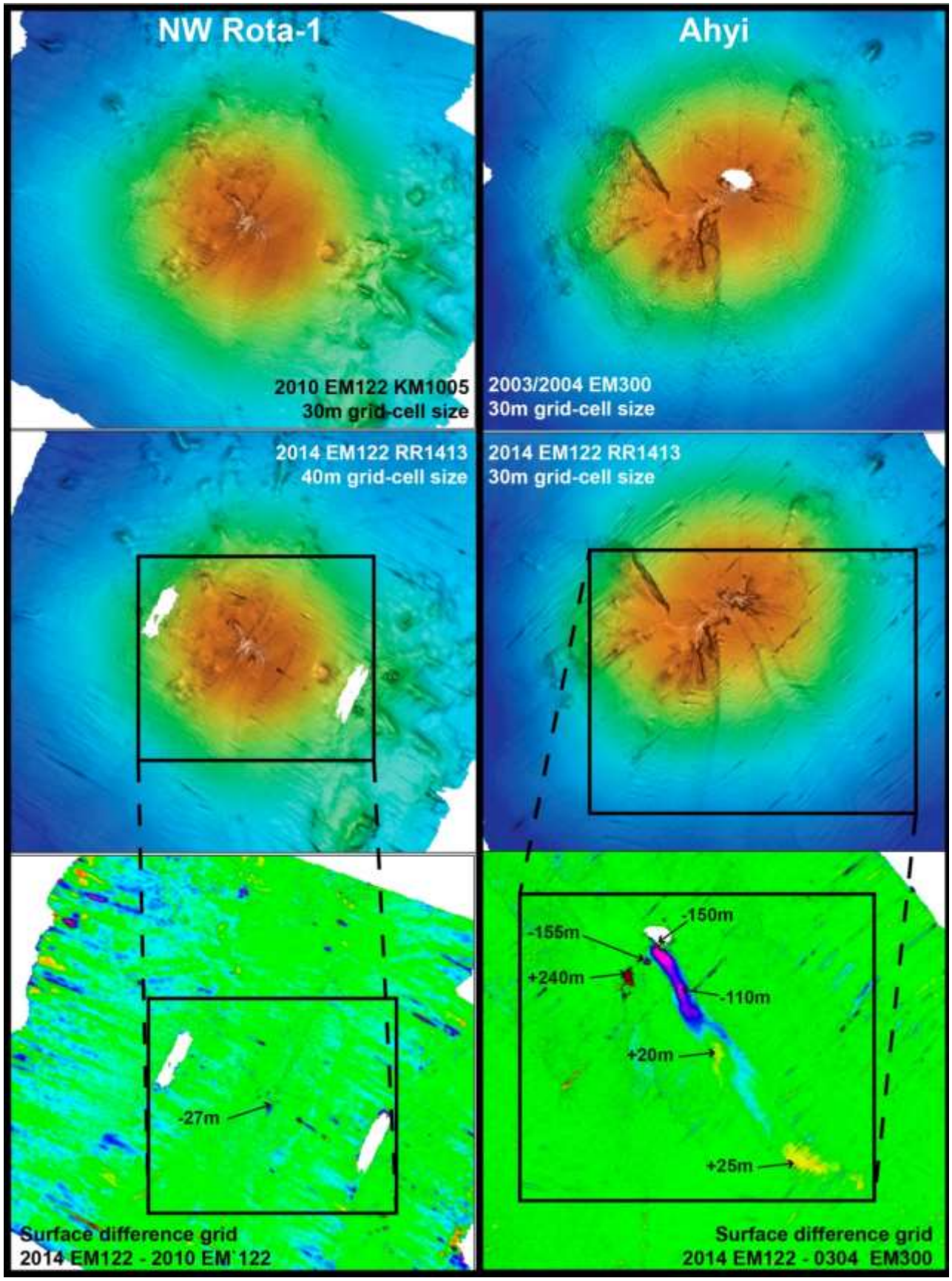


Figure 4.5-2. Bathymetric comparisons showing depth changes at NW Rota-1 (left) and Ahyi (right). EM122 data from the RR1413 expedition were compared to previous surveys to create the surface difference grids at the bottom of the figure.

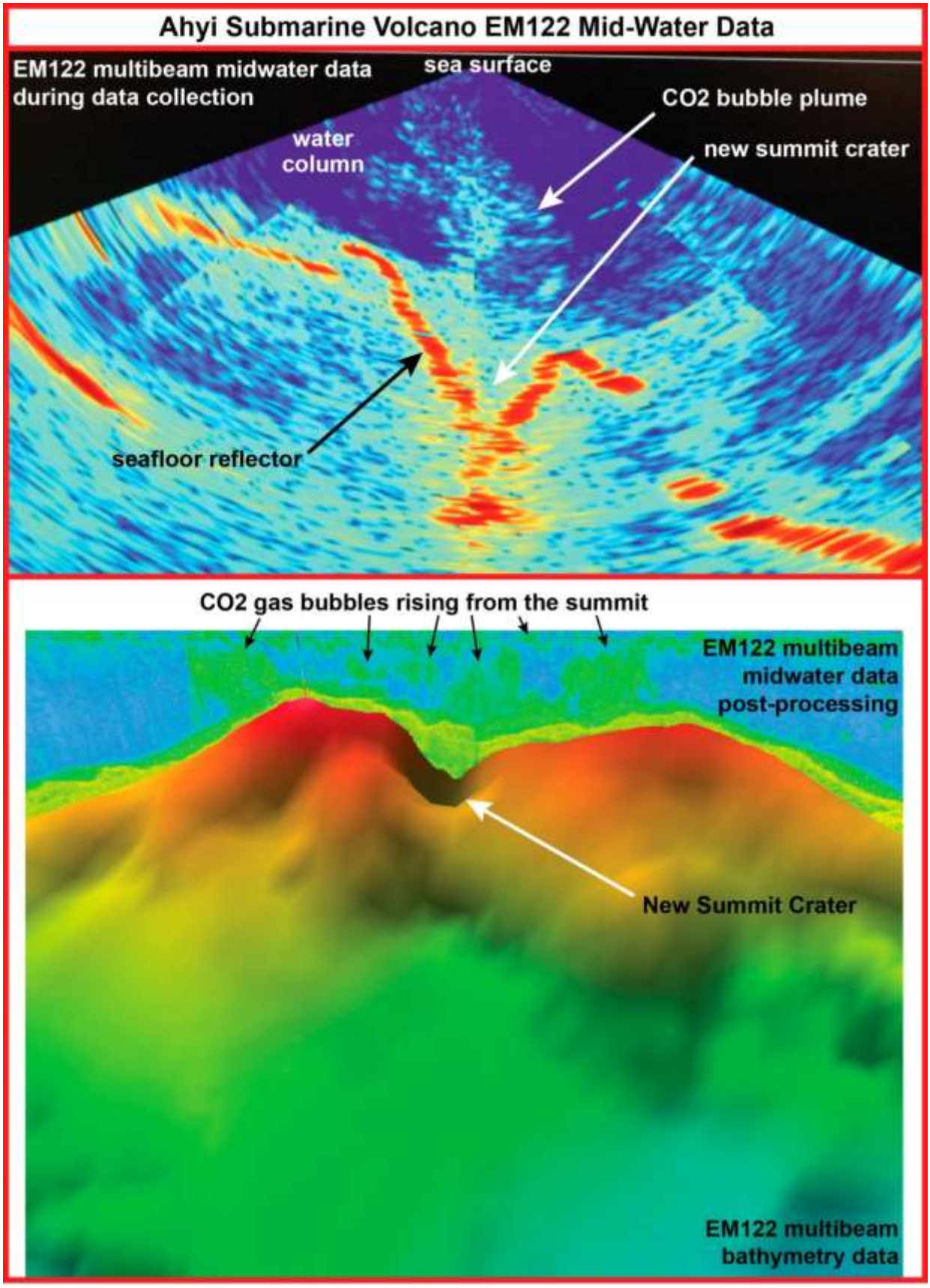


Figure 4.5-3. EM122 mid-water data collected on RR1413 at Ahyi seamount. Top image shows seafloor and midwater data during collection, the bottom image shows the data post-processed. The new crater created by the April 2014 eruption is visible in both images, as well as the CO_2 bubbles rising from the summit.

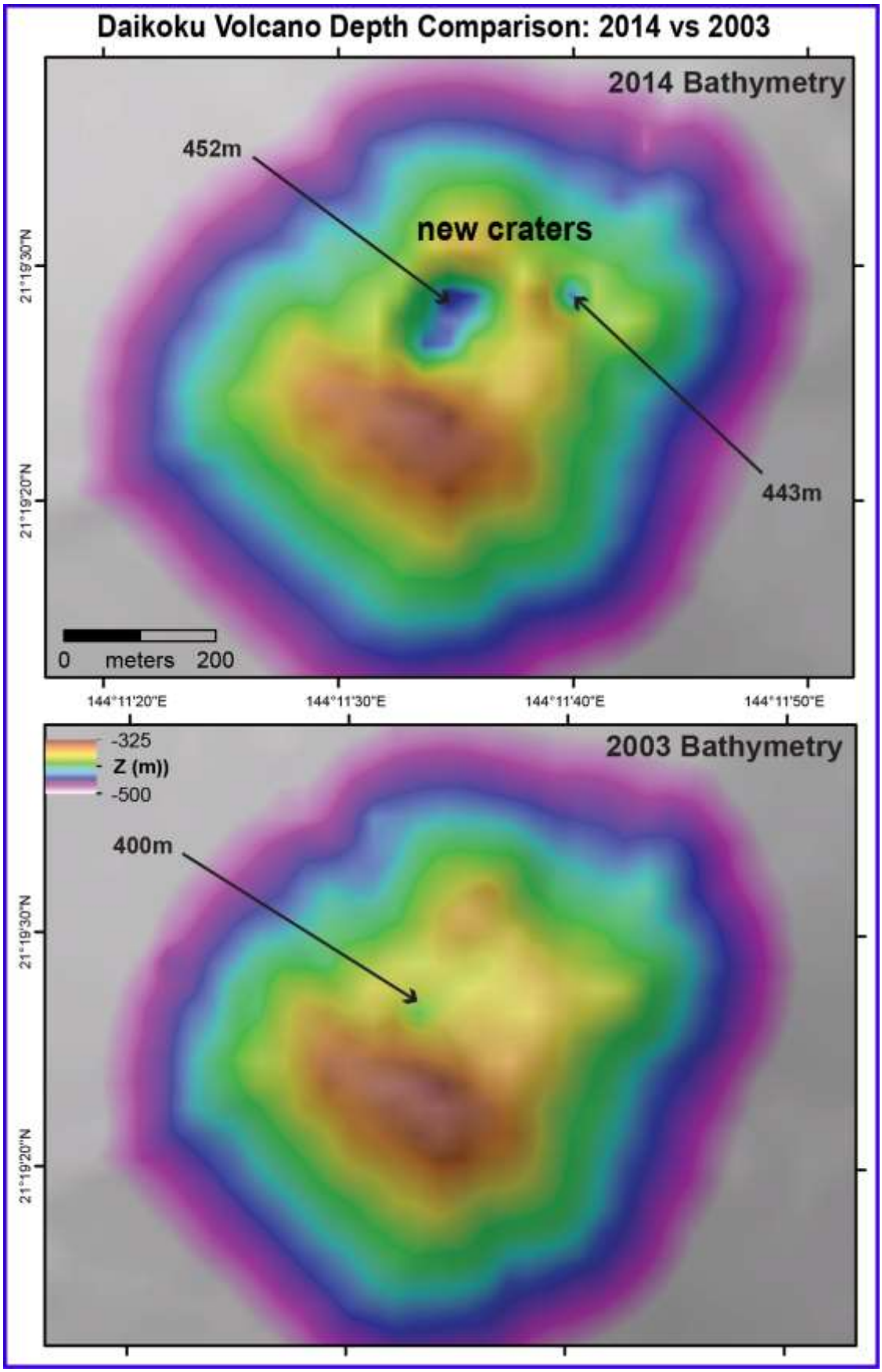


Figure 4.5-4. Bathymetric changes near the Daikoku summit since the 2003/2004 surveys. The largest of the two craters was the site of two distinct smaller craters explored during ROV dives in 2004 and 2006 but it is now much wider and deeper.

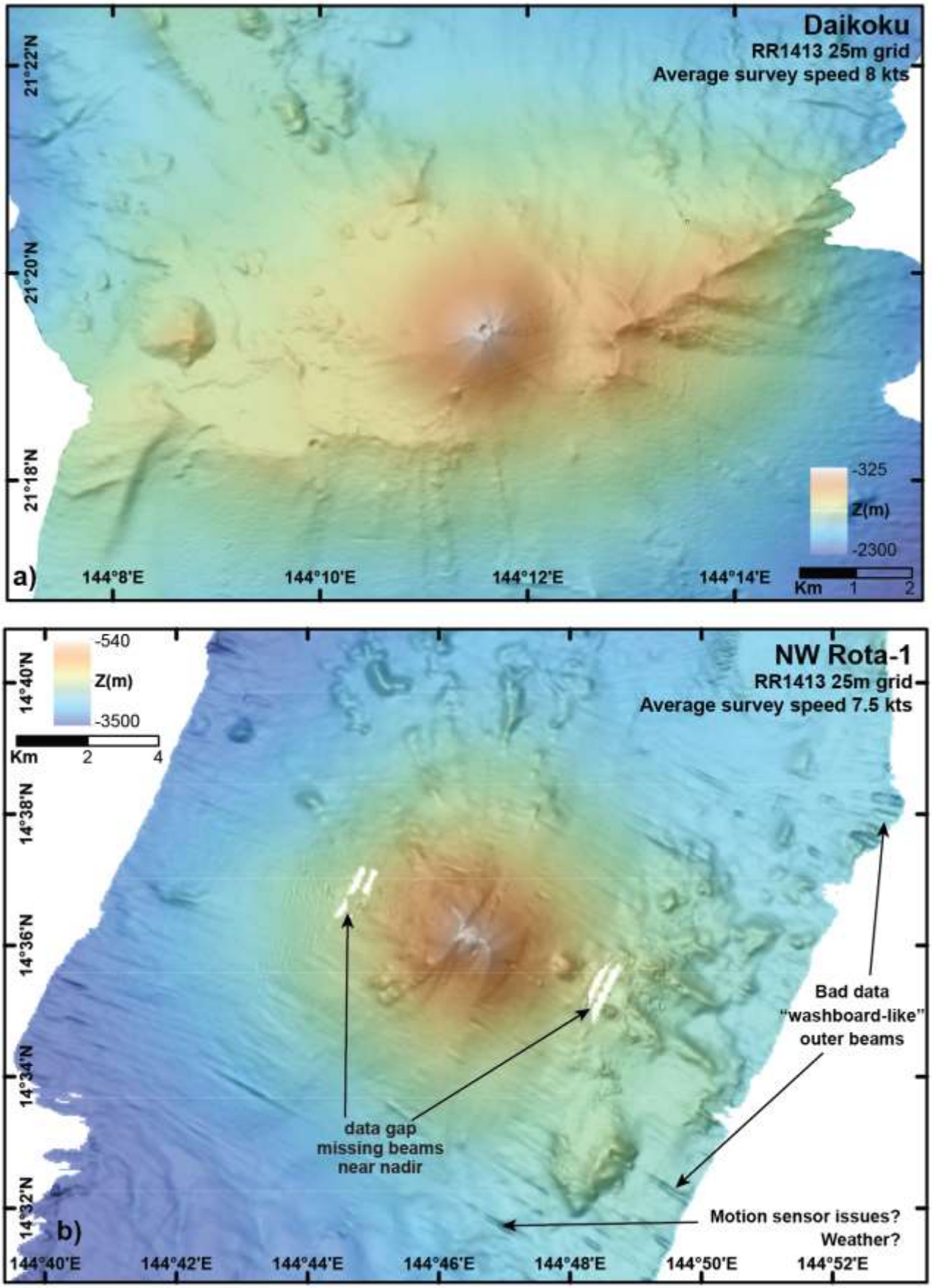


Figure 4.5-5 . (a) The entire bathymetric survey at Daikoku. (b) The entire bathymetric survey at NW Rota-1, highlighting some of the bathymetric data quality problems encountered on the expedition.

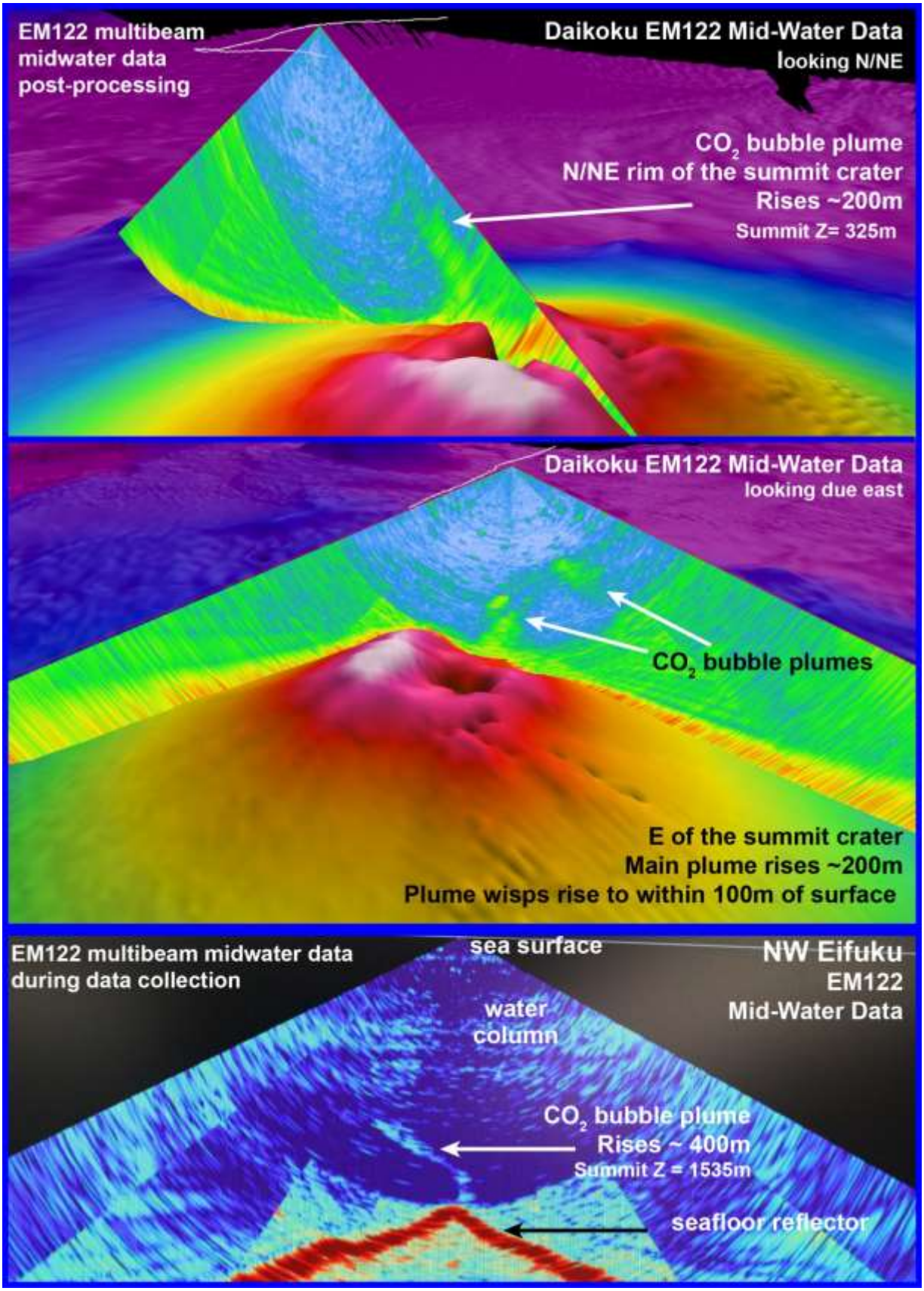


Figure 4.5-6. (a, b) Processed mid-water data at Daikoku showing the 2 separate areas of venting at/near the summit. c) NW Eifuku midwater data during collection. The CO2 bubble plume can be seen ascending from the summit area.

4.6 Moorings

Matt Fowler (NOAA/PMEL/EOI – OSU/CIMRS)

NW Rota-1 is a seamount that has been volcanically active in the recent past. NOAA/OSU hydrophones have proven very successful for monitoring and detecting undersea volcanic activity, and therefore were selected to monitor the current volcanic activity of NW Rota. The sensor array was deployed at the beginning of the 3 week cruise with the intention of recovery and redeployment at the end of the cruise. The plan was to download the initial data from the hydrophone to determine if Rota was still active, redeploy the hydrophone with 3 MAPRs, without the ADCP, to then be recovered at a later date, sometime in 2015, leaving a longer term monitoring system in place.

Deck Operations:

The initial deployment went well, in calm seas and fair weather. This sensor array was deployed on an untested hybrid mooring consisting of a 37" spherical syntactic foam float, 20m of ¾" nylon, a 50m 5/8" wire rope, the Autonomous Underwater Hydrophone (AUH), a 62m 5/8" wire rope, the Acoustic Doppler Current Meter (ADCP) mounted inside a 49" spherical syntactic foam float, and a 17m wire rope all connected by acoustic release to the 2400 lb anchor, a stack of three railroad wheels. The hydrophone had never before been deployed with an ADCP also on the mooring and inadvertently became the "weak link" between the two flotation systems. Additionally, there were 4 MAPRs mounted on the wire, 3 between the float and AUH and 1 between the AUH and the ADCP. Utilizing the 1 kt. surface current, the R/V Revelle setup a short distance from the anchor drop point, and maintained position while the mooring was allowed to stream behind in the current. The mooring was deployed float first, anchor last. The anchor was allowed to freefall 630m to the seafloor. When the ADCP was deployed, the weight of the hydrophone positioned between the ADCP and top float caused the two floats to move closer together. As the total mooring line between the 'phone and float was 70m (20m nylon + 50m wire rope) and the line between the 'phone and ADCP was 62m, the weight of the phone kept the line to both floats tensioned and the 1 kt. current prevented entanglement. When the mooring had been deployed but the anchor was still aboard, the R/V Revelle approached the anchor drop site with the mooring stretched out behind the ship. At the correct position the anchor was deployed and the anchor landed on the sea floor in the target location. The hydrophone logged data for the entire 2 week deployment period and all instruments were successfully recovered with good data.

During the recovery the hydrophone was damaged and was not redeployed as planned. Recovery of the instrument was conducted while conditions were fair, with 5-7 ft. seas and a surface current of ~1kt. The bridge maintained a 1.25 to 1.5 kt. speed through the water during the recovery operations. After capture and recovery of the 37" top float, the design flaw of the mooring manifested itself when the excessive drag created by the 49" spherical syntactic foam float containing the ADCP began to place extreme tension on the hydrophone itself. For several minutes, the mooring was stretched so tight the hydrophone was out of the water, nearly horizontal, while the 50m wire rope was recovered. This was exacerbated by the delays caused while removing each of the MAPRs from the wire rope. Use of a travelling block, suspended from the 7-8m tall A-frame to a height of ~2-3m above the deck may have also been a factor in this over tensioning by creating a nearly straight line between the instrument and the capstan recovering the line. During most of this time, the hydrophone remained out of the water, horizontal, due to the drag created by the 49" ADCP float at the end of the 62m wire rope. Intermittent shock loading was also occurring due to the 5-7 ft. swell. After the hydrophone was recovered, the ADCP and acoustic release recovery went normally without any issues.

The hydrophone pressure housing was opened up, data downloaded, and the instrument was re-initialized and readied for redeployment. During the torque sequence of the pressure housing end cap, a 3/8" x 16 Titanium bolt broke when only 15 lbs. of force was applied. It was determined the bolt had been damaged by the excessive stress created by the combination of tension and shock loading of the mooring line. The other 7 Titanium bolts that mount the end cap to the pressure housing are also considered compromised. There were no replacement bolts available and the instrument could not be redeployed.

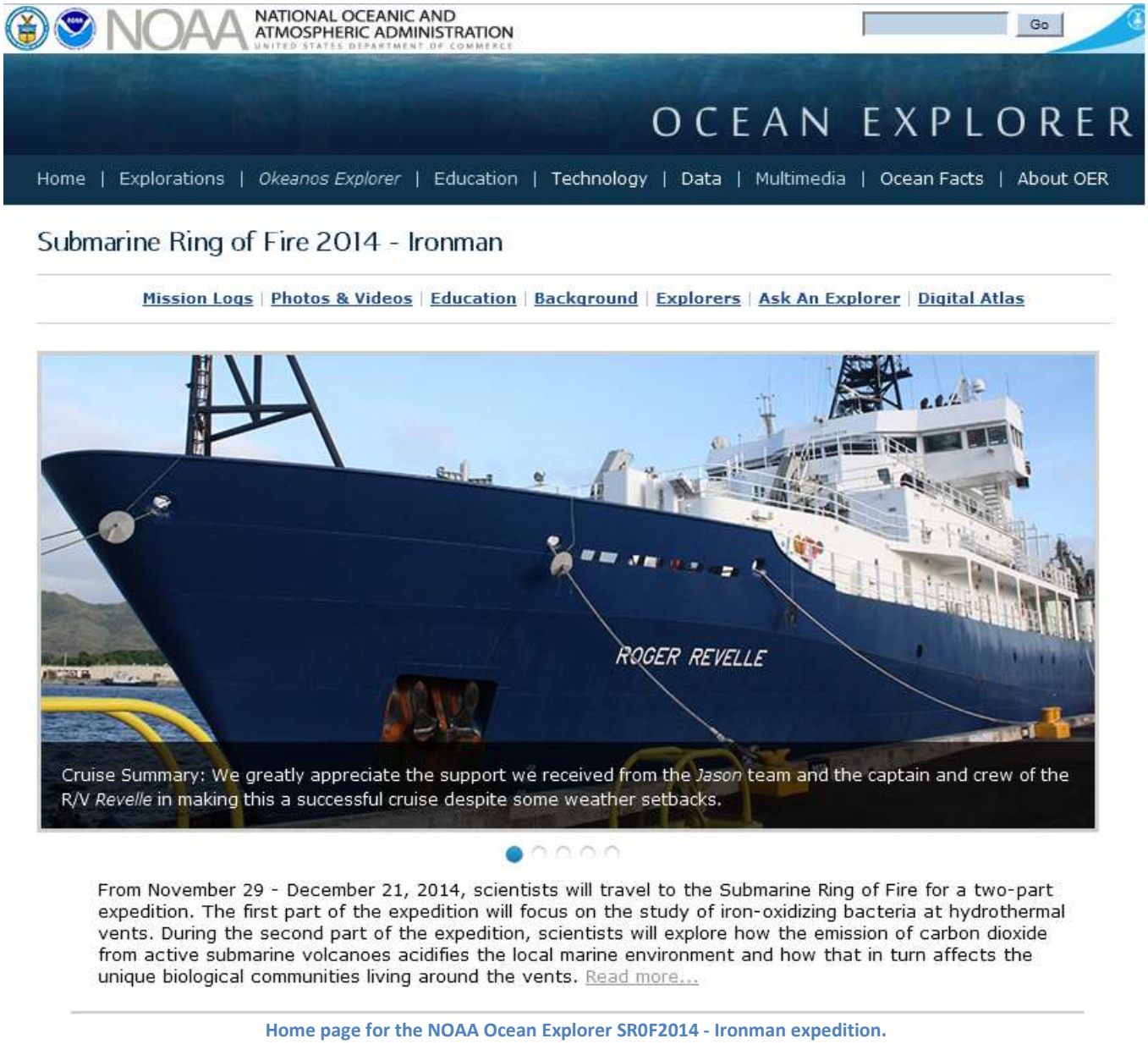
4.7 SRoF2014 – Ironman Outreach

Bill Chadwick (NOAA/PMEL/EOI – OSU/CIMRS)

The NOAA Ocean Exploration and Research (OER) Program hosted a web site that followed the SRoF2014 – Ironman expedition at this URL:

http://oceanexplorer.noaa.gov/explorations/14fire/

Before the cruise, background pieces were posted about the overall goals of the cruise, the seamounts that we planned to visit in the Mariana arc, and background information about the macrobiology and microbiology of the sites. A NOAA Ocean Exploration Webinar for Educators was conducted on November 12 (~3 weeks before the cruise started) to inform and engage teachers about the expedition, which included a short overview of the cruise by me, followed by a description of what education and outreach materials would be available on the OER web site. During the cruise, we posted 13 Mission Logs describing our activities during the expedition featuring text, images, and a total of 19 videos created by our videographer, Saskia Madlener. We had great support from the OER web team (Emily Crum and James Rawsthorne) and the OER education team (Susan Hayes, Melissa Ryan, and Paula Keener). Kasey Cantwell coordinated the outreach and education efforts for OER.

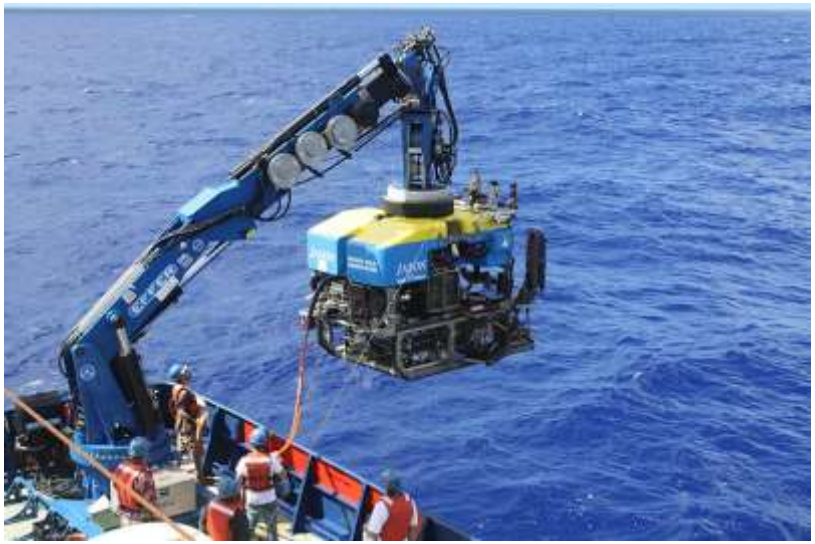


Home page for the NOAA Ocean Explorer SR0F2014 - Ironman expedition.

5 - JASON

5.1 Dive Statistics

Lowering	Start/Launch	On Bottom Start Data	Off Bottom End Data	End/On Deck	Line/Area/Site	Bottom Time (Hrs:Mns)	Jason in Water (Hrs:Mns)	
J2-797	2014/11/30 03:20	2014/11/30 05:30	2014/12/01 12:08	2014/12/01 14:16	Snail and Urashima	30:38	34:56	
J2-798	2014/12/04 22:34	2014/12/04 23:42	2014/12/06 07:14	2014/12/09 04:10	NW Eifuku	31:32	101:36	*
J2-799	2014/12/13 12:11	2014/12/13 13:18	2014/12/13 20:04	2014/12/13 21:35	NW Eifuku	6:46	9:24	
J2-800	2014/12/16 20:44	2014/12/16 21:25	2014/12/17 04:26	2014/12/17 05:08	NW Rota-1	7:01	8:24	
J2-801	2014/12/17 16:08	2014/12/17 17:59	2014/12/18 06:39	2014/12/18 08:35	Urashima	12:40	16:27	
					TOTAL:	88:37	*Jason/Medea towed ~3 days until better weather	



5.2 Dive Imagery (stills/video)

Automated Video Recordings 1047 clips (610GB) plus 702 clips (416GB) from backup recorder. Three 1080i camera streams (brow camera, pilot camera, science camera) were recorded to hard drive- based video files. These are MPEG Transport Stream (.ts) files compressed (output rate was 6000 kbps) using the h.264 codec. Image resolution is 1920x1080 pixels. These are playable using open source video players such as *VLC*, *mplayer,* or *totem.* Filenames include camera name and start timestamp. Automated clip duration was set at 15 minutes.

High Definition video highlights 172 clips (414GB). This cruise made direct- to- hard disk recordings of important moments from high definition video. The *Jason* data processor copied them to hard drives provided by the chief scientist. He also renamed the clips so that they indicate lowering ID, start time, and stop time. A summary listing of the clips is in the metadata spreadsheet document and in Table 5.2-1. The recordings were compressed in real time using the *ProRes422* family of codecs. They can be played back on a computer using video player software: examples include *QuickTime* player, *VLC,* and appropriately compiled versions of the open source software *mplayer*. They can be edited using *Final Cut* from Apple or *Adobe Premiere.* The recording includes time code that is synchronized to the same time reference as the other logging computers in the *Jason* system. Post-processing guidance is offered in a white paper SJM Page 3 12/19/14 (Morin, 2010) that is available on the NDSF web site. The camera used during your cruise was an Insite Mini--- Zeus. "HD Stills and Video Enhancement Techniques for the NDSF HD Camera Using Photoshop and Final Cut", M. Morin, http://www.whoi.edu/page.do?pid=51119

HDgrabs 16575 still images comprising 101.9 GB. *Jason* now offers frame captures from a selectable variety of sources, primarily Insite Mini- Zeus cameras SciCam, BrowCam, and PilotCam. Two frames from different sources can be captured concurrently. The image is a frame captured from a 1080i video stream. It uses the RGB color space model with 8 bits of quantization per primary color, and its dimension is 1920x1080 pixels. It is stored in TIFF file format. Image filenames include the capture time to support synchronization of the image to the timestamps in *Jason's* other logs.

DSC (Digital Still Camera) 361 images . During lowering J2- 797 the legacy Insite Scorpio digital camera (Nikon Coolpix 995) was employed. The resulting images were placed in this directory. The image filenames include the capture timestamp. The images are 2048x1536 pixels x 8 bits and are in JPEG format.

SuperScorpio Digital Still Camera 4499 images. This camera was placed on *Jason's* basket in a downlooking configuration. It is based on a Sony HDR-CX560V video camera recorder, which produces still images at 4672x2628 resolution. Images were renamed according to the timestamp imbedded in the exif fields of individual photos.

Table 5.2-1 HD Video Highlights

Dive	Filename (renamed)	Camera	Begin	End	Notes
J2-797	J2-797_20141130061937-20141130062132.mov		2014/11/30 6:19:38	2014/11/30 6:21:32	Beaulieu settlement plates #5
J2-797	J2-797_20141130064413-20141130064548.mov		2014/11/30 6:44:00	2014/11/30 6:45:00	fluid venting sci cam
J2-797	J2-797_20141130064633-20141130064834.mov		2014/11/30 6:45:00	2014/11/30 6:48:33	crabs and venting pilot cam
J2-797	J2-797_20141130074540-20141130074726.mov		2014/11/30 7:45:40	2014/11/30 7:47:48	highlighted not much on the sci cam
J2-797	J2-797_20141130075529-20141130075844.mov	SciCam	2014/11/30 7:55:00	2014/11/30 7:58:44	picking up Stace's #5. Totally black! Pilot cam
J2-797	J2-797_20141130083157-20141130083646.mov	PilotCam	2014/11/30 8:31:00	2014/11/30 8:36:46	marker #108, area of past venting and iron mats, sci cam
J2-797	J2-797_20141130083926-20141130084052.mov	SciCam	2014/11/30 8:39:27	2014/11/30 8:40:52	poking a yellow iron mat (sci cam)
J2-797	J2-797_20141130092048-20141130092249.mov	SciCam	2014/11/30 9:20:49	2014/11/30 9:22:49	highlight of brow cam of sampling HFS (samples #4)
J2-797	J2-797_20141130103503-20141130103730.mov	BrowCam	2014/11/30 10:35:04	2014/11/30 10:37:34	biomat sampler, sample syringe 5
J2-797	J2-797_20141130113453-20141130113536.mov	PilotCam	2014/11/30 11:34:54	2014/11/30 11:35:30	areas of bright yellow mat in shimmering water, odd configuration, hollow cavity
J2-797	J2-797_20141130114231-20141130115045.mov	SciCam	2014/11/30 11:42:32	2014/11/30 11:50:45	biomat sampler, sample A- syringe 2-4, dumping 5,
J2-797	J2-797_20141130120803-20141130121019.mov	SciCam	2014/11/30 0:08:04	2014/11/30 0:10:41	Biomat sampler, D
J2-797	J2-797_20141130121149-20141130121443.mov	SciCam	2014/11/30 0:11:50	2014/11/30 0:14:42	Biomat sampler- D1, 6,
J2-797	J2-797_20141130133206-20141130133213.mov	PilotCam	2014/11/30 13:32:06	2014/11/30 13:34:06	temperature probe around high T venting with lots of shrimp; may not have gotten this video. It seems to have stopped.
J2-797	J2-797_20141130133428-20141130133610.mov	PilotCam	2014/11/30 13:34:06	2014/11/30 13:36:09	temperature probe around high T venting with lots of shrimp- NOTE: may not have recorded, pull-down set to Usr2 Ch19
J2-797	J2-797_20141130150738-20141130150856.mov	PilotCam	2014/11/30 15:07:38	2014/11/30 15:08:56	Settlement plate temp (J797-Splate-2) after deployment
J2-797	J2-797_20141130150920-20141130151212.mov	BrowCam	2014/11/30 15:09:22	2014/11/30 15:12:12	Settlement plate locations (J797-Splate1; J797-Splate2) after deployment
J2-797	J2-797_20141130152444-20141130152629.mov	BrowCam	2014/11/30 15:24:46	2014/11/30 15:26:30	Settlement plate temp (J797-Splate1sma) after deployment
J2-797	J2-797_20141130153011-20141130153257.mov	SciCam	2014/11/30 15:30:34	2014/11/30 15:32:58	Panorama of Settlement plate (J797-SPlate1sma) after deployment
J2-797	J2-797_20141130173455-20141130173649.mov	BrowCam	2014/11/30 17:35:00	2014/11/30 17:36:48	Sea cucumber swimming/ dancing
J2-797		SciCam	2014/12/01 0:00:00		throwaway
J2-797	J2-797_20141201012607-20141201013022.mov	SciCam	2014/12/01 1:26:09	2014/12/01 1:30:22	First contact: area of spires, some white and iron mat, some venting - tall skinny chimneys, smoke in the background
J2-797	J2-797_20141201013707-20141201013907.mov	SciCam	2014/12/01 1:37:09	2014/12/01 1:39:07	Reconnaissance of chimney area, temp probe, T=214
J2-797	J2-797_20141201014703-20141201014910.mov	SciCam	2014/12/01 1:47:09	2014/12/01 1:49:10	close up of spicule coming out of chimney with shimmering water
J2-797	J2-797_20141201015643-20141201015826.mov	SciCam	2014/12/01 1:56:45	2014/12/01 1:58:26	close up of iron fingers and shrimp
J2-797	J2-797_20141201042955-20141201043100.mov	SciCam	2014/12/01 4:29:57	2014/12/01 4:31:00	Venting at Snap Snap
J2-797	J2-797_20141201050518-20141201050620.mov	SciCam	2014/12/01 5:05:20	2014/12/01 5:06:23	Close up of crab

Dive	Filename (renamed)	Camera	Begin	End	Notes
J2-797	J2-797_20141201050648-20141201051113.mov	SciCam	2014/12/01 5:06:53	2014/12/01 5:11:14	J797-HSF-30 Unfiltered piston 7 and palm worm and shrimps
J2-797	J2-797_20141201051601-20141201051703.mov	SciCam	2014/12/01 5:16:03	2014/12/01 5:17:04	macrofauna observations during J797-HSF-32
J2-797	J2-797_20141201053835-20141201054039.mov	SciCam	2014/12/01 5:38:38	2014/12/01 5:40:40	alvinellid polychaetes!
J2-797	J2-797_20141201055126-20141201055433.mov	SciCam	2014/12/01 5:51:27	2014/12/01 5:54:00	biomat sampling J797 BM1 C; didn't like this sample and it was ejected
J2-797	J2-797_20141201060810-20141201061029.mov	SciCam	2014/12/01 6:08:11	2014/12/01 6:10:29	biomat sampling J797 BM1 C5; sulfur under the iron mat; didn't like this sample either. Ejected.
J2-797	J2-797_20141201063031-20141201063409.mov	Sci Cam	2014/12/01 6:30:32	2014/12/01 6:34:08	A new iron mat covered. Getting T and maybe a sample if it doesn't all fall down.
J2-797	J2-797_20141201063918-20141201063944.mov	Sci Cam	2014/12/01 6:39:54	2014/12/01 6:39:54	wrong camera for watching sampling of BM1-C1; switched to pilot cam
J2-797	J2-797_20141201063953-20141201064354.mov	PilotCam	2014/12/01 6:39:54	2014/12/01 6:43:53	J797 BM1C-1`& C2; biomat sampling
J2-797	J2-797_20141201065203-20141201065303.mov	PilotCam	2014/12/01 6:52:00	2014/12/01 6:53:03	filling C1 & C2 more
J2-797	J2-797_20141201065402-20141201065629.mov	PilotCam	2014/12/01 6:54:00	2014/12/01 6:56:29	J797 BM1 C3; biomat sampling--but only positioning and shift change so turned off until ready
J2-797	J2-797_20141201065748-20141201065938.mov	PilotCam	2014/12/01 6:57:50	2014/12/01 6:59:38	J797 BM1 C3; biomat sampling (actually this time) & C4
J2-797	J2-797_20141201085400-20141201085555.mov	Sci Cam	2014/12/01 8:54:00	2014/12/01 8:55:54	J2797 SS (sample 44) suction sample of Saipanda Horn
J2-797	J2-797_20141201085611-20141201085800.mov	PilotCam	2014/12/01 8:56:01	2014/12/01 8:58:00	same as above. Better view from pilot cam. (J2797 SS (sample 44) suction sample of Saipanda Horn)
J2-797	J2-797_20141201090616-20141201090916.mov	PilotCam	2014/12/01 9:06:16	2014/12/01 9:09:29	RNA Later Scoop 2; just looking at scoop and where to sample
J2-797	J2-797_20141201090928-20141201091208.mov	Brow cam	2014/12/01 9:09:29	2014/12/01 9:12:09	RNA Later Scoop 2; taking sample----getting ready
J2-797	J2-797_20141201091315-20141201092213.mov	Brow cam	2014/12/01 9:13:17	2014/12/01 9:22:13	RNA Later Scoop 2; taking sample for reals
J2-797	J2-797_20141201095818-20141201103244.mov	SciCam	2014/12/01 9:58:19	2014/12/01 10:32:48	circling "Big Skinny" chimney (Shar-pen) for photo mosaic
J2-797	J2-797_20141201103818-20141201103834.mov	SciCam	2014/12/01 10:38:18	2114/12/01 10:38:35	Near Japanese marker on Balten (probably) chimney
J2-797	J2-797_20141201105058-20141201105145.mov	SciCam	2014/12/01 10:50:59	2014/12/01 10:51:45	Crab eating shrimp
J2-797	J2-797_20141201114757-20141201115027.mov	SciCam	2014/12/01 11:47:58	2014/12/01 11:50:27	sampling with BigBoyScoop at SnapSnap (sample 51)
J2-797	J2-797_20141201132112-20141201132114.mov				throwaway
J2-798	J2-798_20141204223121-20141204223620.mov	SciCam	2014/12/04 22:31:25	2014/12/04 22:36:25	Jason launch for dive J2-798 - off deck into the water
J2-798	J2-798_20141204224127-20141204224515.mov	BrowCam	2014/12/04 22:41:20	2014/12/04 22:45:20	Jason launch for dive J2-798 - going down getting dark
J2-798	J2-798_20141205002554-20141205003030.mov	SciCam	2014/12/05 0:26:00	2014/12/05 0:30:30	Mussels at Eifuku upslope of Champagne area
J2-798	J2-798_20141205004109-20141205004327.mov	SciCam	2014/12/05 0:41:20	2014/12/05 0:43:30	Mussels near Champagne
J2-798	J2-798_20141205005312-20141205005557.mov	SciCam	2014/12/05 0:53:20	2014/12/05 0:56:00	Mussels below Champagne
J2-798	J2-798_20141205005926-20141205010500.mov	SciCam	2014/12/05 0:59:40	2014/12/05 1:05:10	Mussels shrimp snails limpets below Champagne

Dive	Filename (renamed)	Camera	Begin	End	Notes
J2-798	J2-798_20141205012700-20141205012845.mov	SciCam	2014/12/05 1:27:00	2014/12/05 1:29:00	Lower end of Sulfur Slope shrimp on sulfur
J2-798	J2-798_20141205023119-20141205023220.mov	SciCam	2014/12/05 2:31:27	2014/12/05 2:32:23	Red shrimp on veil iron mat
J2-798	J2-798_20141205042252-20141205042511.mov	SciCam	2014/12/05 4:23:00	2014/12/05 4:25:14	Flow at Yellow-Cone-14 backside
J2-798	J2-798_20141205043114-20141205043125.mov	SciCam	2014/12/05 4:31:40	2014/12/05 4:32:00	Wanted to do pilot cam of rolling bacterial ball- Times are approximate
J2-798	J2-798_20141205061757-20141205061844.mov	SciCam	2014/12/05 6:17:00	2014/12/05 6:18:00	fluids around sulfur slope with shrimp and limpets
J2-798	J2-798_20141205061947-20141205062243.mov	SciCam	2014/12/05 6:19:49	2014/12/05 6:22:49	venting near sulfur slope; mussels, shrimp, sulfur, hot water and gas bubbles
J2-798	J2-798_20141205063412-20141205063510.mov	SciCam	2014/12/05 6:34:00	2014/12/05 6:35:10	venting at Champagne
J2-798	J2-798_20141205064028-20141205064310.mov	SciCam	2014/12/05 6:40:30	2014/12/05 6:43:10	marker GAR1-3 at Champagne vent; going to put marker 144 here
J2-798	J2-798_20141205070050-20141205070246.mov	SciCam	2014/12/05 7:00:51	2014/12/05 7:02:48	Cliff House venting in area where we might put marker; shrimp, mussels, limpets (two kinds) marker not placed in this video
J2-798	J2-798_20141205071459-20141205071742.mov	SciCam	2014/12/05 7:15:00	2014/12/05 7:17:42	Cliff House video is start of photo mosaic fly by after marker (#145) placement
J2-798	J2-798_20141205110253-20141205110336.mov	SupScorp	2014/12/05 11:02:54	2014/12/05 11:03:42	trying to take video highlight of deployed sediment plates, proto traps and MTRs at Champagne
J2-798	J2-798_20141205112848-20141205112952.mov	SupScorp	2014/12/05 11:28:49	2014/12/05 11:29:52	shrimp, mussels, squat lobsters, mat at MKR 144
J2-798	J2-798_20141205122136-20141205122351.mov	SciCam	2014/12/05 12:21:37	2014/12/05 12:23:53	BioMat sampling at Marker 144
J2-798	J2-798_20141205130724-20141205130907.mov	BrowCam	12/5/2014 13:07:30 PM	12/5/2014 13:09:08 PM	beauty shot elevator
J2-798	J2-798_20141205131746-20141205131749.mov		NA	NA	throwaway
J2-798	J2-798_20141205143643-20141205144213.mov	SciCam	2014/12/05 14:37:15	2014/12/05 14:42:18	J798-bM1-C1-17 attempt at sampling- no sample taken because syringe 1 and 5 firing simultaneously
J2-798	J2-798_20141205144533-20141205144731.mov	SciCam	2014/12/05 14:45:34	2014/12/05 14:37:32	J798-BM1-C1-17 sampling iron mat at 19.5 degree vent. Just first sampling before any expulsion
J2-798	J2-798_20141205145136-20141205145310.mov	SciCam	2014/12/05 14:51:38	2014/12/05 14:53:13	J798-BM1-C2-18 sampling same place as J2-798-BM1-C1-17
J2-798	J2-798_20141205152023-20141205152455.mov	SciCam	2014/12/05 15:20:27	2014/12/05 15:24:58	J798-BM1-C4-19 sampling just above where T>30
J2-798	J2-798_20141205152810-20141205152940.mov	SciCam	2014/12/05 15:28:20	2014/12/05 15:29:40	J798-BM1-C4-19 sampling just above where T>30 after water expulsion
J2-798	J2-798_20141205170422-20141205170541.mov	SciCam	2014/12/05 17:04:24	2014/12/05 17:05:43	Excavating a flat surface for slide trap 3 and MTR 4001
J2-798	J2-798_20141205173036-20141205173222.mov	SciCam	2014/12/05 17:30:40	2014/12/05 17:32:26	J798-BM1-D1 iron mat/ chimney
J2-798	J2-798_20141205173406-20141205173520.mov	SciCam	2014/12/05 17:34:07	2014/12/05 17:35:23	J798-BM1-D1 continued
J2-798	J2-798_20141205183810-20141205184854.mov	PilotCam	2014/12/05 18:38:00	2014/12/05 18:48:00	Video of later scoop with broken hand; trying to open--may want to show video to Jimmy to get a fix for the broken handle; at Yellow Cone
J2-798	J2-798_20141205201315-20141205201520.mov	SciCam	2014/12/05 20:13:00	2014/12/05 20:15:00	RNA Later scoop 34 at same place as HFS 30-32
J2-798	J2-798_20141205211827-20141205211949.mov	SciCam	2014/12/05 21:18:30	2014/12/05 21:19:00	just below Red Top, crab in a hole, T-probe
J2-798	J2-798_20141205212341-20141205212425.mov	SciCam	2014/12/05 21:23:43	2014/12/05 21:24:35	crab getting' probed

Dive	Filename (renamed)	Camera	Begin	End	Notes
J2-798	J2-798_20141205225504-20141205225750.mov	SciCam	2014/12/05 22:55:11	2014/12/05 22:57:50	Releasing elevator
J2-798	J2-798_20141205225927-20141205230209.mov	SciCam	2014/12/05 22:59:27	2014/12/05 23:02:10	Elevator up
J2-798	J2-798_20141205230439-20141205230747.mov	SciCam	2014/12/05 23:04:40	2014/12/05 23:07:49	More elevator
J2-798	J2-798_20141205231515-20141205231541.mov	SciCam	2014/12/05 23:15:00	2014/12/05 23:17:00	taking off
J2-798	J2-798_20141206010746-20141206010937.mov	PilotCam	2014/12/06 1:07:15	2014/12/06 1:10:00	Attempt to record SciCam but wrong camera was selected
J2-798	J2-798_20141206010951-20141206011136.mov	SciCam	2014/12/06 1:10:00	2014/12/06 1:11:35	Squat lobster on HFS intake hose during transit
J2-798	J2-798_20141206013730-20141206013924.mov	SciCam	2014/12/06 1:37:32	2014/12/06 1:39:25	Large white Shinkai Lepas Limpets
J2-798	J2-798_20141206021219-20141206021347.mov	SciCam	2014/12/06 2:12:21	2014/12/06 2:13:39	Panorama of marker 145 after settlement plate, protozoan trap, and MTR placement
J2-798	J2-798_20141206022548-20141206022700.mov	SciCam	2014/12/06 2:25:50	2014/12/06 2:27:02	Taking pH of mussel bed, pH=7.09, T=2.6C
J2-798	J2-798_20141206023224-20141206023305.mov	SciCam	2014/12/06 2:23:28	2014/12/06 2:33:12	Squat lobster
J2-798	J2-798_20141206023352-20141206023439.mov	PilotCam	2014/12/06 2:33:54	2014/12/06 2:34:45	Squat lobster- dirty and fuzzy
J2-798	J2-798_20141206023520-20141206023607.mov	PilotCam	2014/12/06 2:35:23	2014/12/06 2:36:12	Poking at an unknown object in lobster bed
J2-798	J2-798_20141206023903-20141206024658.mov	SciCam	2014/12/06 2:39:10	2014/12/06 2:47:00	J798-Mbag-37 scooping
J2-798	J2-798_20141206025912-20141206030253.mov	SciCam	2014/12/06 2:59:13	2014/12/06 3:02:55	J798-SS-38 sucking macrobio in mussel bed
J2-798	J2-798_20141206074542-20141206074544.mov	SciCam	2014/12/06 0:00:00	2014/12/06 0:00:00	throwaway
J2-799	J2-799_20141213121000-20141213121240.mov	SciCam	2014/12/13 12:10:00	2014/12/13 12:12:40	Jason launch at night
J2-799	J2-799_20141213133304-20141213133647.mov	PilotCam	2014/12/13 13:33:15	2014/12/13 13:37:00	Recovering MTR and PrTrp104 into starboard biobox at Mkr124
J2-799	J2-799_20141213150544-20141213151023.mov	SciCam	2014/12/13 3:05:48	2014/12/13 15:10:25	J799-BM1-C1-9 ferrozine: Sample turned pink
J2-799	J2-799_20141213151944-20141213152354.mov	SciCam	2014/12/13 15:19:50	2014/12/13 15:23:55	J799-BM1-D1-10 and BM1-D2-11
J2-799	J2-799_20141213154440-20141213154544.mov	SciCam	2014/12/13 15:44:40	2014/12/13 15:46:00	J799-BM1-C5-15 ferrozine turned pink
J2-799	J2-799_20141213154630-20141213154942.mov	SciCam	2014/12/13 15:46:30	2014/12/13 15:49:49	J799-BM1-C4-16 GeoChem water sample
J2-799	J2-799_20141213162125-20141213162411.mov	SciCam	2014/12/13 16:21:26	2014/12/13 16:24:12	J799-BM1-D56 Fe mat reddish orange in color
J2-799	J2-799_20141213162735-20141213162856.mov	SciCam	2014/12/13 16:27:00	2014/12/13 16:29:00	J799-BM1-D3 Fluffy light mat
J2-799	J2-799_20141213163312-20141213163531.mov	SciCam	2014/12/13 16:33:20	2014/12/13 16:35:39	J799-BM1-B1 attempted sample of filamentous cob web like mat: No sample collected
J2-799	J2-799_20141213163934-20141213164242.mov	SciCam	2014/12/13 16:39:00	2014/12/13 16:43:00	J799-BM1-B1 attempted sample… later expelled
J2-799	J2-799_20141213164729-20141213165014.mov	SciCam	2014/12/13 16:47:00	2014/12/13 16:50:00	J799-BM1-B156-22
J2-799	J2-799_20141213170434-20141213171053.mov	SciCam	2014/12/13 17:04:00	2014/12/13 17:10:00	Lscoop3-25 No RNA in this scoop for Sean of BM1-B156 leftovers
J2-799	J2-799_20141213181752-20141213181852.mov	Sci Cam	2014/12/13 18:17:53	2014/12/13 18:18:52	Splate4 video in situ
J2-799	J2-799_20141213182215-20141213182245.mov	Sci Cam	2014/12/13 18:22:00	2014/12/13 18:22:45	Splate4 video in situ up close
J2-799	J2-799_20141213183121-20141213183230.mov	Sci Cam	2014/12/13 18:31:30	2014/12/13 18:32:00	Rock collection with egg cases for Shawn & Jason
J2-799	J2-799_20141213184641-20141213185004.mov	Sci Cam	2014/12/13 18:46:00	2014/12/13 18:50:00	Shrimp traps full on razorback
J2-799	J2-799_20141213191419-20141213192009.mov	SciCam	2014/12/13 19:14:00	2014/12/13 19:20:00	Splate 3 sampling at Champagne
J2-799	J2-799_20141213193327-20141213193607.mov	SciCam	2014/12/13 19:33:00	2014/12/13 19:36:00	mussel pH sampling at Champagne
J2-799	J2-799_20141213193652-20141213194102.mov	SciCam	2014/12/13 19:36:00	2014/12/13 19:41:00	melted mussels and sampling after pH measurements
J2-799	J2-799_20141213194435-20141213194812.mov	PilotCam	2014/12/13 19:44:00	2014/12/13 19:48:00	mussel pH sampling at second place at Champagne

Dive	Filename (renamed)	Camera	Begin	End	Notes
J2-799	J2-799_20141213195321-20141213195734.mov	SciCam	2014/12/13 19:53:20	2014/12/13 19:57:00	mussel sampling at Golden Lips, Champagne, pH 5.78
J2-799	J2-799_20141213202617-20141213202618.mov	SciCam			throwaway
J2-799	J2-799_20141213212456-20141213212824.mov	SciCam	2014/12/13 21:25:10	2014/12/13 21:28:30	Fish swimming around Jason
J2-799	J2-799_20141213213410-20141213213544.mov	SciCam	2014/12/13 21:34:00	2014/12/13 21:35:40	Jason recovery
J2-800	J2-800_20141216204233-20141216204550.mov	BrowCam	2014/12/18 20:42:30	2014/12/18 20:46:00	Jason launch
J2-800	J2-800_20141216212827-20141216213602.mov	SciCam	2014/12/18 21:28:00	2014/12/18 21:36:00	bacterial growth and mucopolysac. bags on rock near Phantom vent; scan of crude pillow like structures; shinkailepas on rocks; large patch of shrimp
J2-800	J2-800_20141216213714-20141216214439.mov	SciCam	2014/12/18 21:37:00	2014/12/18 21:44:00	pH sensor in venting area covered with O. loihi and surrounded by Alvinocaris; pH-6.2, 9C, O2-1.0
J2-800	J2-800_20141216215859-20141216220032.mov	SciCam	2014/12/18 21:59:02	2014/12/18 22:00:30	Shrimp at Phantom
J2-800	J2-800_20141216220618-20141216220941.mov	SciCam	2014/12/18 22:06:03	2014/12/18 22:09:41	Shrimp medium shot, looking for goof fluid site sample
J2-800	J2-800_20141216221017-20141216221058.mov	SciCam	2014/12/18 22:01:01	2014/12/18 22:11:06	Shrimp in rock
J2-800	J2-800_20141216221310-20141216221628.mov	SciCam	2014/12/18 22:13:11	2014/12/18 22:16:31	Shrimp on sulfur deposits
J2-800	J2-800_20141216221904-20141216222410.mov	SciCam	2014/12/16 22:05:19	2014/12/16 22:04:10	Shrimp on sulfur wall
J2-800	J2-800_20141216222457-20141216222935.mov	SciCam	2014/12/16 22:25:00	2014/12/16 22:29:40	more shrimp
J2-800	J2-800_20141216223304-20141216223732.mov	SciCam	2014/12/16 22:23:05	2014/12/16 22:37:32	Manipulating suction sampler, suction sampler shrimp
J2-800	J2-800_20141216224247-20141216224507.mov	SciCam	2014/12/16 22:42:00	2014/12/16 22:45:07	Major Sampler - red
J2-800	J2-800_20141216232527-20141216232856.mov	SciCam	2014/12/16 23:25:28	2014/12/16 23:26:28	Taking fluid sample, limpet egg cases and shrimp
J2-800	J2-800_20141216234506-20141216234811.mov	SciCam	2014/12/16 23:45:30	2014/12/17 23:48:18	Close-up of barnacles while Sterivex sampling at SmokingStones.
J2-800	J2-800_20141216235947-20141216000536.mov	SciCam	2014/12/16 23:59:50	2014/12/17 0:05:38	Limpets on the climb up sulfur wall.
J2-800	J2-800_20141217001641-20141217001855.mov	SciCam	2014/12/17 0:16:59	2014/12/17 0:18:59	Hairy bacteria on top of sulfur wall near Iceberg.
J2-800	J2-800_20141217003814-20141217003933.mov	SciCam	2014/12/17 0:38:21	2014/12/17 0:39:40	Crab at sampling site Menagerie (10mNW of Iceberg target.)
J2-800	J2-800_20141217004324-20141217010204.mov	SciCam	2014/12/17 0:43:30	2014/12/17 1:02:09	At sampling site Menagerie (10m NW of Iceberg target.)
J2-800	J2-800_20141217010314-20141217010753.mov	SciCam	2014/12/17 1:03:19	2014/12/17 1:07:55	Crab at Menagerie.
J2-800	J2-800_20141217013438-20141217013807.mov	SciCam	2014/12/17 1:34:45	2014/12/17 1:38:05	Orange Lscoop #2 at Tip Ice. Did not take scoop.
J2-800	J2-800_20141217014015-20141217014501.mov	SciCam	2014/12/17 1:40:20	2014/12/17 1:38:05	Orange Lscoop #2 at Tip Ice. Second try.
J2-800	J2-800_20141217021728-20141217021940.mov	SciCam	2014/12/17 2:17:50	2014/12/17 1:38:05	Jelly critter on mid-water transit to Barnacles. (Ctenophore?)
J2-800	J2-800_20141217023643-20141217025018.mov	SciCam	2014/12/17 2:37:00	2014/12/17 2:50:00	Marker here at Barnacles. Mkr 119.
J2-800	J2-800_20141217031354-20141217031822.mov	SciCam	2014/12/17 3:13:00	2014/12/17 3:18:00	Area of Fault Shrimp. Crab and limpets. Flow. "Crab Cavern"
J2-800	J2-800_20141217032816-20141217033416.mov	SciCam	2014/12/17 3:28:00	2014/12/17 3:34:00	Crab Cavern at Fault Shrimp. Barnacle; limpet; crab; snail.
J2-800	J2-800_20141217035320-20141217035928.mov	SciCam	2014/12/17 3:53:00	2014/12/17 3:59:00	Olde Iron Slides - 14.
J2-800	J2-800_20141217042029-20141217042439.mov	SciCam	2014/12/17 4:29:00	2014/12/17 4:25:00	Gray scoop - in iron mats.

Dive	Filename (renamed)	Camera	Begin	End	Notes
J2-800	J2-800_20141217054158-20141217054201.mov				throwaway
J2-801	J2-801_20141217182858-20141217183423.mov	PilotCam	2014/12/17 18:28:00	2014/12/17 18:34:00	Cassette C BM sampler-syringe 1 & 2 at Eleking (edit==Golden Horn, not Eleking)
J2-801	J2-801_20141217185337-20141217185725.mov	Sci Cam	2014/12/17 18:53:00	2014/12/17 18:57:00	HFS fluid sampler at same place cassettes were taken
J2-801	J2-801_20141217193651-20141217194445.mov	Sci Cam	2014/12/17 19:36:00	2014/12/17 19:44:00	Overview of Eleking (Golden Horn) chimney that we are sampling; moving from base (where previous samples were) up to a new spot
J2-801	J2-801_20141217205532-20141217210145.mov	SciCam	2014/12/17 20:55:00	2014/12/17 21:01:00	Heading up to top to look for a new spot to sample. High T at top = 8.64; pushed in a little High T =28.06
J2-801	J2-801_20141217211238-20141217211408.mov	Sci Cam	2014/12/17 21:12:00	2014/12/17 21:14:00	BM1-C414 top of Eleking (ferrozine) (Golden Horn, not Eleking)
J2-801	J2-801_20141217222336-20141217222507.mov	Sci Cam	2014/12/17 22:23:30	2014/12/17 22:25:10	Golden Horn chimney and Jason temperature probe
J2-801	J2-801_20141217222630-20141217222730.mov	PilotCam	2014/12/17 22:26:00	2014/12/17 22:27:30	Golden Horn chimney and Jason temperature probe
J2-801	J2-801_20141217223224-20141217223233.mov	Sci Cam	2014/12/17 22:32:20	2014/12/17 22:32:30	Scoop sample set up at Golden Horn chimney
J2-801	J2-801_20141217223309-20141217223709.mov	PilotCam	2014/12/17 22:33:00	2014/12/17 22:37:10	Scoop sample at Golden Horn chimney
J2-801	J2-801_20141217224149-20141217224230.mov	Sci Cam	2014/12/17 22:42:00	2014/12/17 22:42:30	Twisting scoop to mix RNA later in scoop
J2-801	J2-801_20141217225454-20141217225910.mov	PilotCam	2014/12/17 22:54:55	2014/12/17 22:59:10	Backing away from Golden Horn Chimney
J2-801	J2-801_20141218013311-20141218013640.mov	PilotCam	2014/12/18 1:33:10	2014/12/18 1:36:40	Putting scoops in elevator
J2-801	J2-801_20141218030515-20141218031306.mov	Brow cam	2014/12/18 3:05:00	2014/12/18 3:13:00	J801-BM1-D6 D5 D1 D2 D4 samples 21,22,23,24, 25 respectively
J2-801	J2-801_20141218031617-20141218031830.mov	Brow cam	2014/12/18 3:16:00	2014/12/18 3:18:00	J801-BM1-D3-26 attempt at sampling, check valve clogged
J2-801	J2-801_20141218032537-20141218033428.mov	SciCam	2014/12/18 3:25:00	2014/12/18 3:34:00	J801-SS-27 top of Golden Horn sucked
J2-801	J2-801_20141218035130-20141218035606.mov	SciCam	2014/12/18 3:51:00	2014/12/18 3:56:00	J801-Lscoop4-28
J2-801	J2-801_20141218040934-20141218041409.mov	Sci Cam	2014/12/18 4:09:00	2014/12/18 14:14:00	J801-BM1-X6-29 also X1 and X2 samples 30 and 31
J2-801	J2-801_20141218042041-20141218042344.mov	Sci Cam	2014/12/18 4:20:00	2014/12/18 4:23:00	J801-BBscoop sample for in-tact mat
J2-801	J2-801_20141218045640-20141218045816.mov	SciCam	2014/12/18 4:56:00	2014/12/18 4:58:16	J801-BM1-X5 X4
J2-801	J2-801_20141218045905-20141218050039.mov	SciCam	2014/12/18 4:59:00	2014/12/18 5:00:00	J801-BM1-X3
J2-801	J2-801_20141218061500-20141218062525.mov	Sci Cam	2014/12/18 6:15:00	2014/12/18 6:25:00	J801-SPME-44
J2-801	J2-801_20141218062923-20141218063125.mov	Sci Cam	2014/12/18 6:29:00	2014/12/18 6:31:00	Highlight of Splate 5
J2-801	J2-801_20141218063234-20141218063824.mov	Sci Cam	2014/12/18 6:32:00	2014/12/18 6:38:00	Highlight of putting out marker and taking chimney
J2-801	J2-801_20141218064420-20141218064616.mov	Sci Cam	2014/12/18 6:44:00	2014/12/18 6:46:00	highlight of SPME-46 background sample on the ascent
J2-801	J2-801_20141218090307-20141218090310.mov				throwaway

5-3 Dive Summaries

J2-797

Main goals: Recon, BioMat, scoop & fluid sampling, recover 2010 settling plates.
Sample totals: 24 biology; 20 fluid; 3 gas; 1 geology

JASON preparing for the first dive.

Snail Site: Dive began with search for Marker-112 site to do reconnaissance but marker not found. Found 2010 Beaulieu settlement plate #5 with small marker #20 and recovered it. Found Marker-108 and took temperature readings. Headed for Marker-114 (marker not found) but took 4 HFS samples in the area. Returned to Marker-108 site. , took 12 BioMat samples and 3 HFS samples. Conducted photomosaic survey centered on Marker-24, 25-meter box. Deployed 2 Beaulieu settlement plates on either side of crack from where 2010 Beaulieu's plate was recovered at Marker-20 (found). Deployed Arellano's settlement plate at the same site. Went to Marker-24 site, saw venting at 140-182degC with high flow, sulfur mats and shrimp. Took 4 HFS, 2 gas and one rock sample at this site. Transferred samples to elevator then transited to Urashima site, 3.5 hours.
Urashima Site: Began survey in older chimneys, shallower than the target depth site. Moved to Marker-109 target site, encountering first active chimneys. Set navigator targets at site, (had old marker on it but couldn't read any identification, later identified as Baltan), target originally named Active on this dive) and Snap-Snap. Conducted photomosaic survey, 50x50m, with Baltan chimney at center of box. Returned to Snap-Snap and measured temperatures of 26.23degC at vent, in veil-like mat. Moved to Baltan chimney and measured temperature over 150degC. Took 3 HFS, 1 gas and one BioMat sample. Moved to other side of Baltan and then went to skinny spire nearby, named it Saipanda horn. Took 4 BioMat cassette samples, 6 HFS, 1 suction and 1 scoop sample at various heights on the chimney. After surveying a number of chimney structures, returned to Snap-Snap. Took 3 BioMat cassette samples, 1 L-scoop and 1 big-boy scoop samples. Took one last sample of a sulfide near Shar-Pen before the end of the dive.

J2-798

Main goals: Recon, BioMat, scoop & fluid sampling, deploy settling traps, proto traps & slide traps.
Sample totals: 20 biology; 18 fluid; 2 gas

NW Eifuku: Began dive on bottom SE of elevator drop position and dive targets. Conducted Reson test on way to the elevator. Did a site survey of the area in clockwise direction from elevator out toward TopTower, BactoBalls site and ending at Yellow-Cone, looking for best sampling sites. Did photomosaic line from TopTower to NW and near RustySpire. Found mat and few bacteria balls near old BactoBalls and named site Not-Dead-Yet. At Yellow-Cone did a survey of the mat extent, setting a target nearby called RedTop. Went on search for Champagne Site and found some bubbles at the Champagne-2006 site. Searched for an old Japanese dive marker and found an instrument, GARI-3 instead. Deployed Mkr-144 at this site with large aggregations of mussels. Went in search of CliffHouse and found a new venting site, Razorback, where Mkr-145 was deployed. Did short photomosaic line at Razorback. Returned to Champagne (Mkr-144) and conducted photomosaic in a grid pattern. Took 8 HFS, 2 gas, 6 BioMat cassette samples around Mkr-144 at 2 locations. Deployed SPlate 2 & 3 with 2 MTRs, PRTrap 4. Returned to elevator and swapped out instruments. Headed to Yellow-Cone. Deployed ShrimpTrap2 and then took 4 BioMat cassette samples, 3 HFS samples. Deployed ShrimpTrap1, SlideTraps 1-3 with a MTR and Mkr-146. Moved north to active-looking mat and took 5 BioMat, 3 HFS samples. Returned to elevator to swap out samplers. Headed back to Yellow-Cone. Took 2 majors and one LScoop sample. Deployed Mkr-124 at site near LScoop sample. Returned to ShrimpTrap1 near Mkr-146 and took LScoop sample. Returned to elevator and sent it to surface. Restarted dive-ops at Mkr-145 (Razorback). Deployed SPlate4 with MTR, PrTrop113 with MTR at Mkr-145. Collected mussel scoop sample upslope from Mkr-145. Also took suction sample of mussels. Deployed ShrimpTrap 3 & 4 at mussel bed area. Placed markers 123 & 140 next to traps for next dive (never recovered). Conducted Reson multibeam survey starting at NW extent. Finished 3 of 8 survey lines before dive ended due to weather. Attempted to take plankton net sample during Reson survey (unsuccessful due to recovery problem).

J2-799
Main goals: Recover experiments on bottom, BioMat & fluid sampling. Scoop sampling, mussel bag sampling.
Sample totals: 29 biology; 8 fluid; 2 gas; 1 bio-geo

NW Eifuku: Began dive on bottom heading to Mkr-124 at Lower Yellow-Cone. Recovered Protist Trap and MTR. Nearby, collected LScoop sample, 2 HFS in iron-oxide sediments. At Mkr-146 recovered 3 SlideTraps, 2 MTRs and one Shrimp Trap. Took 24 BioMat samples, 2 HFS, 2 LScoop samples. Headed to Mkr-145/Razorback site. Recovered SPlate, MTR and Protist Trap. Took a rock sample and 2 HFS samples. Next recovered 2 Shrimp Traps up on the ridge with the marker. Next went to Mkr-144/Champagne site, taking Sterivex HFS sample while wand was in holster. Recovered one SPlate, 2 MTRs and Protist Trap. Left one SPlate on seafloor with no space available on basket. Collected mussel sample with scoop net, just NW in dense accumulation (GoldenLips). Took second mussel sample in densely populated area with 2 HFS samples and 1 GTHFS sample in the holster.

J2-800
Main goals: Recon eruptive and hydrothermal vents, BioMat and fluid sampling. Suction sample of shrimp, collect barnacles & limpets.
Sample totals: 11 biology; 17 fluid; 4 gas; 6 bio-geo

NW Rota-1: Began dive at Phantom Vent (no marker remaining). Took HFS and rock with limpets sample in diffuse venting. Moved east through Sulfur and Brimstone vents, no markers found, took one HFS near Brimstone. Just north of Brimstone encountered large quantities of shrimp in the area of the 2010 Arrowhead target. Took 3 HFS, 1 GTHFS, shrimp suction and major sample at this site. Next went east passing through Styx and then SE to Charon without seeing venting. Started background Sterivex sample. Moved deeper down on Cliff and encountered some smoke in water, shrimp and limpets with egg cases. Took 3 HFS, 1 GTHFS and a rock with limpets/egg cases at site, named site Smoking Stones. Climbed sulfur wall with limpets, heading north to Mkr-117/Limpet Lair. No marker found. Continued up wall into area with lots of biology and venting, named site Menagerie. Took 3 HFS, 1 GTB sample. Headed to Iceberg target but no marker found. In area of white bacterial mat took LScoop, 3 BioMat samples, named site TipIce. Headed east toward Barnacles, found Mkr-119. Took 4 rock samples with filamentous bacteria on them. Moved to Mkr-112/Fault Shrimp site (marker still there) and then nearby Mkr-113/SulfurSlide. At FaultShrimp took 3 HFS, 1 major and 1 GTB samples in CrabCavern. Moved over to knife-edge ridge with distinct yellow sediment, named target OldeIronSlides. Took 5 BioMat and one scoop sample of the sediment.

J2-801
Main Goals: BioMat and fluid sampling, suction sample of iron mat, deploy and recover settling traps.
Sample totals: 29 biology; 16 fluid; 2 gas; 1 geology

Urashima: Began dive west of GoldenHorn, at the Old Dead Chimneys target. Took 5 BioMat and 3 HFS samples at base of GoldenHorn. Moved up chimney 2 meters, took 3 BioMat and 2 HFS samples. Moved up chimney 5 meters, took 2 BioMat and 3 HFS samples. Returned to base of GoldenHorn to take LScoop and regular Scoop from 2 locations at base. Waited for elevator to be deployed to retrieve samples. Swapped out samplers at elevator, about 160m south of GoldenHorn. Returned to GoldenHorn. Took 6 BioMat samples, 1 suction of mat and LScoop near top of chimney. Back down to base of chimney and took 3 BioMat and 1 BigBoy Scoop samples. Up a few meters of the chimney took a major sample and 3 BioMat samples. At top of chimney took HFS Sterivex sample. Moved over to sample hot water chimney (Ultra-no-chichi). Took 2 HFS , 2 GTHFS samples. In slightly different position up the chimney took HFS sample and SPME sampler. On top of chimney deployed SPlate and Mkr-125. Took a sample of a chimney piece. Observed Japanese Marker on higher part of chimney (Mkr-125 is on the lower part). On ascent took 2 HFS and 1 SPME background samples.

5.4 Instrument Deploy/Recover

NW EIFUKU Deploy - Recover

Instrument Item	DEPLOY								RECOVER		
	Latitude N	Longitude E	Location	Jason Depth	Heading	Time	Dive Deployed	VV	Dive Recovered	Time	Sample Number
Mkr 144	21 29.2435	144 2.4906	Champagne 2014 Site	1607	41	12/5/2014 6:46	J798	4040			
Mkr145	21 29.2498	144 2.5039	Razorback (NE Champagne)	1566	73	12/5/2014 7:10	J798	4093			
MTR-3048	21 29.2442	144 2.4851	Mkr144 Champagne Site	1608	61	12/5/2014 10:43	J798	4529	J799	19:21	
SPlate #2	21 29.2442	144 2.4851	Mkr144 Champagne Site	1608	61	12/5/2014 10:48	J798	4536		not recovered	
SPlate #3	21 29.2442	144 2.4851	Mkr144 Champagne Site	1608	61	12/5/2014 10:51	J798	4541		19:16	J799-Splate3-34
PrTrp #4 MTR3291	21 29.2442	144 2.4851	Mkr144 Champagne Site	1607	57	12/5/2014 10:57	J798	4554	J799	19:23	J799-PrTrap-35
ShrimpTrap2	21 29.2654	144 2.51728	Mkr146 Yellow Cone area	1579	245	12/5/2014 14:30	J798	4916		not recovered	
ShrimpTrap1	21 29.2669	144 2.5182	Mkr146 Yellow Cone area	1577	272	12/5/2014 16:47	J798	5158	J799	14:43	J799-ShrTrap1-05
SlideTrap1	21 29.2669	144 2.5182	Mkr146 Yellow Cone area	1577	272	12/5/2014 16:50	J798	5167	J799	14:48	J799-SlideTrap1-06
SlideTrap2	21 29.26697	144 2.5182	Mkr146 Yellow Cone area	1577	272	12/5/2014 16:57	J798	5175	J799	14:49	J799-SlideTrap2-07

NW EIFUKU Deploy - Recover

Instrument Item	DEPLOY								RECOVER		
	Latitude N	Longitude E	Location	Jason Depth	Heading	Time	Dive Deployed	VV	Dive Recovered	Time	Sample Number
MTR4001	21 29.26697	144 2.5182	Mkr146 Yellow Cone area	1577	258	12/5/2014 17:07	J798	5191	J799	14:50	
SlideTrap3	21 29.26697	144 2.5182	Mkr146 Yellow Cone area	1577	258	12/5/2014 17:08	J798	5194	J799	14:50	J799-SlideTrap3-08
Mrkr146	21 29.2676	144 2.5172	Upper Yellow Cone area	1577	258	12/5/2014 17:11	J798	5198			
Mkr124	21 29.2738	144 2.5188	Lower Yellow Cone area	1584	296	12/5/2014 21:07	J798	5585			
MTR4094	21 29.2738	144 2.5188	Mkr-124 Yellow Cone	1585	214	12/5/2014 22:11	J798	5708	J799	13:35	
PrTrp 104	21 29.2738	144 2.5188	Mkr-124 Yellow cone	1585	214	12/5/2014 22:13	J798	5710	J799	13:33	J799-PrTrap-01
SPlate4	21 29.2498	144 2.5039	Mkr-145	1566	144	12/6/2014 1:52	J798	6006	J799	18:20	J799-Splate4-26
MTR3173	21 29.2498	144 2.5039	Mkr-145	1566	144	12/6/2014 1:56	J798	6013	J799	18:29	
PrTrp 113	21 29.2498	144 2.5039	Mkr-145	1566	144	12/6/2014 2:09	J798	6032	J799	18:29	J799-PrTrap113-27
ShrimpTrap3	21 29.2504	144 2.5079	Mkr-145	1562	167	12/6/2014 3:11	J798	6158	J799	18:51	J799-ShrTrap3-32
ShrimpTrap4	21 29.2504	144 2.5079	Mkr-145	1562	167	12/6/2014 3:11	J798	6158	J799	18:49	J799-ShrTrp4-31

NW EIFUKU Deploy - Recover

Instrument Item	DEPLOY								RECOVER		
	Latitude N	Longitude E	Location	Jason Depth	Heading	Time	Dive Deployed	VV	Dive Recovered	Time	Sample Number
(Mkrs 123 and 140)	21 29.2504	144 2.5079	Mkr-145	1561	134	12/6/2014 3:19	J798	6171	j799	not recovered	

Snail/Urashima Deploy - Recover

SPlate5 (2010)	12 47.188	143 37.155	Marker-20 Stace 5 (2010)	2848	288	11/30/2014 7:55	J797	414	J797	7:55	J797-SPlate5-01
SPlate1sma	12 57.1926	143 37.1632	Marker-20 Stace 5 nav target	2845	188	11/30/2014 15:19	J797	1143		not recovered	
SPlate1	12 57.1903	143 37.1636	Marker-20 Stace 5 nav target	2844	263	11/30/2014 14:56	J797	1094		not recovered	
Splate2	12 57.1903	143 37.1636	Marker-20 Stace 5 nav target	2844	263	11/30/2014 15:03	J797	1108		not recovered	
Mkr-125	12 55.3378	143 38.9506	Ultra-no-chichi	2929	123	12/18/2014 6:30	J801	15088			
Splate-5	12 55.3378	143 38.9506	Ultra-no-chichi	2929	123	12/18/2014 6:30	J801	15085		not recovered	

5.5 Dive Maps and Navigation

Navigation

Navigation during the Jason dives utilizing the USBL was relatively good on all dives. During sampling, with a stationary vehicle, navigation locations from Jason drift so positions for samples and significant targets are logged from a navigation cursor position taken during the dive from the Navigator logging screen when the data logger verifies the position as good with the Jason navigator. On the dive maps, positions for samples and targets may not actually correspond directly with the post-processed vehicle navigation track for this reason. These errors in position occur from dive to dive as well as from cruise to cruise, generally on the order of 10s of meters. Markers are essential for actual place identification however working in a dynamic environment, such as hydrothermal venting systems and active volcanoes, marker retention is difficult between years. Note that the Jason altimeter was not logging data on any of these dives.

Navigation processing as taken from Jason Navigation Documentation:
Primary Jason navigation was derived from a Doppler Velocity Log (DVL) system in combination with heading from a high performance inertial navigation system (INS). DVL velocities were integrated to estimate dead reckoned position. Georeferenced information from the ultra-short baseline (USBL) was also collected and was used to augment the dead reckoned history. After a dive the Jason data processor performed a post---processing task we call "renavigation". Renavigation was performed using software developed in a cooperative effort between the Dynamical Systems and Control Laboratory (DSCL) at Johns Hopkins University and NDSF. In this task the raw DVLNav logs, which contained all records produced by navigation sensors at their native rate, were used to recreate the navigation history. The DVL velocity history was reintegrated using a more accurate sound speed. This history was mathematically merged with a cleaned history from USBL to yield an improved result. The result was written in a variety of formats, suitable for use in a variety of post---processing applications. The data processor had two algorithms available to him/her for the merge of dead reckoning with USBL, each with particular strengths. The Least Squares Fit (LSQ) technique maintains the dead reckoned history, shifting its mean position to the mean position of the USBL history. The complementary filter (CF) technique uses a more equal balance of USBL history and the dead reckoned history. Results from the CF technique are generally preferred and are usually delivered; however, poor quality USBL input to the merge, perhaps from noisy or null raw USBL measurements, can make the CF result inferior to the LSQ result. Therefore, for select dives or portions of dives the data processor may have provided additional or alternative renavigation products for your benefit. In some cases, if USBL was not used or if the quality of the USBL positions was poor, the DVL positions may have been manually edited. In this case, the original DVL positions were left largely unchanged except for the removal of positions that are obviously incorrect. Files created through manual editing are labeled as "edited" rather than "renav."

Dive-specific navigation (Scott McCue/Jason and Andra Bobbitt):

• J2--797 was renavigated from start to finish using the CF technique. This method preserved the larger scale georeferenced detail of the lowering, but fine detail is lost due to noise in the USBL information. Additional renavigation was performed while working at two vent sites (Snail and Urashima) using the LSQ technique and this is the navigation used for the dive logs and maps in this report. At the Snail Site, previous markers that were visited were Mkr-108, Mkr-22, Mkr-20, Mkr-24 and one unidentified marker east of Mkr-22. Marker 114a was not found during this dive. All deployed instruments were left on the seafloor. At the Urashima Site, the only marker seen was on Baltan but the number wasn't readable, assumed to be Mkr-109.

• J2--798 navigation post-processing was split into two timeframes: during the multibeam survey and otherwise. Both were renavigated using the CF technique. The only previous marker at this site was deployed by the Japanese and was not identified on this dive. An older instrument with the label, GARI-3, was discovered when looking for the old marker however we have no information about who or when this was deployed. On this dive, Mkr-144 was deployed in the Champagne venting area and Mkr-145 was deployed at a new site, Razorback. At the major Yellow Cone sampling areas, Mkr-146 was placed at Upper Yellow Cone and Mkr-124 at Lower Yellow Cone. Two other markers (123 & 140) were also placed on the seafloor, intended for use later in the dive series, however they were never intentionally deployed and their lines not fully extended. They are located just east, less than 10 meters of Mkr-145. The multibeam navigation may be further reprocessed with the bathymetry data at a later date.

• J2--799 renavigated as single history using the CF technique. No additional markers deployed. Instruments SPlate-2 and ShrimpTrap-2 were left on the seafloor with the undeployed markers 123/140.

•J2--800 was renavigated as single history using the CF technique. Markers missing/not seen were Mkr-120 (Sulfur Vent), Mkr-161 (Brimstone), Mkr-164 (Sulfur Wall), Mkr-117 (N-Limpet Lair), and Mkr-110 (Iceberg09). Old markers found were Mkr-119 (Barnacles), Mkr-112 (E-FaultShrimp09) and Mkr-113 (Sulfur Slide). Mkr-163 at the summit in 2009 was not visited, it may or may not still be on the seafloor.

• J2--801 post-processing was split into four timeframes. This was forced by switching between DVL units during the lowering by the Jason navigator, who sought to improve bottom tracking. All were renavigated using the CF technique. Mkr-125 was deployed with the SPlate-5 instrument left on the seafloor, at Ultra-no-chichi.

Dive Maps

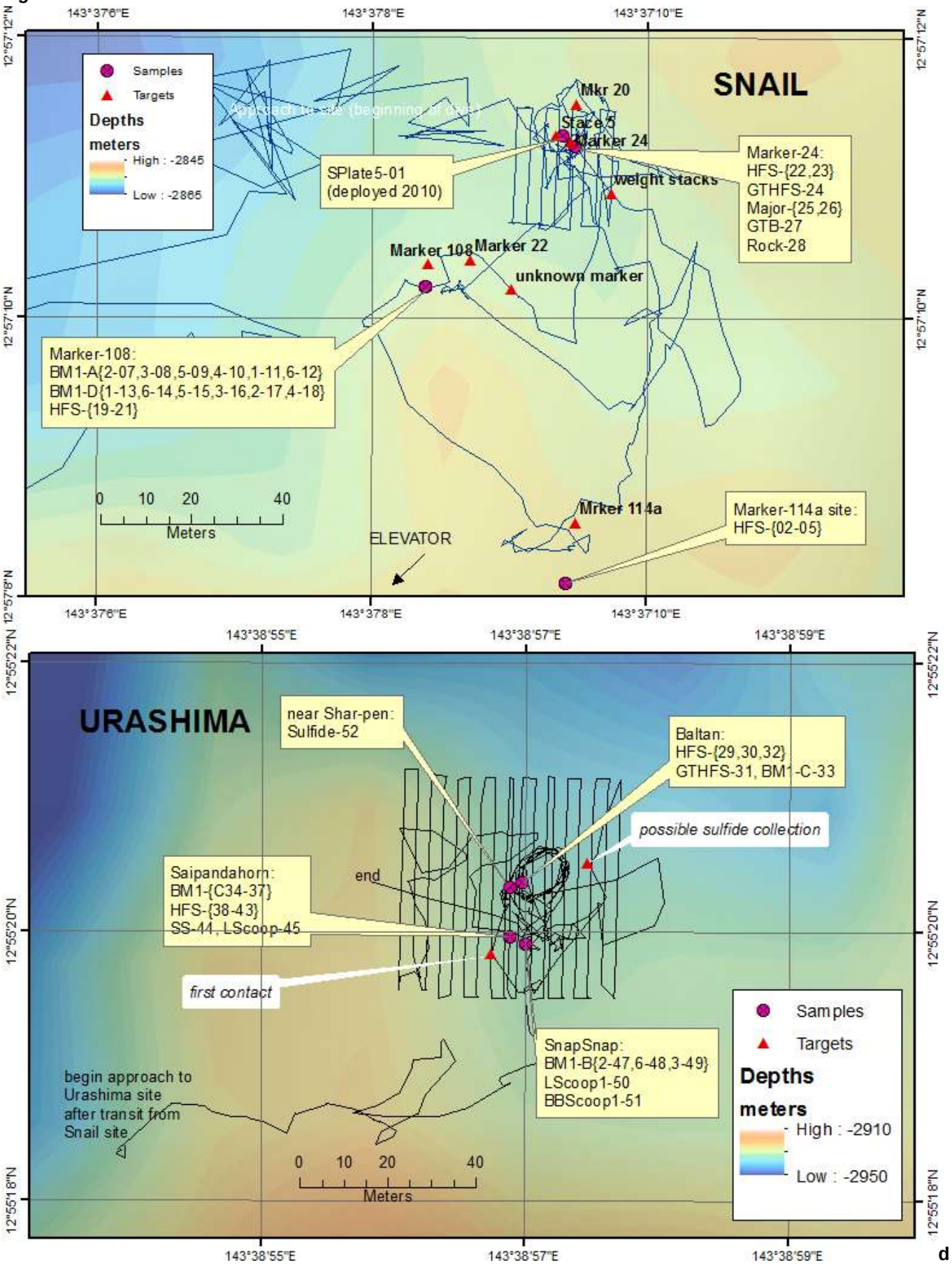
Dive maps were created utilizing GIS and ArcMap software. Maps in the report are not projected, data is displayed in geographic coordinates (equal spacing for latitude and longitude). Scale bars are in meters, however, for more accurate measurements in meters, a more appropriate projection should be used. Bathymetry data source varied for each dive location:

J2-797 and J2-801 (Fig. 5.2-1, 5.2-2 and 5.2-6) were made using EM300 data collected in 2003/2004 and gridded at 35-meters.

J2-798 (Fig. 5.2-3) and J2-799 (Fig. 5.2-4) used Imagenex bathymetry, gridded at 2-meters, collected by ROPOS in 2004 and then the grid was shifted by 16-meters in X and -11-meters in Y from its original space. This shift was done at sea after J2-798 to best fit features from the Reson multibeam collected on J2-798. J2-799's map also displays the Reson multibeam collected on J2-798 and initially processed at sea by Scott McCue, gridded at 1-meters.

J2-800 (Fig. 5.2-5) is SM2000 multibeam data collected in 2010 by Jason and gridded at 2-meters.

Fig. 5.5-1 J2-797 Snail and Urashima



d

Fig. 5.5-2 J2-797 Overview

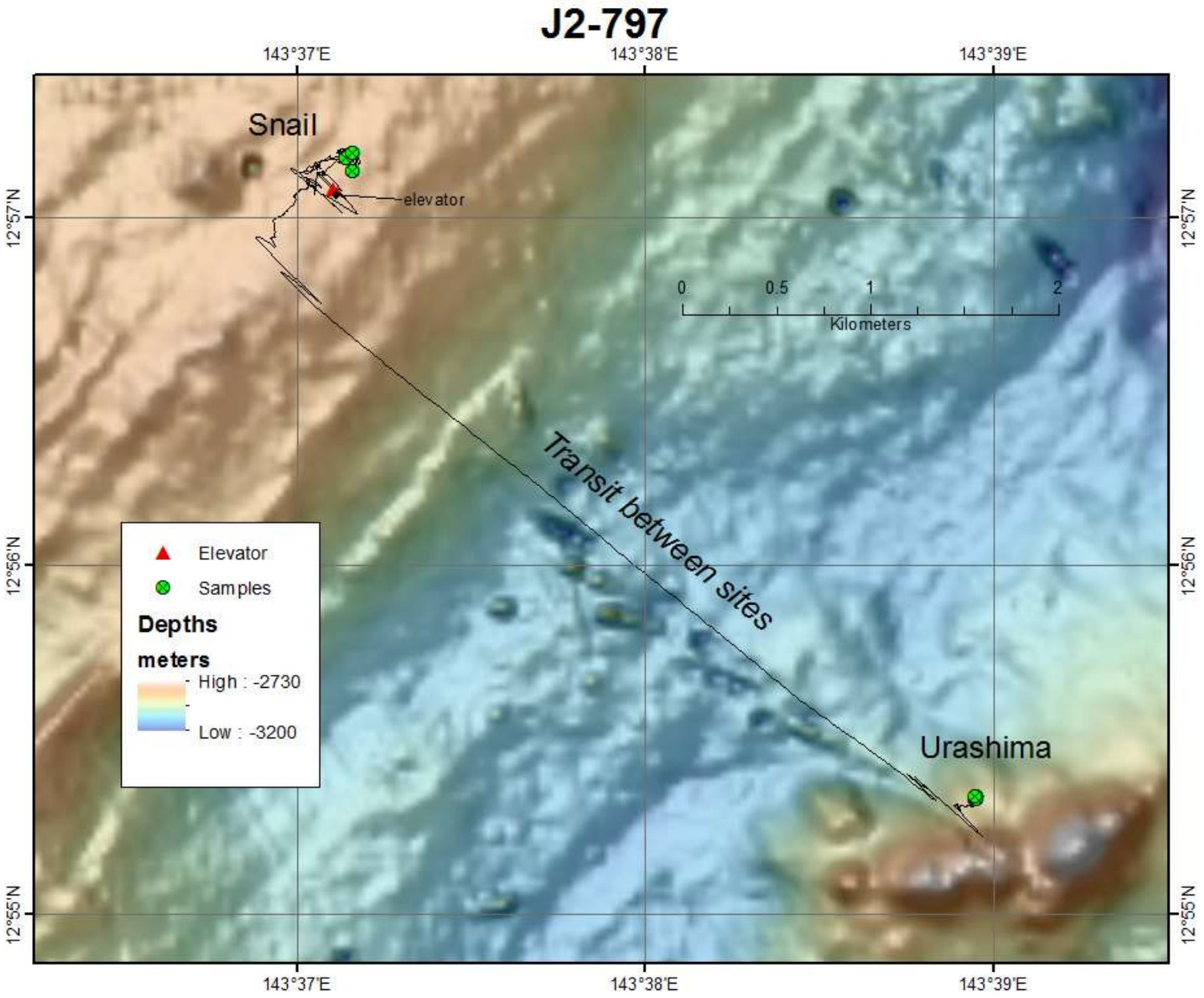


Fig 5.5-3 J2-798 NW Eifuku

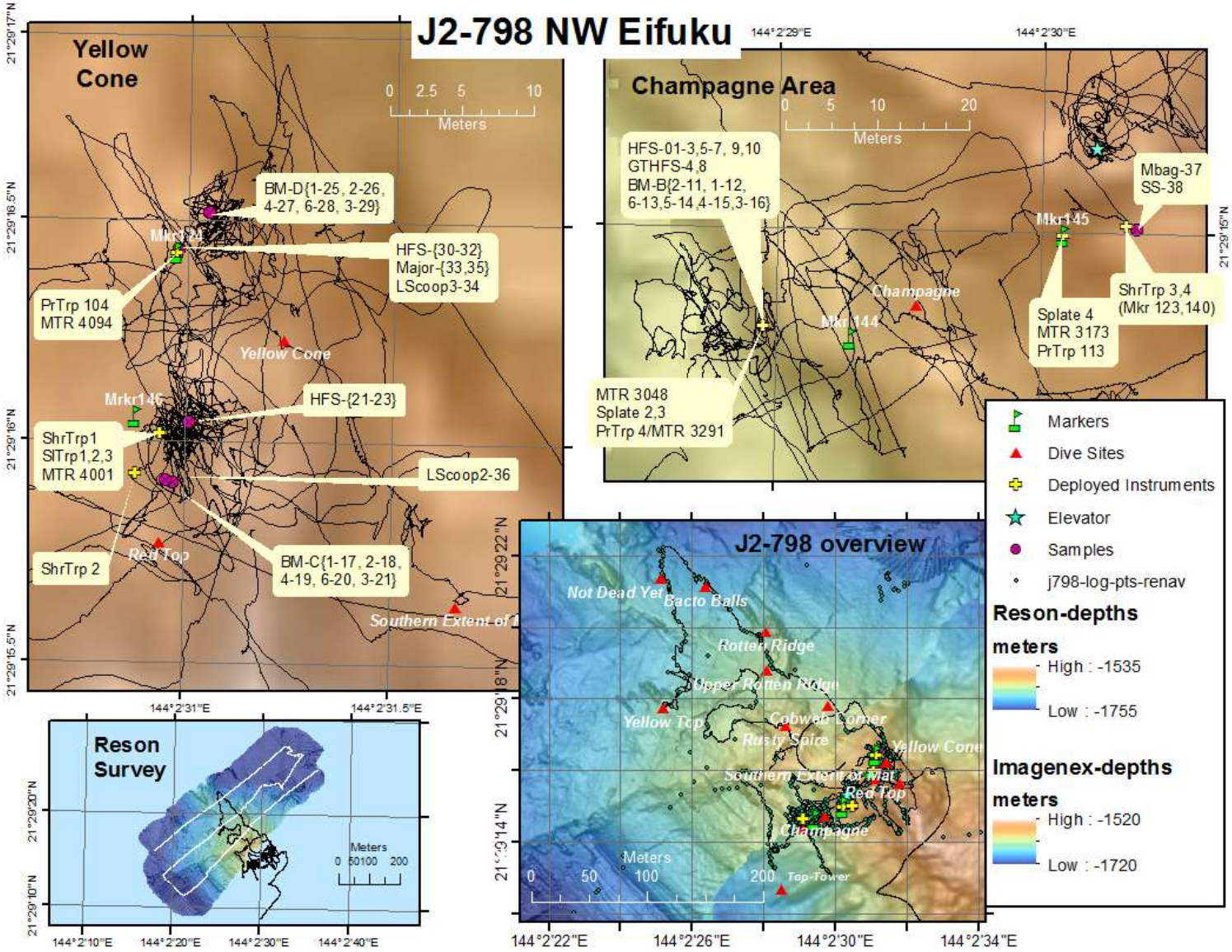


Fig 5.5-4 J2-799 NW Eifuku

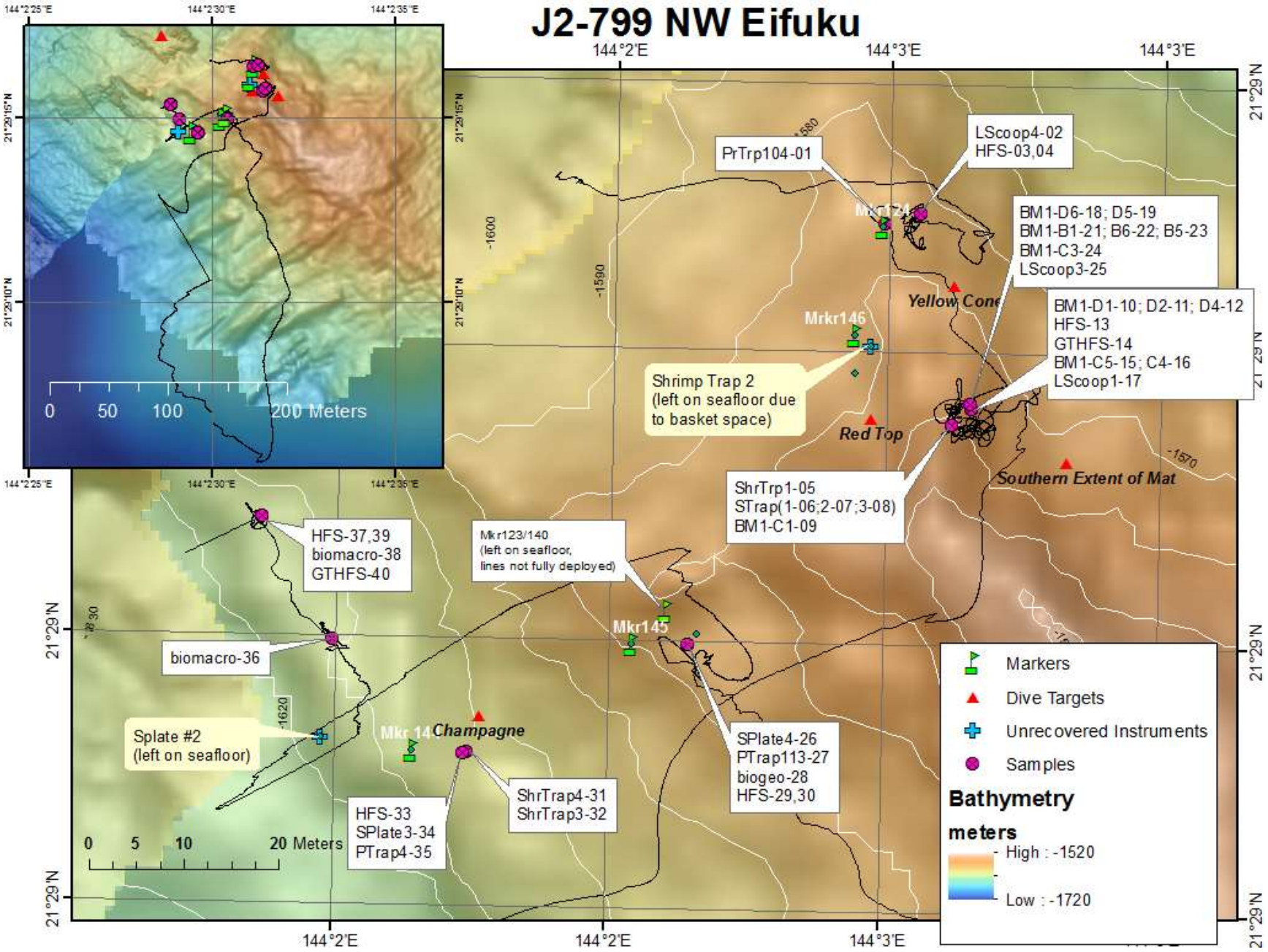


Fig 5.5-5 J2-800 NW Rota-1

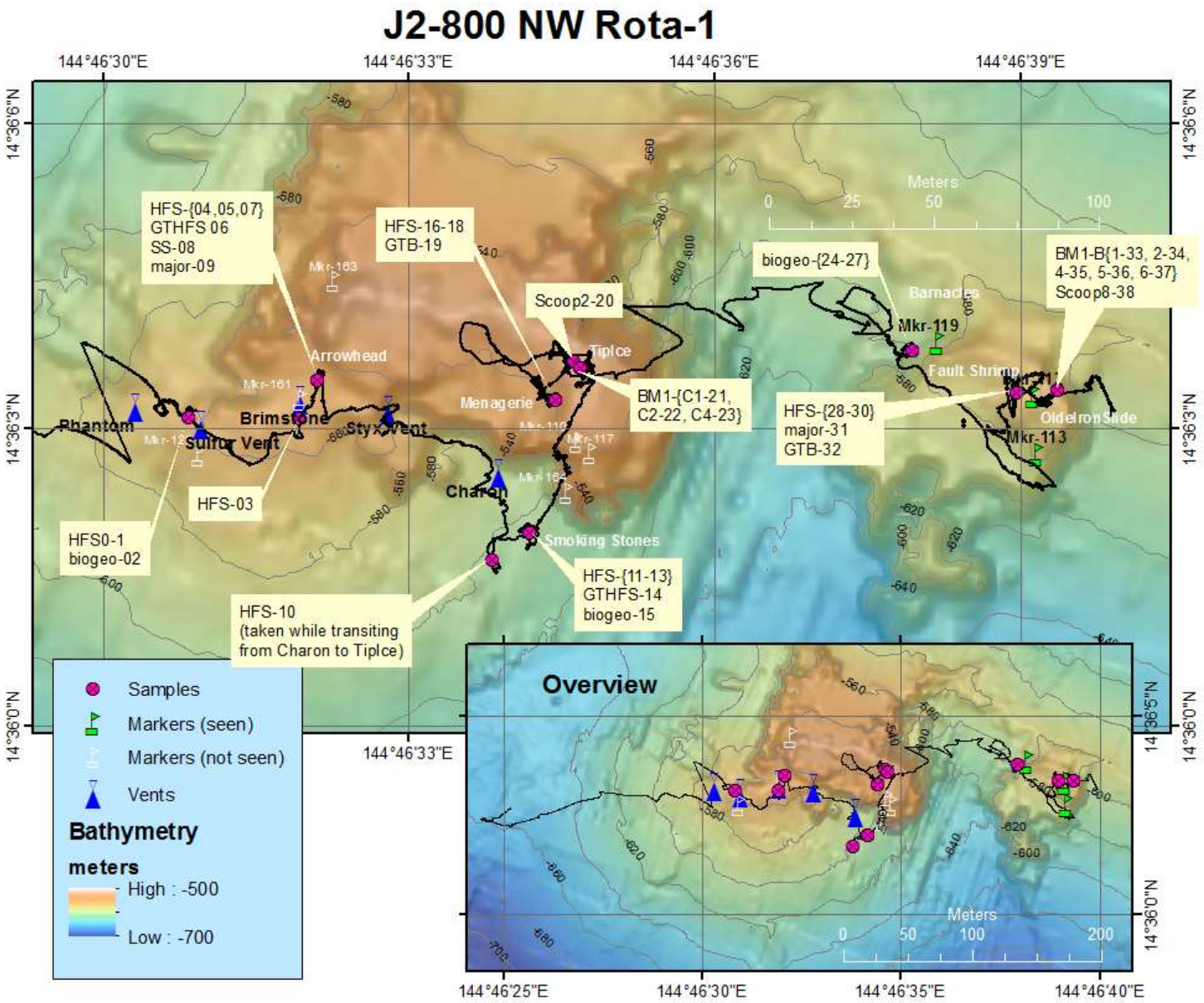
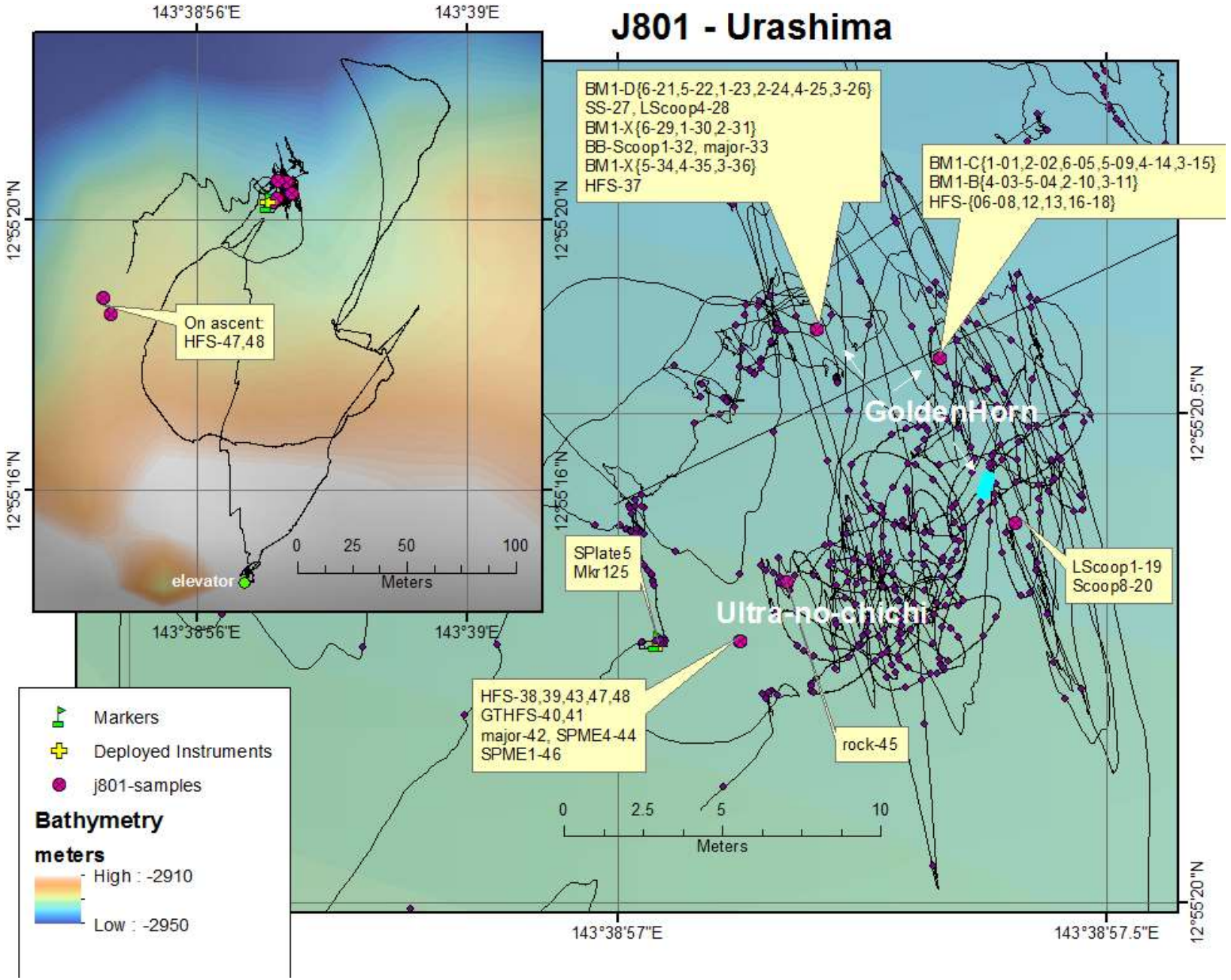


Fig. 5.5-6 J2-801



5-6 Dive Samples

5.6-1 J2-797 Samples:

Time UTC	Sample	Type	Site	Comments	Latitude	Longitude	Depth	Gyro	Virtual Van #
7:55	J797-SPlate5-01	bio	Mkrs 20 & 24	Beaulieu settlement plate deployed in 2010. (Stace Beaulieu WHOI). Pates are black and perched on rocky outcrop in area with white microbial mat and macrofauna. T=~ambient. [Bucket lids with #20 and #24. Stace5 Jason target]	12 57.1888	143 37.1664	2848	289	406
9:16	J797-HFS-02	fluid	Mkr 114a site	Filtered bag #24. Tmax=16.7C; Tavg=10; T2=7; Vol=550mL. Area of yellow stained pillows and lava blocks. Background sensors: pH=3.693v; O2=280ml/L.	12 57.135	143 37.159	2845	1	564
9:20	J797-HFS-03	fluid	Mkr 114a site	Unfiltered bag #23. Tmax=17.5; Tavg=16.0; T2=0; Vol=550mL. Same spot as sample 2.	12 57.135	143 37.159	2845	1	578
9:21	J797-HFS-04	fluid	Mkr 114a site	RNA filter #16. Start 0921. Tmax=21.5; Tavg=13.8; T2=7; Vol=3000mL.	12 57.135	143 37.159	2845	1	591
9:41	J797-HFS-05	fluid	Mkr 114a site	RNA filter #15. Tmax=21.0; Tavg=14.2; %2=8; Vol=3000mL. Stop 20:01.	12 57.135	143 37.159	2845	1	598
11:45	J797-BM1-A2-07	bio	Mkr 108 site	Cassette A Syringe 1. Sampling site: Fluffy yellow iron mat in hollow cavity (old pillow with Mn crust?) in shimmering water. Jason T > 60C.	12 57.166	143 37.142	2850	343	773
11:47	J797-BM1-A3-08	bio	Mkr 108 site	Cassette A Syringe 3. Sampling site: Fluffy yellow iron mat in hollow cavity (old pillow with Mn crust?) in shimmering water. Jason T > 60C.	12 57.166	143 37.142	2850	343	775
11:52	J797-BM1-A5-09	bio	Mkr 108 site	Cassette A Syringe 5. Sampling site: Fluffy yellow iron mat in hollow cavity (old pillow with Mn crust?) in shimmering water. Jason T > 60C.	12 57.166	143 37.142	2850	343	784
11:54	J797-BM1-A4-10	bio	Mkr 108 site	Cassette A Syringe 4. Sampling site: Fluffy yellow iron mat in hollow cavity (old pillow with Mn crust?) in shimmering water. Jason T > 60C.	12 57.166	143 37.142	2850	343	787

Time UTC	Sample	Type	Site	Comments	Latitude	Longitude	Depth	Gyro	Virtual Van #
11:58	J797-BM1-A1-11	bio	Mkr 108 site	Cassette A Syringe 1. Sampling site: Fluffy yellow iron mat in hollow cavity (old pillow with Mn crust?) in shimmering water. Jason T > 60C.	12 57.166	143 37.142	2850	343	794
12:00	J797-BM1-A6-12	bio	Mkr 108 site	Cassette A Syringe 6. This one fills the cassette. Sampling site: Fluffy yellow iron mat in hollow cavity (old pillow with Mn crust?)in shimmering water. Jason T > 60C.	12 57.166	143 37.142	2850	343	797
12:12	J797-BM1-D1-13	bio	Mkr 108 site	Cassette D Syringe 14. Sampling site: Smaller than previous clump of fluffy yellow iron mat in shimmering water near last site. Jason T=27C. Sensor readings for area: pH=3.15v; O2=1.51ml/L.	12 57.166	143 37.142	2850	309	811
12:14	J797-BM1-D6-14	bio	Mkr 108 site	Cassette D Syringe 6. Sampling site: Smaller than previous clump of fluffy yellow iron mat in shimmering water near last site. Jason T=27C. Sensor readings for area: pH=3.15v; O2=1.51ml/L.	12 57.166	143 37.142	2850	309	819
12:15	J797-BM1-D5-15	bio	Mkr 108 site	Cassette D Syringe 14. Sampling site: Smaller than previous clump of fluffy yellow iron mat in shimmering water near last site. Jason T=27C. Sensor readings for area: pH=3.15v; O2=1.51ml/L.	12 57.166	143 37.142	2850	309	822
12:24	J797-BM1-D3-16	bio	Mkr 108 site	Cassette D Syringe 14. Sampling site: Smaller than previous clump of fluffy yellow iron mat in shimmering water next to last site. Jason T=57C.	12 57.166	143 37.142	2850	310	837
12:25	J797-BM1-D2-17	bio	Mkr 108 site	Cassette D Syringe 2. Sampling site: Smaller than previous clump of fluffy yellow iron mat in shimmering water next to last site. Jason T=57C.	12 57.166	143 37.142	2850	310	839
12:26	J797-BM1-D4-18	bio	Mkr 108 site	Cassette D Syringe 2. Sampling site: Smaller than previous clump of fluffy yellow iron mat in shimmering water next to last site. Jason T=57C.	12 57.166	143 37.142	2850	310	840

Time UTC	Sample	Type	Site	Comments	Latitude	Longitude	Depth	Gyro	Virtual Van #
12:40	J797-HFS-19	fluid	Mkr 108 site	Unfiltered bag # 17. Tmax=26; T2=12.3; tavg=34.9; Vol=550mL. Stop 1244 (in area of samples 13-15). Sensor readings for area: pH=3.15v; O2=1.51ml/L.	12 57.166	143 37.142	2850	310	862
13:07	J797-HFS-20	fluid	Mkr 108 site	Unfiltered piston #1. Start 1302. Stop 1306. Tmax=29.6; Tavg=28.5; T2=8; Vol=603mL. (in area of samples 7-12)	12 57.166	143 37.142	2850	334	897
13:15	J797-HFS-21	fluid	Mkr 108 site	Unfiltered piston #3. Start 1311. Stop 1315. Tmax=56.9; Tavg=51.9; T2=6.2 Vol=602ml. (Same area as sample 20 but in 60C water like samples 7-12)	12 57.166	143 37.142	2850	338	908
16:17	J797-HFS-22	fluid	Mkr 108 site	Filtered Piston #2. Start=16:14:40. Stop=16:16:57. Tmax=182.6C Tavg=162.8C T2=41.2C Vol=478mL (On top of Mrk24 bucket lid; high temp flow surrounded by sulfur mats and shrimp.)	12 57.187	143 37.160	2847	347	1239
16:18	J797-HFS-23	fluid	Mkr 24	Unfiltered Piston #5. Start= 16:18:21. Stop=16:21:21. Tmax=191.5C; Tavg=175.0C; T2=46C; Vol=473mL. (same location)	12 57.187	143 37.160	2847	347	1253
16:24	J797-GTHFS-24	gas	Mkr 24	GTHFS Purple. Temp:174C. (same location)	12 57.187	143 37.160	2847	347	1264
16:30	J797-Major-25	fluid	Mkr 24	White Major. (same location)	12 57.187	143 37.160	2847	347	1278
16:36	J797-Major-26	fluid	Mkr 24	Red Major. (same location)	12 57.187	143 37.160	2847	347	1288
16:44	J797-GTB-27	gas	Mkr 24	Red GTB. (same location)	12 57.187	143 37.160	2847	347	1303
5:01	J797-HFS-29	fluid	Baltan	Filtered piston #4. Start 05:01:50. Stop: 5:05:31. Tmax=169.3C; Tavg=163C; T2=51C; Vol=550mL. (High flow area; iron mat and sulfur with macrobio around; first called ""Active Chimney"")	12 55.340	143 30.951	2929	122	2310
5:06	J797-HFS-30	fluid	Baltan	Unfiltered piston #.7 Start 05:06:41. Stop: 05:10:18. Tmax=160.9C; Tavg=158C; T2=50C; Vol=550mL. (same location)	12 55.340	143 30.951	2929	122	2322
5:12	J797-GTHFS-31	gas	Baltan	White starboard GTHFS. Temp=160.9C. (same location)	12 55.340	143 30.951	2929	122	2337
5:15	J797-HFS-32	fluid	Baltan	Filtered piston #6. Start: 5:15:36. Stop: 5:19:17. Tmax=161C; Tavg=159C; T2=50C; Vol=530mL. (same location)	12 55.340	143 30.951	2929	122	2343

Time UTC	Sample	Type	Site	Comments	Latitude	Longitude	Depth	Gyro	Virtual Van #
6:42	J797-BM1-C1-34	bio	Saipanda Horn	Cassette C Syringe 1. Sample site: bottom of skinny spire near top of Saipanda with soft iron oxide mats and clear flow. Jason T=19.9. Collected more material into Syringe 1 after sample 35.	12 55.333	143 38.950	2928	268	2492
6:44	J797-BM1-C2-35	bio	Saipanda Horn	Cassette C Syringe 2. Sample site: bottom of skinny spire near top of Saipanda with iron mats and clear flow. Jason T=19.9.	12 55.333	143 38.950	2928	268	2495
6:58	J797-BM1-C3-36	bio	Saipanda Horn	Cassette C Syringe 3. About 15cm below samples 34-35.	12 55.333	143 38.950	2928	268	2519
7:00	J797-BM1-C4-37	bio	Saipanda Horn	Cassette C Syringe 4. Same location as sample 36.	12 55.333	143 38.950	2928	268	2522
7:24	J797-HFS-38	fluid	Saipanda Horn	Unfiltered Bag 21. Start 07:20. Stop 07:24. Tmax=19; Tavg=16.9; T2=7; Vol= 525mL. Same location as sample 34-36 in flow. Background sensors: O2=2.25-2.30 for samples 38-40.	12 55.333	143 38.950	2928	268	2554
7:26	J797-HFS-39	fluid	Saipanda Horn	Filtered Bag 22. Start 07:24. Stop 07:30. Tmax=18.7; Tavg=17.4; T2=7; Vol=525mL. (same location)	12 55.333	143 38.950	2928	268	2557
7:35	J797-HFS-40	fluid	Saipanda Horn	Filtered bag 20. Start 07:33. Stop 07:35. Tmax=16.5; T2=7.4; Vol=495mL. top 07:30. Tmax=18.7; Tavg=17.4; T2=7; Vol=525mL. (same location)	12 55.333	143 38.950	2928	268	2568
7:45	J797-HFS-41	fluid	Saipanda Horn	Sterivex Filter 9. Start 07:45. Stop=08:09. Tmax=25.9; Tavg=16.7; T2=7; Vol= 3186mL. top 07:30. Tmax=18.7; Tavg=17.4; T2=7; Vol=525mL. (same location)	12 55.333	143 38.950	2928	268	2586
8:11	J797-HFS-42	fluid	Saipanda Horn	RNA Filter 13. Start=08:11. Stop=0:827. Tmax=23.4; Tavg=18.7; T2=7; Vol=3000mL. top 07:30. Tmax=18.7; Tavg=17.4; T2=7; Vol=525mL. (same location)	12 55.333	143 38.950	2928	268	2610
8:27	J797-HFS-43	fluid	Saipanda Horn	RNA Filter 14. Start= 08:27. Stop=08:44. Tmax=22.5; Tavg=17.9; T2=6.5; Vol=3000mL. (same location)	12 55.333	143 38.950	2928	268	2630
8:53	J797-SS-44	bio	Saipanda Horn	Sampling mats at same location as fluid samples.	12 55.333	143 38.950	2928	269	2659

Time UTC	Sample	Type	Site	Comments	Latitude	Longitude	Depth	Gyro	Virtual Van #
9:14	J797-LScoop2-45	bio	Saipanda Horn	RNA Later scoop sample of the mats just above the suction sample 44.	12 55.333	143 38.950	2928	269	2696
11:10	J797-BM1-B2-47	bio	Snap Snap	Cassette B Syringe 2. Sample site: Fluffy-orange iron mats on small chimney-like structure with active flow.	12 55.333	143 38.950	2928	253	2884
11:12	J797-BM1-B1-48	bio	Snap Snap	Cassette B Syringe 1. (same location)	12 55.333	143 38.950	2928	253	2887
11:13	J797-BM1-B6-49	bio	Snap Snap	Cassette B Syringe 6. (same location)	12 55.333	143 38.950	2928	253	2889
11:24	J797-LScoop1-50	bio	Snap Snap	RNA Later scoop sample of iron bio mats. Starting scoop high on structure. Sample continued on a nearby chimney-like face with flow. Start at 11:24 and finished at 11:30.	12 55.333	143 38.951	2928	253	2907
11:50	J797-BBScoop1-51	bio	Snap Snap	Big Boy Sample of fluffy iron mat not far from sample 50. Sampled mat from a small chimney with nearby white mat.	12 55.332	143 38.952	2928	253	2950
12:04	J797-Sulfide-52	sulfide	near Shar-pen	Piece of active chimney in the area of Shar-pen. Crumbled but enough retained for sample.	12 55.339	143 38.950	2922	349	2969

5.6-2 J2-798 Samples:

Time UTC	Sample	Type	Site	Comments	Latitude	Longitude	Depth	Gyro	Virtual Van #
9:12	J798-HFS-01	fluid	Champagne Site (at Mkr144)	Unfiltered piston #1. Start. 09:12. Stop 09:15. Tmax=16.9 Tavg=14.3 vol=400mL T2=6. (At Mrk-144 Champagne area. Flow area to right of a rock.)	21 29.2442	144 2.4851	1608	56	4395
9:19	J798-HFS-02	fluid	Champagne Site (at Mkr144)	Sterivex filter 9. Start 09:19. Stop 09:41. Tmax=26.5 Tavg-18.5 vol=3046mL T2=12.0. (same location)	21 29.2442	144 2.4851	1608	56	4406
9:42	J798-HFS-03	fluid	Champagne Site (at Mkr144)	Filtered piston #4 Start 09:42. Stop 09:47. Tmax=26.2. Tavg=25.2 Vol=450mL T2=12. (same location)	21 29.2442	144 2.4851	1608	56	4434
9:48	J798-GTHFS-04	gas	Champagne Site (at Mkr144)	Purple Port Fired 09:48. Tmax=26.2 (pH=4.3 for samples 1-4) (same location)	21 29.2442	144 2.4851	1608	56	4444

Time UTC	Sample	Type	Site	Comments	Latitude	Longitude	Depth	Gyro	Virtual Van #
10:08	J798-HFS-05	fluid	Champagne Site (at Mkr144)	Filtered piston #2. Start 10:08. Stop 10:11. Tmax=70.9 Tavg=67. T2=25. Vol=451mL. (Champagne 6m NW of Mrk144. 70+C water from hole in sulfur and mat.)	21 29.2442	144 2.4851	1607	59	4475
10:12	J798-HFS-06	fluid	Champagne Site (at Mkr144)	Unfiltered piston #3. Start 10:12. Stop 10:15.Tmax=63; Tavg=56; T2= 21; Vol=451mL. (same location)	21 29.2442	144 2.4851	1607	59	4483
10:18	J798-HFS-07	fluid	Champagne Site (at Mkr144)	RNA filter 14. Start 10:18. Stop 10:35. Tmax=66.1; Tavg=65.1; T2=22.6; Vol=3001mL. (same location with a slight reposition of nozzle-little white chimlet next to nozzle)	21 29.2442	144 2.4851	1607	59	4491
10:36	J798-GTHFS-08	gas	Champagne Site (at Mkr144)	STBD white GTHFS. Tmax=66.1. (same location)	21 29.2442	144 2.4851	1607	59	4515
11:35	J798-HFS-09	fluid	Champagne Site (at Mkr144)	Unfiltered bag #17. Start 11:35. Stop 11:37. Tmax=17.6; Tavg=17.3; T2=18.5; Vol=303mL. (Moved back to base of Mkr-144 by slab of sulfur)	21 29.2442	144 2.4851	1606	65	4612
11:41	J798-HFS-10	fluid	Champagne Site (at Mkr144)	RNA (later)filter #16. Start 11:41. Tmax=20.0; Tavg=18.90; T2=9; Vol=3007mL. (same location) Sensors: pH=4.7 O2=1.6 for samples 9 and 10.	21 29.2442	144 2.4851	1606	65	4626
12:17	J798-BM-B2-11	bio	Champagne Site (at Mkr144)	Cassette B. Syringe 2. (White mat overlaid on sulfur at same location).	21 29.2442	144 2.4851	1606	67	4677
12:18	J798-BM-B1-12	bio	Champagne Site (at Mkr144)	Cassette B. Syringe 1. (same location)	21 29.2442	144 2.4851	1606	67	4681
12:19	J798-BM-B6-13	bio	Champagne Site (at Mkr144)	Cassette B. Syringe 6. (same location)	21 29.2442	144 2.4851	1606	67	4683
12:20	J798-BM-B5-14	bio	Champagne Site (at Mkr144)	Cassette B. Syringe 5. (same location)	21 29.2442	144 2.4851	1606	67	4685

Time UTC	Sample	Type	Site	Comments	Latitude	Longitude	Depth	Gyro	Virtual Van #
12:21	J798-BM-B4-15	bio	Champagne Site (at Mkr144)	Cassette B. Syringe 4. (same location)	21 29.2442	144 2.4851	1606	67	4687
12:25	J798-BM-B3-16	bio	Champagne Site (at Mkr144)	Cassette B. Syringe 3. Different valve. (same location)	21 29.2442	144 2.4851	1606	67	4696
14:46	J798-BM-C1-17	bio	Yellow Cone (at Mkr146)	Cassette C. Syringe 1. Light yellow mat on top of darker orange mat. (From right of ShrimpTrap2)	21 29.2651	144 2.5188	1579	245	4950
14:55	J798-BM-C2-18	bio	Yellow Cone (at Mkr146)	Cassette C. Syringe 2. (same mat as sample 17)	21 29.2651	144 2.5188	1579	245	4963
15:21	J798-BM-C4-19	bio	Yellow Cone (at Mkr146)	Cassette C. Syringe 4. Repositioned slightly. Sampled thick mat above 30C flow.	21 29.2651	144 2.5188	1579	257	5028
15:31	J798-BM-C6-20	bio	Yellow Cone (at Mkr146)	Cassette C. Syringe 6. Slight reposition-still fluffy mat.	21 29.2651	144 2.5188	1579	253	5049
15:46	J798-HFS-21	fluid	Yellow Cone (at Mkr146)	Unfiltered Bag #1. Start 15:46. Stop 15:48. Tmax= 29.0C; Tavg= 27.3C; T2= 5C; Vol= 350mL.	21 29.2674	144 2.5194	1579	255	5072
15:49	J798-HFS-22	fluid	Yellow Cone (at Mkr146)	Filtered Bag #24 Start: 15:49. Stop: 15:51. Tmax= 30.5C; Tavg= 30.1C; T2= 7C; Vol= 353. Sensors: pH=5.42 O2=0.51ml/L.	21 29.2674	144 2.5194	1579	255	5078
15:58	J798-HFS-23	fluid	Yellow Cone (at Mkr146)	RNA Later Filter #15 Start 15:58. Stop 16:21. Tmax= 34.0 C; Tavg= 33.6 C; T2= 3-4C; Vol=3000 mL.	21 29.2674	144 2.5194	1579	255	5090
16:24	J798-BM-C3-24	bio	Yellow Cone (at Mkr146)	Cassette C. Syringe 3. Same as samples 19-20	21 29.2651	144 2.5188	1579	254	5124
17:30	J798-BM-D1-25	bio	Yellow Cone (at Mkr124)	Cassette D. Syringe 1. Sampling fluffy-covered chimney structure 10m from Mkr146.	21 29.2753	144 2.5201	1584	181	5234
17:37	J798-BM-D2-26	bio	Yellow Cone (at Mkr124)	Cassette D. Syringe 2. (same location)	21 29.2753	144 2.5201	1584	181	5253
17:38	J798-BM-D4-27	bio	Yellow Cone (at Mkr124)	Cassette D. Syringe 4. (same location)	21 29.2753	144 2.5201	1584	181	5256
17:42	J798-BM-D6-28	bio	Yellow Cone (at Mkr124)	Cassette D. Syringe 6. (same location)	21 29.2753	144 2.5201	1584	181	5262

Time UTC	Sample	Type	Site	Comments	Latitude	Longitude	Depth	Gyro	Virtual Van #
17:44	J798-BM-D3-29	bio	Yellow Cone (at Mkr124)	Cassette D. Syringe 6. (same location)	21 29.2753	144 2.5201	1584	181	5268
18:06	J798-HFS-30	fluid	Yellow Cone (at Mkr124)	Filtered Bag 22 Start 18:06. Stop 18:09. Tmax=22.5; Tavg=21.9; T2=9; vol=450mL. Sensors: pH=5.36 O2=0.29mL/l (same location; tip in yellow mat)	21 29.2739	144 2.5189	1584	183	5295
18:10	J798-HFS-31	fluid	Yellow Cone (at Mkr124)	Unfiltered bag 21. Start 18:10. Stop 18:13 Tmax=23.0 Tavg=22.7 T2=9 vol=475mL.	21 29.2739	144 2.5189	1584	183	5300
18:15	J798-HFS-32	fluid	Yellow Cone (at Mkr124)	Sterivex filter 13. Start 18:15. Stop 18:32 Tmax=25.3 Tavg=24.0 T2=10 vol=3000mL.	21 29.2739	144 2.5189	1584	183	5307
20:03	J798-Major-33	fluid	Yellow Cone (at Mkr124)	Black Major fired. (same orifice as samples 30-32)	21 29.2739	144 2.5189	1584	215	5474
20:14	J798-LScoop3-34	bio	Yellow Cone (at Mkr124)	RNA Later Scoop (from mat on each side of hole of samples 30-33)	21 29.2739	144 2.5189	1584	215	5492
20:31	J798-Major-35	fluid	Yellow Cone (at Mkr124)	Yellow major. (same hole as samples 30-33)	21 29.2739	144 2.5189	1584	215	5520
21:54	J798-LScoop2-36	bio	Yellow cone	RNA Later Scoop. (from red iron mats near Shrimp Trap 1 about 5m S of Mkr-146)	21 29.2652	144 2.5185	1579	270	5678
2:39	J798-Mbag-37	bio	Razorback	Scoop of ~25 mussels. Scooped from 02:39-02:45. (Up the slope from Mkr-145).	21 29.2502	144 2.5086	1561	158	6097
2:59	J798-SS-38	bio	Razorback	Suction of shrimp and small mussels. (about 5m. From Mkr-145)	21 29.2502	144 2.5086	1561	165	6136
7:16	J798-HFS-39	fluid	Mid-water	Filtered Bag 20. Background water samples after Reson survey.	21 29.4238	144 2.6141	1733	51	6459
7:20	J798-HFS-40	fluid	Mid-water	Unfiltered Bag 19. Background water samples after Reson survey.	21 29.4238	144 2.6141	1725	190	6466

5.6-3 J799-Samples:

Time UTC	Sample	Type	Site	Comments	Latitude	Longitude	Depth	Gyro	Virtual Van #

Time UTC	Sample	Type	Site	Comments	Latitude	Longitude	Depth	Gyro	Virtual Van #
13:35	J799-PrTrp104-01	bio	Lower Yellow Cone - Mkr124	Recovered from steep slope in thick iron-oxide sediments. Sitting on top of MTR deployed at the same time. This site is at the edge of a steep ridge. Thick iron-oxide mat covering the seafloor here. Trap is beneath the marker ~1m.	21 29.2740	144 2.5189	1584	209	11860
13:57	J799-LScoop4-02	bio	Lower Yellow Cone - Mkr124	RNALater scoop in these deep iron-oxide sediments half way between Mkr-124 and 146. Tmax=20C.	21 29.2746	144 2.5211	1583	170	11885
14:24	J799-HFS-03	fluid	Lower Yellow Cone - Mkr124	Unfiltered Bag #23. Start Time: 14:24. Stop: 14:26. Tmax= 11.6C; Tavg= 11.0C; T2= 4.2C Vol= 400 mL. HFS Sensors: pH=5.24. O2=1.57ml/L. Same location sample #02 taken.	21 29.2746	144 2.5211	1583	170	11947
14:27	J799-HFS-04	fluid	Lower Yellow Cone - Mkr124	Filtered Bag #24. Start: 14:27. Stop Time: 14:29. Tmax= 12.3C; Tavg= 12.0C; T2= 4.2 C; Vol= 413mL. Same location as sample 2 & 3.	21 29.2746	144 2.5211	1583	170	11952
14:43	J799-ShrTrap1-05	bio	Upper Yellow Cone -Mkr146	Shrimp Trap #1 surrounded by shrimp and a couple inside. (Note that the Shrimp Trap #2 was left at the site since it didn't appear to have shrimp inside and the basket was going to be full).	21 29.2626	144 2.5232	1578	261	11983
14:48	J799-STrap1-06	bio	Upper Yellow Cone -Mkr146	Slide Trap1 recovered from the same location as the recovered Shrimp Trap; 2 other Slide Traps and MTR 4001.	21 29.2626	144 2.5232	1578	269	11991
14:49	J799-STrap2-07	bio	Upper Yellow Cone -Mkr146	Slide Trap2 recovered from the same location as the recovered Shrimp Trap; 2 other Slide Traps and MTR 4001.	21 29.2626	144 2.5232	1578	269	11992
14:50	J799-STrap3-08	bio	Upper Yellow Cone -Mkr146	Slide Trap3 recovered from the same location as the recovered Shrimp Trap; 2 other Slide Traps and MTR 4001.	21 29.2626	144 2.5232	1578	269	11995
15:08	J799-BM1-C1-09	bio	Upper Yellow Cone -Mkr146	Cassette C. Syringe 1. Bio mat sampler with ferrozine. Location is slightly above the site where the instruments/samples 5-8 were recovered where fluffier mat observed. In crevice with flow. HFS probe measured 10degC.	21 29.2626	144 2.5232	1578	268	12024

Time UTC	Sample	Type	Site	Comments	Latitude	Longitude	Depth	Gyro	Virtual Van #
15:19	J799-BM1-D1-10	bio	Upper Yellow Cone -Mkr146	Cassette D. Syringe 1. Slight reposition below previous sample in mat with many shrimp. Light-colored mat surrounding good flow.	21 29.2635	144 2.5244	1580	245	12054
15:23	J799-BM1-D2-11	bio	Upper Yellow Cone -Mkr146	Cassette D. Syringe 2. Same location.	21 29.2635	144 2.5244	1580	245	12061
15:25	J799-BM1-D4-12	bio	Upper Yellow Cone -Mkr146	Cassette D. Syringe 4. Slightly left of sample 10-11 location in thick mat with crust on top	21 29.2635	144 2.5244	1580	245	12066
15:36	J799-HFS-13	fluid	Upper Yellow Cone -Mkr146	Unfiltered Piston #1. Start 15:36. Stop 15:39. Tmax= 33.4C; Tavg= 33.2C; T2= 16.2C; Vol= 601mL. HFS sensors T=30C pH=5.21 O2=1.19. Same location as samples 10-12 but moved probe around to find highest flow and temperature.	21 29.2635	144 2.5244	1580	245	12087
15:41	J799-GTHFS-14	gas	Upper Yellow Cone -Mkr146	HFS Gastight Starboard. Same location.	21 29.2635	144 2.5244	1580	245	12094
15:44	J799-BM1-C5-15	bio	Upper Yellow Cone -Mkr146	Cassette C. Syringe 5. Biomat sampler with ferrozine. Same flow as sample 13-15.	21 29.2635	144 2.5244	1580	245	12102
15:47	J799-BM-C4-16	bio	Upper Yellow Cone -Mkr146	Cassette C. Syringe 4. Biomat sampler with geochemistry filter. Same location.	21 29.2635	144 2.5244	1580	245	12110
15:57	J799-LScoop1-17	bio	Upper Yellow Cone -Mkr146	RNA-later scoop #1 in same location as samples 13-16. Crusty sample. Rock face of site is covered with shrimp.	21 29.2635	144 2.5244	1580	245	12125
16:21	J799-BM1-D6-18	bio	Upper Yellow Cone -Mkr146	Cassette D. Syringe 6. Crusty mat on top with flow. Location about 3 meters below sample 17.	21 29.2638	144 2.5243	1581	224	12168
16:22	J799-BM1-D5-19	bio	Upper Yellow Cone -Mkr146	Cassette D. Syringe 5. Same location as sample 18.	21 29.2638	144 2.5243	1580	230	12176
16:28	J799-BM1-D3-20	bio	Upper Yellow Cone -Mkr146	Cassette D. Syringe 3. Same location in light-fluffy mat under the crusty mat.	21 29.2638	144 2.5243	1580	230	12187
16:43	J799-BM1-B1-21	bio	Upper Yellow Cone -Mkr146	Cassette B. Syringe 1. New mat with crusty top and fluffy underneath.	21 29.2638	144 2.5243	1581	230	12219

Time UTC	Sample	Type	Site	Comments	Latitude	Longitude	Depth	Gyro	Virtual Van #
16:48	J799-BM1-B6-22	bio	Upper Yellow Cone -Mkr146	Cassette B. Syringe 6. Same location.	21 29.2638	144 2.5243	1581	230	12229
16:49	J799-BM1-B5-23	bio	Upper Yellow Cone -Mkr146	Cassette B. Syringe 5. Same location.	21 29.2638	144 2.5243	1581	230	12231
16:55	J799-BM1-C3-24	bio	Upper Yellow Cone -Mkr146	Cassette C. Syringe 3. Biomat sampler with ferrozine. Same location.	21 29.2638	144 2.5243	1581	230	12239
17:05	J799-Lscoop3-25	bio	Upper Yellow Cone -Mkr146	Scoop #3. Scoop does not contain RNA-later. Very crusty with big chunks.	21 29.2638	144 2.5243	1581	230	12258
18:20	J799-SPlate4-26	bio	Razorback	Recovered Slate #4. (Below Mrk-145 on flatter area with Trap #113). T ambient=2.73C.	21 29.2498	144 2.5074	1566	157	12373
18:29	J799-PTrap113-27	bio	Razorback	Recovered Protist Trap #113. Same location but different heading with MTR 3173.	21 29.2498	144 2.5074	1566	174	12388
18:32	J799-biogeo-28	biogeo	Razorback	Rock with limpets and limpet egg casings. Same location as sample 27.	21 29.2498	144 2.5074	1566	174	12388
18:38	J799-HFS-29	fluid	Razorback	Filtered Piston #29. Same location as samples 27-28 (placed on either side of the structure) in flow at top of fragile sulfide structure. HFS sensors: pH=4.45 O2=1.45.	21 29.2498	144 2.5074	1566	173	12411
18:42	J799-HFS-30	fluid	Razorback	Unfiltered Piston #30. Same location and flow. Start 18:42. Stop 18:45. Tmax=20.6 Tavg=17.9 T2=7 vol=450 mL.	21 29.2498	144 2.5074	1566	173	12417
18:49	J799-ShrTrap4-31	bio	Razorback	Recovered Shrimp Trap #4. Next to Mrk-145 on top of ridge with mussels and squat lobsters. Many shrimp; undescribed species.	21 29.2435	144 2.494	1561	156	12440
18:53	J799-ShrTrap3-32	bio	Razorback	Recovered Shrimp Trap #3. Co-located with Shrimp Trap #3 and undeployed markers which were left behind.	21 29.2435	144 2.494	1561	156	12450

Time UTC	Sample	Type	Site	Comments	Latitude	Longitude	Depth	Gyro	Virtual Van #
19:18	J799-HFS-33	fluid	Champagne - Mkr144	Sterivex #13 taken with wand in holster. Start 19:18. Stop 19:30. Tmax=3.0 Tavg=2.7 vol=2196 mL. Sample collection in background while recovering instruments (samples 34-35). 7m to the west of Mkr144.	21 29.2434	144 2.4938	1608	93	12514
19:20	J799-SPlate3-34	bio	Champagne - Mkr144	Slate #3 recovered at same location as sample 33. Co-located with MTR 3048 and Protist Trap #4.	21 29.2434	144 2.4938	1608	93	12520
19:24	J799-PTrap4-35	bio	Champagne - Mkr144	Recovered Protist Trap #4. Same location with slight heading adjustment for recovery. Recovered at same heading with MTR 3291.	21 29.2434	144 2.4938	1608	54	12535
19:39	J799-biomacro-36	bio	Champagne - Mkr144	Mussels scooped from above a white mat area very near samples 34-35. Using square-mouthed sampler. HFS sensors: pH=4.8 in the white mat. Start 19:39. Stop 19:41.	21 29.2498	144 2.4857	1608	71	12571
19:47	J799-HFS-37	fluid	Champagne - GoldenLips	Unfiltered Bag #19. Start 19:47. Stop 19:50. Tmax=2.7 Tavg=2.7 vol=473 mL. In clump of mussels. Location is to NW of previous sample on small ridge with mussel density increasing as move west away from sulfides. HFS sensor: pH=5.78.	21 29.2567	144 2.4813	1606	74	12597
19:53	J799-biomacro-38	bio	Champagne - GoldenLips	Scoop of mussels in high-mussel density location. Red rectangle scoop. Same location as HFS sample #37.	21 29.2567	144 2.4813	1606	74	12612
20:00	J799-HFS-39	fluid	Champagne - GoldenLips	Filtered Bag #20. Start 20:00. Stop 20:03. Tmax=2.8 Tavg=2.7 vol=550mL. Wand in holster while Jason securing basket before ascent. Same location as samples 37-38.	21 29.2567	144 2.4813	1606	74	12634
20:03	J799-GTHFS-40	gas	Champagne - GoldenLips	Port Purple GTHFS. Fired at same time HFS-39 being taken. T=2.8.	21 29.2567	144 2.4813	1606	74	12639

5.6-4 J800-Samples:

Time UTC	Sample	Type	Site	Comments	Latitude	Longitude	Depth	Gyro	Virtual Van #
21:40	J800-HFS-01	fluid	Phantom	Unfiltered Bag #17. Start 21:40. Stop 21:44. Tmax=9.9 Tavg=9.5 T2=7.8 vol=500mL. In shimmering water with filamentous microbial mats and biota.	14 36.052	144 46.514	555	55	12862
21:48	J800-biogeo-02	biogeo	Phantom	Rock with limpets and egg cases. Same location as HFS sample-01 at Phantom Vent.	14 36.052	144 46.514	554	52	12875
22:07	J800-HFS-03	fluid	Brimstone	Filtered bag #18. Start 22:07. Stop 22:11. Tmax=9.2 Tavg=8.9 T2=7.5 Vol=500ml. In crevice on the way to Sulfur Crust in area with high shrimp concentration and bits of sulfur. HFS sensor: pH=6.12.	14 36.0518	144 46.532	551	38	12925
22:19	J800-HFS-04	fluid	Arrowhead	Filtered piston #2. Start 22:20. Stop 22:22. Tmax=102.3 Tavg=102 T2=33 Vol=450mL. Intense swarm of shrimp.	14 36.058	144 46.535	544	47	12953
22:25	J800-HFS-05	fluid	Arrowhead	Piston #3. Start 22:23. Stop 22:26. Tmax=101.6 Tavg=100.6 T2=34. Vol=450mL	14 36.058	144 46.535	544	47	12962
22:28	J800-GTHFS-06	gas	Arrowhead	Port gas-tight in same place as 2 previous HFS samples. Tmax=101.6	14 36.058	144 46.535	544	47	12970
22:29	J800-HFS-07	fluid	Arrowhead	Unfiltered Bag #24. Start 22:30 Stop 22:31. Tmax=101.8 Tavg=101.6 T2=33 Vol=450mL.	14 36.058	144 46.535	544	47	12973
22:36	J800-SS-08	bio	Arrowhead	Shrimp suction in same area as previous Arrowhead samples in area coated with white sulfur.	14 36.058	144 46.535	544	47	12983
22:38	J800-major-09	fluid	Arrowhead	Red major taken at same location as all other Arrowhead samples with Tmax=102C. Major was re-triggered as taking too long to fill. Sample looked good.	14 36.058	144 46.535	544	47	12989

Time UTC	Sample	Type	Site	Comments	Latitude	Longitude	Depth	Gyro	Virtual Van #
23:06	J800-HFS-10	fluid	near Charon to TipIce	Sterivex #13. Background sample for Sheryl. HFS wand in holster as we transit. Sterivex paused at 1500ml and 23:13. Stop 01:38 near at TipIce. Tavg=6.9 Vol=4516mL. Sterivex #13. This sample was stopped mid-sample then re-started after many other sample	14 36.0287	144 46.5636	584	61	13042
23:26	J800-HFS-11	fluid	SmokingStones	Unfiltered bag #19. Start 23:26. Stop 23:29. Tmax=10.4 Tavg=10.2 T2=8. Vol=475mL. HFS sensor: pH=5.8 O2=1.0. Area of a lot of smoke around rocks but not very hot temperatures.	14 36.0330	144 46.5698	590	318	13083
23:29	J800-HFS-12	fluid	SmokingStones	Filtered bag #20. Start 23:30. Stop 23:32. Tmax=10.7 Tavg=10.4 T2=8.2 Vol=475mL.	14 36.0330	144 46.5698	590	318	13092
23:34	J800-HFS-13	fluid	SmokingStones	Sterivex #14. Start 23:34. Stop 23:46. Tmax=10.7 Tavg=10.0 T2=7.5 Vol=3000mL.	14 36.0330	144 46.5698	590	318	13099
23:47	J800-GTHFS-14	gas	SmokingStones	Stbd GTHFS. Fired 23:48. Temp=10.5.	14 36.0330	144 46.5698	590	318	13124
23:53	J800-biogeo-15	biogeo	SmokingStones	Rock from Smoking Stones with several limpets on it as well as egg cases. Rock looks like blocky lavas.	14 36.0330	144 46.5698	590	318	13134
0:45	J800-HFS-16	fluid	Menagerie	Unfiltered bag #23. Start 00:45. Stop 00:48. Tmax=18.8 Tavg=18.7 T2=11 Vol=476mL. HFS sensor: pH 5.59. O2=0.44. Area of diffuse flow coming through the rocks with filamentous bacteria mat and diverse biology.	14 36.0547	144 46.574	534	70	13262
0:49	J800-HFS-17	fluid	Menagerie	Filtered Bag #22. Start 00:49. Stop 00:52. Tmax=19.1 Tavg=18.6 T2=11 Vol=476.	14 36.0547	144 46.574	534	70	13271
0:53	J800-HFS-18	fluid	Menagerie	Sterivix #15. Start 00:53. Stop 01:06. Tmax=19.6 Tavg=19.4 T2=11. Vol=3000mL. Same position as previous HFS samples at Menagerie. HFS sensors: pH=5.67. O2=0.20 for last 3 samples.	14 36.0547	144 46.574	534	70	13279

Time UTC	Sample	Type	Site	Comments	Latitude	Longitude	Depth	Gyro	Virtual Van #
1:16	J800-GTB-19	gas	Menagerie	Green GTB at same place but in slightly different part of the flow. Tmax was 19.6degC.	14 36.0547	144 46.574	534	70	13311
1:41	J800-Scoop2-20	bio	TipIce	Orange Scoop #2 at TipIce (looks like old Iceberg area from 2010). Temperature was 7.9C in the sediments (ambient was 6.9C).	14 36.061	144 46.577	527	10	13356
2:04	J800-BM1-C1-21	bio	TipIce	Cassette C. Syringe 1. At the same location at white sediments of TipIce.	14 36.060	144 46.578	526	64	13388
2:05	J800-BM1-C2-22	bio	TipIce	Cassette C. Syringe 2. Same location.	14 36.060	144 46.578	526	11	13391
2:07	J800-BM1-C4-23	bio	TipIce	Cassette C. Syringe 4. Same location.	14 36.060	144 46.578	526	11	13397
2:45	J800-biogeo-24	biogeo	Barnacles	Rock with barnacles at the Barnacles marker.	14 36.0629	144 46.6324	567	353	13459
2:46	J800-biogeo-25	biogeo	Barnacles	2 pieces of rock with barnacles and filamentous bacteria. Same location.	14 36.0629	144 46.6324	567	353	13462
2:47	J800-biogeo-26	biogeo	Barnacles	Small rock with filamentous bacteria and no barnacles.	14 36.0629	144 46.6324	567	353	13465
2:49	J800-biogeo-27	biogeo	Barnacles	Large rock with barnacles and bacteria as well as a small piece of rock. Jason sensor: For these samples at Barnacles T=7.03C. Ambient temperature was 6.8C.	14 36.0629	144 46.6324	567	353	13467
3:27	J800-HFS-28	fluid	Crab Cavern@Fault Shrimp	Unfiltered Piston #1. Start 03:27. Stop. 03:30. Tmax=10.7 Tavg=10.6 T2=7.9 vol=550mL. HFS sensor: pH=6.0.	14 36.056	144 46.6495	565	52	13549
3:31	J800-HFS-29	fluid	Crab Cavern@Fault Shrimp	Filtered Piston #4. Start 03:31. Stop 03:34. Tmax=10.5 Tavg=10.4 T2=7.8 vol=550 mL. Same location.	14 36.056	144 46.6495	565	52	13561
3:36	J800-HFS-30	fluid	Crab Cavern@Fault Shrimp	Unfiltered Bag #21. Start 03:36. Stop 03:39. Tmax=10.4 Tavg=10.3 T2=7.7 vol=500mL.	14 36.056	144 46.6495	565	52	13571
3:43	J800-major-31	fluid	Crab Cavern@Fault Shrimp	White major at Crab Cavern. Tmax was 10.4 in this site. Same location.	14 36.056	144 46.6495	565	51	13582

Time UTC	Sample	Type	Site	Comments	Latitude	Longitude	Depth	Gyro	Virtual Van #
3:48	J800-GTB-32	gas	Crab Cavern@Fault Shrimp	Red gas-tight bottle at Crab Cavern. Could not view intake but nozzle was in cavern. Same location.	14 36.056	144 46.6495	565	49	13591
4:08	J800-BM1-B1-33	bio	OldeIronSlide	Cassette B. Syringe 1. In flow above anemone. HFS temp=11.5C (ambient 7.1).	14 36.0563	144 46.656	567	317	13639
4:09	J800-BM1-B2-34	bio	OldeIronSlide	Cassette B. Syringe 2. Same location.	14 36.0563	144 46.656	567	318	13642
4:11	J800-BM1-B4-35	bio	OldeIronSlide	Cassette B. Syringe 4. Same location.	14 36.0563	144 46.656	567	319	13645
4:16	J800-BM1-B5-36	bio	OldeIronSlide	Cassette B. Syringe 5. Same location. Pulled sample twice to fill.	14 36.0563	144 46.656	567	321	13650
4:18	J800-BM1-B6-37	bio	OldeIronSlide	Cassette B. syringe 6. Moved slightly to large patch of material.	14 36.0563	144 46.656	567	11	13661
4:22	J800-Scoop8-38	bio	OldeIronSlide	Gray scoop #8. Same location.	14 36.0563	144 46.656	567	11	13678

5.6-5 J801-Samples:

Time UTC	Sample	Type	Site	Comments	Latitude	Longitude	Depth	Gyro	Virtual Van #
18:28	J801-BM1-C1-01	bio	GoldenHorn base	Cassette C. Syringe 1. Geochem filter. Pulling water just above mat. Temperature measured at 20.5C before sample.	12 55.3426	143 38.9555	2930	153	13901
18:32	J801-BM1-C2-02	bio	GoldenHorn base	Cassette C. Syringe 2. Ferrozine in syringe. Same location as previous. Color change observed.	12 55.3426	143 38.9555	2930	153	13909
18:38	J801-BM1-B4-03	bio	GoldenHorn base	Cassette B. Syringe 4. RNA later at same location on chimney as samples 1-2.	12 55.3426	143 38.9555	2930	153	13920
18:39	J801-BM1-B5-04	bio	GoldenHorn base	Cassette B. Syringe 5. RNA later syringe. Same location.	12 55.3426	143 38.9555	2930	153	13923
18:40	J801-BM1-C6-05	bio	GoldenHorn base	Cassette B. Syringe 6. RNA later syringe. Sample appears to have been pulled at the same time as Syringe 5 (sample-04).	12 55.3426	143 38.9555	2930	153	13927

Time UTC	Sample	Type	Site	Comments	Latitude	Longitude	Depth	Gyro	Virtual Van #
19:00	J801-HFS-06	fluid	GoldenHorn base	Unfiltered Bag #17. Start 19:00. Stop 19:04. Tmax=14.5 Tavg=13.1 T2=5.1 vol=575mL. Taken at same location as samples 1-5. In the upper part of the fluffy mat. HFS Sensors: O2=108uM pH=5.68 at T=11.8C. Jason O2 in holster=132.5uM.	12 55.3426	143 38.9555	2930	153	13961
19:05	J801-HFS-07	fluid	GoldenHorn base	Filtered Bag #18. Start 19:05. Stop 19:08 Tmax=10.0 Tavg=8.2 T2=4.0 vol=575mL. Same location.	12 55.3426	143 38.9555	2930	153	13967
19:17	J801-HFS-08	fluid	GoldenHorn base	Sterivex #13. Start 19:17. Stop. 19:31 Tmax=30.2 Tavg=25.0 T2=9.4 vol=3000mL. Repositioned to upper portion of fluffy mat. HFS sensor: O2=75uM at 38decC (O2=1.69xx).	12 55.3426	143 38.9555	2930	154	13988
20:01	J801-BM1-C5-09	bio	GoldenHorn middle	Cassette C. Syringe 5. Geochem filter-water only. Position 2m higher on the chimney than the previous samples at the base. Jason sensor: Temp=27.5C.	12 55.3426	143 38.9555	2928	132	14068
20:06	J801-BM1-B2-10	bio	GoldenHorn middle	Cassette B. Syringe 2. RNA Later sample. Same location. (Note syringe 1 started to pull prematurely at same time).	12 55.3426	143 38.9555	2928	132	14081
20:11	J801-BM1-B3-11	bio	GoldenHorn middle	Cassette B. Syringe 3. RNA Later sample. Same location. Jason sensors: O2=127.6uM in sample site. Ambient O2=131.0uM.	12 55.3426	143 38.9555	2928	132	14089
20:30	J801-HFS-12	fluid	GoldenHorn middle	Unfiltered Bag #19. Start 20:30. Stop 20:33. Tmax=10.3 Tavg=8.5 T2=5 vol=575mL. HFS sensor: O2=114uM pH=5.95 (check) at T=7-8degC. Same location.	12 55.3426	143 38.9555	2928	132	14129
20:40	J801-HFS-13	fluid	GoldenHorn middle	Filtered Bag #20. Start 20:40. Stop 20:44. Tmax=10.4 Tavg=10.1 T2=4.5 vol=575mL. Wand tip moved slightly to get temperature rise. HFS sensor: O2=108uM. pH=5.9 (check).	12 55.3426	143 38.9555	2928	132	14146
21:13	J801-BM1-C4-14	bio	GoldenHorn top	Cassette C. Syringe 4. Ferrozine syringe. Pulled just under 20mL. At chimney near top of GoldenHorn. Jason sensor: T=28.06C before sampling.	12 55.3426	143 38.9555	2922	167	14210

Time UTC	Sample	Type	Site	Comments	Latitude	Longitude	Depth	Gyro	Virtual Van #
21:17	J801-BM1-C3-15	bio	GoldenHorn top	Cassette C. Syringe 3. Geochem filter. Intake tip in flow.	12 55.3426	143 38.9555	2922	167	14219
21:33	J801-HFS-16	fluid	GoldenHorn top	Filtered Piston #8. Start 21:33. Stop 21:37. Tmax=15.9 Tavg=11.6 T2=5 vol=700mL. In flow near top of chimney. HFS sensor: O2=89uM at T=19C.	12 55.3426	143 38.9555	2922	167	14248
21:38	J801-HFS-17	fluid	GoldenHorn top	Unfiltered Piston #7 Start 21:38. Stop 21:42. Tmax=12.8 Tavg=12.6 T2=5.2 vol=640mL.	12 55.3426	143 38.9555	2922	167	14258
21:43	J801-HFS-18	fluid	GoldenHorn top	Sterivex #14. Start 21:43. Stop 21:59. Tmax=14.1 Tavg=12.1 T2=5.3 Vol=3000mL. Same location near top of GoldenHorn. No sample.	12 55.3426	143 38.9555	2922	167	14265
22:32	J801-LScoop1-19	bio	GoldenHorn base	LScoop-1 at the base of GoldenHorn where samples 1-8 were taken. Not in direct flow. Orange-golden iron mat. Jason sensor: Temp=63C in direct flow.	12 55.3398	143 38.9568	2928	293	14355
22:48	J801-Scoop8-20	bio	GoldenHorn base	Scoop #8 (no fixative). Same location as sample-19.	12 55.3398	143 38.9568	2928	293	14390
3:05	J801-BM1-D6-21	bio	GoldenHorn top	Cassette D. Syringe 6. Normal syringe. Taken in flow at spire slightly below top of GoldenHorn. (Sampling after visit to elevator).	12 55.3431	143 38.9534	2923	176	14727
3:06	J801-BM1-D5-22	bio	GoldenHorn top	Cassette D. Syringe 5. RNA later syringe. Same location.	12 55.3431	143 38.9534	2923	176	14733
3:07	J801-BM1-D1-23	bio	GoldenHorn top	Cassette D. Syringe 1. RNA later syringe. Same location.	12 55.3431	143 38.9534	2923	176	14735
3:10	J801-BM1-D2-24	bio	GoldenHorn top	Cassette D. Syringe 2. Normal syringe. Same location.	12 55.3431	143 38.9534	2923	176	14740
3:12	J801-BM1-D4-25	bio	GoldenHorn top	Cassette D. Syringe 4. Normal syringe. Same location.	12 55.3431	143 38.9534	2923	176	14745
3:16	J801-BM1-D3-26	bio	GoldenHorn top	Cassette D. Syringe 3. RNA later syringe. Same location. Very little sample obtained.	12 55.3431	143 38.9534	2923	176	14752
3:25	J801-SS-27	bio	GoldenHorn top	Suction sample of fluffy iron mat. Started suction high on chimney and worked downward. Suction from 03:27-03:38.	12 55.3431	143 38.9534	2923	176	14768

Time UTC	Sample	Type	Site	Comments	Latitude	Longitude	Depth	Gyro	Virtual Van #
3:51	J801-LScoop4-28	bio	GoldenHorn top	RNA Later scoop (orange). Side of peak. RNA chamber open before sample collected.	12 55.3431	143 38.9534	2922	211	14801
4:09	J801-BM1-X6-29	bio	GoldenHorn base	Cassette X. Syringe 6. Lighter mats at top of fluffy mat area near the base of GoldenHorn with flow coming from two holes. Veil-like.	12 55.3431	143 38.9534	2929	146	14835
4:11	J801-BM1-X1-30	bio	GoldenHorn base	Cassette X. Syringe 1. Same stuff.	12 55.3431	143 38.9534	2929	146	14841
4:12	J801-BM1-X2-31	bio	GoldenHorn base	Cassette X. Syringe 2. Same place.	12 55.3431	143 38.9534	2929	146	14845
4:20	J801-BB-scoop1-32	bio	GoldenHorn base	Same mat as X Cassette samples at base. Chunk of mat with structure. Rock in top of scoop.	12 55.3431	143 38.9534	2931	139	14855
4:43	J801-major-33	fluid	GoldenHorn base	Black Major. Same location as T=74C measured before sample taken.	12 55.3431	143 38.9534	2930	135	14893
4:56	J801-BM1-X5-34	bio	GoldenHorn middle	Cassette X. Syringe 5. Fluffy veil-like mat with mixture of textures.	12 55.3431	143 38.9534	2928	96	14920
4:57	J801-BM1-X4-35	bio	GoldenHorn middle	Cassette X. Syringe 4. Same material and location..	12 55.3431	143 38.9534	2928	96	14924
4:59	J801-BM1-X3-36	bio	GoldenHorn middle	Cassette X. Syringe 3. Same material and location.	12 55.3431	143 38.9534	2928	96	14929
5:07	J801-HFS-37	fluid	GoldenHorn top	Sterivex Filter #10. Start 05:07. Stop 05:23. Tmax=11.8 C; Tavg= 9.6C; T2=4.0C; Vol= 3004mL. HFS sensor: pH=5.68. O2=2.43mL/l.	12 55.3431	143 38.9534	2922	185	14948
5:34	J801-HFS-38	fluid	Ultra-no-chichi	Filtered Piston #2. Start 05:35. Stop 05:37. Tmax= 184.2C; Tavg= 179.3C; T2=58.9C; Vol= 554mL.	12 55.3378	143 38.9521	2929	132	14993
5:38	J801-HFS-39	fluid	Ultra-no-chichi	Unfiltered Piston #3. Start 05:38. Stop 05:41. Tmax= 178.7C; Tavg= 173.3C; T2= 57.3C; Vol= 554ml.	12 55.3378	143 38.9521	2929	132	15000
5:43	J801-GTHFS-40	gas	Ultra-no-chichi	Starboard Red-Green Gas-tight #7. Temperature 178-184degC.	12 55.3378	143 38.9521	2929	132	15006
5:43	J801-GTHFS-41	gas	Ultra-no-chichi	Port Black Gas-tight #5. Temperature 178-184degC.	12 55.3378	143 38.9521	2929	132	15007

Time UTC	Sample	Type	Site	Comments	Latitude	Longitude	Depth	Gyro	Virtual Van #
5:53	J801-major-42	fluid	Ultra-no-chichi	Red Major. Same location as GTHFS samples 41 and 42. Exhaust verified. Temperature 178-184degC. HFS sensors: O2=2.1mL/l (=94uM) where sampled for samples 40-42.	12 55.3378	143 38.9521	2929	132	15020
6:08	J801-HFS-43	fluid	Ultra-no-chichi	Unfiltered Piston #5. Start 06:08. Stop 06:11 Tmax=17.3 Tavg=16.3 T2=8 vol=600mL. Location is the shrimp habitat in the flow.	12 55.3378	143 38.9521	2929	123	15049
6:18	J801-SPME4-44	bio	Ultra-no-chichi	SPME #4. (Solid Phase Micro Extraction). Sampler held over flow at angle to maximally expose tubes to flow. Squeezed for six minutes in flow. Stop 06:24.	12 55.3378	143 38.9521	2929	123	15065
6:38	J801-rock-45	geo	Ultra-no-chichi	Piece of crumbly-small chimney near taken from near top of chimney. View of Marker 124 and deployed SPlates in background (just deployed).	12 55.3388	143 38.9529	2929	319	15103
6:45	J801-SPME1-46	bio	ascent	Background SPME #1 sample during ascent. Ambient Temperature=1.53C. Depth of squeeze: 2828-2667. Squeezed six minutes.	12 55.31	143 38.912	0	0	15117
6:57	J801-HFS-47	fluid	ascent	Unfiltered Bag #23. Background water sample. Start 06:47. Stop 07:02. Depths 2525-2388.	12 55.314	143 38.91	0	0	15132
7:01	J801-HFS-48	fluid	ascent	Filtered Bag #24. Start 07:02. Stop 07:05 Depths 2376-2262.	12 55.315	143 55.315	0	0	15138

5.7 Dive Logs

5.7-1 J2-797

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
Jason Dive Plan J797 Sun Nov 30 ~24 hour dive. Main goals: Recon; BioMat; scoop and fluid sampling; recover settling traps. On all dives: Beast with 3 gas-tights in back; Super Scorpio camera in basket; Jason high-temp probe Basket for this dive: BioMat sampler; HFS-Fluid-sampler intake; 3 hand-held gas-tights; Suction sampler hose (single chamber); Jason scoop bag; 2 Major samplers in starboard swing arm Elevator: 1 Big Boy scoop; 2 Later scoops in FeMO boxes; 2 Small Bio Boxes; 2 Majors; BioMat Sampler cassettes. Tasks: 1) Recon area; 2) Down-looking photo-mosaic with Super Scorpio; 3) Move elevator to sampling area; 4) BioMat sampling; 5) HFS fluid sampling and filtering; 6) Scoop samples; 7) Deploy and recover location of Beaulieu settling traps is 12deg 57)1888N; 143deg 37)1664E Z=2850m; 8) Macrobiology sampling.								
15	J2-797	11/30/2014	03:19:08	12.90001	143.61664	284	2.1	Jason in water
74	J2-797	11/30/2014	04:18:18	12.95204	143.61761	209	1448.1	Start Tivey twist.
82	J2-797	11/30/2014	04:25:33	12.95207	143.61785	337	1448.0	End Tivey twist.
83	J2-797	11/30/2014	04:25:51	12.95202	143.61773	348	1448.3	Heading cal of Medea.
155	J2-797	11/30/2014	05:30:06	12.95310	143.61876	92	2849.3	Jason on bottom.
157	J2-797	11/30/2014	05:31:09	12.95327	143.61866	92	2851.2	Jumbled lavas.
158	J2-797	11/30/2014	05:31:27	12.95307	143.61872	92	2851.4	One fish. Old dark lavas.
161	J2-797	11/30/2014	05:32:26	12.95323	143.61870	92	2851.2	NAV: Doppler Reset.
164	J2-797	11/30/2014	05:33:30	12.95324	143.61858	123	2851.3	First step is to go to Marker-112 to do recon of area.
168	J2-797	11/30/2014	05:36:40	12.95303	143.61870	127	2850.5	Not much biota.
171	J2-797	11/30/2014	05:38:11	12.95331	143.61888	101	2850.6	Starting ship move.
174	J2-797	11/30/2014	05:40:06	12.95328	143.61897	85	2845.7	See old pillow lavas in Super Scorpio cam.
177	J2-797	11/30/2014	05:42:59	12.95316	143.61912	124	2848.9	Crinoid on old pillow lavas.
179	J2-797	11/30/2014	05:43:33	12.95321	143.61907	124	2848.4	Crinoid arms scattered on bottom.
181	J2-797	11/30/2014	05:44:11	12.95312	143.61919	128	2848.2	Lots of floc stirred up in water from Jason.
182	J2-797	11/30/2014	05:44:48	12.95314	143.61897	125	2848.0	Shimmering water.
183	J2-797	11/30/2014	05:44:59	12.95315	143.61915	125	2847.6	Heading to Marker-112.
186	J2-797	11/30/2014	05:46:04	12.95315	143.61903	125	2847.6	Jason shift change.
188	J2-797	11/30/2014	05:47:11	12.95315	143.61902	124	2847.0	Jason on as watch leader.
189	J2-797	11/30/2014	05:47:29	12.95315	143.61902	125	2847.2	Jason Sylvan that is.
191	J2-797	11/30/2014	05:48:27	12.95313	143.61899	128	2847.1	JASON not moving at the moment.
194	J2-797	11/30/2014	05:50:34	12.95315	143.61924	125	2846.8	Still sitting.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
196	J2-797	11/30/2014	05:51:19	12.95314	143.61925	125	2846.8	Event logger switch.
200	J2-797	11/30/2014	05:55:00	12.95308	143.61933	111	2847.9	Shimmering and bacterial mat.
203	J2-797	11/30/2014	05:56:43	12.95297	143.61937	176	2849.4	FRAMEGRABS: HD frame grab SciCam. Old lavas near snail.
208	J2-797	11/30/2014	06:00:46	12.95287	143.61942	110	2848.6	Dropping weights.
210	J2-797	11/30/2014	06:01:35	12.95287	143.61941	110	2848.3	NAV: Doppler Reset
213	J2-797	11/30/2014	06:03:59	12.95284	143.61950	160	2848.7	Heading towards Marker-108 which is at 2853m.
215	J2-797	11/30/2014	06:04:18	12.95281	143.61950	158	2848.0	Goal at Marker-108 is to do a photomosaic.
219	J2-797	11/30/2014	06:07:51	12.95256	143.61959	106	2843.9	Light covering of mat.
222	J2-797	11/30/2014	06:09:12	12.95263	143.61967	18	2843.1	Searching for evidence of venting.
223	J2-797	11/30/2014	06:09:27	12.95266	143.61967	15	2842.2	Seeing small iron mats in crevices.
225	J2-797	11/30/2014	06:10:53	12.95285	143.61961	4	2845.6	Still searching for Marker-108.
229	J2-797	11/30/2014	06:13:11	12.95299	143.61949	4	2847.3	Lots pillow basalts.
231	J2-797	11/30/2014	06:14:14	12.95299	143.61943	298	2848.0	Ophioroid.
232	J2-797	11/30/2014	06:14:52	12.95300	143.61943	298	2848.4	FRAMEGRABS: HD frame grab SciCam. Shinkai weights.
234	J2-797	11/30/2014	06:15:32	12.95300	143.61943	298	2848.4	FRAMEGRABS: HD frame grab SciCam. Shinkai weights.
237	J2-797	11/30/2014	06:17:58	12.95310	143.61934	299	2848.1	FRAMEGRABS: HD frame grab SciCam. Bacterial mat.
239	J2-797	11/30/2014	06:18:42	12.95311	143.61934	299	2848.0	FRAMEGRABS: HD frame grab SciCam. Blue mats?
241	J2-797	11/30/2014	06:19:09	12.95311	143.61933	299	2848.3	FRAMEGRABS: HD frame grab SciCam. Have we found Stace's sandwich samplers?
242	J2-797	11/30/2014	06:19:52	12.95311	143.61933	300	2848.2	FRAMEGRABS: HD frame grab SciCam. Stace's settlement plates.
244	J2-797	11/30/2014	06:20:44	12.95311	143.61933	299	2848.2	HIGHLIGHTS: Record SciCam. Biota and Beaulieau settlement plate number 5.
246	J2-797	11/30/2014	06:21:37	12.95311	143.61933	300	2848.2	HIGHLIGHTS: End Highlights.
248	J2-797	11/30/2014	06:22:04	12.95311	143.61933	300	2848.2	Going to sit for a bit and do some camera adjustments for better imagery.
249	J2-797	11/30/2014	06:22:44	12.95311	143.61933	300	2848.2	FRAMEGRABS: HD frame grab PilotCam. Marker-108.
252	J2-797	11/30/2014	06:23:28	12.95311	143.61933	300	2848.1	FRAMEGRABS: HD frame grab PilotCam. Marker-108.
254	J2-797	11/30/2014	06:24:09	12.95311	143.61933	300	2848.1	FRAMEGRABS: HD frame grab SciCam Evaluating the condition of the Beaulieau settlement plates.
256	J2-797	11/30/2014	06:25:27	12.95311	143.61933	300	2848.1	FRAMEGRABS: HD frame grab SciCam. Trying to figure out where this rope is going. It is attached to a marker.
257	J2-797	11/30/2014	06:25:50	12.95311	143.61933	300	2848.1	It seems that the area collapsed on an old marker and partly buried it.
259	J2-797	11/30/2014	06:26:49	12.95311	143.61933	300	2848.1	FRAMEGRABS: HD frame grab SciCam. The bucket lid seems to be covered in blue mat. Sheryl would love to sample it.
264	J2-797	11/30/2014	06:30:18	12.95311	143.61931	323	2847.4	Surveying the mound for places to deploy the new settlement plates.
266	J2-797	11/30/2014	06:31:46	12.95313	143.61925	41	2846.4	FRAMEGRABS: HD frame grab SciCam. Surveying the mound for a place to deploy new settlement plates.
268	J2-797	11/30/2014	06:32:06	12.95315	143.61925	52	2846.6	Lots of shimmering and some shrimp.
269	J2-797	11/30/2014	06:32:37	12.95317	143.61925	63	2845.7	FRAMEGRABS: HD frame grab SciCam. Top of the mound.
271	J2-797	11/30/2014	06:33:29	12.95320	143.61928	124	2845.0	Another marker.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
272	J2-797	11/30/2014	06:33:56	12.95320	143.61930	154	2845.0	FRAMEGRABS: HD frame grab SciCam. Trying to read the marker.
275	J2-797	11/30/2014	06:35:34	12.95322	143.61929	132	2845.3	Calling it "marker unknown" since we cannot read it.
277	J2-797	11/30/2014	06:36:14	12.95323	143.61931	95	2844.8	DSCs from super scorpio and sci cam.
278	J2-797	11/30/2014	06:36:57	12.95324	143.61933	125	2844.8	FRAMEGRABS: HD frame grab SciCam. Marker 50? 20? It is covered in anemones.
280	J2-797	11/30/2014	06:37:28	12.95324	143.61933	125	2844.8	We think the marker number is 20.
283	J2-797	11/30/2014	06:39:38	12.95318	143.61932	7	2844.5	**NAV: Navigator target Target.** At anemone bucket lid marker 20.
285	J2-797	11/30/2014	06:40:47	12.95319	143.61937	285	2845.4	Still making our way around the mound to survey for a deployment site for the settlement plates.
288	J2-797	11/30/2014	06:42:32	12.95311	143.61932	311	2846.7	This mound may not be a great place to deploy the next plates. It is too steep.
290	J2-797	11/30/2014	06:43:20	12.95311	143.61932	311	2846.7	We are now back to where the Beaulieau plates are and looking to see if new ones can be deployed here.
291	J2-797	11/30/2014	06:43:49	12.95311	143.61932	311	2846.7	FRAMEGRABS: HD frame grab SciCam. Active venting and microbial mats.
293	J2-797	11/30/2014	06:44:33	12.95311	143.61932	311	2846.7	HIGHLIGHTS: Record SciCam. Diffuse flow and mats.
295	J2-797	11/30/2014	06:45:40	12.95311	143.61932	311	2846.7	Crabs and shrimp in the view.
297	J2-797	11/30/2014	06:46:23	12.95311	143.61932	311	2846.7	FRAMEGRABS: HD frame grab PilotCam. Crab fight on the snails.
299	J2-797	11/30/2014	06:47:08	12.95311	143.61932	311	2846.7	HIGHLIGHTS: End Highlights.
300	J2-797	11/30/2014	06:47:53	12.95311	143.61932	311	2846.7	This might be a good place to deploy the settlement plates.
302	J2-797	11/30/2014	06:48:41	12.95311	143.61932	312	2846.7	Going to make temperature measurements.
303	J2-797	11/30/2014	06:48:51	12.95311	143.61932	311	2846.7	NOW the highlights are off.
305	J2-797	11/30/2014	06:49:01	12.95311	143.61932	311	2846.7	SENSOR: Temp.
308	J2-797	11/30/2014	06:51:04	12.95312	143.61929	344	2847.2	FRAMEGRABS: HD frame grab SciCam. Snails and diffuse flow.
310	J2-797	11/30/2014	06:52:40	12.95312	143.61929	344	2847.1	FRAMEGRABS: HD frame grab SciCam. Temperature measurements
312	J2-797	11/30/2014	06:53:08	12.95312	143.61929	344	2847.1	SENSOR: Temp. Max temp was up to 39 so far.
313	J2-797	11/30/2014	06:53:43	12.95312	143.61929	344	2847.1	Trying a second point for temp down to the right.
315	J2-797	11/30/2014	06:54:39	12.95312	143.61929	344	2847.1	FRAMEGRABS: HD frame grab PilotCam. Second temp measurement. Up to 93 so far.
317	J2-797	11/30/2014	06:55:19	12.95312	143.61929	344	2847.1	SENSOR: Temp Still going up.
319	J2-797	11/30/2014	06:56:38	12.95312	143.61929	344	2847.1	SENSOR: Temp Max up to 142.
321	J2-797	11/30/2014	06:57:02	12.95312	143.61929	344	2847.1	Temp still going up. 143 max.
324	J2-797	11/30/2014	06:59:07	12.95312	143.61929	344	2847.1	Temp just went up to 145 now.
326	J2-797	11/30/2014	07:00:46	12.95312	143.61929	344	2847.1	This would be a good place to sample end-member chemistry.
329	J2-797	11/30/2014	07:02:53	12.95312	143.61929	344	2847.1	We are going to look around now for a place to deploy the settlement plates.
332	J2-797	11/30/2014	07:04:28	12.95312	143.61929	344	2847.1	FRAMEGRABS: HD frame grab PilotCam. Snails and crabs.
334	J2-797	11/30/2014	07:05:52	12.95312	143.61929	344	2847.1	Going to back away from the mound a little and move around it again.
337	J2-797	11/30/2014	07:07:20	12.95312	143.61931	330	2847.1	We can see the Beaulieau plates again.
339	J2-797	11/30/2014	07:08:29	12.95313	143.61932	308	2847.4	We do have a nav target on the plates.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
341	J2-797	11/30/2014	07:09:06	12.95314	143.61933	299	2847.2	FRAMEGRABS: HD frame grab PilotCam. This could be a potential deployment site.
342	J2-797	11/30/2014	07:09:30	12.95314	143.61934	307	2846.7	Pilot does not think he can get in there to deploy.
344	J2-797	11/30/2014	07:11:01	12.95312	143.61936	336	2845.5	Backing up to keep looking.
346	J2-797	11/30/2014	07:11:49	12.95309	143.61931	335	2847.3	FRAMEGRABS: HD frame grab SciCam. More of the Marker-108 mound.
349	J2-797	11/30/2014	07:13:39	12.95306	143.61928	336	2849.1	Investigating another venting crack for potential deployment.
350	J2-797	11/30/2014	07:13:59	12.95306	143.61928	335	2849.0	Going to check the temperature.
354	J2-797	11/30/2014	07:16:38	12.95304	143.61927	45	2849.0	Couldn't get the temp probe into where we were looking. Moving around to locate a better spot.
361	J2-797	11/30/2014	07:22:32	12.95316	143.61928	76	2848.3	Trying to find places to deploy 3 settlement plates so can recover those that have been down there since 2010.
362	J2-797	11/30/2014	07:22:52	12.95316	143.61928	79	2848.3	There were 2 that were placed in April 2010; but so far have only found 1.
365	J2-797	11/30/2014	07:24:07	12.95316	143.61928	79	2848.3	Shrimp; anemones; crabs; etc. Lots of biota in this area.
366	J2-797	11/30/2014	07:24:58	12.95316	143.61928	79	2848.3	Akel is poking around with the Jason temp probe trying to find a good diffuse flow spot (preferably a flat spot).
369	J2-797	11/30/2014	07:26:43	12.95316	143.61928	78	2848.3	Jason is poking around. This spot is a bit too steep Akel thinks.
371	J2-797	11/30/2014	07:27:39	12.95316	143.61928	79	2848.3	Alvinoconcha snails in this area.
377	J2-797	11/30/2014	07:31:31	12.95316	143.61927	78	2847.7	The rocks here are pretty unstable and sort of crumble when Jason touches them. Old; weathered basalts.
382	J2-797	11/30/2014	07:35:51	12.95316	143.61927	77	2847.9	Doing a bit of housekeeping. Going to move the 3 settlement plates from the swingarm biobox and put them in the stbd crate of the porch.
388	J2-797	11/30/2014	07:40:05	12.95316	143.61927	77	2847.8	FRAMEGRABS: HD frame grab SciCam. Jason manipulation.
390	J2-797	11/30/2014	07:41:54	12.95316	143.61927	76	2847.9	Going to recover the one SPlate that is out there and then look for somewhere to place the 3 new ones after a photomosaic survey.
395	J2-797	11/30/2014	07:45:05	12.95311	143.61933	289	2847.0	Setting up to recover the Beaulieu Plate deployed in 2010. SPlate#5.
396	J2-797	11/30/2014	07:45:52	12.95311	143.61933	289	2847.0	HIGHLIGHTS: Record SciCam. Recovery of Beaulieu plate highlights.
399	J2-797	11/30/2014	07:47:54	12.95312	143.61932	289	2848.1	HIGHLIGHTS: End Highlights.
401	J2-797	11/30/2014	07:48:03	12.95312	143.61933	289	2848.1	Highlights weren't anything.
403	J2-797	11/30/2014	07:49:49	12.95312	143.61933	289	2848.0	SENSOR: Temp. Taking the temperature in contact with the Beaulieu settlement plates.
405	J2-797	11/30/2014	07:50:20	12.95312	143.61933	289	2848.1	SENSOR: Temp is roughly ambient. Slightly above ambient.
409	J2-797	11/30/2014	07:53:09	12.95313	143.61931	289	2848.1	FRAMEGRABS: HD frame grab SciCam. Pre-recovery photo of Settling plate #5.
410	J2-797	11/30/2014	07:53:54	12.95313	143.61931	289	2848.1	SENSOR: Temp. Another measurement touching a different plate and it was 2.8. Ambient is around 1.6.
413	J2-797	11/30/2014	07:55:09	12.95313	143.61932	289	2848.1	**NAV: Navigator target.** This target is called "Stace 5".
414	J2-797	11/30/2014	07:55:30	12.95313	143.61932	288	2848.1	**SAMPLE: SPlate J797-SPlate-01**. Deployed in 2010. SPlate#5. This is called the Beaulieu Plate.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
415	J2-797	11/30/2014	07:55:49	12.95313	143.61931	289	2848.1	HIGHLIGHTS: Record PilotCam. Recovery of plates.
417	J2-797	11/30/2014	07:56:25	12.95313	143.61931	289	2848.1	FRAMEGRABS: HD frame grab PilotCam. Recovery of Beaulieu settlement plate #5.
418	J2-797	11/30/2014	07:56:49	12.95313	143.61932	289	2848.1	FRAMEGRABS: HD frame grab SciCam. Recovery of Beaulieu settlement plate #5.
420	J2-797	11/30/2014	07:57:51	12.95313	143.61933	288	2847.5	Settlement plates are very black and appear to be covered with stuff.
422	J2-797	11/30/2014	07:58:48	12.95312	143.61935	289	2846.9	HIGHLIGHTS: End Highlights.
425	J2-797	11/30/2014	08:00:41	12.95312	143.61935	289	2846.9	Preparing to put the recovered settlement plates in the swing arm biobox.
426	J2-797	11/30/2014	08:01:01	12.95312	143.61935	289	2846.9	Port side biobox.
429	J2-797	11/30/2014	08:02:52	12.95312	143.61935	289	2846.8	We are going to pick up the bucket lid covered in blue mat next.
432	J2-797	11/30/2014	08:04:34	12.95312	143.61935	289	2846.9	Sampling the bucket lid.
434	J2-797	11/30/2014	08:05:33	12.95311	143.61934	256	2847.7	We are going to call this a Biomacro sample.
437	J2-797	11/30/2014	08:07:29	12.95311	143.61934	257	2847.7	SAMPLE: Biomacro. J797-biomacro-02. A bucket lid we found. Looks like number 24. Appears to be covered in blue mat.
439	J2-797	11/30/2014	08:08:44	12.95311	143.61934	257	2847.7	Bucket lid sample also going into port swing arm biobox.
442	J2-797	11/30/2014	08:10:45	12.95311	143.61933	256	2847.7	We are not going to keep sample 02. On closer inspection it does not have blue mat on it. Only filamentous sulfur mats.
444	J2-797	11/30/2014	08:11:44	12.95310	143.61933	257	2847.4	SAMPLE: Biomacro CANCEL LAST SAMPLE. WE DID NOT KEEP IT.
446	J2-797	11/30/2014	08:12:39	12.95311	143.61933	257	2847.2	Heading to Marker-108. Apparently this mound is NOT Marker-108. We found markers 20 and 24 here.
451	J2-797	11/30/2014	08:16:02	12.95311	143.61938	257	2847.0	We are just discussing range and bearing to Marker-108.
452	J2-797	11/30/2014	08:16:53	12.95309	143.61941	213	2847.5	Marker-108 may be 20-30 meters to the south.
455	J2-797	11/30/2014	08:18:16	12.95304	143.61941	176	2848.0	We are back at the Shinkai weights.
458	J2-797	11/30/2014	08:20:17	12.95293	143.61938	176	2848.3	Heading south in search of Marker-108.
459	J2-797	11/30/2014	08:20:48	12.95291	143.61937	175	2849.3	There are two different ages of lavas here.
465	J2-797	11/30/2014	08:25:28	12.95280	143.61925	276	2848.6	Coming around still in search of markers.
467	J2-797	11/30/2014	08:26:02	12.95282	143.61922	278	2849.8	Some sort of marker up ahead.
468	J2-797	11/30/2014	08:26:59	12.95282	143.61922	277	2849.9	Marker-108 is supposed to have lots of iron mat.
471	J2-797	11/30/2014	08:28:18	12.95289	143.61914	238	2848.7	Here is another marker. Bucket lid. Number looks like 22.
472	J2-797	11/30/2014	08:28:45	12.95290	143.61915	237	2848.5	This is ODP22 and 108 should be nearby.
473	J2-797	11/30/2014	08:28:54	12.95290	143.61913	236	2848.5	Marker-108 is here.
476	J2-797	11/30/2014	08:30:02	12.95290	143.61905	204	2849.5	HIGHLIGHTS: Record PilotCam Marker-108.
477	J2-797	11/30/2014	08:30:22	12.95290	143.61905	204	2849.5	This was venting at over 60 degrees.
478	J2-797	11/30/2014	08:30:32	12.95290	143.61905	204	2849.4	The nav offset is 50m.
480	J2-797	11/30/2014	08:31:02	12.95290	143.61905	204	2849.4	Venting at 60 degrees was in 2003.
481	J2-797	11/30/2014	08:31:16	12.95290	143.61906	204	2849.5	We will look around and take a temperature.
483	J2-797	11/30/2014	08:32:09	12.95285	143.61907	246	2848.6	HIGHLIGHTS: Record SciCam. Area around Marker-108.
487	J2-797	11/30/2014	08:35:29	12.95285	143.61899	353	2849.5	FRAMEGRABS: HD frame grab PilotCam. Some fairly fresh looking yellow mat near Marker-108.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
488	J2-797	11/30/2014	08:35:59	12.95285	143.61899	352	2849.5	FRAMEGRABS: HD frame grab PilotCam. More yellow mat at Marker-108.
490	J2-797	11/30/2014	08:36:45	12.95285	143.61899	352	2849.4	Going to poke at the bright yellow mat to see the consistency.
491	J2-797	11/30/2014	08:36:51	12.95285	143.61899	354	2849.3	HIGHLIGHTS: End Highlights
493	J2-797	11/30/2014	08:37:34	12.95285	143.61899	351	2849.6	FRAMEGRABS: HD frame grab SciCam. Yellow mat area we are going to poke at.
495	J2-797	11/30/2014	08:38:51	12.95285	143.61899	351	2849.6	Ambient temp is 1.7 and the mat seems a bit spongy.
497	J2-797	11/30/2014	08:39:24	12.95285	143.61899	351	2849.6	FRAMEGRABS: HD frame grab SciCam. Poking the spongy/jello-y mat.
498	J2-797	11/30/2014	08:39:44	12.95285	143.61899	351	2849.6	HIGHLIGHTS: Record SciCam Poking the mat.
500	J2-797	11/30/2014	08:40:28	12.95285	143.61899	351	2849.6	SENSOR: Temp. Measurement. 1-2 cm down in the yellow mat and there is no temp anomaly.
501	J2-797	11/30/2014	08:40:55	12.95285	143.61899	351	2849.6	HIGHLIGHTS: End Highlights.
504	J2-797	11/30/2014	08:42:17	12.95285	143.61899	352	2849.6	These are Fryer sites 1W and 2W but they look very different from 2003.
506	J2-797	11/30/2014	08:43:42	12.95285	143.61899	352	2849.6	Stowing the temp probe.
509	J2-797	11/30/2014	08:45:25	12.95285	143.61899	351	2849.3	FRAMEGRABS: HD frame grab SciCam. More yellow mat.
512	J2-797	11/30/2014	08:47:16	12.95277	143.61891	257	2850.0	Heading to 6K#114 where there used to be a marker. Not sure if the marker is still there.
513	J2-797	11/30/2014	08:47:33	12.95277	143.61890	259	2848.5	Should be iron mats there.
516	J2-797	11/30/2014	08:49:38	12.95272	143.61895	172	2849.2	Pilot and navigator are testing the scorpio camera for the photomosaic.
520	J2-797	11/30/2014	08:52:06	12.95253	143.61908	142	2847.0	Heading SE looking for 6K#114.
523	J2-797	11/30/2014	08:54:25	12.95239	143.61923	182	2843.9	Still transiting.
524	J2-797	11/30/2014	08:54:50	12.95236	143.61925	182	2843.8	More small patches of yellow on the bottom.
526	J2-797	11/30/2014	08:55:08	12.95237	143.61927	162	2844.2	Looking for marker 116.
527	J2-797	11/30/2014	08:55:54	12.95236	143.61932	165	2843.8	More yellow in the cracks.
529	J2-797	11/30/2014	08:56:47	12.95231	143.61935	214	2845.0	Looking for shimmering in the patches of yellow.
531	J2-797	11/30/2014	08:57:06	12.95232	143.61936	214	2844.6	We see shimmering. Take a temp measurement.
533	J2-797	11/30/2014	08:58:04	12.95235	143.61936	151	2845.8	FRAMEGRABS: HD frame grab PilotCam. Test.
535	J2-797	11/30/2014	08:59:04	12.95233	143.61933	59	2844.6	Going to take temp measurement using the HFS temp probe.
537	J2-797	11/30/2014	09:00:50	12.95233	143.61932	1	2845.6	SENSOR: pH. Background voltage 3.693V.
539	J2-797	11/30/2014	09:01:16	12.95232	143.61932	1	2845.6	SENSOR: O2. Background O2= 2.80 ml/l.
540	J2-797	11/30/2014	09:01:46	12.95232	143.61932	1	2845.6	Microphone stopped working. No commentary for now.
542	J2-797	11/30/2014	09:02:57	12.95232	143.61932	1	2845.5	Placing intake down into yellow stained area to get temp.
544	J2-797	11/30/2014	09:03:30	12.95232	143.61932	1	2845.5	SENSOR: Temp. is going up to 8 degrees...
545	J2-797	11/30/2014	09:03:50	12.95232	143.61932	1	2845.5	SENSOR: Temp. 9 degrees...
547	J2-797	11/30/2014	09:04:14	12.95232	143.61932	1	2845.5	SENSOR: Temp. HFS temp back down to 6.
548	J2-797	11/30/2014	09:04:27	12.95232	143.61932	1	2845.5	SENSOR: Temp. HFS temp down to 5.
550	J2-797	11/30/2014	09:05:38	12.95232	143.61932	1	2845.5	SENSOR: Temp. HFS temp going back up now...10.5...11...
552	J2-797	11/30/2014	09:06:30	12.95232	143.61932	1	2845.5	SENSOR: Temp. HFS temp still going up...15...
553	J2-797	11/30/2014	09:06:42	12.95232	143.61932	1	2845.5	SENSOR: O2. HFS O2 is down by about 30%.
554	J2-797	11/30/2014	09:06:57	12.95232	143.61932	1	2845.5	SENSOR: Temp. HFS max temp was 15.9.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
564	J2-797	11/30/2014	09:15:50	12.95232	143.61932	1	2845.5	**SAMPLE: HFS J797-HFS-02.** Filtered bag 24. Tmax=16.7 Tavg=10 T2=7 Vol=550 Start=0911 Stop=0915. Marker 114a. Lat=12deg57.135N; Long=143deg37.159E.
569	J2-797	11/30/2014	09:19:22	12.95232	143.61932	1	2845.5	**SAMPLE: HFS J797-HFS-03.** Unfiltered bag 23. Tmax=17.5 Tavg=16 T2=9 Vol=550 Start=0916 Stop=0919. Marker 114a.
578	J2-797	11/30/2014	09:27:32	12.95232	143.61932	1	2845.5	SAMPLE: HFS J797-HFS-04; RNA filter 16; start 0921.
580	J2-797	11/30/2014	09:28:07	12.95232	143.61932	1	2845.5	Dave is concerned that the HFS is not slowing down in this filter as it should.
584	J2-797	11/30/2014	09:31:22	12.95232	143.61932	1	2845.5	We may or may not actually be getting a sample.
591	J2-797	11/30/2014	09:37:09	12.95232	143.61932	1	2845.5	Finish J797-HFS-04. RNA filter 16; Tmax=21.5 Tavg=13.8 T2=7 Vol=3000 Stop=0936. Marker 114a. Lat=12deg57.135N; Long=143deg37.159E. Highlights on 0920. Off at 0921.
595	J2-797	11/30/2014	09:40:02	12.95232	143.61932	1	2845.5	Doing some framegrab tests.
596	J2-797	11/30/2014	09:40:27	12.95232	143.61932	1	2845.5	Someone is trying to find Craig to see if he wants to take another RNA filter in case the last didn't work.
598	J2-797	11/30/2014	09:41:28	12.95232	143.61932	1	2845.5	**SAMPLE: HFS J797-HFS-05**. RNA filter 15. Start=0941 Marker 114a. Lat=12deg57.135N; Long=143deg37.159E.
619	J2-797	11/30/2014	10:01:23	12.95232	143.61932	1	2845.5	Finish J797-HFS-05; RNA filter 15; Tmax=21 Tavg=14.21 T2=8 Vol=3000ml. Stop=0959.
621	J2-797	11/30/2014	10:02:12	12.95232	143.61932	1	2845.4	Watch change going on.
625	J2-797	11/30/2014	10:05:34	12.95232	143.61932	1	2845.5	Going to take a biomat sample here now in the same position as the last samples.
627	J2-797	11/30/2014	10:07:00	12.95232	143.61932	1	2845.5	J797-BM1 (First biomat cassette sample). Setting it up now.
633	J2-797	11/30/2014	10:11:23	12.95232	143.61932	1	2845.4	Will take a biomat sample in iron microbial mat.
635	J2-797	11/30/2014	10:12:15	12.95232	143.61932	1	2845.5	Cycling power to the sampler. Going to put it in the holster and pull the wand off.
638	J2-797	11/30/2014	10:14:25	12.95232	143.61932	1	2845.5	Not getting coms to the sampler. Going to rotate the cassette to try to get coms.
648	J2-797	11/30/2014	10:23:34	12.95232	143.61932	1	2845.4	Lost the hose on syringe 6 Cassette A. Still have syringes 1-5.
655	J2-797	11/30/2014	10:29:43	12.95232	143.61932	353	2845.9	That sample was expelled. The mat is thin on the rock. No sample.
661	J2-797	11/30/2014	10:34:28	12.95232	143.61933	15	2845.3	Going to try again in a little different spot; very nearby .
663	J2-797	11/30/2014	10:35:21	12.95232	143.61933	15	2845.3	HIGHLIGHTS: Record PilotCam Recording highlight video of sample attempt.
664	J2-797	11/30/2014	10:35:32	12.95232	143.61933	15	2845.3	Seems like it's a bit hard.
667	J2-797	11/30/2014	10:37:24	12.95232	143.61933	15	2845.4	**SAMPLE: BM. J797-BM1-A5-06**. Some mat in the tube. This is old mat with a manganese crust.
668	J2-797	11/30/2014	10:37:31	12.95232	143.61933	15	2845.4	HIGHLIGHTS: End Highlights.
670	J2-797	11/30/2014	10:38:27	12.95232	143.61933	15	2845.4	Stowing the sampler.
673	J2-797	11/30/2014	10:40:13	12.95232	143.61932	357	2845.3	We're done in this area. We will look around a little more.
677	J2-797	11/30/2014	10:43:59	12.95234	143.61921	347	2844.3	Looking around for softer iron mats.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
682	J2-797	11/30/2014	10:47:20	12.95234	143.61919	345	2844.4	Just realized that the images on the frame grabber are opposite as what they should be. They don't match up with the log.
685	J2-797	11/30/2014	10:49:54	12.95233	143.61928	35	2844.0	Looking at various old pillows with some yellow staining in the cracks.
688	J2-797	11/30/2014	10:51:28	12.95238	143.61931	35	2844.0	Still moving around in the area looking for some softer iron mat to sample.
690	J2-797	11/30/2014	10:52:19	12.95238	143.61931	34	2843.8	Lots of shimmering flow and iron staining.
694	J2-797	11/30/2014	10:55:10	12.95238	143.61931	35	2843.9	Planning to head back to the Yellow Top site (Mkr-108)
699	J2-797	11/30/2014	10:59:44	12.95238	143.61931	35	2843.9	We're moving the ship.
703	J2-797	11/30/2014	11:02:03	12.95240	143.61943	30	2844.1	Looking to the port side at an area of more mat. Not good enough so we're moving on.
705	J2-797	11/30/2014	11:03:18	12.95245	143.61942	19	2844.2	Beautiful pillow basalt in the super scorpio. Frame grabs in SuperScorpio.
709	J2-797	11/30/2014	11:06:28	12.95253	143.61945	19	2843.9	HIGHLIGHTS: Record SciCam. Zooming in on some white staining in this area of lobate/jumbled lavas with pillows around.
712	J2-797	11/30/2014	11:08:38	12.95258	143.61946	18	2843.8	The grey on the edges are just clean breaks through the crust.
717	J2-797	11/30/2014	11:12:05	12.95268	143.61948	14	2845.4	Moving along the seafloor looking at a contact young over old.
718	J2-797	11/30/2014	11:12:46	12.95270	143.61948	15	2845.4	HIGHLIGHTS: Record SuperScorpio. Contact in the super scorpio and sci cam.
720	J2-797	11/30/2014	11:13:13	12.95273	143.61949	15	2845.5	Grabbing some photos with the Zeus.
722	J2-797	11/30/2014	11:14:50	12.95279	143.61951	54	2847.0	Looking at the contacts. Took some grabs with the Super Scorpio.
724	J2-797	11/30/2014	11:15:16	12.95280	143.61948	354	2847.5	The marker is up ahead.
725	J2-797	11/30/2014	11:15:45	12.95278	143.61944	316	2847.4	At least I thought the marker was up ahead.
728	J2-797	11/30/2014	11:17:53	12.95292	143.61958	28	2845.7	We're working our way toward Mkr-108.
732	J2-797	11/30/2014	11:20:09	12.95272	143.61952	136	2845.9	Searching around trying to find the site we were at previously - did not sample.
733	J2-797	11/30/2014	11:20:14	12.95273	143.61951	118	2846.1	Want to sample it now.
736	J2-797	11/30/2014	11:22:01	12.95262	143.61946	225	2846.1	Still searching
737	J2-797	11/30/2014	11:22:38	12.95259	143.61944	256	2845.7	The terrain here is starting to look familiar.
739	J2-797	11/30/2014	11:23:31	12.95261	143.61944	134	2844.7	The lavas here are not pillows. They are more jumbled and striated sheet flows.
745	J2-797	11/30/2014	11:28:43	12.95282	143.61911	312	2846.8	Bucket lids are an indicator that we have found the spot.
747	J2-797	11/30/2014	11:29:11	12.95282	143.61911	304	2848.3	Yippee. See shimmering water and yellow mats.
750	J2-797	11/30/2014	11:31:39	12.95284	143.61909	290	2848.2	The actual new marker position will be Marker-108 in the Jason targets file; the old was Mkr-108. The new one is correct.
752	J2-797	11/30/2014	11:32:10	12.95283	143.61910	291	2849.5	The bucket lid has #22 on it so is an old Mkr-22.
755	J2-797	11/30/2014	11:34:16	12.95284	143.61907	351	2850.0	FRAMEGRABS: HD frame grab SciCam. Lots of beautiful yellow mat at the edges of this jumbled lava "dome".
756	J2-797	11/30/2014	11:34:28	12.95284	143.61907	341	2849.9	Beautiful yellow mat in shimmering water.
759	J2-797	11/30/2014	11:36:08	12.95283	143.61906	343	2850.0	HIGHLIGHTS: Record SciCam. Getting some highlight video; have the lasers on so this area of yellow mat is about 15cm across.

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760	J2-797	11/30/2014	11:36:28	12.95283	143.61906	343	2850.0	Lasers are 10cm apart.
762	J2-797	11/30/2014	11:37:20	12.95283	143.61906	343	2850.0	Looks like some sort of hollow cavity in perhaps an old pillow?
766	J2-797	11/30/2014	11:40:41	12.95283	143.61906	343	2850.0	SENSOR: Temp. We have a "real" mat now. Temp is rising. now up to 45C and rising. The temp got up to 61.4C.
768	J2-797	11/30/2014	11:41:45	12.95283	143.61906	343	2850.0	Craig thinks it's manganese crust outside of the orange mat so its not basalt after all.
773	J2-797	11/30/2014	11:45:39	12.95283	143.61906	343	2850.0	**SAMPLE: BM. J797-BM1-A2-07.**
775	J2-797	11/30/2014	11:46:35	12.95283	143.61906	343	2850.0	**SAMPLE: BM. J797-BM1-A3-08**.
777	J2-797	11/30/2014	11:47:25	12.95283	143.61906	343	2850.0	Dumping syringe 5 so can re-fill it with a better sample.
780	J2-797	11/30/2014	11:49:33	12.95283	143.61906	343	2850.0	Syringe 5 is expelling. So that means that what was listed as sample J-797-A5-06 is now not a sample. Not going to change the sample numbers.
784	J2-797	11/30/2014	11:52:16	12.95283	143.61906	343	2850.0	**SAMPLE: J797-BM1-A5-09** sampling. Holding it upside down to push water out and collect more sample.
787	J2-797	11/30/2014	11:54:48	12.95283	143.61906	343	2850.0	J797-BM1-A5-09 sampling. Cassette A is all at Marker-108. This is a clump of yellow iron oxide mat encrusted in manganese.
789	J2-797	11/30/2014	11:55:15	12.95283	143.61906	343	2850.0	J797-BM2-A5-09 stop.
792	J2-797	11/30/2014	11:57:19	12.95283	143.61906	343	2850.0	**SAMPLE: BM J797-BM1-A4-10**. Finished.
794	J2-797	11/30/2014	11:58:34	12.95283	143.61906	343	2850.0	**SAMPLE: J797-BM1-A1-11**.
797	J2-797	11/30/2014	12:00:33	12.95283	143.61906	343	2850.0	**SAMPLE: BM J797-BM1-A6-12** will fill the cassette. The position on the log sheet is the doppler position.
799	J2-797	11/30/2014	12:01:58	12.95283	143.61906	343	2850.0	Z=2850m Doppler position is 12 57.166N; 143 37.142E. Hdg=343.
803	J2-797	11/30/2014	12:04:02	12.95283	143.61906	343	2850.0	Put cassette A in the holster. Got some decent samples of yellow fluffy mat from this area with manganese crust.
805	J2-797	11/30/2014	12:05:23	12.95283	143.61906	343	2850.0	NOTE: DID NOT USE THE SAMPLE HOT KEY FOR MANY OF THE CASSETTE A SAMPLES.
807	J2-797	11/30/2014	12:06:14	12.95283	143.61906	343	2850.0	Going too set up nearby to collect another cassette of this fluffy iron oxide mat.
809	J2-797	11/30/2014	12:07:48	12.95283	143.61906	311	2850.0	The next cassette will be D.
811	J2-797	11/30/2014	12:09:00	12.95283	143.61906	309	2850.0	Sampling another little (smaller than previous) clump of iron oxide mat.
813	J2-797	11/30/2014	12:10:00	12.95283	143.61906	309	2850.0	SAMPLE: BM. There is a valve comm error.
817	J2-797	11/30/2014	12:12:21	12.95283	143.61906	309	2850.0	**SAMPLE: BM. J797-BM1-D1-13** starting 1212.
819	J2-797	11/30/2014	12:13:54	12.95283	143.61906	309	2849.9	SAMPLE: BM. J797-BM1-D6-14 start 1213. Lots of yellow floc in the air.
822	J2-797	11/30/2014	12:15:05	12.95283	143.61906	309	2849.7	**SAMPLE: BM. J797-BM1-D5-15**. Highlights stopped. Sample done 1215.
824	J2-797	11/30/2014	12:16:26	12.95283	143.61906	309	2849.7	Flow coming out of there. Tambient is ~1.6. Going to do a temperature reading in this second area of iron mat sampling.
831	J2-797	11/30/2014	12:21:24	12.95283	143.61906	309	2849.9	SENSOR: Temp. At second cassette sampling site. Not a lot of animals in this iron mat sampling area. The first 3 samples were in T=27C range.

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833	J2-797	11/30/2014	12:22:31	12.95283	143.61906	310	2849.8	Jason has now found T=57.
835	J2-797	11/30/2014	12:23:41	12.95283	143.61906	310	2849.8	SAMPLE: BM Same spot just a little bit warmer point (57C as opposed to 27C for first 3 syringes of cassette D.
837	J2-797	11/30/2014	12:24:55	12.95283	143.61906	310	2849.9	**SAMPLE: BM. J797-BM1-D3-16** in 57C.
839	J2-797	11/30/2014	12:25:36	12.95283	143.61906	310	2849.9	**SAMPLE: BM. J797-BM1-D2-17**.
840	J2-797	11/30/2014	12:26:00	12.95283	143.61906	310	2849.9	**SAMPLE: J797-BM1-D4-18.** in 57C.
845	J2-797	11/30/2014	12:29:10	12.95283	143.61906	310	2850.3	Syringes 2;3;4 at 57C Syringes 1;5;6 at 27C. The 2 temperature regimes were within a couple inches of each other.
848	J2-797	11/30/2014	12:31:31	12.95283	143.61906	310	2850.5	Next will do some fluid sampling in the same spot we were previously sampling. Cassette D 57degree spot.
850	J2-797	11/30/2014	12:32:53	12.95283	143.61906	310	2850.5	Poking around with the HFS intake to find the high temp spot for fluid sampling.
854	J2-797	11/30/2014	12:35:22	12.95283	143.61906	310	2850.3	The temperature is going up.
858	J2-797	11/30/2014	12:38:52	12.95283	143.61906	310	2850.3	Jimmy is poking around trying to get to the spot where there was 57C water.
862	J2-797	11/30/2014	12:41:32	12.95283	143.61906	310	2850.3	**SAMPLE: HFS. J797-HFS-19.** Unfiltered bag 17. Start 1240. In area where Tmax was 24.9.
866	J2-797	11/30/2014	12:44:49	12.95283	143.61906	310	2850.3	J797-HFS-19 cont. Tmax=26 T2=12.3 Tavg=34.9 Vol=550ml. Stop 1244.
873	J2-797	11/30/2014	12:50:50	12.95283	143.61906	310	2850.2	Sensor reading for area of last HFS (and samples 13-15). Start 1245. pH=3.15v; O2=1.51ml/L. T=25C.
877	J2-797	11/30/2014	12:53:21	12.95283	143.61906	310	2850.2	Possibly going to take a HFS sample in the 57C fluid (if we can find it).
878	J2-797	11/30/2014	12:53:29	12.95283	143.61906	310	2850.2	Temp is rising.....
880	J2-797	11/30/2014	12:54:36	12.95283	143.61906	310	2850.2	Cycling the power on the HFS.
882	J2-797	11/30/2014	12:55:27	12.95283	143.61906	310	2850.1	Check out the "deer" in the SuperScorpio frame grab.
888	J2-797	11/30/2014	13:00:04	12.95283	143.61907	338	2850.2	Checking out sampling site for Cassette A samples 7-12 for possible HFS sampling.
890	J2-797	11/30/2014	13:01:40	12.95283	143.61907	338	2850.2	Jimmy shoved the HFS wand down quite deep. Now at 30C.
897	J2-797	11/30/2014	13:07:05	12.95283	143.61907	338	2850.1	**SAMPLE: HFS. J797-HFS-20** unfiltered piston #1. Start 1302. Stop 1306. Tmax=29.6 Tavg=28.5 T2=8 Vol=603ml.
899	J2-797	11/30/2014	13:08:26	12.95283	143.61907	338	2850.1	Jimmy is trying to find higher temperature in this area.
902	J2-797	11/30/2014	13:10:38	12.95283	143.61907	338	2850.1	Found 60C at the place where the first cassette samples were collected.
908	J2-797	11/30/2014	13:15:39	12.95283	143.61907	338	2850.1	**SAMPLE: HFS. J797-HFS-21.** Unfiltered piston #3. Start 1311. Tmax=56.9 Tavg=51.9 T2=6.2 Vol=602ml. Stop 1315.
913	J2-797	11/30/2014	13:18:24	12.95283	143.61908	34	2849.5	Next task will be to do a photomosaic with the super scorpio around the area where there was all the biota and settling trays.
915	J2-797	11/30/2014	13:19:06	12.95285	143.61910	34	2848.8	Heading out now.
916	J2-797	11/30/2014	13:19:54	12.95285	143.61910	32	2849.0	Green ochre looking basalt.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
921	J2-797	11/30/2014	13:23:09	12.95285	143.61910	32	2849.0	Shimmering water. Temp probe T=47. Jimmy wants to poke under rock where it might be hotter. Might be iron mound covered in manganese.
924	J2-797	11/30/2014	13:25:18	12.95284	143.61910	32	2849.1	Second Temp: high point T=57.
929	J2-797	11/30/2014	13:29:25	12.95296	143.61924	41	2851.2	Found marker again. Moving to area where we'll be doing photomosaic (ODP).
930	J2-797	11/30/2014	13:29:41	12.95297	143.61926	58	2851.1	Shimmering water.
935	J2-797	11/30/2014	13:33:18	12.95296	143.61926	45	2851.4	Stop to take Temp T=79.8.
937	J2-797	11/30/2014	13:34:47	12.95295	143.61927	44	2851.6	Try another spot to take Temp. T=80.
940	J2-797	11/30/2014	13:36:08	12.95295	143.61927	44	2851.7	Poking where shimmering water was coming out. Taking another Temp- more flow than we've seen in last 3 hrs.
944	J2-797	11/30/2014	13:39:35	12.95304	143.61936	36	2848.6	Found out that the highlights video pulldown was on the wrong setting. May not have recorded last highlight clip.
945	J2-797	11/30/2014	13:39:57	12.95306	143.61933	24	2848.3	Moving on toward the photomosaic.
951	J2-797	11/30/2014	13:44:48	12.95313	143.61932	20	2844.0	JASON shift change
954	J2-797	11/30/2014	13:47:01	12.95315	143.61935	10	2843.3	Heather on as watch leader.
957	J2-797	11/30/2014	13:48:12	12.95315	143.61935	10	2843.3	Preparing for photomosaic.
958	J2-797	11/30/2014	13:48:20	12.95315	143.61935	10	2843.3	In epicenter now.
961	J2-797	11/30/2014	13:50:53	12.95315	143.61935	10	2843.3	Photomosaic planned for 25 meter box; with Stace 5 in the middle.
964	J2-797	11/30/2014	13:52:08	12.95315	143.61935	10	2843.3	Going to start in the bottom left corner of the photomosaic box.
966	J2-797	11/30/2014	13:53:28	12.95315	143.61936	10	2843.2	Looking at Marker 25 now.
968	J2-797	11/30/2014	13:54:11	12.95313	143.61935	10	2842.6	Doing a check of where we are before we start.
969	J2-797	11/30/2014	13:54:58	12.95309	143.61931	7	2843.4	Trying to locate Marker 24.
972	J2-797	11/30/2014	13:56:47	12.95308	143.61933	1	2846.0	Found marker 24 so now we have a reference to move to where we want to start. Marker 24 is around center of planned photomosaic box.
975	J2-797	11/30/2014	13:58:19	12.95308	143.61933	1	2842.2	NAV: Doppler Reset.
978	J2-797	11/30/2014	14:00:39	12.95296	143.61927	2	2844.1	Super Scorpio will be used for photomosaic.
980	J2-797	11/30/2014	14:01:10	12.95297	143.61920	1	2844.3	Still moving into position.
984	J2-797	11/30/2014	14:04:51	12.95298	143.61921	2	2848.7	In location. Start position for photomosaic is 12deg 57.1791N 143deg 37.1516E
986	J2-797	11/30/2014	14:05:02	12.95300	143.61921	1	2848.2	Start photomosaic.
987	J2-797	11/30/2014	14:05:38	12.95301	143.61921	1	2847.7	Terrain is all basalts; not much biota.
989	J2-797	11/30/2014	14:06:32	12.95305	143.61921	1	2847.4	Moving at about 4m from bottom.
991	J2-797	11/30/2014	14:07:32	12.95308	143.61921	1	2848.0	Stepping to starboard 4 meters.
993	J2-797	11/30/2014	14:08:16	12.95310	143.61921	1	2846.7	Pictures being taken every 5 seconds.
995	J2-797	11/30/2014	14:09:16	12.95316	143.61921	1	2845.3	Some orange patches on bottom; mostly black basalts.
997	J2-797	11/30/2014	14:10:06	12.95319	143.61921	360	2845.0	Rattail fish.
998	J2-797	11/30/2014	14:10:10	12.95319	143.61921	360	2845.1	Stepping starboard 4m
1000	J2-797	11/30/2014	14:11:23	12.95319	143.61923	1	2845.2	Determining if sidestep gives enough overlap in photos.
1001	J2-797	11/30/2014	14:11:28	12.95319	143.61923	1	2845.1	Went back 2 meters.
1002	J2-797	11/30/2014	14:11:43	12.95319	143.61923	0	2845.1	Staying between 3 and 4 meters from bottom.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
1004	J2-797	11/30/2014	14:12:40	12.95315	143.61924	1	2845.6	From original pass moving 3 meters over.
1006	J2-797	11/30/2014	14:13:10	12.95312	143.61924	1	2845.2	25 meter passes back and forth.
1009	J2-797	11/30/2014	14:15:34	12.95296	143.61923	1	2849.7	Would like to add scale to the photomosaic. Can maybe use lasers from SciCam.
1011	J2-797	11/30/2014	14:16:30	12.95296	143.61926	1	2849.2	Switching screen grabs to sci cam so we can scale with lasers.
1013	J2-797	11/30/2014	14:17:22	12.95297	143.61926	2	2849.0	Onto next pass. Moving 25 meters forward.
1015	J2-797	11/30/2014	14:18:35	12.95302	143.61926	2	2845.9	Terrain consistent. Black basalts. Some sparse patches of white and yellow.
1020	J2-797	11/30/2014	14:22:04	12.95319	143.61928	1	2844.5	Moving 3 meters to starboard for next 25 meter pass.
1021	J2-797	11/30/2014	14:22:44	12.95319	143.61930	2	2844.5	Stepping aft 25 meters.
1022	J2-797	11/30/2014	14:22:59	12.95317	143.61930	0	2843.0	Marker spotted. Can't see which one it is.
1025	J2-797	11/30/2014	14:24:06	12.95308	143.61929	1	2843.4	Frame grabs with lasers taken.
1028	J2-797	11/30/2014	14:24:39	12.95304	143.61929	1	2844.1	Shimmering water. Some biota on rock surface.
1029	J2-797	11/30/2014	14:25:01	12.95301	143.61929	0	2844.8	Anemones!
1032	J2-797	11/30/2014	14:26:59	12.95299	143.61932	2	2846.5	Next pass; 25m ahead.
1035	J2-797	11/30/2014	14:28:35	12.95312	143.61932	0	2840.6	Mound with bucket lid.
1037	J2-797	11/30/2014	14:29:26	12.95319	143.61933	1	2840.0	Moving at 8 meters from bottom.
1038	J2-797	11/30/2014	14:29:36	12.95320	143.61933	1	2840.1	Back down to 5.8 meters from bottom.
1040	J2-797	11/30/2014	14:30:31	12.95318	143.61935	1	2839.9	Back 25 meters.
1041	J2-797	11/30/2014	14:30:51	12.95315	143.61935	359	2839.8	Each step still 3 meters to starboard.
1045	J2-797	11/30/2014	14:33:22	12.95296	143.61934	2	2847.2	Old basalts. Not very interesting terrain.
1046	J2-797	11/30/2014	14:33:46	12.95296	143.61936	0	2846.5	Moving right.
1048	J2-797	11/30/2014	14:34:17	12.95297	143.61937	0	2846.7	Next 25 meters.
1051	J2-797	11/30/2014	14:36:44	12.95317	143.61938	2	2840.0	Might be a good spot for macrobiota sampling.
1053	J2-797	11/30/2014	14:37:48	12.95319	143.61941	2	2841.8	Location for possible macrobiology sampling: 12deg 57.1904N 143deg 37.1622
1055	J2-797	11/30/2014	14:38:22	12.95316	143.61941	359	2842.1	Some kind of snail. Phymorhynchus maybe.
1056	J2-797	11/30/2014	14:38:26	12.95315	143.61941	360	2842.5	Moving back 25 meters.
1059	J2-797	11/30/2014	14:40:45	12.95296	143.61940	360	2846.5	4 meters from bottom.
1061	J2-797	11/30/2014	14:41:04	12.95296	143.61940	2	2846.5	End photomosaic.
1062	J2-797	11/30/2014	14:41:38	12.95300	143.61939	1	2846.2	Going back to snail location to see if it's a good spot to drop settlement plates.
1064	J2-797	11/30/2014	14:42:51	12.95314	143.61937	329	2843.3	There's a marker on top of mound.
1066	J2-797	11/30/2014	14:43:11	12.95314	143.61937	336	2843.5	Crabs anemones lots of flow.
1067	J2-797	11/30/2014	14:43:20	12.95314	143.61937	336	2843.6	Marker 20.
1069	J2-797	11/30/2014	14:44:18	12.95315	143.61939	315	2843.7	Lots of shimmering water. Going to look at snails.
1071	J2-797	11/30/2014	14:45:59	12.95317	143.61940	258	2843.6	Lots of crabs; snails; shrimp. Crack in rock good spot for traps. Slow venting; shimmering water. Rocks orange around edges maybe very thin iron mat.
1073	J2-797	11/30/2014	14:46:34	12.95317	143.61939	264	2844.5	Settling Jason to get temperature.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
1075	J2-797	11/30/2014	14:47:38	12.95317	143.61939	263	2844.5	FRAMEGRABS: HD frame grab SciCam. Temperature probe.
1077	J2-797	11/30/2014	14:48:23	12.95317	143.61939	263	2844.5	FRAMEGRABS: HD frame grab PilotCam. Temp probe of possible settlement site
1078	J2-797	11/30/2014	14:48:34	12.95317	143.61939	263	2844.5	Marker 20.
1079	J2-797	11/30/2014	14:48:58	12.95317	143.61939	263	2844.5	FRAMEGRABS: HD frame grab BrowCam. Crab site.
1082	J2-797	11/30/2014	14:51:00	12.95317	143.61939	263	2844.5	FRAMEGRABS: HD frame grab BrowCam. Anemones snails
1084	J2-797	11/30/2014	14:51:12	12.95317	143.61939	263	2844.5	FRAMEGRABS: HD frame grab PilotCam. Temp reached 12C at site where placing settlement traps.
1085	J2-797	11/30/2014	14:51:18	12.95317	143.61939	263	2844.4	Temp 12C.
1088	J2-797	11/30/2014	14:53:10	12.95317	143.61939	263	2844.5	Moving probe around. In group of snails temp still rising past 40C.
1089	J2-797	11/30/2014	14:53:31	12.95317	143.61939	263	2844.5	Temp around 41C.
1091	J2-797	11/30/2014	14:54:56	12.95317	143.61939	263	2844.5	Max temp 44.5C.
1094	J2-797	11/30/2014	14:56:38	12.95317	143.61939	263	2844.5	**Depl/Rec: Deploy J797-SPlate1**.
1096	J2-797	11/30/2014	14:57:42	12.95317	143.61939	263	2844.4	Setting SPlate1 right off to side of venting.
1098	J2-797	11/30/2014	14:58:39	12.95317	143.61939	263	2844.5	FRAMEGRABS: HD frame grab BrowCam.
1100	J2-797	11/30/2014	14:59:38	12.95317	143.61939	263	2844.5	Temp 2.5C on top in middle of SPlate1.
1103	J2-797	11/30/2014	15:01:14	12.95317	143.61939	263	2844.5	Tmax= 4.2C at bottom of SPlate1.
1105	J2-797	11/30/2014	15:02:38	12.95317	143.61939	263	2844.5	Discussing where to put other settlement traps. Want to put them near each other.
1107	J2-797	11/30/2014	15:03:31	12.95317	143.61939	263	2844.5	2 more sets of SPlates.
1108	J2-797	11/30/2014	15:03:57	12.95317	143.61939	263	2844.5	**Depl/Rec: Deploy J797-SPlate2.**
1110	J2-797	11/30/2014	15:04:26	12.95317	143.61939	263	2844.5	J797-SPlate2 placed on back side of crack so not directly in flow.
1111	J2-797	11/30/2014	15:04:34	12.95317	143.61939	263	2844.5	FRAMEGRABS: HD frame grab BrowCam. SPlate2.
1113	J2-797	11/30/2014	15:05:20	12.95317	143.61939	263	2844.5	Not going to deploy third settlement plate at this site.
1114	J2-797	11/30/2014	15:05:26	12.95317	143.61939	263	2844.5	Doing temp probe of SPlate2.
1116	J2-797	11/30/2014	15:06:52	12.95317	143.61939	263	2844.5	Temp on top of SPlate2 is 8.76C.
1118	J2-797	11/30/2014	15:07:56	12.95317	143.61939	263	2844.5	HIGHLIGHTS: Record BrowCam. Temp probe of SPlate2.
1121	J2-797	11/30/2014	15:09:05	12.95317	143.61939	262	2844.5	First temp measurement was taken on side closer to venting; second temp measurement of SPlate2 on far side. Tmax on far side =4.9C
1122	J2-797	11/30/2014	15:09:14	12.95317	143.61939	261	2844.6	HIGHLIGHTS: End Highlights.
1123	J2-797	11/30/2014	15:09:31	12.95317	143.61939	262	2844.5	Going to take highlight video surveying area.
1124	J2-797	11/30/2014	15:09:37	12.95317	143.61939	263	2844.5	HIGHLIGHTS: Record BrowCam.
1128	J2-797	11/30/2014	15:12:09	12.95317	143.61939	264	2844.5	HIGHLIGHTS: End Highlights.
1129	J2-797	11/30/2014	15:12:33	12.95317	143.61939	264	2844.6	Done with J797-SPlate1 and J797-SPlate2.
1131	J2-797	11/30/2014	15:13:21	12.95321	143.61939	203	2845.0	Those were Stace's settlement plates.
1132	J2-797	11/30/2014	15:13:36	12.95321	143.61939	184	2845.5	Now looking for a sight to deploy Shawn's settlement plates.
1133	J2-797	11/30/2014	15:13:57	12.95322	143.61938	167	2845.1	Looking for diffuse fluid. See spot with snails and shimmering water.
1136	J2-797	11/30/2014	15:15:14	12.95321	143.61939	186	2845.5	FRAMEGRABS: HD frame grab PilotCam.
1139	J2-797	11/30/2014	15:17:07	12.95321	143.61939	186	2845.4	Will place Shawn's plates on other side of crack from Stace's. Same vent.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
1140	J2-797	11/30/2014	15:17:15	12.95321	143.61939	186	2845.5	Getting temp.
1143	J2-797	11/30/2014	15:19:14	12.95321	143.61939	188	2845.0	**Depl/Rec: Deploy J797-SPlate1sma**.
1145	J2-797	11/30/2014	15:20:47	12.95320	143.61939	190	2845.1	Taking temp before placing plate.
1148	J2-797	11/30/2014	15:22:19	12.95320	143.61939	190	2845.1	Tmax=17.36C.
1150	J2-797	11/30/2014	15:23:20	12.95320	143.61939	191	2845.1	Placing J797-SPlate1sma.
1151	J2-797	11/30/2014	15:23:44	12.95320	143.61939	190	2845.2	Taking temp on bottom and top of plate.
1153	J2-797	11/30/2014	15:24:40	12.95320	143.61939	189	2845.1	HIGHLIGHTS: Record SciCam. Taking temp of J797-SPlate1sma.
1155	J2-797	11/30/2014	15:25:24	12.95320	143.61939	189	2845.1	Tmax=4.51C at top outer edge of plate.
1157	J2-797	11/30/2014	15:26:11	12.95320	143.61939	189	2845.2	Tmax= 3.09C at bottom edge of plate.
1158	J2-797	11/30/2014	15:26:30	12.95320	143.61939	189	2845.2	HIGHLIGHTS: End Highlights.
1160	J2-797	11/30/2014	15:27:02	12.95320	143.61939	189	2845.1	FRAMEGRABS: HD frame grab PilotCam. Temp reached 12C at site where placing settlement traps.
1161	J2-797	11/30/2014	15:27:37	12.95320	143.61939	190	2845.2	HIGHLIGHTS: Record BrowCam J797-SPlate1sma.
1164	J2-797	11/30/2014	15:29:43	12.95320	143.61939	189	2845.1	HIGHLIGHTS: End Highlights.
1166	J2-797	11/30/2014	15:30:18	12.95320	143.61939	189	2845.1	Video was not recording. Going to re-do video.
1167	J2-797	11/30/2014	15:30:31	12.95320	143.61939	189	2845.1	HIGHLIGHTS: Record BrowCam.
1169	J2-797	11/30/2014	15:31:31	12.95320	143.61939	189	2845.2	Recording placement of J797-SPlate1sma and can see relation to J797-SPlate1 and J797-SPlate2.
1171	J2-797	11/30/2014	15:32:59	12.95320	143.61939	189	2845.2	HIGHLIGHTS: End Highlights.
1174	J2-797	11/30/2014	15:34:28	12.95322	143.61938	160	2843.9	Next going to ODP-A for hot water.
1182	J2-797	11/30/2014	15:41:07	12.95306	143.61949	47	2847.3	Change of plans. Headed to marker 24.
1184	J2-797	11/30/2014	15:42:46	12.95307	143.61933	299	2846.5	ODP-A marker on navigation system may be offset.
1186	J2-797	11/30/2014	15:43:02	12.95307	143.61934	300	2846.7	Looking for hot water to sample that we found at 07:00.
1190	J2-797	11/30/2014	15:46:13	12.95309	143.61932	349	2846.9	FRAMEGRABS: HD frame grab BrowCam. Temp probe looking for high temps.
1192	J2-797	11/30/2014	15:47:40	12.95309	143.61932	349	2846.9	Plan: Both majors; gas tights; HFS with filtered piston.
1193	J2-797	11/30/2014	15:48:02	12.95309	143.61932	349	2846.9	Tmax so far 79C.
1195	J2-797	11/30/2014	15:48:34	12.95309	143.61932	349	2846.9	White sulfur coating surface.
1196	J2-797	11/30/2014	15:48:35	12.95309	143.61932	349	2846.9	Shrimp.
1197	J2-797	11/30/2014	15:48:44	12.95309	143.61932	349	2846.9	Tmax=164C.
1199	J2-797	11/30/2014	15:49:17	12.95309	143.61932	349	2846.9	Will start with fluid sampler in same spot where probe is.
1200	J2-797	11/30/2014	15:49:23	12.95309	143.61932	349	2846.9	FRAMEGRABS: HD frame grab BrowCam.
1205	J2-797	11/30/2014	15:53:36	12.95309	143.61932	351	2847.0	FRAMEGRABS: HD frame grab PilotCam. Looking for best stream of hot water coming out of rock faces. Lots of shrimp
1207	J2-797	11/30/2014	15:54:02	12.95309	143.61932	352	2847.0	Reading temps around 60C.
1209	J2-797	11/30/2014	15:55:26	12.95310	143.61931	11	2846.7	Still looking for best spot. 2 different kinds of shrimp: big and small.
1212	J2-797	11/30/2014	15:57:51	12.95310	143.61931	9	2846.6	Reading 70C.
1215	J2-797	11/30/2014	15:59:13	12.95310	143.61932	11	2846.6	Looking for a hotter spot on the same rock face.
1218	J2-797	11/30/2014	16:01:37	12.95310	143.61932	10	2846.7	Sticking the sampler deeper into the vent flow.
1219	J2-797	11/30/2014	16:01:44	12.95310	143.61932	10	2846.7	80C.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
1221	J2-797	11/30/2014	16:02:14	12.95310	143.61932	9	2846.7	Still going up.
1222	J2-797	11/30/2014	16:02:17	12.95310	143.61932	9	2846.7	100C.
1224	J2-797	11/30/2014	16:03:27	12.95310	143.61932	10	2846.6	Reached 120C. Going to try to jam it in more to get higher temp.
1227	J2-797	11/30/2014	16:05:52	12.95310	143.61932	10	2846.8	Black particles crumble away when wand pushed into white/sulfur.
1230	J2-797	11/30/2014	16:07:08	12.95310	143.61933	13	2846.8	Not finding high temps. Re-positioning the probe.
1231	J2-797	11/30/2014	16:07:51	12.95310	143.61933	12	2846.8	Temps rising!
1233	J2-797	11/30/2014	16:08:30	12.95310	143.61933	17	2847.0	Jason got pulled off Tmax was 184.7C.
1234	J2-797	11/30/2014	16:08:42	12.95310	143.61933	21	2846.1	Will try to get back to that spot.
1237	J2-797	11/30/2014	16:10:29	12.95309	143.61932	347	2846.8	Probe back in hot flow.
1239	J2-797	11/30/2014	16:11:33	12.95309	143.61932	347	2846.7	SAMPLE: HFS Tmax=146C.
1242	J2-797	11/30/2014	16:13:12	12.95309	143.61932	346	2846.8	Moved probe over a few inches.
1243	J2-797	11/30/2014	16:13:49	12.95309	143.61932	346	2846.8	Less than that; only a few centimeters.
1245	J2-797	11/30/2014	16:14:31	12.95309	143.61932	346	2846.8	**SAMPLE: J797-HFS-22** Filtered piston #2. Start=16:14:01.
1246	J2-797	11/30/2014	16:14:44	12.95309	143.61932	346	2846.8	Frame_Grab:
1247	J2-797	11/30/2014	16:14:57	12.95309	143.61932	346	2846.8	FRAMEGRABS: HD frame grab BrowCam.
1251	J2-797	11/30/2014	16:17:38	12.95309	143.61932	347	2846.8	SAMPLE: HFS. J797-HFS-22 cont. Filtered Piston #2 Tmax=182.6C Tavg=162.8C T2=41.2C Vol=478ml Stop=16:16:57 Location: Marker 24.
1253	J2-797	11/30/2014	16:18:26	12.95309	143.61932	347	2846.8	**SAMPLE: HFS. J797-HFS-23** Unfiltered Piston #5 Start= 16:18:21.
1254	J2-797	11/30/2014	16:18:34	12.95309	143.61932	347	2846.8	SAMPLE: HFS. Temp up to 190C.
1259	J2-797	11/30/2014	16:21:40	12.95309	143.61932	347	2846.8	SAMPLE: HFS. J797-HFS-23 cont. Unfiltered Piston #5 Tmax=191.5C Tavg=175.0C T2=46C Vol=473ml Stop=16:21:21 Location= 12deg 57.1870N 143deg 37.1595E.
1261	J2-797	11/30/2014	16:22:17	12.95309	143.61932	347	2846.7	Will collect one gas tight off the Beast.
1264	J2-797	11/30/2014	16:24:11	12.95309	143.61932	347	2846.7	**SAMPLE: GTHFS. J797-GTHFS-24 purple**.
1265	J2-797	11/30/2014	16:24:37	12.95309	143.61932	347	2846.7	SAMPLE: GTHFS. J797-GTHFS-24 Purple Temp:174C.
1266	J2-797	11/30/2014	16:24:49	12.95309	143.61932	347	2846.7	Next will fire both Majors.
1268	J2-797	11/30/2014	16:25:36	12.95309	143.61932	347	2846.7	Note: Purple GTHFS is Port.
1273	J2-797	11/30/2014	16:29:06	12.95309	143.61932	348	2846.7	SAMPLE: Major. J797-Major-25 White into same flow site.
1274	J2-797	11/30/2014	16:29:26	12.95309	143.61932	347	2846.7	Fluid coming out of hole in Major= good sign.
1275	J2-797	11/30/2014	16:29:36	12.95309	143.61932	348	2846.7	Frame_Grab:
1276	J2-797	11/30/2014	16:29:57	12.95309	143.61932	347	2846.7	FRAMEGRABS: HD frame grab BrowCam. J797-Major-25 White.
1278	J2-797	11/30/2014	16:30:30	12.95309	143.61932	348	2846.7	**SAMPLE: Major. Firing J797-Major-25 White**.
1280	J2-797	11/30/2014	16:31:33	12.95309	143.61932	347	2846.7	Done with J797-Major-25 White. Retracted.
1281	J2-797	11/30/2014	16:31:43	12.95309	143.61932	348	2846.7	Same spot for next major.
1285	J2-797	11/30/2014	16:34:30	12.95309	143.61932	348	2846.7	**SAMPLE: Major. J797-Major-26**. Getting Major Red set up for same spot in high temp flow surrounded by sulfur mats and shrimp. Where HFS was collected.
1288	J2-797	11/30/2014	16:36:59	12.95309	143.61932	347	2846.7	J797-Major-26 Red firing even though can't see water coming out of hole.
1291	J2-797	11/30/2014	16:38:09	12.95309	143.61932	347	2846.7	FRAMEGRABS: HD frame grab BrowCam.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
1292	J2-797	11/30/2014	16:38:56	12.95309	143.61932	347	2846.7	SAMPLE: Major J797-Major-26 Red done; putting away. Not there is flow coming out of hole...hopefully we got a sample.
1294	J2-797	11/30/2014	16:39:23	12.95309	143.61932	347	2846.7	CORRECTION: NOW there is flow coming out of the hole.
1295	J2-797	11/30/2014	16:39:57	12.95309	143.61932	347	2846.7	Next will take sample with the independent gas tight bottle.
1299	J2-797	11/30/2014	16:42:57	12.95309	143.61932	347	2846.7	**SAMPLE: GTB. J797-GTB-27 Red**.
1301	J2-797	11/30/2014	16:43:53	12.95309	143.61932	347	2846.7	FRAMEGRABS: HD frame grab BrowCam. J797-GTB-27 Red.
1303	J2-797	11/30/2014	16:44:12	12.95309	143.61932	347	2846.7	SAMPLE: GTB. J797-GTB-27 Red Plunging now.
1304	J2-797	11/30/2014	16:44:34	12.95309	143.61932	347	2846.7	SAMPLE: GTB J797-GTB-27 Coming out.
1306	J2-797	11/30/2014	16:45:24	12.95309	143.61932	348	2846.7	Location still 12deg 57.1870N 143deg 37.1595E.
1308	J2-797	11/30/2014	16:46:49	12.95309	143.61932	347	2846.8	Last task at this site before heading to elevator will be to grab a rock from the overhang where fluid was sampled from.
1312	J2-797	11/30/2014	16:49:28	12.95310	143.61932	357	2846.8	SAMPLE: Rock. Since there are settlement plates already in the biobox the claw will hold on to the rock as we go to elevator and hope it doesn't crumble.
1314	J2-797	11/30/2014	16:50:20	12.95310	143.61933	357	2846.8	**SAMPLE: Rock. J797-Rock-28**
1315	J2-797	11/30/2014	16:50:54	12.95310	143.61933	357	2846.8	FRAMEGRABS: HD frame grab BrowCam.
1317	J2-797	11/30/2014	16:51:59	12.95691	143.61482	353	2844.5	SAMPLE: Rock. J797-Rock-28 cont. Rock could not be collected because not solid enough. Crumbled. Sample does not exist but next sample will still be 29.
1319	J2-797	11/30/2014	16:52:06	12.95690	143.61483	359	2844.9	Headed to elevator.
1321	J2-797	11/30/2014	16:53:35	12.95776	143.61370	243	2847.5	Will take about 47 minutes to go the 200 meters to the elevator.
1331	J2-797	11/30/2014	17:02:09	12.95867	143.61273	134	2848.4	Still moving.
1343	J2-797	11/30/2014	17:13:20	12.95709	143.61390	193	2851.7	Still on way.
1344	J2-797	11/30/2014	17:13:43	12.95709	143.61390	194	2851.8	Found old rusted weight stack colonized by iron-oxidizing bacteria.
1352	J2-797	11/30/2014	17:20:27	12.95578	143.61501	195	2844.0	No change.
1366	J2-797	11/30/2014	17:33:59	12.95176	143.61838	195	2843.9	Purple sea cucumber.
1368	J2-797	11/30/2014	17:34:55	12.95176	143.61838	195	2843.8	Sea cucumber dancing.
1370	J2-797	11/30/2014	17:35:23	12.95172	143.61841	194	2843.3	HIGHLIGHTS: Record SciCam peniagonae (maybe). Sea cucumber.
1372	J2-797	11/30/2014	17:36:40	12.95172	143.61840	191	2842.2	HIGHLIGHTS: End Highlights.
1374	J2-797	11/30/2014	17:37:38	12.95147	143.61846	197	2842.5	Elevator spotted.
1378	J2-797	11/30/2014	17:40:57	12.95106	143.61878	204	2845.5	Beginning to load elevator.
1381	J2-797	11/30/2014	17:42:50	12.95106	143.61878	204	2845.5	Switching out majors.
1388	J2-797	11/30/2014	17:48:42	12.95104	143.61880	204	2845.5	Shift change.
1394	J2-797	11/30/2014	17:54:00	12.95104	143.61880	204	2845.5	Discussing our next moves.
1400	J2-797	11/30/2014	17:58:33	12.95104	143.61881	204	2845.5	Still discussing order of upcoming events.
1407	J2-797	11/30/2014	18:04:08	12.95092	143.61892	272	2845.5	Swapping the biomat samplers in the elevator.
1412	J2-797	11/30/2014	18:08:16	12.95091	143.61893	271	2845.4	Cassette B; port four has no O-ring.
1415	J2-797	11/30/2014	18:10:21	12.95090	143.61894	272	2845.4	Two new biomat samplers are stowed in the basket on Jason.
1420	J2-797	11/30/2014	18:14:46	12.95102	143.61884	272	2844.0	Next task is to collect two RNAlater scoops from the elevator.
1425	J2-797	11/30/2014	18:18:53	12.95140	143.61840	81	2845.4	One RNAlater scoop is on Jason.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
1427	J2-797	11/30/2014	18:19:21	12.95140	143.61840	81	2845.4	Placing the red gas tight on the elevator.
1429	J2-797	11/30/2014	18:20:49	12.95139	143.61841	82	2845.4	Gas tight is on the elevator.
1434	J2-797	11/30/2014	18:24:21	12.95137	143.61844	82	2845.4	Getting the second RNAlater scoop.
1440	J2-797	11/30/2014	18:29:59	12.95142	143.61840	81	2845.3	Discussing whether or not to move the Beaulieu settlement plates to the elevator.
1444	J2-797	11/30/2014	18:32:14	12.95145	143.61835	82	2845.3	For necessity of sampling capacity on Jason we are moving the Beaulieu plates to the elevator.
1446	J2-797	11/30/2014	18:33:36	12.95146	143.61833	90	2845.3	Closing the biobox on the elevator.
1450	J2-797	11/30/2014	18:36:51	12.95131	143.61847	90	2845.4	Collecting the Big Boy scoop from the elevator.
1453	J2-797	11/30/2014	18:38:27	12.95122	143.61856	91	2845.4	Trying to look in the port swing arm biobox to see if anything fell off the Beaulieu settlement plates.
1456	J2-797	11/30/2014	18:40:03	12.95121	143.61857	91	2845.4	Big Boy scoop is on Jason.
1458	J2-797	11/30/2014	18:41:24	12.95127	143.61850	117	2845.0	We are done moving equipment to/from the elevator.
1460	J2-797	11/30/2014	18:42:09	12.95103	143.61878	236	2844.4	Getting ready to release the elevator.
1463	J2-797	11/30/2014	18:44:04	12.95153	143.61823	260	2845.3	Removing the weights from the elevator.
1465	J2-797	11/30/2014	18:45:09	12.95190	143.61782	260	2845.4	Releasing the elevator.
1466	J2-797	11/30/2014	18:45:42	12.95194	143.61780	260	2844.8	Up up and away!!
1468	J2-797	11/30/2014	18:46:39	12.95217	143.61758	260	2843.9	And now...we wait.
1472	J2-797	11/30/2014	18:49:45	12.95018	143.61949	259	2838.0	Looking at maps of Urashima and Pika to plan the next steps.
1475	J2-797	11/30/2014	18:51:48	12.95115	143.61793	259	2822.2	Jason is moving away to wait while the elevator surfaces. Should take around 90 minutes.
1553	J2-797	11/30/2014	20:09:00	12.95086	143.61659	47	2602.1	The elevator is at the surface.
1587	J2-797	11/30/2014	20:40:22	12.94951	143.61555	41	2602.0	Elevator is on deck.
1591	J2-797	11/30/2014	20:43:51	12.94921	143.61555	36	2602.1	Biomat sampler cassette A was lost when the line on the elevator snapped.
1597	J2-797	11/30/2014	20:48:34	12.94900	143.61540	28	2602.1	Beginning our transit to the Urashima site that is roughly 5km away.
1777	J2-797	11/30/2014	23:47:47	12.92221	143.64707	313	2602.0	The ship is on site. Waiting for Medea to catch up.
1785	J2-797	11/30/2014	23:54:23	12.92288	143.64649	313	2772.4	Depth should be 2920-2930 m.
1792	J2-797	12/1/2014	00:00:11	12.92109	143.64866	313	2900.0	NAV: Doppler Reset.
URASHIMA SITE								
1795	J2-797	12/1/2014	00:03:01	12.92137	143.64855	51	2928.3	Jason on bottom.
1799	J2-797	12/1/2014	00:03:28	12.92159	143.64841	51	2927.6	Just went over an old chimney. Lots of sediment.
1802	J2-797	12/1/2014	00:05:18	12.92187	143.64820	55	2926.9	Baltan chimney should be about 30 m to the east of where we are according to the nav.
1806	J2-797	12/1/2014	00:07:26	12.92192	143.64824	37	2920.9	We're on the bottom. First task is to find some of these chimneys.
1808	J2-797	12/1/2014	00:08:03	12.92193	143.64825	36	2919.5	That looks like some old; weathered; falling apart; iron-stained rock here.
1811	J2-797	12/1/2014	00:10:48	12.92194	143.64826	39	2918.1	Getting our bearing and putting in a nav underlay so we have a better idea where we are.
1820	J2-797	12/1/2014	00:18:28	12.92195	143.64826	38	2914.8	Pretty barren-looking around here.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
1826	J2-797	12/1/2014	00:23:34	12.92195	143.64826	38	2914.8	We have been stationary for about 5-10 min trying to get a map underlay on the nav screen.
1830	J2-797	12/1/2014	00:26:11	12.92183	143.64831	147	2921.7	Jason is driving east paralleling a slope.
1831	J2-797	12/1/2014	00:26:27	12.92181	143.64832	147	2921.7	Lots of sediment and few rocks sticking out.
1832	J2-797	12/1/2014	00:27:01	12.92172	143.64837	155	2919.8	We are driving toward some targets on the forward-looking sonar.
1834	J2-797	12/1/2014	00:27:20	12.92166	143.64838	159	2916.8	Some rock outcrops now.
1835	J2-797	12/1/2014	00:27:45	12.92160	143.64840	154	2913.2	Crossing a ridge of talus blocks.
1837	J2-797	12/1/2014	00:28:27	12.92162	143.64838	155	2915.3	Decided this is too shallow. Targets are 2920-2930m depth.
1839	J2-797	12/1/2014	00:29:52	12.92177	143.64827	146	2921.7	We are backing up toward the NW.
1842	J2-797	12/1/2014	00:31:40	12.92185	143.64830	110	2926.6	Back near the ridge where we started but we're deeper.
1843	J2-797	12/1/2014	00:31:56	12.92185	143.64830	98	2926.7	Some old chimneys.
1846	J2-797	12/1/2014	00:33:38	12.92185	143.64822	24	2926.6	Driving north now.
1851	J2-797	12/1/2014	00:37:24	12.92186	143.64821	26	2926.6	Talus-covered slope over sedimented seafloor.
1852	J2-797	12/1/2014	00:37:32	12.92186	143.64821	26	2926.6	Not much life here at all.
1855	J2-797	12/1/2014	00:39:35	12.92182	143.64829	40	2926.6	Rattail.
1857	J2-797	12/1/2014	00:40:40	12.92180	143.64831	109	2926.5	Odd-looking little weathered chimneys in hydrothermal-looking yellowish sediments.
1859	J2-797	12/1/2014	00:41:31	12.92178	143.64834	144	2924.6	Possible white mat on the seafloor overlain on the thick sediments.
1862	J2-797	12/1/2014	00:43:43	12.92176	143.64834	39	2924.6	Could not get the nav underlay to work so only are diving on the targets.
1863	J2-797	12/1/2014	00:43:55	12.92177	143.64834	39	2924.8	Very thick sediments here.
1865	J2-797	12/1/2014	00:44:41	12.92177	143.64835	80	2924.7	FRAMEGRABS: HD frame grab SciCam. Frame grabs with the sci cam and Super Scorpio cameras of the odd-looking little chimneys (?) and thick sediments.
1867	J2-797	12/1/2014	00:45:04	12.92177	143.64834	55	2924.6	Can see ripples on the seafloor.
1869	J2-797	12/1/2014	00:46:35	12.92183	143.64840	44	2924.7	Moving over some small; weathered; chimney-like features. Obviously extinct.
1870	J2-797	12/1/2014	00:46:45	12.92183	143.64841	44	2924.7	In search of the Baltan chimney.
1873	J2-797	12/1/2014	00:48:04	12.92187	143.64845	89	2924.1	FRAMEGRABS: HD frame grab SciCam. Frame grabs of the thick sediments on the seafloor here.
1875	J2-797	12/1/2014	00:49:29	12.92186	143.64852	51	2923.5	Not much here. Just sediment as far as we can see with an occasional bunch of rocks (talus?)
1877	J2-797	12/1/2014	00:50:16	12.92185	143.64854	52	2923.6	Sonar is set at 50m range. Hoping to see the chimney.
1880	J2-797	12/1/2014	00:52:17	12.92184	143.64862	97	2923.2	Pretty barren seafloor so far; seeing the occasional rattail and that's about it.
1881	J2-797	12/1/2014	00:52:56	12.92183	143.64863	97	2924.0	We're heading toward the E/NE.
1883	J2-797	12/1/2014	00:53:19	12.92183	143.64865	138	2924.0	Looks like an anemone in the Super scorpio.
1885	J2-797	12/1/2014	00:54:55	12.92185	143.64871	56	2926.0	Shrimp just swam by. Rattail.
1888	J2-797	12/1/2014	00:56:03	12.92187	143.64878	101	2927.3	The 2 markers/sites are about 100m apart.
1890	J2-797	12/1/2014	00:57:51	12.92183	143.64889	106	2925.4	Chimney-structures ahead of us in the sci cam.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
1892	J2-797	12/1/2014	00:58:34	12.92184	143.64888	106	2925.8	FRAMEGRABS: HD frame grab SciCam. More exciting than just sediment. Chimney structures.
1893	J2-797	12/1/2014	00:59:02	12.92183	143.64890	106	2926.0	Have to wait for Medea to catch up.
1896	J2-797	12/1/2014	01:00:21	12.92181	143.64893	111	2925.4	FRAMEGRABS: HD frame grab SciCam. Taking some grabs of this old chimney complex with the sci and pilot cams.
1898	J2-797	12/1/2014	01:01:40	12.92178	143.64888	63	2925.6	Hoping to find some active chimneys on the other side of these older chimneys. They look extinct.
1900	J2-797	12/1/2014	01:03:00	12.92185	143.64897	122	2924.8	FRAMEGRABS: HD frame grab SciCam. More frame grabs of this group of inactive chimneys. They appear to be about 2 meters tall.
1904	J2-797	12/1/2014	01:05:46	12.92200	143.64902	349	2928.5	Lots of little chimneys here. Must have been quite the complex when it was active.
1906	J2-797	12/1/2014	01:06:39	12.92196	143.64902	277	2928.6	Looks like it may be microbial mat? Something white on this orange sediment. Odd-looking mounds all jumbled up.
1908	J2-797	12/1/2014	01:07:28	12.92194	143.64896	266	2928.4	This area is probably all sulfide here but they are very weathered and broken up.
1910	J2-797	12/1/2014	01:08:34	12.92186	143.64889	266	2928.5	The white on the last chimney was probably just a stain - not active.
1912	J2-797	12/1/2014	01:09:57	12.92184	143.64891	95	2928.4	We are going to continue to the east. More little extinct chimneys.
1915	J2-797	12/1/2014	01:11:13	12.92184	143.64902	115	2925.1	We're re-tracing our steps. We have seen these chimneys before.
1919	J2-797	12/1/2014	01:14:05	12.92191	143.64917	66	2926.3	Back on sediment-covered seafloor. Plan is to continue east toward Mkr-109.
1922	J2-797	12/1/2014	01:16:10	12.92191	143.64915	65	2926.3	Waiting on the ship or Medea.
1928	J2-797	12/1/2014	01:21:14	12.92197	143.64924	67	2926.5	Moving Medea at this depth takes longer because there is more wire out.
1930	J2-797	12/1/2014	01:22:32	12.92211	143.64920	35	2926.7	Look something coming up!
1931	J2-797	12/1/2014	01:22:55	12.92212	143.64922	31	2926.6	Largest chimney we've seen so far up ahead.
1933	J2-797	12/1/2014	01:23:13	12.92212	143.64923	26	2926.7	It looks like there is some iron oxide on this one.
1934	J2-797	12/1/2014	01:23:53	12.92210	143.64922	356	2926.6	We're getting warmer. Fluffy iron oxide mat.
1936	J2-797	12/1/2014	01:24:07	12.92210	143.64920	336	2926.4	First contact with something that is possibly active.
1937	J2-797	12/1/2014	01:24:12	12.92210	143.64918	331	2926.3	Sulfides with iron mat.
1938	J2-797	12/1/2014	01:24:56	12.92218	143.64913	356	2926.2	**NAV: Navigator target First Contact.**
1940	J2-797	12/1/2014	01:25:15	12.92220	143.64913	356	2925.0	Spires on this one and a little bit of shimmer.
1941	J2-797	12/1/2014	01:25:52	12.92227	143.64915	5	2924.1	See some shimmer here in this area. It's pretty dead-looking but there are signs of life.
1943	J2-797	12/1/2014	01:26:08	12.92228	143.64916	4	2923.9	White mat on this skinny chimney.
1945	J2-797	12/1/2014	01:27:14	12.92228	143.64915	20	2926.2	HIGHLIGHTS: Record SciCam Highlights here of this area of spire and venting. Some white and iron mat on tall skinny chimneys.
1946	J2-797	12/1/2014	01:27:29	12.92230	143.64914	63	2926.0	Looks like smoke in the background.
1948	J2-797	12/1/2014	01:28:27	12.92230	143.64915	27	2926.4	Se see some sparse white mat on these chimneys. Lots of shimmer.
1950	J2-797	12/1/2014	01:29:16	12.92229	143.64917	11	2925.8	FRAMEGRABS: HD frame grab SciCam. Frame grabs with the science cam and Super scorpio.

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1952	J2-797	12/1/2014	01:30:22	12.92229	143.64915	30	2924.3	There's a marker-of sorts on the side of this chimney. Is this Marker 109?
1953	J2-797	12/1/2014	01:30:28	12.92229	143.64915	30	2924.8	HIGHLIGHTS: End Highlights.
1955	J2-797	12/1/2014	01:31:22	12.92230	143.64916	21	2927.5	We can't read the marker yet.
1956	J2-797	12/1/2014	01:31:41	12.92230	143.64916	21	2927.5	NAV: Doppler Reset.
1958	J2-797	12/1/2014	01:32:45	12.92230	143.64916	21	2927.5	FRAMEGRABS: HD frame grab SciCam Nav. Target is "Active chimney".
1961	J2-797	12/1/2014	01:34:04	12.92230	143.64916	21	2927.5	Going to drive around before we do any sampling.
1962	J2-797	12/1/2014	01:35:01	12.92230	143.64916	21	2927.5	SENSOR: Temp. Jason temperature probe in the "Active chimney". Lots of flow coming out.
1964	J2-797	12/1/2014	01:35:28	12.92230	143.64916	21	2927.5	FRAMEGRABS: HD frame grab SciCam. Little shrimp here.
1965	J2-797	12/1/2014	01:36:01	12.92230	143.64916	21	2927.5	Temperature got up to 118deg there. Moving the probe to the left a bit.
1967	J2-797	12/1/2014	01:36:37	12.92230	143.64915	22	2927.6	Looks like this sulfide chimney is covered in iron oxides and it's hot. Strange.
1969	J2-797	12/1/2014	01:37:33	12.92231	143.64917	87	2929.1	HIGHLIGHTS: Record SciCam. Reconnaissance around this area.
1971	J2-797	12/1/2014	01:38:33	12.92231	143.64917	87	2929.2	Squat lobster sky diving. Also seeing shrimp; scaleworms. Area with some white mat.
1973	J2-797	12/1/2014	01:39:21	12.92231	143.64917	87	2929.2	HIGHLIGHTS: End Highlights.
1975	J2-797	12/1/2014	01:40:08	12.92231	143.64917	87	2929.2	Still taking the temperature here on this iron-encrusted with white mat; lots of flow chimney.
1976	J2-797	12/1/2014	01:40:47	12.92231	143.64917	87	2929.2	SENSOR: Temp. Temperature is 214 at "Active Chimney" target.
1979	J2-797	12/1/2014	01:42:04	12.92231	143.64917	87	2929.2	Jimmy is poking around looking for the hottest spot on this chimney.
1981	J2-797	12/1/2014	01:43:33	12.92231	143.64917	87	2929.3	SENSOR: Temp 123C. Still on "Active Chimney".
1983	J2-797	12/1/2014	01:45:02	12.92231	143.64917	87	2929.3	This is the Urashima area discovered by the Japanese about 5 years ago.
1985	J2-797	12/1/2014	01:45:22	12.92231	143.64917	88	2929.2	The plan is to look around this area.
1986	J2-797	12/1/2014	01:45:53	12.92231	143.64917	88	2928.9	The one we're calling "Active Chimney" is the one with/right next to the one with the marker.
1988	J2-797	12/1/2014	01:47:01	12.92231	143.64917	88	2929.0	Little chimneys / spicules in this area of intense flow. Seeing shrimp here.
1991	J2-797	12/1/2014	01:48:03	12.92231	143.64917	88	2929.0	HIGHLIGHTS: Record SciCam. Highlights of where the water is pouring out. Looks like little RED spicules. Thought it was an animal.
1992	J2-797	12/1/2014	01:48:53	12.92231	143.64917	88	2929.0	Looks like it is bubbling.
1996	J2-797	12/1/2014	01:51:16	12.92231	143.64917	87	2929.0	These spicules are red.
1999	J2-797	12/1/2014	01:53:16	12.92231	143.64917	88	2929.0	FRAMEGRABS: HD frame grab SciCam. Crab and little baby covered with bacterial mat.
2001	J2-797	12/1/2014	01:54:22	12.92231	143.64917	88	2929.0	FRAMEGRABS: HD frame grab SciCam. Crab in the pilot cam and fluffy iron oxide in the science cam.
2002	J2-797	12/1/2014	01:55:01	12.92231	143.64917	88	2929.0	FRAMEGRABS: HD frame grab PilotCam. The shrimp are probably Chorocaris (?) says Verena.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
2004	J2-797	12/1/2014	01:55:41	12.92231	143.64917	88	2929.0	That's not mineral; that's mat in the science cam.
2006	J2-797	12/1/2014	01:57:01	12.92231	143.64917	88	2929.0	HIGHLIGHTS: Record SciCam. Shrimp highlights.
2009	J2-797	12/1/2014	01:58:37	12.92231	143.64917	88	2929.0	HIGHLIGHTS: End Highlights.
2011	J2-797	12/1/2014	02:00:00	12.92231	143.64917	88	2929.0	Plan is to head to Marker 109.
2014	J2-797	12/1/2014	02:01:52	12.92229	143.64920	53	2926.3	A lot of dead chimney but also some live ones.
2016	J2-797	12/1/2014	02:02:05	12.92230	143.64921	46	2925.7	Want to find the extent of the live ones.
2019	J2-797	12/1/2014	02:05:02	12.92238	143.64947	154	2929.9	Plan is to do a photomosaic; scoping out area now to see how big image area will be. Craig's thinking about 50mx50m.
2022	J2-797	12/1/2014	02:06:23	12.92224	143.64947	201	2927.3	Sediment on floor looks rippled.
2024	J2-797	12/1/2014	02:07:43	12.92228	143.64935	314	2929.2	Lots of chimneys that look inactive but still have life on them.
2026	J2-797	12/1/2014	02:08:17	12.92226	143.64933	298	2928.6	Don't see any venting.
2027	J2-797	12/1/2014	02:08:28	12.92224	143.64930	298	2928.5	Another ridge forward.
2028	J2-797	12/1/2014	02:08:39	12.92224	143.64926	299	2928.7	That's where we just were...
2030	J2-797	12/1/2014	02:09:53	12.92219	143.64921	289	2925.2	Shimmering water in superscorpio cam.
2032	J2-797	12/1/2014	02:10:26	12.92219	143.64923	272	2926.8	Marking in navigation: Snap Snap
2033	J2-797	12/1/2014	02:10:51	12.92219	143.64923	266	2927.9	Looks like good place for a scoop.
2034	J2-797	12/1/2014	02:11:01	12.92219	143.64923	266	2927.2	Will head Northwest.
2037	J2-797	12/1/2014	02:12:41	12.92223	143.64913	294	2926.5	Lots of diffuse venting from low structures.
2040	J2-797	12/1/2014	02:14:32	12.92234	143.64908	106	2926.6	Still scanning area to decide where to photomosaic.
2042	J2-797	12/1/2014	02:15:58	12.92237	143.64916	140	2927.5	FRAMEGRABS: HD frame grab SciCam. Chimney with marker.
2045	J2-797	12/1/2014	02:17:38	12.92243	143.64922	238	2930.0	Might make this the center of the 50m x 50m box. Moving to Northwest corner.
2047	J2-797	12/1/2014	02:18:13	12.92243	143.64915	208	2930.7	FRAMEGRABS: HD frame grab SciCam.
2052	J2-797	12/1/2014	02:22:55	12.92243	143.64899	197	2929.0	Still moving to upper edge of photomosaic box.
2054	J2-797	12/1/2014	02:23:45	12.92239	143.64907	201	2930.1	A lot of iron and sulfide.
2055	J2-797	12/1/2014	02:23:52	12.92238	143.64907	201	2929.9	Hardly any animals.
2060	J2-797	12/1/2014	02:27:17	12.92232	143.64895	207	2926.7	Plan for photomosaic is to do 50meter box with active chimney navigation point at the epicenter. Setting up now.
2068	J2-797	12/1/2014	02:34:44	12.92211	143.64893	360	2921.9	Moving to start position.
2072	J2-797	12/1/2014	02:37:16	12.92211	143.64893	360	2922.0	Starting photomosaic.
2073	J2-797	12/1/2014	02:37:32	12.92212	143.64893	360	2922.1	First 50 meters up.
2083	J2-797	12/1/2014	02:46:06	12.92256	143.64897	360	2933.0	Deciding how many meters to move over to get enough overlap.
2084	J2-797	12/1/2014	02:46:39	12.92256	143.64897	360	2933.3	Aiming for 50% overlap.
2086	J2-797	12/1/2014	02:47:58	12.92253	143.64897	0	2932.3	Moved 3 meters over. Heading back 50 meters.
2088	J2-797	12/1/2014	02:48:34	12.92246	143.64897	1	2929.2	Slowed down speed of JASON from last photomosaic so more overlap between pictures going up and down.
2090	J2-797	12/1/2014	02:49:21	12.92237	143.64897	358	2926.0	Currently 5.5 meters from bottom.
2092	J2-797	12/1/2014	02:50:49	12.92231	143.64896	2	2925.5	4.6 meters from bottom.
2096	J2-797	12/1/2014	02:53:08	12.92210	143.64899	360	2924.9	Stepping 3 meters over for next 50meter pass.
2097	J2-797	12/1/2014	02:53:42	12.92211	143.64899	359	2925.2	On third line.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
2103	J2-797	12/1/2014	02:58:16	12.92255	143.64901	355	2934.2	Stepping starboard 3 meters.
2111	J2-797	12/1/2014	03:03:12	12.92209	143.64903	359	2925.2	Stepping 3 meters starboard.
2113	J2-797	12/1/2014	03:04:04	12.92210	143.64904	360	2924.9	Forward.
2118	J2-797	12/1/2014	03:09:02	12.92254	143.64907	0	2936.1	Stepping three meters starboard
2120	J2-797	12/1/2014	03:09:16	12.92254	143.64908	0	2936.4	Or is it starbored?
2121	J2-797	12/1/2014	03:09:31	12.92254	143.64908	2	2936.3	Going back.
2123	J2-797	12/1/2014	03:11:02	12.92237	143.64908	2	2928.7	FRAMEGRABS: HD frame grab SciCam.
2128	J2-797	12/1/2014	03:13:53	12.92209	143.64908	358	2925.9	3 meters starboard.
2130	J2-797	12/1/2014	03:14:29	12.92209	143.64909	359	2926.0	Forward.
2132	J2-797	12/1/2014	03:15:10	12.92217	143.64910	1	2924.4	FRAMEGRABS: HD frame grab SciCam.
2134	J2-797	12/1/2014	03:17:02	12.92238	143.64910	360	2926.2	FRAMEGRABS: HD frame grab SciCam.
2137	J2-797	12/1/2014	03:18:54	12.92254	143.64911	356	2937.4	Stepping over 3 meters.
2139	J2-797	12/1/2014	03:19:27	12.92252	143.64913	4	2936.9	Coming back.
2144	J2-797	12/1/2014	03:23:47	12.92209	143.64913	356	2927.0	Stepping over 3 meters.
2146	J2-797	12/1/2014	03:24:45	12.92209	143.64915	360	2927.0	Forward.
2150	J2-797	12/1/2014	03:27:13	12.92237	143.64916	1	2928.1	Just passed over active chimney.
2153	J2-797	12/1/2014	03:29:04	12.92254	143.64916	360	2938.3	3.3 meters from bottom.
2155	J2-797	12/1/2014	03:30:37	12.92248	143.64917	3	2935.7	Stepping over 1 meter because we want to fly forward over the spire on next pass.
2157	J2-797	12/1/2014	03:31:43	12.92237	143.64917	360	2924.5	Going over spirey business now.
2159	J2-797	12/1/2014	03:32:25	12.92229	143.64917	359	2922.9	FRAMEGRABS: HD frame grab SciCam.
2160	J2-797	12/1/2014	03:32:50	12.92224	143.64916	0	2924.8	FRAMEGRABS: HD frame grab SciCam.
2163	J2-797	12/1/2014	03:34:32	12.92209	143.64917	359	2926.7	Stepping over 2 meters.
2165	J2-797	12/1/2014	03:35:19	12.92209	143.64918	359	2926.5	Going forward.
2170	J2-797	12/1/2014	03:39:36	12.92254	143.64919	357	2936.5	Stepping over 3 meters.
2172	J2-797	12/1/2014	03:40:21	12.92251	143.64922	356	2934.7	Heading back the 50 meters.
2174	J2-797	12/1/2014	03:41:46	12.92235	143.64921	2	2918.3	Changed lighting to get rid of the shadows from the basket on super scorpio cam.
2175	J2-797	12/1/2014	03:42:02	12.92232	143.64921	357	2920.3	FRAMEGRABS: HD frame grab SciCam.
2179	J2-797	12/1/2014	03:44:25	12.92209	143.64921	0	2926.4	Stepping over 3 meters.
2180	J2-797	12/1/2014	03:44:51	12.92209	143.64924	3	2926.0	Forward.
2183	J2-797	12/1/2014	03:46:51	12.92231	143.64924	1	2926.1	FRAMEGRABS: HD frame grab SciCam.
2185	J2-797	12/1/2014	03:47:14	12.92235	143.64924	0	2921.3	Nice layering of iron and sulfur.
2188	J2-797	12/1/2014	03:49:20	12.92254	143.64926	357	2935.3	Stepping starboard 3 meters.
2190	J2-797	12/1/2014	03:50:30	12.92251	143.64926	359	2934.1	Going back.
2195	J2-797	12/1/2014	03:54:45	12.92209	143.64925	359	2925.5	Stepping over 3 meters.
2197	J2-797	12/1/2014	03:55:19	12.92209	143.64927	0	2926.3	Forward.
2203	J2-797	12/1/2014	04:00:14	12.92254	143.64929	359	2933.6	Stepping over 3m.
2204	J2-797	12/1/2014	04:00:43	12.92254	143.64931	2	2933.1	Back.
2210	J2-797	12/1/2014	04:05:48	12.92209	143.64932	358	2926.3	Stepping over 3 meters.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
2212	J2-797	12/1/2014	04:06:14	12.92209	143.64933	0	2926.3	Forward.
2215	J2-797	12/1/2014	04:08:06	12.92230	143.64934	0	2928.8	Bottom corners of super scorpio images are dim; may need to adjust light when JASON is on deck.
2218	J2-797	12/1/2014	04:10:42	12.92254	143.64935	356	2934.5	Starboard 3 meters.
2220	J2-797	12/1/2014	04:11:28	12.92251	143.64937	359	2933.0	Back.
2225	J2-797	12/1/2014	04:16:01	12.92209	143.64939	2	2927.2	Starboard 3 meters.
2227	J2-797	12/1/2014	04:16:14	12.92211	143.64939	2	2927.6	Forward.
2232	J2-797	12/1/2014	04:21:01	12.92254	143.64940	0	2933.3	End photomosaic.
2234	J2-797	12/1/2014	04:21:46	12.92254	143.64940	0	2933.2	Average altitude around 4-5 meters but ranged from about 3-9meters.
2236	J2-797	12/1/2014	04:22:28	12.92254	143.64940	0	2933.3	These are off-axis sulfides.
2238	J2-797	12/1/2014	04:23:46	12.92248	143.64937	255	2933.6	Heading to Snap Snap first.
2241	J2-797	12/1/2014	04:25:08	12.92239	143.64935	210	2932.6	FRAMEGRABS: HD frame grab SciCam. Star animal.
2242	J2-797	12/1/2014	04:25:31	12.92237	143.64933	209	2931.5	Possible sulfide collection site marked on navigation.
2243	J2-797	12/1/2014	04:25:57	12.92236	143.64933	206	2932.3	Nudging a chimney.
2245	J2-797	12/1/2014	04:26:20	12.92237	143.64933	207	2931.1	Chimney seems pretty fragile. Knocked over very easily.
2247	J2-797	12/1/2014	04:27:16	12.92226	143.64935	226	2931.5	Was a test for when we collect a chimney in the biobox to bring back.
2248	J2-797	12/1/2014	04:27:19	12.92226	143.64934	227	2931.6	FRAMEGRABS: HD frame grab SciCam.
2252	J2-797	12/1/2014	04:29:51	12.92215	143.64920	325	2926.6	Flow spotted.
2253	J2-797	12/1/2014	04:29:57	12.92215	143.64920	326	2926.7	Great iron mat.
2255	J2-797	12/1/2014	04:30:33	12.92216	143.64920	325	2926.6	HIGHLIGHTS: Record SciCam. Snap Snap iron mats and venting fluid.
2256	J2-797	12/1/2014	04:31:01	12.92218	143.64921	321	2926.5	HIGHLIGHTS: End Highlights.
2259	J2-797	12/1/2014	04:32:28	12.92220	143.64921	4	2927.9	FRAMEGRABS: HD frame grab SciCam. Snap Snap.
2263	J2-797	12/1/2014	04:35:25	12.92220	143.64921	4	2927.9	Checking temperature of Snap Snap vent.
2265	J2-797	12/1/2014	04:36:20	12.92220	143.64921	4	2927.9	Looks like there are some sheath-forming zetathrix. Lighter colored iron mats
2266	J2-797	12/1/2014	04:36:45	12.92220	143.64921	4	2927.9	FRAMEGRABS: HD frame grab SciCam. Snap Snap temp probe
2268	J2-797	12/1/2014	04:37:24	12.92220	143.64921	4	2927.9	Shrimp.
2269	J2-797	12/1/2014	04:37:39	12.92220	143.64921	4	2927.9	Tmax=26.23C deep in vent.
2272	J2-797	12/1/2014	04:39:18	12.92220	143.64921	4	2927.9	Temp where veil-like mat is actively growing is much lower. Temp=4.7C.
2273	J2-797	12/1/2014	04:39:32	12.92220	143.64921	3	2927.9	Surface of mat was measured 4.7C.
2276	J2-797	12/1/2014	04:41:11	12.92220	143.64921	3	2927.9	Ambient temp around 1.7C.
2277	J2-797	12/1/2014	04:41:29	12.92220	143.64921	4	2927.9	Tmax=26.4C in the black sulfury hole.
2280	J2-797	12/1/2014	04:43:18	12.92222	143.64921	0	2926.6	Not sampling this site yet. Going to check out Active Chimney site.
2283	J2-797	12/1/2014	04:45:09	12.92232	143.64918	68	2927.5	Now at Active Chimney. **(**Later determined to be Baltan)**
2284	J2-797	12/1/2014	04:45:19	12.92232	143.64918	68	2927.7	Going to sample with the Beast.
2286	J2-797	12/1/2014	04:46:34	12.92233	143.64919	122	2929.1	Streamers spotted in the flow.
2287	J2-797	12/1/2014	04:46:47	12.92233	143.64919	123	2929.3	Lots of shrimp.
2289	J2-797	12/1/2014	04:47:47	12.92233	143.64919	122	2929.4	Getting HFS ready.
2295	J2-797	12/1/2014	04:52:33	12.92233	143.64919	123	2929.3	Temp readings not working at the moment on the beast.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
2298	J2-797	12/1/2014	04:54:06	12.92233	143.64919	123	2929.3	Temp reading 90C still going up.
2299	J2-797	12/1/2014	04:54:52	12.92233	143.64919	123	2929.3	Temp still rising.
2302	J2-797	12/1/2014	04:56:24	12.92233	143.64919	123	2929.3	Temp 150C and still going up slowly.
2307	J2-797	12/1/2014	05:00:41	12.92233	143.64919	123	2929.3	Temp dropping so probe pushed in more.
2309	J2-797	12/1/2014	05:01:30	12.92233	143.64919	123	2929.3	Temp back up; just letting smoke clear out a little before starting.
2310	J2-797	12/1/2014	05:01:58	12.92233	143.64919	123	2929.3	**SAMPLE: HFS. J797-HFS-29** Filtered piston #4 Start: 5:01:50.
2311	J2-797	12/1/2014	05:02:01	12.92233	143.64919	123	2929.3	Temp 168C.
2314	J2-797	12/1/2014	05:03:14	12.92233	143.64919	123	2929.3	NAV: Doppler Reset.
2317	J2-797	12/1/2014	05:06:01	12.92233	143.64919	123	2929.3	SAMPLE: HFS. J797-HFS-29 cont. Filtered piston #4 Tmax=169.3C Tavg=163C T2=51C Vol=550ml Stop: 5:05:31.
2319	J2-797	12/1/2014	05:06:05	12.92233	143.64919	123	2929.3	NAV: Doppler Reset.
2320	J2-797	12/1/2014	05:06:13	12.92233	143.64919	123	2929.3	HIGHLIGHTS: Record SciCam. Crab in mat.
2321	J2-797	12/1/2014	05:06:18	12.92233	143.64919	123	2929.3	HIGHLIGHTS: End Highlights.
2322	J2-797	12/1/2014	05:06:49	12.92233	143.64919	123	2929.3	**SAMPLE: HFS. J797-HFS-30** Unfiltered piston #7 Start: 05:06:41.
2323	J2-797	12/1/2014	05:06:55	12.92233	143.64919	123	2929.3	NAV: Doppler Reset.
2325	J2-797	12/1/2014	05:07:59	12.92233	143.64919	123	2929.3	SAMPLE: HFS. J797-HFS-30 cont. Unfiltered piston #7 Location: 12deg 55.3404N 143deg 38.9505E.
2327	J2-797	12/1/2014	05:08:33	12.92233	143.64919	123	2929.3	Palm worm; shrimp; crabs.
2328	J2-797	12/1/2014	05:08:39	12.92233	143.64919	123	2929.3	HIGHLIGHTS: Record SciCam.
2330	J2-797	12/1/2014	05:09:58	12.92233	143.64919	123	2929.3	This site is called Active Chimney. There is iron mat and sulfur. White; black; and orange all covering surface. Lots of biota.
2332	J2-797	12/1/2014	05:10:59	12.92233	143.64919	123	2929.3	SAMPLE: HFS. J797-HFS-30 cont. Unfiltered piston #7 Tmax=160.9C Tavg=158C T2=50C Vol=550ml Stop: 05:10:18.
2334	J2-797	12/1/2014	05:11:12	12.92233	143.64919	123	2929.3	HIGHLIGHTS: End Highlights.
2336	J2-797	12/1/2014	05:12:05	12.92233	143.64919	123	2929.3	SAMPLE: GTHFS. Going to collect starboard side gas tight bottle from HFS; color White.
2337	J2-797	12/1/2014	05:12:32	12.92233	143.64919	123	2929.3	**SAMPLE: GTHFS. J797-GTHFS-31** white starboard side fired.
2338	J2-797	12/1/2014	05:12:58	12.92233	143.64919	123	2929.3	SAMPLE: GTHFS. J797-GTHFS-31 Temp=160.9C.
2341	J2-797	12/1/2014	05:14:05	12.92233	143.64919	123	2929.3	Not sure how first HFS went. Going to take another for insurance.
2343	J2-797	12/1/2014	05:15:49	12.92233	143.64919	122	2929.3	**SAMPLE: HFS. J797-HFS-32** Filtered piston #6 Start: 5:15:36.
2345	J2-797	12/1/2014	05:16:15	12.92233	143.64919	122	2929.3	HIGHLIGHTS: Record SciCam. HFS sampling with crab.
2347	J2-797	12/1/2014	05:17:03	12.92233	143.64919	122	2929.3	HIGHLIGHTS: End Highlights.
2350	J2-797	12/1/2014	05:19:44	12.92233	143.64919	122	2929.3	SAMPLE: HFS. J797-HFS-32 cont. Filtered piston #6 Tmax=161C Tavg=159C T2=50C Vol=530ml Stop: 5:19:17.
2351	J2-797	12/1/2014	05:19:53	12.92233	143.64919	122	2929.3	Done with hot fluid sampling.
2354	J2-797	12/1/2014	05:21:11	12.92233	143.64919	122	2929.3	Putting HFS away.
2356	J2-797	12/1/2014	05:22:33	12.92233	143.64919	123	2929.3	Going to look around here for biomat sampling.
2357	J2-797	12/1/2014	05:22:48	12.92233	143.64919	123	2929.3	Nice curds.
2359	J2-797	12/1/2014	05:23:40	12.92233	143.64919	123	2929.3	Want to sample about halfway up face of this chimney structure but not sure we can reach from where Jason is sitting.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
2361	J2-797	12/1/2014	05:24:57	12.92233	143.64919	123	2929.3	Nice variety of iron mats- curds; light colored.
2363	J2-797	12/1/2014	05:25:07	12.92233	143.64919	122	2929.3	FRAMEGRABS: HD frame grab SciCam. Scale worm.
2364	J2-797	12/1/2014	05:25:55	12.92233	143.64919	122	2929.3	Picked up cassette C. C6 has no O-ring.
2368	J2-797	12/1/2014	05:29:01	12.92233	143.64919	123	2929.4	Plan for BM sampling is to move up face away from chimney getting sulfur and iron.
2370	J2-797	12/1/2014	05:29:52	12.92233	143.64919	123	2929.4	Lateral profile along flow.
2372	J2-797	12/1/2014	05:30:18	12.92233	143.64919	123	2929.4	CORRECTION: plan is to move up face away from VENT not chimney.
2374	J2-797	12/1/2014	05:31:16	12.92233	143.64919	123	2929.4	FRAMEGRABS: HD frame grab SciCam. Tmax=22.4C at edge of mat at bottom of the black area.
2375	J2-797	12/1/2014	05:31:31	12.92233	143.64919	123	2929.4	FRAMEGRABS: HD frame grab SciCam.
2378	J2-797	12/1/2014	05:33:13	12.92233	143.64919	123	2929.4	SAMPLE: BM. Curious about temperature gradient across entire flow area.
2381	J2-797	12/1/2014	05:35:34	12.92233	143.64919	123	2929.4	FRAMEGRABS: HD frame grab SciCam. Tmax= 37.2C at edge of mat in white a little higher up face in vent flow.
2383	J2-797	12/1/2014	05:36:44	12.92233	143.64919	123	2929.4	Filamentous sulfur.
2385	J2-797	12/1/2014	05:37:49	12.92233	143.64919	123	2929.4	Temp rising in same white spot. Tmax= 40.41C.
2387	J2-797	12/1/2014	05:38:44	12.92233	143.64919	123	2929.4	HIGHLIGHTS: Record SciCam. Sulfur.
2389	J2-797	12/1/2014	05:39:47	12.92233	143.64919	123	2929.4	Alvinellid .
2391	J2-797	12/1/2014	05:40:29	12.92233	143.64919	123	2929.4	Highlight video is of worms.
2394	J2-797	12/1/2014	05:42:03	12.92233	143.64919	123	2929.4	Going to go up alongside of black center of flow. Sample every 10 cm.
2396	J2-797	12/1/2014	05:43:38	12.92233	143.64919	123	2929.4	Vertical profile of flow with BM sampler. Have 5 syringes in this cassette.
2400	J2-797	12/1/2014	05:46:27	12.92233	143.64919	123	2929.4	JASON and watch shift changes.
2406	J2-797	12/1/2014	05:52:00	12.92233	143.64919	123	2929.4	HIGHLIGHTS: Record SciCam. Biomat sampling cassette C.
2409	J2-797	12/1/2014	05:53:09	12.92233	143.64919	123	2929.4	**SAMPLE: BM. J797-BM1-C5-33** Normal syringes no additives.
2411	J2-797	12/1/2014	05:54:27	12.92233	143.64919	123	2929.4	First sample taken but the mat may be too crusty.
2413	J2-797	12/1/2014	05:55:06	12.92233	143.64919	123	2929.3	Sample 33 is no good. Going to expel it.
2414	J2-797	12/1/2014	05:55:12	12.92233	143.64919	123	2929.4	HIGHLIGHTS: End Highlights.
2417	J2-797	12/1/2014	05:57:15	12.92233	143.64919	123	2929.3	Looking for a better spot. We want the puff-daddy mat just to the left of the previous sample.
2420	J2-797	12/1/2014	05:59:41	12.92233	143.64919	123	2929.4	We are going to poke around with the temperature probe.
2422	J2-797	12/1/2014	06:01:00	12.92233	143.64919	122	2929.4	SENSOR: Temp is slightly above ambient. 3.84...4.47...
2425	J2-797	12/1/2014	06:02:18	12.92233	143.64919	122	2929.4	Going to sample in a cross pattern around where we just took the temp measurement.
2426	J2-797	12/1/2014	06:02:42	12.92233	143.64919	123	2929.4	Going to take temp in that pattern first.
2428	J2-797	12/1/2014	06:03:50	12.92233	143.64919	123	2929.4	Taking temperature about 10cm below the previous measurement.
2431	J2-797	12/1/2014	06:05:32	12.92233	143.64919	122	2929.4	SENSOR: Temp. In flow below the last measurement. 7.45...8.64...
2432	J2-797	12/1/2014	06:05:52	12.92233	143.64919	122	2929.4	We will go ahead and sample here where we just measured the temp.
2434	J2-797	12/1/2014	06:06:48	12.92233	143.64919	123	2929.4	Stowing the temp probe.
2437	J2-797	12/1/2014	06:08:21	12.92233	143.64919	123	2929.4	HIGHLIGHTS: Record SciCam Second attempt at mat sampling.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
2440	J2-797	12/1/2014	06:10:12	12.92233	143.64919	123	2929.4	**SAMPLE: BM. J797-BM1-C5-33.** This is the new sample 33 since the last was expelled. This is where the temp was up to 8.6.
2441	J2-797	12/1/2014	06:10:35	12.92233	143.64919	123	2929.4	HIGHLIGHTS: End Highlights.
2443	J2-797	12/1/2014	06:11:59	12.92233	143.64919	123	2929.4	Sample 33 biomat sample.
2446	J2-797	12/1/2014	06:13:25	12.92233	143.64919	123	2929.4	We are expelling this sample again.
2448	J2-797	12/1/2014	06:14:28	12.92233	143.64919	123	2929.4	Jason is spewing profanities at this sampling and expelling stuff.
2453	J2-797	12/1/2014	06:18:27	12.92233	143.64919	123	2929.4	We are still attempting to expel the last sample.
2456	J2-797	12/1/2014	06:20:47	12.92233	143.64919	123	2928.6	We will move around to the opposite site of this spire to find a better site to sample mats.
2460	J2-797	12/1/2014	06:23:30	12.92238	143.64927	185	2925.3	FRAMEGRABS: HD frame grab PilotCam. Looking at sampling on this spire.
2462	J2-797	12/1/2014	06:24:10	12.92229	143.64927	281	2925.6	FRAMEGRABS: HD frame grab PilotCam. Heading for the tall skinny spire in the background
2465	J2-797	12/1/2014	06:26:07	12.92222	143.64923	253	2926.5	FRAMEGRABS: HD frame grab PilotCam.
2466	J2-797	12/1/2014	06:26:47	12.92222	143.64921	254	2927.5	FRAMEGRABS: HD frame grab PilotCam. Looking for mat to sample at the bottom right of this structure.
2468	J2-797	12/1/2014	06:27:46	12.92221	143.64919	269	2928.5	FRAMEGRABS: HD frame grab PilotCam. This spot looks pretty good.
2470	J2-797	12/1/2014	06:29:00	12.92221	143.64919	268	2928.4	Taking a temperature measurement here as a potential site to sample mats and fluids.
2473	J2-797	12/1/2014	06:30:47	12.92221	143.64919	268	2928.5	HIGHLIGHTS: Record SciCam. The before and after sampling video.
2476	J2-797	12/1/2014	06:32:16	12.92221	143.64919	268	2928.4	FRAMEGRABS: HD frame grab BrowCam. Downlooking view of temperature measurement.
2478	J2-797	12/1/2014	06:33:33	12.92221	143.64919	268	2928.4	SENSOR: Temp. New potential sampling site. Temp measurement up to 19.9.
2480	J2-797	12/1/2014	06:34:35	12.92221	143.64919	268	2928.4	HIGHLIGHTS: End Highlights. End SciCam highlights
2481	J2-797	12/1/2014	06:34:58	12.92221	143.64919	268	2928.4	Sheryl ran to grab Heather. Shawn is logging everything.
2484	J2-797	12/1/2014	06:36:12	12.92221	143.64919	268	2928.4	Sheryl is back.
2488	J2-797	12/1/2014	06:39:54	12.92221	143.64919	268	2928.5	HIGHLIGHTS: Record PilotCam. New sampling of BM-C1.
2492	J2-797	12/1/2014	06:42:09	12.92221	143.64919	268	2928.4	**SAMPLE: BM. J797-BM1-C1-34**.
2495	J2-797	12/1/2014	06:44:29	12.92221	143.64919	268	2928.5	**SAMPLE: BM. J797-BM1-C2-35**. This is in the same spot as sample 34. Lat=12deg 44.3336N long 143deg 38.9497E.
2497	J2-797	12/1/2014	06:46:01	12.92221	143.64919	268	2928.5	HIGHLIGHTS: End Highlights. Highlights went off at 0643.
2499	J2-797	12/1/2014	06:46:37	12.92221	143.64919	268	2928.4	FRAMEGRABS: HD frame grab PilotCam. Sample site for samples 34 and 35.
2504	J2-797	12/1/2014	06:50:06	12.92221	143.64919	268	2928.5	NAV: Navigator target. There is controversy over the name of this site. It's either "active chimney" or "Saipanda horn". The consensus is that the latter sucks.
2505	J2-797	12/1/2014	06:50:54	12.92221	143.64919	268	2928.5	We are collecting more into sample 34 in syringe 1.
2508	J2-797	12/1/2014	06:52:24	12.92221	143.64919	268	2928.5	HIGHLIGHTS: Record PilotCam. Samples 34 and 35.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
2510	J2-797	12/1/2014	06:53:11	12.92221	143.64919	268	2928.5	Considering more samples lower down the same chimney as samples 34 and 35.
2511	J2-797	12/1/2014	06:53:15	12.92221	143.64919	268	2928.5	HIGHLIGHTS: End Highlights.
2513	J2-797	12/1/2014	06:54:12	12.92221	143.64919	268	2928.5	HIGHLIGHTS: Record PilotCam. Taking more mat samples.
2518	J2-797	12/1/2014	06:58:04	12.92221	143.64919	268	2928.4	HIGHLIGHTS: Record PilotCam. J797-BM1-C3-36.
2519	J2-797	12/1/2014	06:58:49	12.92221	143.64919	268	2928.4	**SAMPLE: BM. J797-BM1-C3-36**. Same position as samples 34 and 35.
2522	J2-797	12/1/2014	07:00:08	12.92221	143.64919	268	2928.4	**SAMPLE: BM. J797-BM1-C4-37**. Samples 36 and 37 are about 15 cm below samples 34 and 35.
2523	J2-797	12/1/2014	07:00:17	12.92221	143.64919	268	2928.4	HIGHLIGHTS: End Highlights.
2525	J2-797	12/1/2014	07:01:32	12.92221	143.64919	268	2928.4	Now we will take some fluid samples here.
2532	J2-797	12/1/2014	07:07:59	12.92221	143.64919	269	2928.4	SAMPLE: HFS. We are grabbing the HFS wand differently so we can reach the target site.
2538	J2-797	12/1/2014	07:12:47	12.92221	143.64919	269	2928.4	HFS temp reading here is about 9.8.
2540	J2-797	12/1/2014	07:13:50	12.92221	143.64919	269	2928.4	Moved down a bit and the temp is up to 13.2.
2542	J2-797	12/1/2014	07:14:16	12.92221	143.64919	269	2928.4	FRAMEGRABS: HD frame grab SciCam. Looking for a place to fluid sample.
2548	J2-797	12/1/2014	07:19:31	12.92221	143.64919	269	2928.4	HFS temps going back up now. Temp up to 12...13...14...16
2554	J2-797	12/1/2014	07:24:15	12.92221	143.64919	269	2928.4	**SAMPLE: HFS. J797-HFS-38** Start 0720. Unfiltered bag 21. Still at Saipanda Horn. Tmax=19 Tavg=16.9 T2=7 Vol= 525mL. Stop 0724.
2557	J2-797	12/1/2014	07:26:26	12.92221	143.64919	269	2928.4	**SAMPLE: HFS. J797-HFS-39**. Filtered bag 22 Start 0724. Soft iron oxides on small chimney named Saipanda Horn.
2563	J2-797	12/1/2014	07:31:11	12.92221	143.64919	269	2928.4	J797-HFS-39 cont. Tmax=18.7 Tavg=17.4 T2=7 Vol=525mL Stop Z=2928. Hdg=269 Stop 0730.
2568	J2-797	12/1/2014	07:35:53	12.92223	143.64920	269	2928.4	**SAMPLE: HFS. J797-HFS-40** Filtered bag 20. Start 0733. Still at Saipanda Horn. Stop 0735. Tmax=16.5 T2=7.4 Vol=495mL.
2577	J2-797	12/1/2014	07:43:18	12.92221	143.64919	269	2928.4	SENSOR: O2 Sensor for the last 3 samples (38-40) at Saipanda Horn. 2.25-2.30 O2.
2580	J2-797	12/1/2014	07:45:45	12.92221	143.64919	269	2928.4	FRAMEGRABS: HD frame grab SciCam. J797-HFS-41. Sterivex filter 9.
2582	J2-797	12/1/2014	07:46:10	12.92221	143.64919	269	2928.3	Sterivex 9.
2586	J2-797	12/1/2014	07:49:04	12.92221	143.64919	269	2928.3	**SAMPLE: HFS. J797-HFS-41**. Sterivex filter 9 at Saipanda Horn. Lat=12deg55.3334 N Long=143deg38.9504E. Start 0745.
2608	J2-797	12/1/2014	08:10:06	12.92221	143.64919	269	2928.3	SAMPLE 41 cont. Stop=0809 Tmax=25.9 Tavg=16.7 T2=7 Vol= 3186.
2610	J2-797	12/1/2014	08:11:15	12.92221	143.64919	269	2928.3	**SAMPLE: HFS. J797-HFS-42** RNAlater filter 13. Start=0811. Same position as previous sample.
2627	J2-797	12/1/2014	08:28:03	12.92221	143.64919	269	2928.3	SAMPLE 42 CONT Stop=0827 Tmax=23.4 Tavg=18.7 T2=7 Vol=3000.
2630	J2-797	12/1/2014	08:29:14	12.92221	143.64919	269	2928.3	**SAMPLE: HFS J797-HFS-43**. RNAlater filter 14. Start= 0827. Same position as previous filter.
2647	J2-797	12/1/2014	08:45:11	12.92221	143.64919	269	2928.2	SAMPLE 43 CONT. Stop=0844 Tmax=22.5 Tavg=17.9 T2=6.5 Vol=3000.
2648	J2-797	12/1/2014	08:45:21	12.92221	143.64919	269	2928.2	Stowing HFS sample wand.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
2650	J2-797	12/1/2014	08:46:24	12.92221	143.64919	269	2928.2	Time for poke and destroy mode.
2654	J2-797	12/1/2014	08:49:34	12.92221	143.64919	269	2928.2	Preparing to take a suction sample of Saipanda Horn.
2659	J2-797	12/1/2014	08:53:49	12.92221	143.64919	269	2928.3	**SAMPLE: SS. J797-SS-44**. Suctioning at Saipanda Horn.
2661	J2-797	12/1/2014	08:54:09	12.92221	143.64919	269	2928.3	HIGHLIGHTS: Record SciCam. Suction sampling at Saipanda Horn.
2663	J2-797	12/1/2014	08:55:53	12.92221	143.64919	269	2928.3	HIGHLIGHTS: End Highlights.
2665	J2-797	12/1/2014	08:56:15	12.92221	143.64919	269	2928.3	HIGHLIGHTS: Record PilotCam. Suction sampling of mats at Saipanda Horn.
2667	J2-797	12/1/2014	08:58:01	12.92221	143.64919	269	2928.2	HIGHLIGHTS: End Highlights.
2669	J2-797	12/1/2014	08:58:42	12.92221	143.64919	269	2928.3	Stowing the suction sampler wand.
2671	J2-797	12/1/2014	08:59:35	12.92221	143.64919	269	2928.2	Preparing to get some RNAlater scoops at Saipanda Horn.
2676	J2-797	12/1/2014	09:03:03	12.92221	143.64919	269	2928.2	Picking up a scoop.
2680	J2-797	12/1/2014	09:06:12	12.92221	143.64919	269	2928.2	J797-LScoop2-45. Taking an RNAlater scoop at Saipanda Horn just above the suction sample.
2681	J2-797	12/1/2014	09:06:52	12.92221	143.64919	269	2928.2	HIGHLIGHTS: Record PilotCam. Sample 45. RNAlater scoop of Saipanda Horn.
2684	J2-797	12/1/2014	09:08:26	12.92221	143.64919	269	2928.2	FRAMEGRABS: HD frame grab PilotCam. Before RNAlater scoop sample.
2686	J2-797	12/1/2014	09:09:22	12.92221	143.64919	269	2928.2	HIGHLIGHTS: End Highlights.
2688	J2-797	12/1/2014	09:10:12	12.92221	143.64919	269	2928.2	HIGHLIGHTS: Record BrowCam Sample 45. RNAlater scoop.
2689	J2-797	12/1/2014	09:10:50	12.92221	143.64919	269	2928.2	There is intense discussion regarding where to sample.
2692	J2-797	12/1/2014	09:12:06	12.92221	143.64919	269	2928.2	HIGHLIGHTS: End Highlights.
2694	J2-797	12/1/2014	09:13:30	12.92221	143.64919	269	2928.1	HIGHLIGHTS: Record BrowCam Sample 45. RNAlater scoop.
2696	J2-797	12/1/2014	09:14:09	12.92221	143.64919	269	2928.1	Actually beginning sample 45 now.
2698	J2-797	12/1/2014	09:15:22	12.92221	143.64919	269	2928.2	First pass looks good. Going back for more.
2702	J2-797	12/1/2014	09:18:25	12.92221	143.64919	269	2928.2	Sample is collected. Trying to get all the mat inside before closing the scoop.
2705	J2-797	12/1/2014	09:20:51	12.92221	143.64919	269	2928.2	Shaking and tapping the sampler to get the mat all inside.
2708	J2-797	12/1/2014	09:22:15	12.92221	143.64919	269	2928.2	HIGHLIGHTS: End Highlights.
2710	J2-797	12/1/2014	09:23:04	12.92221	143.64919	269	2928.2	Closing the valve...valve just broke off!
2712	J2-797	12/1/2014	09:24:21	12.92221	143.64919	269	2928.2	Going to try to pick up the valve handle to bring it back.
2714	J2-797	12/1/2014	09:25:15	12.92221	143.64919	269	2928.2	First we will try to close the valve with what is left of the knob.
2716	J2-797	12/1/2014	09:26:27	12.92221	143.64919	269	2928.2	Valve seems like it is closed.
2718	J2-797	12/1/2014	09:27:39	12.92221	143.64919	269	2928.2	Now to open the inner valve to release the RNAlater.
2721	J2-797	12/1/2014	09:29:44	12.92221	143.64919	269	2928.1	Inner valve is open. Hold scoop vertically to mix.
2723	J2-797	12/1/2014	09:31:03	12.92221	143.64919	269	2928.2	Sample looks nicely mixed. Now to get the valve handle that broke off.
2727	J2-797	12/1/2014	09:33:31	12.92221	143.64920	269	2927.6	We are done here.
2729	J2-797	12/1/2014	09:35:00	12.92221	143.64920	267	2927.1	Picking up the handle and placing it in the basket.
2735	J2-797	12/1/2014	09:39:11	12.92221	143.64921	269	2926.5	Handle is in the port swing arm biobox.
2737	J2-797	12/1/2014	09:40:44	12.92226	143.64922	10	2924.6	Discussing whether or not to collect a chimney.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
2739	J2-797	12/1/2014	09:41:45	12.92226	143.64921	345	2924.8	Going to take some HD photos of "Big skinny" chimney before sampling it.
2742	J2-797	12/1/2014	09:43:01	12.92226	143.64921	345	2924.9	Watch change.
2749	J2-797	12/1/2014	09:48:23	12.92226	143.64921	345	2924.8	We are going to do a video and photo survey around the chimneys in front of us.
2755	J2-797	12/1/2014	09:53:52	12.92227	143.64921	342	2926.0	We believed the Japanese named the "big skinny" chimney "Shar-pen" Kentaro Nakamura in 2010. Jason wants to sample it.
2758	J2-797	12/1/2014	09:55:38	12.92227	143.64920	343	2926.2	FRAMEGRABS: HD frame grab SciCam. Will be taking frame grabs with the science and pilot cams as well as with the DSC.
2762	J2-797	12/1/2014	09:58:05	12.92227	143.64920	343	2927.1	We will be doing HD frame grabs with the science and pilot cams every 5 seconds when we get the word.
2763	J2-797	12/1/2014	09:58:30	12.92227	143.64919	352	2927.0	Starting the frame grabs and highlight video with the science cam.
2765	J2-797	12/1/2014	09:59:40	12.92231	143.64916	69	2926.7	HIGHLIGHTS: Record SciCam. Recording HD video with the sci cam during the photo mosaic.
2767	J2-797	12/1/2014	10:00:32	12.92235	143.64917	108	2927.4	We're recording HD frame grabs
2770	J2-797	12/1/2014	10:02:11	12.92240	143.64925	177	2929.7	The altimeter on Jason is not working and that is what is going into the virtual van.
2771	J2-797	12/1/2014	10:02:26	12.92239	143.64926	192	2930.4	The altimeter values we are seeing on the nav screen are coming from the Doppler.
2773	J2-797	12/1/2014	10:03:07	12.92237	143.64929	228	2930.9	These chimneys are running around a ridge.
2774	J2-797	12/1/2014	10:03:39	12.92234	143.64929	271	2930.5	There are many more extinct chimneys here than active ones.
2776	J2-797	12/1/2014	10:04:24	12.92231	143.64927	306	2929.5	Many of the chimneys have an orange-coating. Some is fluffy iron mat; others are hard.
2778	J2-797	12/1/2014	10:05:10	12.92228	143.64924	307	2927.9	Some bright red coating on the chimney in the pilot cam. Verena recognized it as mat earlier today.
2780	J2-797	12/1/2014	10:06:22	12.92230	143.64926	301	2926.8	We were circling in one direction and now are going back in the other.
2781	J2-797	12/1/2014	10:06:52	12.92232	143.64927	288	2926.9	We're looking toward the NW/W right now. Hdg. 290.
2783	J2-797	12/1/2014	10:07:46	12.92236	143.64928	245	2926.9	The light red color on the chimney ahead is probably a manganese coating.
2786	J2-797	12/1/2014	10:09:58	12.92236	143.64920	119	2926.9	This is in the middle of the 50x50 down-looking mosaic survey done previously on this dive.
2788	J2-797	12/1/2014	10:10:07	12.92236	143.64919	107	2926.8	And this was the hottest area.
2791	J2-797	12/1/2014	10:12:59	12.92228	143.64921	342	2925.8	Working our back to where we started.
2794	J2-797	12/1/2014	10:14:14	12.92232	143.64917	65	2925.9	Circling around now facing the east.
2795	J2-797	12/1/2014	10:14:25	12.92233	143.64917	80	2925.9	There is the marker ahead of us.
2797	J2-797	12/1/2014	10:15:23	12.92238	143.64919	125	2925.9	Looking at the chimney with the marker again. Our heading is to the SE.
2799	J2-797	12/1/2014	10:16:42	12.92239	143.64926	186	2925.9	We're over 9m off the bottom and not at the top of this largest chimney.
2802	J2-797	12/1/2014	10:18:19	12.92231	143.64926	302	2925.9	The biggest chimney that we are looking at now is probably Eleking chimney.
2803	J2-797	12/1/2014	10:18:58	12.92230	143.64922	331	2925.9	Baltan is probably the one with the marker.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
2806	J2-797	12/1/2014	10:20:25	12.92230	143.64923	333	2924.1	Based on the Japanese images the tall thin chimney in front of us on the science cam is Shar-pen. The smaller one behind it is Baltan (with the marker)
2807	J2-797	12/1/2014	10:20:52	12.92231	143.64925	321	2924.0	The big fat chimney is probably Eleking.
2809	J2-797	12/1/2014	10:21:25	12.92233	143.64928	296	2924.0	We're 9m above the bottom looking at Eleking and not at the top of the chimney yet.
2816	J2-797	12/1/2014	10:27:21	12.92231	143.64918	44	2921.6	Susan is speculating that these are the chimney names based on small pics from the Japanese manuscript.
2818	J2-797	12/1/2014	10:28:58	12.92238	143.64921	137	2921.6	Sharpen is 10+ meters high when looking at it from the NW (looking SE).
2821	J2-797	12/1/2014	10:30:14	12.92239	143.64928	206	2921.6	We're coming on Eleking again and the altimeter is reading 15m here looking due south.
2824	J2-797	12/1/2014	10:32:37	12.92230	143.64923	329	2921.7	So we're almost finished without pirouette around these beautiful chimneys
2826	J2-797	12/1/2014	10:33:18	12.92234	143.64927	315	2921.6	HIGHLIGHTS: End Highlights Finished with our video survey.
2827	J2-797	12/1/2014	10:33:37	12.92236	143.64928	303	2921.6	Automatic frame grabs are off too.
2829	J2-797	12/1/2014	10:34:19	12.92240	143.64923	174	2921.6	12 m off the bottom with Baltan in front of it.
2832	J2-797	12/1/2014	10:36:08	12.92235	143.64920	99	2926.4	Zooming in on the only marker we see in this area trying to figure out the number.
2834	J2-797	12/1/2014	10:37:17	12.92235	143.64920	100	2926.3	FRAMEGRABS: HD frame grab SciCam Close-up view of the only marker here. Looks like a very tall skinny tin can.
2836	J2-797	12/1/2014	10:38:23	12.92235	143.64920	99	2926.3	Pictures of this chimney that is probably Baltan.
2837	J2-797	12/1/2014	10:38:54	12.92234	143.64920	135	2926.2	HIGHLIGHTS: Record SciCam. Highlight video of what is probably Baltan. It looks very fluffy close up.
2840	J2-797	12/1/2014	10:40:18	12.92224	143.64924	149	2925.0	Moving the ship 10m to the south.
2841	J2-797	12/1/2014	10:40:37	12.92222	143.64925	148	2925.0	We have been looking at the Urashima Site.
2842	J2-797	12/1/2014	10:40:44	12.92222	143.64925	148	2925.0	NAV: Doppler Reset.
2850	J2-797	12/1/2014	10:47:32	12.92220	143.64923	139	2927.0	We are back at Snap Snap. The plan is mat sampling with the RNA Later scoop.
2854	J2-797	12/1/2014	10:50:34	12.92221	143.64923	139	2926.9	Searching for a sampling site here at Snap Snap for the Bio Mat Sampler. Scale worm; shrimp.
2855	J2-797	12/1/2014	10:50:54	12.92221	143.64923	139	2926.9	Crab carrying a shrimp?
2857	J2-797	12/1/2014	10:51:31	12.92221	143.64923	139	2926.9	HIGHLIGHTS: Record SciCam. The crab has something that it wants to eat; not sure if its a scaleworm.
2858	J2-797	12/1/2014	10:51:48	12.92221	143.64923	139	2926.9	HIGHLIGHTS: End Highlights.
2860	J2-797	12/1/2014	10:52:44	12.92221	143.64923	139	2926.9	SAMPLE: BM. Just turned the DSC auto-snaps off. Got more than enough footage there.
2866	J2-797	12/1/2014	10:57:48	12.92221	143.64924	152	2926.0	**SAMPLE: BM. J797-BM-B3-46** in iron mat at Snap Snap. This is kind of crusty mat. Z=2927. 12 55.331 143 38.954.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
2868	J2-797	12/1/2014	10:58:11	12.92222	143.64926	173	2925.2	Moving a little bit to try to find some softer iron mat to sample with the BMS.
2872	J2-797	12/1/2014	11:01:45	12.92221	143.64929	264	2926.9	Looking around for a better sampling site.
2875	J2-797	12/1/2014	11:03:04	12.92220	143.64925	252	2927.7	We're searching for the perfect fluffy iron mat.
2877	J2-797	12/1/2014	11:04:42	12.92220	143.64925	253	2927.9	This is an active chimney (of sorts). Beautiful orangish mat.
2884	J2-797	12/1/2014	11:10:32	12.92220	143.64925	253	2928.0	**SAMPLE: BM. J797-BM1-B2-47** in more fluffy mat on this small chimney-like structure coated in orangish fluffy mat.
2887	J2-797	12/1/2014	11:12:08	12.92220	143.64925	253	2928.0	**SAMPLE: BM. J797-BM1-B1-48.** Same structure. Lots of orange fluffy mat.
2889	J2-797	12/1/2014	11:13:23	12.92220	143.64925	253	2928.0	**SAMPLE: BM. J797-BM1-B6-49** on same structure. Orange fluffy iron mat.
2892	J2-797	12/1/2014	11:15:52	12.92220	143.64925	254	2928.0	Flushed out previous sample BM1-B3 so could get a better sample here. So sample 46 was expelled and will become a new sample number next.
2895	J2-797	12/1/2014	11:17:07	12.92220	143.64925	254	2928.0	SAMPLE: BM. J797-BM1-B3-49 (this syringe was expelled - listed earlier as sample 46 - will give it new sample number 49).
2896	J2-797	12/1/2014	11:17:59	12.92220	143.64925	254	2928.0	J797-BM1-B3-49 cont. Finished sample. All the syringes from cassette B came from Snap Snap.
2898	J2-797	12/1/2014	11:18:57	12.92220	143.64925	254	2928.0	Finished with the Bio mat Sampler for this dive.
2900	J2-797	12/1/2014	11:19:14	12.92220	143.64925	254	2928.0	Snap Snap pics.
2902	J2-797	12/1/2014	11:20:25	12.92220	143.64925	254	2928.0	Stowing the BMS.
2907	J2-797	12/1/2014	11:24:48	12.92220	143.64925	253	2928.0	**SAMPLE: Lscoop. J797-LScoop1-50** Iron bio mat sampler at Snap Snap. Starting out high on the structure.
2909	J2-797	12/1/2014	11:25:18	12.92220	143.64925	253	2928.0	The DNA and RNA get fixed in a substrate so that they don't have to worry about them until "later"; thus the Later Scoop.
2911	J2-797	12/1/2014	11:26:44	12.92220	143.64925	253	2928.0	797-LScoop1-50 cont. Can see there is some fluffy iron mat in the scoop.
2913	J2-797	12/1/2014	11:27:38	12.92220	143.64925	253	2927.9	797-LScoop1-50 cont. There is lots of iron mat in the tube. Continuing the sample on a nearby chimney-like face with evident flow.
2917	J2-797	12/1/2014	11:30:04	12.92220	143.64925	253	2927.9	797-LScoop1-50 cont. Filling this one up.
2918	J2-797	12/1/2014	11:30:55	12.92220	143.64925	254	2928.0	797-LScoop1-50 cont. May be enough.
2921	J2-797	12/1/2014	11:32:29	12.92220	143.64925	254	2928.0	797-LScoop1-50 cont. The sample valve closed but the RNA later valve fell off. The sample is good.
2924	J2-797	12/1/2014	11:34:50	12.92220	143.64926	252	2927.4	The next sample will be the Big Boy sampler.
2926	J2-797	12/1/2014	11:35:57	12.92220	143.64926	253	2926.7	Repositioning for the next sample. Putting the broken handle in the biobox.
2929	J2-797	12/1/2014	11:37:43	12.92220	143.64926	252	2926.7	In some areas where the orange mat was scraped off there is green underneath.
2931	J2-797	12/1/2014	11:38:17	12.92220	143.64926	252	2926.8	Pulling out the Big Boy Sampler.
2933	J2-797	12/1/2014	11:39:28	12.92221	143.64927	221	2927.8	Deciding where to sample.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
2937	J2-797	12/1/2014	11:42:57	12.92220	143.64927	229	2927.1	Zooming in on some weird fluffy looking-stuff. Lots of shimmer.
2941	J2-797	12/1/2014	11:45:11	12.92219	143.64927	241	2927.3	Trying to decide where to sample here.
2944	J2-797	12/1/2014	11:47:14	12.92219	143.64926	234	2927.6	**SAMPLE: BBScoop. J797-BBScoop1-51** Not far from the previous sampling site. Going for more of the fluffy mat on a small odd chimney. Looks like some white mat nearby as well.
2945	J2-797	12/1/2014	11:47:34	12.92218	143.64926	233	2927.6	CORRECTION. Haven't started sample yet.
2947	J2-797	12/1/2014	11:48:21	12.92218	143.64926	233	2927.4	HIGHLIGHTS: Record SciCam. J797-BBScoop-51 sample footage.
2950	J2-797	12/1/2014	11:50:05	12.92218	143.64926	233	2927.4	SAMPLE: BBScoop. J797-BBScoop-51 scooped. Can't use 2 hands on this because it will "destroy the structure".
2951	J2-797	12/1/2014	11:50:29	12.92218	143.64926	233	2927.4	HIGHLIGHTS: End Highlights.
2955	J2-797	12/1/2014	11:53:43	12.92222	143.64924	283	2921.0	Got some good stuff.
2959	J2-797	12/1/2014	11:56:26	12.92230	143.64922	279	2928.8	Going to grab a piece of active chimney. There are shrimp all over the bottom of this active chimney.
2964	J2-797	12/1/2014	12:00:17	12.92230	143.64919	354	2927.6	Want to grab an active chimney in the vicinity of Shar-pen. Not sure which they are going to take.
2969	J2-797	12/1/2014	12:04:07	12.92228	143.64924	349	2922.1	**SAMPLE: Sulfide. J797-Sulfide-52** Going for a piece of chimney in the area of Shar-Pen. It seemed to crumble quite a lot but most landed in the biobox.
2971	J2-797	12/1/2014	12:05:38	12.92227	143.64925	351	2921.2	Dropping the dive weights.
2975	J2-797	12/1/2014	12:08:42	12.92224	143.64918	298	2914.1	JASON: Jason off bottom.

5.7-2 J2-798 NW Eifuku

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
Jason Dive J2-798. NW Eifuku. Summit of NW Eifuku 21 29.229'N 144 0.555'E Z=1540. Main goals: Recon; BioMat; Scoop; Fluid sampling; Deploy settling traps; Proto traps and Slide Traps. Tasks: 1) Recon area. 2) Move elevator to sampling area. 3) Collect 10 min of Reson MB data. 4) Deploy ProtoTraps; SettlementPlates; Slide Traps; ShrimpTraps; MTRs. 5) Down-looking photomosaic with Super Scorpio and Plankton Net. 6) Opportunistic Sampling with BioMat; HFS; Majors; Gastights; LaterScoops. 7) Collect mussels in Mussel Bags. Mussel video transects. 8) Reson MB survey.								
3095	J2-798	12/4/2014	22:34:43	21.48760	144.04176	331	1.5	JASON: Jason in water.
3158	J2-798	12/4/2014	23:42:28	21.48741	144.04220	59	1531.2	JASON: Jason on bottom.
3159	J2-798	12/4/2014	23:42:39	21.48740	144.04221	71	1530.1	Z=1530.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
3178	J2-798	12/4/2014	23:51:12	21.48740	144.04222	166	1536.8	Elevator is to the NW or us. Going us to 50m for transit to elevator to check out the Reson.
3180	J2-798	12/4/2014	23:52:31	21.48746	144.04220	167	1536.5	Elevator is 50-60m W/NW.
3181	J2-798	12/4/2014	23:52:45	21.48747	144.04220	167	1536.6	Pulling off the bottom to test the Reson and head to elevator.
3186	J2-798	12/4/2014	23:56:51	21.48740	144.04221	185	1536.5	Champagne is 1605m. We're up on a cliff.
3188	J2-798	12/4/2014	23:56:56	21.48740	144.04221	185	1536.6	NAV: Doppler Reset
3190	J2-798	12/4/2014	23:58:40	21.48741	144.04221	185	1536.5	Our summit depth from previous cruises is 1536. We're at 1536 now and staring at a cliff so we're not at the summit yet.
3192	J2-798	12/4/2014	23:58:59	21.48741	144.04221	185	1536.5	Talus on slope.
3196	J2-798	12/5/2014	0:02:39	21.48745	144.04219	200	1536.4	We're recording video. The ship is on the move.
3198	J2-798	12/5/2014	0:03:41	21.48747	144.04219	200	1536.5	MBSURVEY: Start Line Reson is recording now for patch test.
3202	J2-798	12/5/2014	0:05:59	21.48752	144.04215	198	1539.5	We're at the top of a ridge. Is this the summit? Z=1539.
3203	J2-798	12/5/2014	0:06:24	21.48753	144.04215	198	1544.1	Steep outcropping ridge here.
3206	J2-798	12/5/2014	0:08:06	21.48763	144.04207	196	1548.4	Our altitude says 28m but we are staring at a cliff. Must be hanging over the side.
3207	J2-798	12/5/2014	0:08:47	21.48767	144.04201	195	1555.5	This is a steep narrow ridge in front of us. We're driving NW but facing south.
3209	J2-798	12/5/2014	0:09:21	21.48769	144.04196	197	1555.7	The SuperScorpio shows a steep ridge.
3210	J2-798	12/5/2014	0:09:48	21.48770	144.04192	197	1555.7	The bottom just dropped off in the SuperScorpio.
3213	J2-798	12/5/2014	0:11:25	21.48763	144.04184	133	1564.9	Elevator in sight.
3214	J2-798	12/5/2014	0:11:31	21.48763	144.04184	134	1566.6	MBSURVEY: End Line
3215	J2-798	12/5/2014	0:11:36	21.48763	144.04184	134	1567.7	Stopped recording.
3217	J2-798	12/5/2014	0:12:09	21.48762	144.04185	133	1571.5	FRAMEGRABS: HD frame grab SciCam Elevator in sci cam.
3218	J2-798	12/5/2014	0:12:38	21.48761	144.04184	134	1571.8	It looks like everything is on the elevator. Z=1572.
3219	J2-798	12/5/2014	0:12:50	21.48761	144.04184	134	1571.8	FRAMEGRABS: HD frame grab SciCam Elevator and instruments.
3221	J2-798	12/5/2014	0:13:26	21.48761	144.04183	134	1571.8	Mussels; squat lobsters; white microbial mat.
3222	J2-798	12/5/2014	0:13:40	21.48761	144.04183	134	1571.9	Elevator is on the side of a very steep slope.
3224	J2-798	12/5/2014	0:14:13	21.48761	144.04182	134	1571.8	FRAMEGRABS: HD frame grab SciCam
3225	J2-798	12/5/2014	0:14:32	21.48761	144.04182	134	1571.8	NAV: Doppler Reset doppler and USBL.
3227	J2-798	12/5/2014	0:15:46	21.48760	144.04182	129	1571.8	NAV: Navigator target Elevator on bottom-14.
3229	J2-798	12/5/2014	0:16:16	21.48761	144.04181	130	1571.9	The plan is to look around a bit before doing anything else.
3232	J2-798	12/5/2014	0:18:48	21.48762	144.04178	134	1571.8	Going to head S about 50m to the old Sulfur Slope target and will then run a grid pattern.
3234	J2-798	12/5/2014	0:19:12	21.48761	144.04176	134	1572.5	We'll go there and then pick out a grid and go laterally.
3237	J2-798	12/5/2014	0:20:58	21.48752	144.04179	133	1573.5	Lots of mussels here and white bacterial mat.
3244	J2-798	12/5/2014	0:22:36	21.48753	144.04175	135	1575.4	Jimmy is backing down the slope. We're pointing SE now and it's going down facing the slope.
3246	J2-798	12/5/2014	0:22:57	21.48752	144.04175	134	1576.3	Seeing white bacterial mat; mussels. No obvious shimmer.
3249	J2-798	12/5/2014	0:25:23	21.48751	144.04173	134	1577.0	FRAMEGRABS: HD frame grab SciCam Zooming in on mussels and squat lobsters.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
3250	J2-798	12/5/2014	0:25:32	21.48751	144.04173	134	1577.0	SENSOR: pH. Starting pH sensor.
3253	J2-798	12/5/2014	0:26:57	21.48752	144.04169	134	1576.9	HIGHLIGHTS: Record SciCam
3257	J2-798	12/5/2014	0:30:09	21.48748	144.04160	141	1578.9	SciCam Highlights are still on. Looking at this steep cliff covered with mussels and squat lobsters.
3258	J2-798	12/5/2014	0:30:35	21.48747	144.04159	141	1579.5	HIGHLIGHTS: End Highlights
3260	J2-798	12/5/2014	0:31:39	21.48749	144.04156	77	1582.3	SuperScorpio is showing how steep the cliff is. HD Framegrabs.
3262	J2-798	12/5/2014	0:32:25	21.48748	144.04156	41	1583.1	SENSOR: pH. Values minimum 6.2. This is now actual pH; not just volts.
3266	J2-798	12/5/2014	0:34:28	21.48745	144.04154	50	1587.0	Seeing some liquid CO2 bubbles coming up in the SuperScorpio.
3268	J2-798	12/5/2014	0:34:56	21.48743	144.04151	51	1589.4	Seeing liquid CO2 in all the cameras now.
3269	J2-798	12/5/2014	0:35:13	21.48742	144.04150	50	1591.5	We're pretty close to the Champagne 2006 position.
3270	J2-798	12/5/2014	0:35:34	21.48741	144.04149	50	1593.2	Looking down to see if there are smokers down there.
3271	J2-798	12/5/2014	0:35:47	21.48740	144.04147	51	1594.7	The walls could be sulfur or mat covered.
3273	J2-798	12/5/2014	0:36:01	21.48741	144.04146	50	1596.2	Bubbles rising from below.
3274	J2-798	12/5/2014	0:36:38	21.48739	144.04144	50	1600.9	We will be grabbing frames as we go on the recon mission. Mainly Sci Cam and SuperScorpio right now.
3275	J2-798	12/5/2014	0:36:51	21.48739	144.04143	50	1601.8	Mussels along this cliff face. It's really steep.
3277	J2-798	12/5/2014	0:37:23	21.48736	144.04141	341	1602.3	Seeing smoke in the SuperScorpio now.
3278	J2-798	12/5/2014	0:37:39	21.48734	144.04143	277	1602.1	What's the source of smoke below us?
3280	J2-798	12/5/2014	0:38:16	21.48733	144.04144	228	1605.6	Lots of smoke in the Sci Cam.
3284	J2-798	12/5/2014	0:40:53	21.48732	144.04133	54	1612.2	We're at the SulfurSlope Target. Massive amounts of mussels on the rocks on the white slope (probably sulfur).
3286	J2-798	12/5/2014	0:42:48	21.48731	144.04132	42	1611.8	HIGHLIGHTS: Record SciCam. Dense mussels on this steep slope. Seeing mussels and squat lobsters.
3288	J2-798	12/5/2014	0:43:04	21.48732	144.04132	44	1613.1	Zooming out a bit for wider view.
3289	J2-798	12/5/2014	0:43:09	21.48732	144.04133	43	1613.4	That's nice imagery.
3290	J2-798	12/5/2014	0:43:30	21.48731	144.04134	43	1614.1	Wide view of the whole area.
3291	J2-798	12/5/2014	0:43:33	21.48731	144.04134	43	1614.0	HIGHLIGHTS: End Highlights.
3292	J2-798	12/5/2014	0:43:40	21.48731	144.04134	44	1614.1	NAV: Doppler Reset.
3294	J2-798	12/5/2014	0:44:12	21.48730	144.04133	44	1614.7	Continuing to back down the slope.
3295	J2-798	12/5/2014	0:44:37	21.48730	144.04134	44	1614.7	We saw the smoke from Champagne. It must have been off to the west of us.
3296	J2-798	12/5/2014	0:44:45	21.48730	144.04134	43	1614.9	We're continuing down the slope.
3299	J2-798	12/5/2014	0:46:46	21.48729	144.04133	44	1615.6	Backing down the slope.
3301	J2-798	12/5/2014	0:47:46	21.48728	144.04133	44	1615.7	Craig is taking some HD grabs with the SuperScorpio. Shrimp here and mussels and squat lobsters.
3304	J2-798	12/5/2014	0:49:17	21.48721	144.04130	242	1615.3	Big slab of sulfur. Lots of smoke in the area.
3305	J2-798	12/5/2014	0:49:30	21.48720	144.04129	235	1615.5	Not sure where the smoke is coming from.
3307	J2-798	12/5/2014	0:50:06	21.48718	144.04125	250	1616.7	"Smoking is good for mussels - says Craig'.
3309	J2-798	12/5/2014	0:50:55	21.48720	144.04120	11	1618.5	Lots of smoke in the SciCam.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
3311	J2-798	12/5/2014	0:52:03	21.48719	144.04121	91	1619.5	Warm water is coming out here. SW of Sulfur Smoke and N of Top Towers.
3312	J2-798	12/5/2014	0:52:33	21.48718	144.04121	91	1619.5	Venting going on here.
3315	J2-798	12/5/2014	0:54:33	21.48717	144.04122	90	1620.2	HIGHLIGHTS: Record SciCam. Scaleworms; Shrimp; 2 mussels. Looking at a snail. Mussel and a hold fast. Shrimp scrambling up the slope.
3317	J2-798	12/5/2014	0:55:24	21.48716	144.04122	90	1620.2	Shrimp and mussels. To the right are snails. Small mussels.
3318	J2-798	12/5/2014	0:55:50	21.48715	144.04122	90	1620.2	The shells are "pristine". There are limpets and snails.
3320	J2-798	12/5/2014	0:56:02	21.48715	144.04122	90	1620.2	HIGHLIGHTS: End Highlights.
3321	J2-798	12/5/2014	0:56:45	21.48715	144.04121	90	1620.2	The shrimp we were seeing are probably Alvinocaris.
3323	J2-798	12/5/2014	0:57:16	21.48715	144.04120	90	1620.2	Lots of little snails here. They are a bit camouflaged with iron-staining.
3324	J2-798	12/5/2014	0:57:51	21.48715	144.04119	90	1620.2	The swirly guys are snails. The pointy guys are limpets.
3326	J2-798	12/5/2014	0:58:31	21.48715	144.04119	90	1620.2	Doing a bit of maintenance here because there is a rope in front of the sci cam.
3328	J2-798	12/5/2014	0:59:00	21.48716	144.04118	90	1620.2	Scaleworm.
3330	J2-798	12/5/2014	0:59:59	21.48716	144.04118	91	1620.3	HIGHLIGHTS: Record SciCam. Looking around here again. There is some venting.
3331	J2-798	12/5/2014	1:00:50	21.48717	144.04119	91	1620.2	FRAMEGRABS: HD frame grab SciCam. The 2 types of shrimp are here. Alvinocaris and Opapaeli.
3335	J2-798	12/5/2014	1:02:08	21.48716	144.04120	91	1620.2	Zooming in on shrimps backside and scaleworm.
3337	J2-798	12/5/2014	1:03:13	21.48717	144.04120	91	1620.3	HIGHLIGHTS: Record SciCam.
3338	J2-798	12/5/2014	1:03:47	21.48717	144.04121	91	1620.3	These Scaleworms seem to have 2 rows of scales.
3341	J2-798	12/5/2014	1:04:15	21.48717	144.04121	91	1620.2	Shimmer in the background here.
3343	J2-798	12/5/2014	1:05:04	21.48716	144.04121	91	1620.3	Zooming out to get a wider view of this area. Not that many mussels here actually.
3344	J2-798	12/5/2014	1:05:07	21.48716	144.04121	91	1620.2	HIGHLIGHTS: End Highlights.
3346	J2-798	12/5/2014	1:06:01	21.48716	144.04121	91	1619.7	Backing away. Heading down a bit farther.
3347	J2-798	12/5/2014	1:06:17	21.48716	144.04120	90	1619.9	Seeing more smoke beneath us in the SuperScorpio.
3350	J2-798	12/5/2014	1:08:20	21.48715	144.04117	71	1622.0	Doing a ballast check.
3351	J2-798	12/5/2014	1:08:41	21.48715	144.04116	71	1622.1	Zooming in on the shrimp and mussels while doing ballast check.
3354	J2-798	12/5/2014	1:10:03	21.48713	144.04116	71	1622.2	Looking at some shimmer here coming out between these lava blocks on this steep slope.
3356	J2-798	12/5/2014	1:11:03	21.48710	144.04116	71	1623.1	Tambient here is 2.5.
3359	J2-798	12/5/2014	1:13:02	21.48706	144.04116	72	1623.5	Drifting away from the bottom. Still ballast checking. Pulling out a weight.
3363	J2-798	12/5/2014	1:16:44	21.48702	144.04120	39	1624.6	NAV: Doppler Reset.
3367	J2-798	12/5/2014	1:19:51	21.48705	144.04117	42	1624.0	We're preparing to start a photo mosaic.
3373	J2-798	12/5/2014	1:24:16	21.48709	144.04117	53	1623.6	PHOTOMOSAIC: Start Line. Downward Looking mosaic with the SuperScorpio.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
3375	J2-798	12/5/2014	1:25:17	21.48720	144.04114	55	1623.7	Driving a line to the SW along this depth. Then step up and head NW to SE. Then step up again. Traveling along a contour.
3378	J2-798	12/5/2014	1:27:06	21.48727	144.04115	58	1623.5	Auto depth with the ROV and just moving along the slope. His heading is to the NE and facing the slope but we're traveling to the NW.
3379	J2-798	12/5/2014	1:27:43	21.48727	144.04116	58	1623.5	HIGHLIGHTS: Record SciCam. Looking at what we think is the lower end of Sulfur Slope.
3381	J2-798	12/5/2014	1:28:13	21.48729	144.04116	58	1623.6	Venting on the sulfur slope and lots of shrimp.
3383	J2-798	12/5/2014	1:28:59	21.48732	144.04116	58	1623.6	HIGHLIGHTS: End Highlights.
3384	J2-798	12/5/2014	1:29:26	21.48735	144.04117	58	1623.5	Nice transition here between the sulfur slope and the mussels.
3386	J2-798	12/5/2014	1:30:30	21.48742	144.04117	58	1623.5	Sulfur outcrop here with a little bit of venting.
3388	J2-798	12/5/2014	1:31:32	21.48745	144.04117	58	1623.5	Blocky slope; mussels; sulfur.
3389	J2-798	12/5/2014	1:31:39	21.48746	144.04116	58	1623.5	NAV: Doppler Reset.
3391	J2-798	12/5/2014	1:32:37	21.48748	144.04114	41	1623.5	Squat lobsters and mussels on sulfur slope. Mussels are on the rock outcrops.
3394	J2-798	12/5/2014	1:34:39	21.48754	144.04110	40	1623.6	Tons of mussels here. Crazy!
3396	J2-798	12/5/2014	1:35:03	21.48760	144.04108	41	1623.4	~10m N of Ice Cream.
3399	J2-798	12/5/2014	1:36:59	21.48767	144.04098	7	1623.3	The mussels are thinning out here now.
3403	J2-798	12/5/2014	1:39:54	21.48776	144.04093	85	1622.1	Going around a corner here. The mussels have thinned out to almost nothing.
3404	J2-798	12/5/2014	1:40:11	21.48777	144.04094	100	1622.3	Moving around the nose of this ridge. Pillow tube on the slope.
3405	J2-798	12/5/2014	1:40:50	21.48777	144.04097	100	1622.2	Heading to Ski Slope on this line.
3407	J2-798	12/5/2014	1:41:31	21.48777	144.04098	110	1622.2	Looking at large pillows.
3408	J2-798	12/5/2014	1:41:45	21.48777	144.04100	110	1619.5	PHOTOMOSAIC: End Line. We're at 1622 meters.
3410	J2-798	12/5/2014	1:42:08	21.48775	144.04106	110	1616.1	Heading up slope over these iron-coated pillows.
3411	J2-798	12/5/2014	1:42:41	21.48776	144.04109	109	1613.7	Heading up slope over pillows with lots of squat lobsters and shrimp too.
3415	J2-798	12/5/2014	1:45:49	21.48787	144.04120	112	1613.3	Shift Change now. We have reached the end of the first line.
3422	J2-798	12/5/2014	1:51:37	21.48800	144.04137	113	1612.2	PHOTOMOSAIC: Start Line. Heading to Ski Slope.
3427	J2-798	12/5/2014	1:55:39	21.48813	144.04129	39	1603.5	NAV: Navigator target. RustySpire-14 nav target.
3431	J2-798	12/5/2014	1:57:54	21.48816	144.04112	99	1618.6	NAV: Doppler Reset.
3436	J2-798	12/5/2014	2:02:03	21.48815	144.04089	103	1631.7	FRAMEGRABS: HD frame grab SciCam. Ski-Slope-14.
3443	J2-798	12/5/2014	2:08:03	21.48803	144.04066	123	1641.2	FRAMEGRABS: HD frame grab SciCam. Clam.
3445	J2-798	12/5/2014	2:09:13	21.48812	144.04068	131	1643.2	FRAMEGRABS: HD frame grab SciCam. Fish.
3446	J2-798	12/5/2014	2:09:19	21.48813	144.04067	116	1642.9	No clams at this site?
3451	J2-798	12/5/2014	2:12:55	21.48827	144.04101	164	1635.5	Blue fuzzies.
3452	J2-798	12/5/2014	2:13:15	21.48830	144.04105	101	1637.0	Iron mats.
3454	J2-798	12/5/2014	2:13:56	21.48839	144.04103	60	1638.9	Don't see many animals on iron mats; more animals on rocks and sulfur-based mats.
3458	J2-798	12/5/2014	2:17:07	21.48844	144.04085	221	1659.5	Getting into the iron mats.
3461	J2-798	12/5/2014	2:19:39	21.48846	144.04063	115	1670.2	Vesicomyid.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
3462	J2-798	12/5/2014	2:19:45	21.48846	144.04061	116	1670.9	Just a shell.
3466	J2-798	12/5/2014	2:22:08	21.48854	144.04037	103	1681.5	Headed toward Yellow-Top.
3468	J2-798	12/5/2014	2:23:30	21.48849	144.04050	103	1677.0	At Yellow-Top according to Nav; getting shallower to 1675 where site was seen in 2004.
3470	J2-798	12/5/2014	2:24:29	21.48840	144.04051	138	1674.9	At depth of 1675 meters; looking around.
3471	J2-798	12/5/2014	2:24:52	21.48838	144.04046	137	1675.2	Fish under rock.
3474	J2-798	12/5/2014	2:26:03	21.48829	144.04036	167	1672.3	Big boulder with some iron mats.
3475	J2-798	12/5/2014	2:26:43	21.48828	144.04035	167	1672.7	NAV: Navigator target. Yellow-Top-14
3477	J2-798	12/5/2014	2:27:12	21.48828	144.04035	188	1672.8	Pretty nice iron mats; different shades of orange. Large holes in places possibly caused by an animal?
3479	J2-798	12/5/2014	2:27:55	21.48829	144.04034	188	1672.8	Rocks sticking out of face with iron mats filling cracks.
3482	J2-798	12/5/2014	2:30:00	21.48829	144.04034	189	1673.5	NAV: Doppler Reset
3483	J2-798	12/5/2014	2:30:06	21.48829	144.04034	190	1673.5	Light veils.
3484	J2-798	12/5/2014	2:30:28	21.48829	144.04035	189	1673.5	NAV: Doppler Reset
3485	J2-798	12/5/2014	2:30:51	21.48828	144.04035	189	1673.5	FRAMEGRABS: HD frame grab SciCam. Red shrimp top right.
3487	J2-798	12/5/2014	2:31:16	21.48829	144.04035	189	1673.6	FRAMEGRABS: HD frame grab SciCam.
3488	J2-798	12/5/2014	2:31:40	21.48829	144.04035	189	1673.6	Red shrimp with white spot-haven't seen before.
3490	J2-798	12/5/2014	2:32:26	21.48828	144.04039	190	1673.7	HIGHLIGHTS: Record SciCam Red shrimp on veil iron mat.
3491	J2-798	12/5/2014	2:32:28	21.48827	144.04040	190	1673.7	HIGHLIGHTS: End Highlights.
3495	J2-798	12/5/2014	2:34:03	21.48839	144.04044	107	1674.6	Lots of rocks covering sediments. Some small things swimming through water column.
3497	J2-798	12/5/2014	2:35:37	21.48852	144.04053	71	1677.6	Not much activity at these sites. A little bit of a temperature bump but not much.
3499	J2-798	12/5/2014	2:36:29	21.48859	144.04044	22	1677.6	Heading to Bacteria-Balls.
3501	J2-798	12/5/2014	2:37:49	21.48864	144.04042	18	1674.6	Moving north; about to head up and over a ridge; coming up about 50-60 meters.
3504	J2-798	12/5/2014	2:39:49	21.48870	144.04047	211	1673.3	CORRECTION: will be going DOWN 50-60 meters to depth of 1715 meters for Bacterial-Balls.
3507	J2-798	12/5/2014	2:41:28	21.48871	144.04046	211	1673.3	Waiting for the ship to move.
3510	J2-798	12/5/2014	2:43:52	21.48876	144.04047	210	1677.7	Crusty iron.
3512	J2-798	12/5/2014	2:44:23	21.48877	144.04050	183	1679.3	Not many rocks here; mostly sediments; looks rippled.
3513	J2-798	12/5/2014	2:44:51	21.48877	144.04050	176	1679.3	Sulfur streamers.
3515	J2-798	12/5/2014	2:45:10	21.48878	144.04050	176	1679.4	White streamers.
3517	J2-798	12/5/2014	2:46:42	21.48882	144.04051	185	1685.1	Getting rockier. Some fluffy mats scattered on rocks.
3520	J2-798	12/5/2014	2:48:30	21.48892	144.04045	134	1691.8	At 1690 meters now. Slowly descending to 1715 meters.
3523	J2-798	12/5/2014	2:50:16	21.48899	144.04042	160	1697.5	White bubbly animals on rock.
3524	J2-798	12/5/2014	2:50:38	21.48900	144.04042	159	1698.9	Don't know what they are. Too small to be anemones.
3527	J2-798	12/5/2014	2:52:05	21.48914	144.04039	171	1702.6	Heading away from old Bacterial-Balls nav site because it's not at the recorded depth. Still getting to 1715 m.
3528	J2-798	12/5/2014	2:52:27	21.48918	144.04038	170	1704.5	Fish.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
3532	J2-798	12/5/2014	2:55:17	21.48917	144.04037	175	1708.4	Some scattered rocks on sandy sediments.
3533	J2-798	12/5/2014	2:55:39	21.48918	144.04037	175	1708.4	Some iron mats. Craig thinks we're seeing the source of the bacterial balls. Some thin mats.
3535	J2-798	12/5/2014	2:56:02	21.48918	144.04037	175	1708.4	Maybe not enough water flowing to initiate rolling of balls.
3536	J2-798	12/5/2014	2:56:40	21.48919	144.04038	187	1708.2	Patches of iron but mostly barren.
3537	J2-798	12/5/2014	2:56:42	21.48919	144.04038	192	1708.2	Not many animals.
3539	J2-798	12/5/2014	2:56:56	21.48920	144.04038	189	1708.8	At 1708m heading a little deeper now.
3540	J2-798	12/5/2014	2:57:28	21.48924	144.04037	194	1710.6	Last time 1715m was the lower extent and balls were all the way up the slope. Not seeing that now.
3543	J2-798	12/5/2014	2:58:57	21.48927	144.04033	201	1711.7	Some okay looking mat. Debating whether to mark it. There's no flow.
3544	J2-798	12/5/2014	2:59:52	21.48928	144.04034	201	1711.7	No balls here. Renaming site.
3547	J2-798	12/5/2014	3:01:05	21.48929	144.04034	201	1714.0	NAV: Navigator target Not-Dead-Yet-14
3548	J2-798	12/5/2014	3:01:14	21.48929	144.04033	199	1714.2	Seeing some fresher looking mat now.
3549	J2-798	12/5/2014	3:01:20	21.48930	144.04032	201	1714.4	Definitely not dead yet!
3552	J2-798	12/5/2014	3:03:20	21.48936	144.04031	201	1718.0	Finding more extensive mats. Still haven't found any venting.
3553	J2-798	12/5/2014	3:03:42	21.48936	144.04031	201	1718.0	Lots of scattered rocks all surrounded with iron mats.
3555	J2-798	12/5/2014	3:04:23	21.48936	144.04032	201	1718.1	Going to see how deep this goes.
3557	J2-798	12/5/2014	3:05:31	21.48939	144.04032	201	1719.5	Swimming eel-like animal.
3558	J2-798	12/5/2014	3:05:48	21.48939	144.04032	201	1719.4	Not much macrobiota here.
3563	J2-798	12/5/2014	3:08:23	21.48943	144.04033	198	1722.6	Still seeing same kind of terrain; rocks and mat.
3564	J2-798	12/5/2014	3:08:48	21.48944	144.04033	200	1723.1	A little veil on the surface.
3567	J2-798	12/5/2014	3:09:59	21.48947	144.04033	201	1723.8	Seeing some balls.
3568	J2-798	12/5/2014	3:10:04	21.48947	144.04033	201	1723.9	FRAMEGRABS: HD frame grab SciCam
3571	J2-798	12/5/2014	3:11:08	21.48947	144.04033	201	1724.5	We're definitely in the ballpark.
3572	J2-798	12/5/2014	3:11:47	21.48947	144.04033	201	1726.4	Craig says balls went from ping-pong size (last time they were here) to rabbit turds this time.
3574	J2-798	12/5/2014	3:12:07	21.48948	144.04032	200	1726.2	At 1726 meters.
3575	J2-798	12/5/2014	3:12:17	21.48948	144.04032	200	1726.0	FRAMEGRABS: HD frame grab SciCam. Blue animals.
3577	J2-798	12/5/2014	3:13:44	21.48948	144.04031	201	1726.8	Amphipod or shrimp? Next to blue/clear animal.
3579	J2-798	12/5/2014	3:13:57	21.48948	144.04031	201	1726.9	FRAMEGRABS: HD frame grab SciCam.
3581	J2-798	12/5/2014	3:15:13	21.48948	144.04029	193	1727.0	Heading back up and over to Yellow-Cone now.
3582	J2-798	12/5/2014	3:15:38	21.48951	144.04033	148	1726.8	Bottom is completely covered by rocks now. Don't see much macrobiota or bacterial mats either.
3585	J2-798	12/5/2014	3:17:03	21.48939	144.04050	135	1725.8	Still doing "photomosaic" even though not going in an organized line or grid pattern. Scoping out area to try to locate good sites.
3587	J2-798	12/5/2014	3:18:49	21.48929	144.04057	135	1722.0	Heading to Yellow-Cone.
3589	J2-798	12/5/2014	3:19:46	21.48928	144.04057	134	1719.5	More sand in this area.
3594	J2-798	12/5/2014	3:22:53	21.48925	144.04059	204	1718.7	Very steep slope; sand and rocks look like they've been sliding
3595	J2-798	12/5/2014	3:23:01	21.48926	144.04059	204	1718.6	Not many rocks; mostly sand in this area.
3597	J2-798	12/5/2014	3:24:11	21.48926	144.04062	169	1718.8	Still not much biota.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
3599	J2-798	12/5/2014	3:25:09	21.48924	144.04067	174	1718.1	Some more iron mats and rocks coming.
3600	J2-798	12/5/2014	3:25:40	21.48922	144.04068	182	1717.5	Crack in the rock with interesting iron. Sandy area under overhang with balls of iron.
3602	J2-798	12/5/2014	3:26:01	21.48922	144.04068	181	1717.7	Looks like some kind of old flow point.
3603	J2-798	12/5/2014	3:26:34	21.48922	144.04068	194	1717.8	Looks like bands of different colored iron in rock.
3605	J2-798	12/5/2014	3:27:06	21.48922	144.04068	194	1717.8	Bright big iron balls.
3606	J2-798	12/5/2014	3:27:15	21.48922	144.04067	194	1717.8	Switching to pilot cam for frame grabs.
3607	J2-798	12/5/2014	3:27:19	21.48922	144.04067	194	1717.8	FRAMEGRABS: HD frame grab PilotCam.
3608	J2-798	12/5/2014	3:27:29	21.48922	144.04067	194	1717.8	FRAMEGRABS: HD frame grab PilotCam. Balls!
3611	J2-798	12/5/2014	3:29:00	21.48922	144.04066	194	1717.8	FRAMEGRABS: HD frame grab SciCam. Bacteria Balls.
3612	J2-798	12/5/2014	3:29:12	21.48922	144.04066	194	1717.8	Still taking pictures every 10 seconds.
3614	J2-798	12/5/2014	3:30:40	21.48915	144.04073	139	1710.8	Smaller rocks here. Lots scattered around; not many big rocks or other features
3616	J2-798	12/5/2014	3:30:55	21.48914	144.04074	144	1709.7	Turned off 10 second pictures.
3618	J2-798	12/5/2014	3:32:06	21.48906	144.04081	137	1704.7	NAV: Navigator target. Bacto-Balls-14 depth: 1717 meters. Heading: 180.
3619	J2-798	12/5/2014	3:32:31	21.48902	144.04085	136	1700.6	SuperScorpio photos still being taken for photomosaic.
3620	J2-798	12/5/2014	3:32:38	21.48902	144.04085	136	1698.7	Now at the cliff face.
3624	J2-798	12/5/2014	3:34:36	21.48887	144.04093	136	1690.7	Seeing some bigger boulders now; still lots of smaller rocks. Surrounded by dead-looking mat.
3626	J2-798	12/5/2014	3:35:20	21.48887	144.04094	136	1689.3	FRAMEGRABS: HD frame grab PilotCam. Bivalve shell buried in mat.
3627	J2-798	12/5/2014	3:35:47	21.48886	144.04096	136	1687.6	FRAMEGRABS: HD frame grab SciCam. Spaces that aren't covered by rocks are rusty.
3629	J2-798	12/5/2014	3:36:12	21.48886	144.04096	123	1685.6	Hardly any intact lava flows; they are all broken up.
3630	J2-798	12/5/2014	3:36:36	21.48885	144.04098	125	1683.4	Coming up to a ridge top.
3634	J2-798	12/5/2014	3:39:02	21.48882	144.04106	95	1675.3	Top of ridge-looks like some flow came through here.
3635	J2-798	12/5/2014	3:39:31	21.48883	144.04108	106	1675.0	Mats covering jagged rock face. Fresh iron mats scattered throughout.
3636	J2-798	12/5/2014	3:39:36	21.48883	144.04108	105	1675.2	Looking for possible flow.
3638	J2-798	12/5/2014	3:40:11	21.48883	144.04108	105	1674.8	Lots of different colors covering rock-all shades of orange; white.
3639	J2-798	12/5/2014	3:40:25	21.48882	144.04109	107	1674.5	Sharp pillow lava ridge.
3640	J2-798	12/5/2014	3:40:42	21.48882	144.04109	107	1674.1	FRAMEGRABS: HD frame grab PilotCam. Ridge with good/colorful mats.
3641	J2-798	12/5/2014	3:40:49	21.48881	144.04109	105	1674.0	FRAMEGRABS: HD frame grab SciCam. Flow seems unlikely at this spot.
3643	J2-798	12/5/2014	3:41:28	21.48881	144.04109	119	1673.3	At 1673 meters depth.
3644	J2-798	12/5/2014	3:41:39	21.48879	144.04109	150	1673.3	FRAMEGRABS: HD frame grab PilotCam. Ridge.
3647	J2-798	12/5/2014	3:43:05	21.48878	144.04109	126	1670.7	NAV: Navigator target Rotten-Ridge-14. Depth: 1763 m. Heading: 135.
3649	J2-798	12/5/2014	3:43:27	21.48876	144.04109	123	1671.7	FRAMEGRABS: HD frame grab PilotCam. White crusty.
3651	J2-798	12/5/2014	3:44:08	21.48869	144.04113	129	1659.6	Ridge is very tall and steep. Going to look at other side.
3652	J2-798	12/5/2014	3:44:25	21.48866	144.04114	125	1656.3	Jagged and rocky; don't see much life.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
3654	J2-798	12/5/2014	3:44:55	21.48864	144.04115	124	1652.8	Some white filamentous mat.
3655	J2-798	12/5/2014	3:45:48	21.48863	144.04117	126	1649.7	Flat surface covered with orange and white mat.
3657	J2-798	12/5/2014	3:46:00	21.48862	144.04117	127	1649.1	FRAMEGRABS: HD frame grab PilotCam. Orange and white mat.
3658	J2-798	12/5/2014	3:46:24	21.48861	144.04117	125	1646.6	Fresh mat; lots of holes in the mat.
3660	J2-798	12/5/2014	3:47:35	21.48859	144.04116	310	1644.5	NAV: Navigator target. Upper-Rotten-Ridge-14 Depth: 1643. Heading: 260.
3662	J2-798	12/5/2014	3:48:01	21.48857	144.04118	294	1646.5	No critters here.
3664	J2-798	12/5/2014	3:49:12	21.48855	144.04123	292	1650.7	Still not seeing any animals here.
3666	J2-798	12/5/2014	3:50:22	21.48853	144.04126	296	1659.3	Plan is to head over to Yellow-Cone and then look at Cliffhouse and Champagne to decide where to do photomosaic grids.
3670	J2-798	12/5/2014	3:53:21	21.48845	144.04150	131	1658.6	White mass with crab on it.
3671	J2-798	12/5/2014	3:53:32	21.48845	144.04150	131	1658.9	FRAMEGRABS: HD frame grab PilotCam. White glob with crab.
3673	J2-798	12/5/2014	3:53:54	21.48843	144.04151	131	1659.6	**FRAMEGRABS: HD frame grab SciCam. Strange white mound surrounded by barren rocks. Not sure what it is.**
3674	J2-798	12/5/2014	3:54:02	21.48843	144.04151	132	1659.6	Seems very out of place.
3676	J2-798	12/5/2014	3:54:55	21.48841	144.04151	131	1656.8	Doesn't look very hard. Was flaking off as crab was walking on it.
3678	J2-798	12/5/2014	3:56:39	21.48818	144.04172	157	1643.7	FRAMEGRABS: HD frame grab PilotCam. White mats flowing through rocks and iron mats.
3680	J2-798	12/5/2014	3:57:52	21.48809	144.04175	179	1633.2	Not seeing many animals.
3682	J2-798	12/5/2014	3:58:02	21.48809	144.04175	178	1632.0	FRAMEGRABS: HD frame grab PilotCam. Lots of white on slope.
3683	J2-798	12/5/2014	3:58:08	21.48809	144.04175	178	1631.0	Old sulfur flow.
3684	J2-798	12/5/2014	3:58:23	21.48807	144.04176	179	1629.3	Scattered crabs around but not many animals in general.
3686	J2-798	12/5/2014	3:59:08	21.48809	144.04181	65	1626.7	NAV: Navigator target. Cobweb-Corner-14
3687	J2-798	12/5/2014	3:59:47	21.48813	144.04193	106	1625.6	Cobweb-Corner-14 Depth: 1627m.
3689	J2-798	12/5/2014	4:00:11	21.48811	144.04196	105	1620.8	Moving along steep rock face now. Jagged cliff.
3691	J2-798	12/5/2014	4:00:52	21.48810	144.04202	144	1617.6	White scattered around; otherwise barren.
3693	J2-798	12/5/2014	4:02:19	21.48807	144.04203	146	1609.3	Starting to see more animals. Little white crabs; shrimp. No mussels.
3694	J2-798	12/5/2014	4:02:31	21.48806	144.04203	159	1608.9	FRAMEGRABS: HD frame grab PilotCam. Shrimp on white rock face.
3696	J2-798	12/5/2014	4:03:01	21.48804	144.04203	172	1604.4	Still using SuperScorpio on automatic frame grabs to survey area.
3697	J2-798	12/5/2014	4:03:34	21.48803	144.04204	168	1595.6	Heading up to 1588 meters to find 2004 Yellow-Cone site.
3699	J2-798	12/5/2014	4:04:32	21.48800	144.04205	171	1595.2	FRAMEGRABS: HD frame grab PilotCam. Lots of small rocks covered in white film with many shrimp. See some shimmering water.
3700	J2-798	12/5/2014	4:04:43	21.48799	144.04205	171	1594.8	FRAMEGRABS: HD frame grab SciCam. At 1595 meters.
3702	J2-798	12/5/2014	4:04:59	21.48799	144.04205	172	1592.8	Scaleworm; many small white shrimp; some larger red shrimp.
3703	J2-798	12/5/2014	4:05:05	21.48798	144.04205	169	1592.2	Flow spotted!
3704	J2-798	12/5/2014	4:05:49	21.48797	144.04206	150	1588.6	FRAMEGRABS: HD frame grab PilotCam. One mussel.
3707	J2-798	12/5/2014	4:07:31	21.48792	144.04205	138	1583.9	FRAMEGRABS: HD frame grab PilotCam. Moving along sharp ridge. Spot iron mats possibly Yellow-Cone. Looks like good mat flowing down side; different shades of orange and red.
3709	J2-798	12/5/2014	4:08:14	21.48791	144.04204	138	1583.9	Still about 20 meters from Yellow-Cone on old nav.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
3711	J2-798	12/5/2014	4:09:23	21.48790	144.04202	138	1584.0	Little finger chimneys covered with squat lobsters.
3712	J2-798	12/5/2014	4:09:37	21.48790	144.04202	138	1583.9	CORRECTION: I've been calling the squat lobsters crabs.
3716	J2-798	12/5/2014	4:12:23	21.48788	144.04200	138	1584.0	Still looking at mats. Fluffy light orange mat on top; darker reddish mat as it flows down.
3717	J2-798	12/5/2014	4:12:34	21.48788	144.04200	138	1583.9	Putting pilot cam on automatic photos every 10 seconds while we're here.
3719	J2-798	12/5/2014	4:13:02	21.48788	144.04200	138	1584.1	And SciCam every 10 seconds.
3720	J2-798	12/5/2014	4:13:15	21.48788	144.04200	138	1584.0	Looking for flow but don't see any yet.
3722	J2-798	12/5/2014	4:13:57	21.48788	144.04200	138	1583.8	Brown spiky things look like horns coming through mat.
3723	J2-798	12/5/2014	4:14:46	21.48788	144.04201	137	1582.4	Going to slowly drive over it to get good mosaic.
3725	J2-798	12/5/2014	4:15:04	21.48787	144.04202	138	1582.0	Yellow-Cone photomosaic start.
3727	J2-798	12/5/2014	4:16:41	21.48788	144.04203	137	1580.4	Cancel photomosaic. Getting in good position.
3729	J2-798	12/5/2014	4:17:23	21.48789	144.04204	138	1578.9	Getting more distance to use strobe.
3730	J2-798	12/5/2014	4:17:25	21.48789	144.04204	138	1578.8	Too bright.
3731	J2-798	12/5/2014	4:17:38	21.48788	144.04205	138	1579.3	Getting closer again.
3733	J2-798	12/5/2014	4:18:13	21.48789	144.04205	138	1579.3	NAV: Navigator target. Yellow-Cone-14
3735	J2-798	12/5/2014	4:19:10	21.48794	144.04203	138	1582.9	Going to check out the other side.
3737	J2-798	12/5/2014	4:20:28	21.48794	144.04204	227	1582.8	Crossing ridge to other side.
3739	J2-798	12/5/2014	4:21:21	21.48793	144.04205	223	1583.7	Iron mats cascading down side. Lighter orange on top of darker reddish mat.
3740	J2-798	12/5/2014	4:21:25	21.48793	144.04205	224	1583.7	Lots of red at this site.
3741	J2-798	12/5/2014	4:21:42	21.48792	144.04207	203	1583.5	Some white coated rocks next to iron mats.
3743	J2-798	12/5/2014	4:21:59	21.48792	144.04209	203	1583.8	Some little finger chimneys on top of ridge.
3744	J2-798	12/5/2014	4:22:09	21.48791	144.04208	204	1583.9	Some flow spotted!
3746	J2-798	12/5/2014	4:23:08	21.48791	144.04208	202	1584.3	HIGHLIGHTS: Record SciCam. Flow at Yellow-Cone-14.
3747	J2-798	12/5/2014	4:23:32	21.48791	144.04208	202	1584.2	Bunch of little unknown red shrimp.
3750	J2-798	12/5/2014	4:25:12	21.48790	144.04209	202	1583.5	HIGHLIGHTS: End Highlights.
3752	J2-798	12/5/2014	4:25:57	21.48789	144.04209	202	1583.6	Have only found flow in one spot so far.
3753	J2-798	12/5/2014	4:26:28	21.48789	144.04209	202	1583.7	Very nice bacteria mats!
3755	J2-798	12/5/2014	4:27:27	21.48788	144.04209	202	1583.7	NAV: Doppler Reset.
3758	J2-798	12/5/2014	4:29:34	21.48780	144.04210	264	1583.7	Still taking frame grabs every 10 seconds.
3760	J2-798	12/5/2014	4:30:01	21.48779	144.04210	264	1583.7	Looks pretty mineralized. Very deep orange and red.
3761	J2-798	12/5/2014	4:30:15	21.48779	144.04210	265	1583.7	Light colored ball of mat hanging on side of cliff.
3764	J2-798	12/5/2014	4:32:05	21.48777	144.04211	264	1583.8	Rock have and mats have lots of holes. Still not seeing any flow.
3766	J2-798	12/5/2014	4:33:06	21.48777	144.04212	264	1583.7	Keeping lateraling to the left.
3768	J2-798	12/5/2014	4:34:42	21.48774	144.04215	237	1583.8	Dave thought he sighted some flow.
3771	J2-798	12/5/2014	4:36:00	21.48774	144.04216	246	1583.7	Some small amount of flow coming out of the crack.
3772	J2-798	12/5/2014	4:36:51	21.48774	144.04214	271	1583.4	Many white fissures.
3775	J2-798	12/5/2014	4:38:46	21.48771	144.04214	282	1583.4	Anemone.
3776	J2-798	12/5/2014	4:38:51	21.48771	144.04214	282	1583.4	Scaleworm.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
3778	J2-798	12/5/2014	4:39:14	21.48771	144.04214	282	1583.4	Can see a tiny bit of flow around the Scaleworm in the mat.
3781	J2-798	12/5/2014	4:41:48	21.48768	144.04217	228	1583.5	SENSOR: pH= 7.4 O2= 2.12
3785	J2-798	12/5/2014	4:44:11	21.48767	144.04219	185	1583.4	Going to continue laterally to see extent of mat and then circle back up around.
3786	J2-798	12/5/2014	4:44:48	21.48768	144.04225	163	1584.5	Not seeing much to the left. Mat seems to be concentrated in that spot. Just seeing lots of rocks and some scattered white spots and animals. Then it goes off into nothing.
3789	J2-798	12/5/2014	4:46:00	21.48764	144.04219	228	1580.2	Jason sensors (ambient): O2= 100.6; T=2.36C.
3791	J2-798	12/5/2014	4:47:23	21.48765	144.04213	250	1580.1	NAV: Navigator target. Southern-Extent-of-Mat-14 Depth: 1580 m. Heading 250.
3792	J2-798	12/5/2014	4:47:47	21.48765	144.04212	250	1580.1	Still at Yellow-Cone-14 looking for boundaries of mat.
3795	J2-798	12/5/2014	4:49:03	21.48775	144.04208	271	1580.0	Moving a little higher up.
3798	J2-798	12/5/2014	4:51:03	21.48786	144.04195	220	1580.0	Looking at rocky terrain. Not much action. Rocks are red; looks like old rust.
3799	J2-798	12/5/2014	4:51:19	21.48788	144.04193	199	1580.2	Very steep jagged terrain.
3805	J2-798	12/5/2014	4:56:43	21.48787	144.04198	178	1580.1	Still looking at lots of rocks.
3806	J2-798	12/5/2014	4:56:48	21.48787	144.04198	180	1580.2	Trying to re-orient on Yellow-Cone.
3808	J2-798	12/5/2014	4:57:02	21.48787	144.04199	178	1580.1	Didn't see much mat in surrounding areas.
3809	J2-798	12/5/2014	4:57:24	21.48786	144.04199	178	1579.1	Coming up 5 meters going to lateral from here to Southern Extent.
3811	J2-798	12/5/2014	4:58:03	21.48783	144.04199	178	1575.0	Lots of red crust on surface of ridge.
3812	J2-798	12/5/2014	4:58:28	21.48782	144.04198	178	1575.2	Going to get closer to look at it more. Some stripes of red and yellow with lots of deep amber.
3813	J2-798	12/5/2014	4:58:30	21.48782	144.04198	178	1575.2	Nice layers.
3814	J2-798	12/5/2014	4:58:41	21.48782	144.04198	178	1575.2	FRAMEGRABS: HD frame grab PilotCam. Colorful layers of mat.
3817	J2-798	12/5/2014	5:00:13	21.48780	144.04198	178	1575.2	Bright yellow on bottom; red next; and dark red extensive rock(?) or volcanic tuff outcrop.
3820	J2-798	12/5/2014	5:01:54	21.48773	144.04196	170	1571.6	NAV: Navigator target. Red-Top-14 Depth: 1571 Heading: 169.6.
3821	J2-798	12/5/2014	5:02:04	21.48773	144.04196	170	1571.6	Stats are from hovering about Red-Top.
3824	J2-798	12/5/2014	5:04:13	21.48772	144.04195	170	1571.5	Lots of particles floating in water.
3827	J2-798	12/5/2014	5:06:32	21.48773	144.04195	170	1571.5	Iron crust.
3829	J2-798	12/5/2014	5:07:52	21.48774	144.04197	170	1571.5	Trying to figure out relationship between Yellow-Cone-14 and Red-Top-14.
3831	J2-798	12/5/2014	5:08:49	21.48776	144.04196	227	1571.9	In order to place Yellow-Cone more accurately on the map.
3834	J2-798	12/5/2014	5:10:12	21.48779	144.04199	226	1580.6	Nav targets look good on map! and relationship between Yellow Cone and Red Top is accurate so if you can find one you can find the other.
3837	J2-798	12/5/2014	5:12:45	21.48775	144.04201	226	1577.4	Heading back to Red-Top and beyond. Ship has to turn 180 degrees.
3840	J2-798	12/5/2014	5:14:32	21.48774	144.04201	235	1571.8	Still looking at rusty jagged ridge.
3842	J2-798	12/5/2014	5:15:00	21.48774	144.04201	234	1570.6	Sparsely scattered with squat lobsters and shrimp.
3843	J2-798	12/5/2014	5:15:42	21.48773	144.04202	234	1571.1	Groups of shrimp hovered around flow.
3846	J2-798	12/5/2014	5:16:54	21.48768	144.04203	156	1566.5	Coming up a bit to wait for ship to move.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
3849	J2-798	12/5/2014	5:19:10	21.48755	144.04205	162	1557.7	Some mussels here and there.
3851	J2-798	12/5/2014	5:19:56	21.48750	144.04205	156	1548.3	Moving along very tall red spire.
3852	J2-798	12/5/2014	5:19:59	21.48750	144.04205	157	1547.2	Reaching top now.
3854	J2-798	12/5/2014	5:21:43	21.48746	144.04206	136	1545.5	Mussels!
3856	J2-798	12/5/2014	5:22:44	21.48744	144.04206	136	1545.7	Yetti Crab!?
3859	J2-798	12/5/2014	5:24:41	21.48733	144.04216	131	1535.5	Moving through steep narrow rocky cliffs and spires.
3861	J2-798	12/5/2014	5:25:09	21.48732	144.04217	130	1534.8	Some pink mat.
3862	J2-798	12/5/2014	5:25:40	21.48731	144.04217	129	1533.0	FRAMEGRABS: HD frame grab SciCam. Walking mussel.
3864	J2-798	12/5/2014	5:26:26	21.48730	144.04217	129	1532.4	Ship still moving.
3867	J2-798	12/5/2014	5:28:42	21.48728	144.04215	212	1531.8	Lots of animals perched on these spires. Shrimp; crabs; mussels; lobsters; anemones.
3870	J2-798	12/5/2014	5:30:31	21.48728	144.04216	71	1532.6	Some white mat with dark spots deeper than us.
3872	J2-798	12/5/2014	5:30:54	21.48729	144.04216	72	1535.8	White everywhere!
3873	J2-798	12/5/2014	5:31:04	21.48729	144.04216	76	1536.0	Salmon colored mat.
3874	J2-798	12/5/2014	5:31:50	21.48736	144.04209	106	1536.1	Bacteroides.
3876	J2-798	12/5/2014	5:32:12	21.48736	144.04209	106	1536.0	FRAMEGRABS: HD frame grab PilotCam. Some kind of jelly.
3877	J2-798	12/5/2014	5:32:20	21.48737	144.04208	106	1536.0	Missed it.
3882	J2-798	12/5/2014	5:36:02	21.48748	144.04197	160	1552.2	Still waiting on ship to get oriented.
3884	J2-798	12/5/2014	5:36:58	21.48750	144.04196	160	1554.8	Seeing lots of spires and cliffs with mussels and other animals. No iron mat. White covering the rocks in places.
3886	J2-798	12/5/2014	5:38:32	21.48756	144.04191	179	1554.9	Shift change starting.
3888	J2-798	12/5/2014	5:39:06	21.48758	144.04187	173	1557.0	There's the elevator!
3889	J2-798	12/5/2014	5:39:24	21.48759	144.04185	172	1559.2	Still hovering.
3890	J2-798	12/5/2014	5:39:47	21.48762	144.04183	172	1562.7	Turning off 10 second interval automatic photos.
3893	J2-798	12/5/2014	5:41:03	21.48751	144.04191	157	1566.1	NAV: Doppler Reset.
3898	J2-798	12/5/2014	5:45:12	21.48768	144.04173	188	1581.9	Shift change for logger.
3901	J2-798	12/5/2014	5:47:27	21.48768	144.04173	188	1582.0	Holding position while dive leader is changing shift.
3908	J2-798	12/5/2014	5:53:14	21.48759	144.04172	152	1578.5	Heading downslope from the elevator.
3910	J2-798	12/5/2014	5:54:10	21.48759	144.04180	111	1575.8	Looking at the elevator in the pilot cam.
3911	J2-798	12/5/2014	5:54:37	21.48758	144.04186	109	1574.4	Steep slope with debris flow evident.
3913	J2-798	12/5/2014	5:55:11	21.48758	144.04186	109	1573.5	Two legs of the elevator are not on the ground. Wow.
3916	J2-798	12/5/2014	5:57:36	21.48759	144.04186	109	1573.2	Going to head around west along the 1600m contour along the ridge to come around to find Champagne.
3918	J2-798	12/5/2014	5:58:00	21.48759	144.04184	109	1577.9	Not going to jump over top this ridge where the elevator is located.
3920	J2-798	12/5/2014	5:59:19	21.48763	144.04176	109	1582.1	Very steep slope with some in place rocks and lots of debris scrapes.
3924	J2-798	12/5/2014	6:02:02	21.48766	144.04156	109	1593.0	Taking pH measurements continuously along the contour course of 1600m. Have not begun yet.
3927	J2-798	12/5/2014	6:04:15	21.48769	144.04150	180	1599.0	Turning Jason around to get on the right course around this ridge.
3930	J2-798	12/5/2014	6:06:04	21.48771	144.04137	244	1599.6	At 1600m and ready to start the 1600m drive around the ridge.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
3931	J2-798	12/5/2014	6:06:34	21.48773	144.04134	211	1599.7	Seeing more small mussels in this area where only larger ones in the past.
3933	J2-798	12/5/2014	6:07:04	21.48772	144.04134	196	1599.7	Mussels aren't thick as other sites here but fairly distributed.
3934	J2-798	12/5/2014	6:07:33	21.48771	144.04133	193	1599.7	Turned the corner of the western edge of the ridge and will start moving east.
3936	J2-798	12/5/2014	6:08:26	21.48769	144.04134	129	1599.8	This ridge tip was the More Mussels area. Changed the Scorpio rate to 15 seconds.
3937	J2-798	12/5/2014	6:08:44	21.48770	144.04134	104	1599.7	Mussels more dense here as we have swung east.
3940	J2-798	12/5/2014	6:10:09	21.48768	144.04132	50	1600.1	Very dense mussels near the top of this ridge. Almost can't see any rock.
3942	J2-798	12/5/2014	6:10:38	21.48765	144.04132	44	1600.2	Frame grab is on the Science and Pilot cam.
3944	J2-798	12/5/2014	6:11:37	21.48759	144.04138	67	1600.1	**Anemone somehow found a home in all the mussels. Another one.**
3946	J2-798	12/5/2014	6:12:17	21.48755	144.04139	69	1600.3	A bit of white staining evident between the mussels.
3948	J2-798	12/5/2014	6:12:56	21.48750	144.04142	79	1600.2	Sheer cliff with a lot of staining now. Could be getting close to Champagne.
3950	J2-798	12/5/2014	6:14:03	21.48747	144.04140	80	1603.5	Going to drop down to the Champagne depth (1605m) and drive along the Champagne depth contour.
3951	J2-798	12/5/2014	6:14:31	21.48747	144.04136	99	1606.7	Lots of sulfide along the slope. pH is dropping.
3953	J2-798	12/5/2014	6:15:17	21.48749	144.04131	37	1606.4	Super steep cliff and some smoke in the water.
3955	J2-798	12/5/2014	6:16:00	21.48746	144.04133	65	1606.7	Stopping to look around for Champagne. Going to continue along this contour.
3956	J2-798	12/5/2014	6:16:38	21.48742	144.04141	72	1607.6	Large white-stained area that looks a bit flatter.
3958	J2-798	12/5/2014	6:17:24	21.48743	144.04144	71	1608.3	This could be sulfur slope with a lot of smoke coming from the East.
3959	J2-798	12/5/2014	6:17:41	21.48743	144.04144	73	1608.4	Some flow and mussels next to the sulfur.
3961	J2-798	12/5/2014	6:17:53	21.48744	144.04144	72	1608.5	HIGHLIGHTS: Record SciCam. Highlights on.
3962	J2-798	12/5/2014	6:18:39	21.48745	144.04144	72	1608.7	Seeing some bubbles from a flow area. Limpets here as well.
3964	J2-798	12/5/2014	6:19:00	21.48745	144.04145	72	1608.8	Could be venting at Sulfur Slope seen before (years past).
3965	J2-798	12/5/2014	6:19:13	21.48745	144.04146	70	1608.5	HIGHLIGHTS: End Highlights. Liquid droplet.
3966	J2-798	12/5/2014	6:19:41	21.48746	144.04146	71	1607.5	Seeing droplets coming from below.
3968	J2-798	12/5/2014	6:19:54	21.48746	144.04147	71	1607.0	HIGHLIGHTS: Record SciCam. Trying to capture droplets.
3969	J2-798	12/5/2014	6:20:34	21.48746	144.04149	71	1604.9	Clumps of mussels in non-white rocks.
3971	J2-798	12/5/2014	6:20:55	21.48746	144.04150	71	1604.4	Heading east still looking for big-smoking Champagne vents.
3972	J2-798	12/5/2014	6:21:36	21.48745	144.04150	70	1605.5	More bubbles but no big vent. This is the Champagne area.
3973	J2-798	12/5/2014	6:21:44	21.48745	144.04150	71	1605.6	Hot water and vent with bubbles.
3975	J2-798	12/5/2014	6:22:18	21.48745	144.04151	71	1605.8	Shrimp nearer the venting fluid.
3976	J2-798	12/5/2014	6:22:47	21.48745	144.04151	74	1605.7	HIGHLIGHTS: End Highlights.
3979	J2-798	12/5/2014	6:23:58	21.48745	144.04152	71	1603.6	Shrimp populating the white stained areas.
3980	J2-798	12/5/2014	6:24:25	21.48744	144.04152	70	1602.4	2004 and 2006 saw little chimneys here.
3981	J2-798	12/5/2014	6:24:51	21.48744	144.04153	70	1602.5	Some mussels.
3983	J2-798	12/5/2014	6:25:17	21.48744	144.04153	71	1602.4	Some small chimneys further east.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
3984	J2-798	12/5/2014	6:25:32	21.48744	144.04153	71	1602.2	Lots of shrimp all over this area.
3986	J2-798	12/5/2014	6:26:44	21.48743	144.04154	71	1601.3	Moved up the slope and now above the Champagne depth.
3988	J2-798	12/5/2014	6:27:46	21.48742	144.04155	75	1601.1	Lots of bubbles here.
3990	J2-798	12/5/2014	6:28:18	21.48741	144.04156	94	1600.8	Delicate looking chimneys with a lot of bubbles.
3991	J2-798	12/5/2014	6:28:46	21.48742	144.04157	94	1600.9	Over by the Champagne 2006 target and seeing a lot of bubbles and more smoke. Large globules.
3994	J2-798	12/5/2014	6:30:00	21.48741	144.04158	94	1600.3	At the Champagne 2006 target and will use this to come back for sampling later.
3996	J2-798	12/5/2014	6:31:02	21.48741	144.04159	94	1600.5	Putting a Champagne2014 target here.
3998	J2-798	12/5/2014	6:32:06	21.48740	144.04161	94	1600.1	Going to look for the Japanese HD492 marker.
3999	J2-798	12/5/2014	6:32:18	21.48741	144.04161	95	1599.5	Should be 8-9m away.
4001	J2-798	12/5/2014	6:32:38	21.48740	144.04162	87	1599.6	Great chimney that may have been sampled in the past.
4004	J2-798	12/5/2014	6:33:43	21.48740	144.04163	67	1599.5	Fewer bubbles than in 2006.
4007	J2-798	12/5/2014	6:34:02	21.48740	144.04163	66	1599.6	Looks like one of the main sample vents from the past.
4008	J2-798	12/5/2014	6:34:16	21.48740	144.04164	67	1599.7	HIGHLIGHTS: Record SciCam. Vent.
4010	J2-798	12/5/2014	6:34:56	21.48738	144.04158	66	1599.3	Some mussels nearby this little chimney.
4011	J2-798	12/5/2014	6:35:10	21.48737	144.04159	67	1599.2	HIGHLIGHTS: End Highlights.
4013	J2-798	12/5/2014	6:36:41	21.48735	144.04158	41	1601.3	Looking for the Japanese marker.
4015	J2-798	12/5/2014	6:37:35	21.48731	144.04153	41	1604.4	We are at the location of the marker but not seeing it.
4018	J2-798	12/5/2014	6:39:32	21.48733	144.04146	41	1606.6	Found the marker.
4022	J2-798	12/5/2014	6:40:31	21.48737	144.04146	43	1607.3	GAR1-3 marker and not the Japanese marker.
4023	J2-798	12/5/2014	6:40:46	21.48736	144.04147	43	1607.2	HIGHLIGHTS: Record SciCam. Looking around the marker.
4025	J2-798	12/5/2014	6:41:24	21.48736	144.04148	43	1607.2	Hose clamp on the marker but maybe it is an instrument piece and not a marker.
4027	J2-798	12/5/2014	6:41:55	21.48735	144.04149	43	1607.1	Looks like some other instrument here.
4030	J2-798	12/5/2014	6:42:13	21.48735	144.04149	43	1607.2	Could be a small MTR on this.
4031	J2-798	12/5/2014	6:42:49	21.48734	144.04149	43	1607.0	Next to a nice squat chimney with good flow and bubbles.
4033	J2-798	12/5/2014	6:42:58	21.48734	144.04150	43	1607.4	Want to put a real marker here.
4034	J2-798	12/5/2014	6:43:12	21.48733	144.04150	43	1607.1	HIGHLIGHTS: End Highlights.
4038	J2-798	12/5/2014	6:45:42	21.48734	144.04150	41	1606.9	Retrieving a marker out of the basket.
4040	J2-798	12/5/2014	6:46:13	21.48734	144.04150	41	1606.9	**Depl/Rec: Deploy. Placing Marker 144** next to the GARI instrument.
4041	J2-798	12/5/2014	6:46:46	21.48733	144.04149	41	1606.8	Marker position is 21 29.2435 144 2.4906 for Mrk-144.
4043	J2-798	12/5/2014	6:46:58	21.48733	144.04149	41	1606.8	Not seeing limpets here. Do see a lot of shrimp.
4044	J2-798	12/5/2014	6:47:32	21.48733	144.04149	41	1606.9	Wait-maybe some snails inside the crevices of the rocks.
4045	J2-798	12/5/2014	6:47:46	21.48732	144.04149	41	1606.7	Lots of bubbles.
4047	J2-798	12/5/2014	6:48:46	21.48729	144.04153	41	1606.6	Mrk-144 is at Champagne 2014 which is also near the Champagne 2006 site.
4050	J2-798	12/5/2014	6:50:20	21.48729	144.04153	41	1605.4	Moved back from marker and seeing larger aggregations of mussels away from the white venting areas.
4053	J2-798	12/5/2014	6:52:50	21.48737	144.04152	41	1600.3	Going to slowly move upslope to CliffHouse.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
4055	J2-798	12/5/2014	6:53:10	21.48737	144.04153	41	1599.4	Small little chimneys. Not much flow nor staining.
4058	J2-798	12/5/2014	6:55:25	21.48737	144.04161	48	1593.3	Coming up slope to 1570m to look for CliffHouse.
4059	J2-798	12/5/2014	6:55:48	21.48737	144.04163	48	1591.8	Slowly moving upslope. Seeing aggregates of mussels and far less staining.
4062	J2-798	12/5/2014	6:57:09	21.48734	144.04168	63	1586.4	Less mussels as we continue slowly up this slope.
4063	J2-798	12/5/2014	6:57:16	21.48734	144.04168	64	1586.0	Seeing squat lobsters now.
4065	J2-798	12/5/2014	6:58:00	21.48733	144.04169	63	1584.9	Larger mussels and some smaller-yellow ones. Larger ones look like they are more battle-scarred.
4066	J2-798	12/5/2014	6:58:20	21.48732	144.04171	56	1580.8	More mussels on the top of this ridge. At 1581m.
4067	J2-798	12/5/2014	6:58:49	21.48732	144.04173	43	1576.8	Still seeing smoke coming up from Champagne below Jason.
4069	J2-798	12/5/2014	6:59:35	21.48730	144.04177	67	1571.4	Moving up over a ridge and seeing a white-stained area on the ridge face.
4071	J2-798	12/5/2014	7:00:12	21.48730	144.04178	68	1571.2	Looks like this could be it. Cliff with mussels hanging above and the venting on the face below.
4072	J2-798	12/5/2014	7:00:22	21.48731	144.04178	62	1570.9	Looking at the white areas and not seeing much flow.
4073	J2-798	12/5/2014	7:00:33	21.48732	144.04177	44	1570.2	Seeing more small mussels here.
4074	J2-798	12/5/2014	7:00:46	21.48732	144.04178	44	1569.8	Lots of limpets in this area.
4075	J2-798	12/5/2014	7:00:52	21.48732	144.04178	44	1569.7	HIGHLIGHTS: Record SciCam.
4077	J2-798	12/5/2014	7:01:22	21.48734	144.04179	54	1568.7	Seeing areas of concentrated flow. Limpets on one side of the flow ridge and mussels on other.
4078	J2-798	12/5/2014	7:01:40	21.48733	144.04180	93	1567.6	Shrimp in the stained flow area as well.
4084	J2-798	12/5/2014	7:05:35	21.48733	144.04176	72	1568.0	We're above Cliff House (above it) and we're looking for a flat place for a marker. (Note post-dive: NOT Cliff House-site named Razorback).
4087	J2-798	12/5/2014	7:06:58	21.48734	144.04177	71	1568.2	Razorback (not Cliff House) is on both sides of the ridge just above Champagne. Most of the venting is on the north side. Champagne is to the south side of the Razorback Ridge.
4089	J2-798	12/5/2014	7:08:49	21.48733	144.04177	71	1568.2	Preparing to deploy a marker here at the ridge at the top of Razorback.
4093	J2-798	12/5/2014	7:10:57	21.48734	144.04175	73	1566.3	**Depl/Rec: Deploy. Marker 145** at Razorback.
4094	J2-798	12/5/2014	7:11:46	21.48734	144.04173	66	1566.1	Marker 145 is at 1566 meters. Fair amount of venting here in the white areas.
4097	J2-798	12/5/2014	7:12:58	21.48735	144.04171	74	1567.1	FRAMEGRABS: HD frame grab SciCam. Razorback and Marker. Heading 073.
4098	J2-798	12/5/2014	7:13:44	21.48734	144.04171	73	1566.8	FRAMEGRABS: HD frame grab SciCam. Razorback and Marker 145.
4100	J2-798	12/5/2014	7:14:40	21.48734	144.04171	73	1566.8	Razorback is on both sides of the ridge. The marker is at the top. The venting crosses over the ridge.
4102	J2-798	12/5/2014	7:15:18	21.48734	144.04172	73	1566.5	HIGHLIGHTS: Record SciCam. Razorback and markers.
4104	J2-798	12/5/2014	7:15:55	21.48734	144.04174	74	1565.8	HIGHLIGHTS: Record SciCam. Our heading is 74 degrees. Moving along this ridge.
4105	J2-798	12/5/2014	7:16:12	21.48734	144.04175	74	1565.4	PHOTOMOSAIC: Start Line. Down-looking mosaic.
4106	J2-798	12/5/2014	7:16:27	21.48735	144.04176	72	1565.0	Mosaic along the ridge at Razorback.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
4108	J2-798	12/5/2014	7:17:46	21.48735	144.04181	74	1563.1	HIGHLIGHTS: End Highlights.
4110	J2-798	12/5/2014	7:18:21	21.48736	144.04183	73	1562.2	Moving along the ridge at Razorback doing a down-looking photo mosaic.
4112	J2-798	12/5/2014	7:18:54	21.48736	144.04184	73	1561.7	FRAMEGRABS: HD frame grab SciCam. Razorback frame grabs during photo mosaic.
4114	J2-798	12/5/2014	7:20:26	21.48739	144.04190	73	1561.9	The ridge here has a high abundance of mussels. There is white staining here that is probably sulfur and white bacterial mat
4117	J2-798	12/5/2014	7:22:33	21.48743	144.04197	74	1555.8	Photo mosaic and some HD frame grabs.
4118	J2-798	12/5/2014	7:22:46	21.48742	144.04197	73	1554.9	PHOTOMOSAIC: End Line.
4120	J2-798	12/5/2014	7:23:02	21.48741	144.04197	75	1553.8	Red dike (?)
4121	J2-798	12/5/2014	7:23:38	21.48739	144.04194	73	1556.5	Jason has arrived to relieve Dave.
4123	J2-798	12/5/2014	7:23:53	21.48738	144.04193	74	1557.8	Razorback is about 30-50m above Champagne.
4124	J2-798	12/5/2014	7:24:29	21.48736	144.04192	75	1561.2	**Want to do a photomosaic of the Champagne area to try to get a grip on the extent of the Champagne vent field.**
4126	J2-798	12/5/2014	7:25:01	21.48735	144.04191	74	1559.9	The Champagne marker is at the low end of the Champagne vent field. Will start a bit lower than that.
4127	J2-798	12/5/2014	7:25:26	21.48734	144.04190	76	1558.3	Champagne covers about 15 - 20 m vertically.
4128	J2-798	12/5/2014	7:25:50	21.48733	144.04189	74	1559.2	Heading down the slope to Champagne.
4135	J2-798	12/5/2014	7:30:55	21.48740	144.04168	74	1580.1	Heading over toward Champagne.
4137	J2-798	12/5/2014	7:32:32	21.48752	144.04169	153	1586.2	Very steep slope with lots of squat lobsters and mussels.
4140	J2-798	12/5/2014	7:33:55	21.48755	144.04160	77	1590.1	Moving over to the west before dropping down the slope to the Champagne depth to look for the marker.
4141	J2-798	12/5/2014	7:34:52	21.48752	144.04147	76	1592.2	Descending down the slope over mussel-covered rocky slope (very steep).
4144	J2-798	12/5/2014	7:35:57	21.48740	144.04146	75	1602.2	Seeing white staining along lines within the mussels.
4145	J2-798	12/5/2014	7:36:28	21.48737	144.04149	76	1604.1	There is the Marker. Mkr-144.
4148	J2-798	12/5/2014	7:36:53	21.48738	144.04144	79	1606.1	FRAMEGRABS: HD frame grab SciCam.
4151	J2-798	12/5/2014	7:37:23	21.48740	144.04140	75	1606.6	Going to drop below the Mrk-144 site to setup for the photo survey.
4153	J2-798	12/5/2014	7:37:54	21.48742	144.04140	64	1606.7	FRAMEGRABS: HD frame grab SciCam.
4154	J2-798	12/5/2014	7:38:15	21.48743	144.04139	63	1606.7	Setting up camera for the photo mosaic.
4155	J2-798	12/5/2014	7:38:37	21.48743	144.04139	63	1606.7	Strobe test was very bright.
4157	J2-798	12/5/2014	7:39:37	21.48744	144.04139	63	1606.6	50x50 grid is the plan with about 7 passes to cover the area going up the face.
4159	J2-798	12/5/2014	7:40:31	21.48746	144.04139	63	1606.6	PHOTOMOSAIC: Start Line. On bottom left of this feature and will move to the right.
4160	J2-798	12/5/2014	7:40:49	21.48745	144.04140	63	1606.6	Rate of photos is 7seconds.
4163	J2-798	12/5/2014	7:42:08	21.48739	144.04144	63	1606.6	There is the marker. Mkr-144.
4164	J2-798	12/5/2014	7:42:27	21.48740	144.04143	63	1606.6	Pausing this line to adjust the camera.
4165	J2-798	12/5/2014	7:42:39	21.48740	144.04142	63	1606.6	FRAMEGRABS: HD frame grab SciCam. Mkr-144.
4167	J2-798	12/5/2014	7:43:09	21.48741	144.04141	63	1606.6	Adjusted the camera exposure and will continue.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
4169	J2-798	12/5/2014	7:43:55	21.48737	144.04143	63	1606.6	Lots of mussels to the right of the marker.
4171	J2-798	12/5/2014	7:45:18	21.48728	144.04147	63	1606.6	Moved over a large scarp without staining and back into larger rocks with staining and mussels.
4172	J2-798	12/5/2014	7:45:49	21.48729	144.04147	63	1606.7	PHOTOMOSAIC: End Line. Was about 25m across.
4174	J2-798	12/5/2014	7:46:27	21.48729	144.04149	62	1606.6	Moving up 5m to start the next line.
4175	J2-798	12/5/2014	7:46:39	21.48729	144.04149	63	1606.6	PHOTOMOSAIC: Start Line. Moving left.
4178	J2-798	12/5/2014	7:48:33	21.48739	144.04144	63	1606.6	FRAMEGRABS: HD frame grab SciCam. Marker 144.
4180	J2-798	12/5/2014	7:49:00	21.48741	144.04142	63	1606.6	Passed over the marker again and can see the GARI tag.
4181	J2-798	12/5/2014	7:49:12	21.48742	144.04142	63	1606.7	FRAMEGRABS: HD frame grab SciCam.
4183	J2-798	12/5/2014	7:49:57	21.48746	144.04140	63	1606.6	Seeing bubbles now with mussels on edges of staining. A few are in the white patch. Mussels look more hairy.
4184	J2-798	12/5/2014	7:50:12	21.48746	144.04140	63	1606.7	Small and large mussels. Limpets and shrimps.
4186	J2-798	12/5/2014	7:51:02	21.48746	144.04141	63	1606.7	PHOTOMOSAIC: End Line.
4187	J2-798	12/5/2014	7:51:25	21.48746	144.04141	63	1605.7	Coming up about a meter of depth to begin the line to the right.
4191	J2-798	12/5/2014	7:53:15	21.48749	144.04142	63	1605.2	PHOTOMOSAIC: Start Line. Lots of shrimp in a large cluster with some mussels. Starting line to the right.
4194	J2-798	12/5/2014	7:55:15	21.48745	144.04146	63	1605.2	Distinct lines of venting downslope.
4195	J2-798	12/5/2014	7:55:36	21.48743	144.04147	63	1605.2	FRAMEGRABS: HD frame grab SciCam.
4197	J2-798	12/5/2014	7:55:45	21.48743	144.04147	63	1605.3	FRAMEGRABS: HD frame grab SciCam.
4199	J2-798	12/5/2014	7:56:05	21.48741	144.04148	63	1605.3	Moved over an area of venting with bubbles and took some frame grabs.
4201	J2-798	12/5/2014	7:57:13	21.48736	144.04152	63	1605.2	Setting HD framegrabs on Brow Cam at 7 seconds.
4204	J2-798	12/5/2014	7:57:48	21.48732	144.04153	63	1605.2	FRAMEGRABS: HD frame grab SciCam.
4206	J2-798	12/5/2014	7:58:16	21.48730	144.04154	63	1605.3	PHOTOMOSAIC: End Line.
4207	J2-798	12/5/2014	7:58:38	21.48730	144.04154	63	1605.3	Ended line over a small venting chimney with bubbles.
4210	J2-798	12/5/2014	8:00:05	21.48728	144.04157	63	1603.6	Moved Jason up to have 2.5m spacing on the lines.
4211	J2-798	12/5/2014	8:00:28	21.48728	144.04157	63	1603.7	PHOTOMOSAIC: Start Line.
4213	J2-798	12/5/2014	8:01:12	21.48730	144.04156	63	1603.8	Moving to the left on this line. Just moved over some bubbles again.
4214	J2-798	12/5/2014	8:01:51	21.48732	144.04155	63	1603.8	Not sure if HD framegrabs set on brow cam so now set to capture both Sci and Brow cams.
4216	J2-798	12/5/2014	8:02:38	21.48735	144.04153	63	1603.7	Moving over steeper face with less bright-white staining.
4218								
4219	J2-798	12/5/2014	8:03:49	21.48739	144.04152	63	1603.7	FRAMEGRABS: HD frame grab SciCam.
4221	J2-798	12/5/2014	8:04:15	21.48741	144.04151	63	1603.7	Larger flow area with bubbles.
4222	J2-798	12/5/2014	8:04:42	21.48743	144.04150	63	1603.7	Scaleworms and mussels with the shrimp.
4223	J2-798	12/5/2014	8:04:52	21.48744	144.04150	63	1603.8	Large clump of mussels on outcrop.
4225	J2-798	12/5/2014	8:05:21	21.48746	144.04149	63	1603.7	Back in large mussel beds.
4226	J2-798	12/5/2014	8:05:35	21.48746	144.04149	63	1603.8	PHOTOMOSAIC: End Line.
4228	J2-798	12/5/2014	8:06:08	21.48746	144.04149	63	1603.3	Line ends where Jason encounters the cliff covered in mussels.
4229	J2-798	12/5/2014	8:06:29	21.48746	144.04149	63	1602.7	Moving Jason forward for next line.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
4233	J2-798	12/5/2014	8:07:24	21.48747	144.04151	63	1602.6	Hairy mussels in large quantity.
4234	J2-798	12/5/2014	8:07:52	21.48747	144.04151	63	1602.6	PHOTOMOSAIC: End Line.
4236	J2-798	12/5/2014	8:08:30	21.48748	144.04151	62	1602.2	PHOTOMOSAIC: Start Line.
4237	J2-798	12/5/2014	8:08:48	21.48747	144.04152	63	1602.2	Moving to the right.
4241	J2-798	12/5/2014	8:10:28	21.48742	144.04154	63	1601.9	FRAMEGRABS: HD frame grab SciCam.
4242	J2-798	12/5/2014	8:10:47	21.48741	144.04154	63	1601.5	Large white area with multitudes of shrimp.
4244	J2-798	12/5/2014	8:11:03	21.48740	144.04155	63	1601.3	Small chimneys.
4245	J2-798	12/5/2014	8:11:07	21.48740	144.04155	63	1601.2	FRAMEGRABS: HD frame grab SciCam.
4246	J2-798	12/5/2014	8:11:19	21.48739	144.04156	63	1601.0	Some larger limpets here.
4247	J2-798	12/5/2014	8:11:31	21.48739	144.04157	63	1600.9	FRAMEGRABS: HD frame grab SciCam.
4248	J2-798	12/5/2014	8:11:47	21.48738	144.04158	63	1600.9	Seeing some large bubbles.
4250	J2-798	12/5/2014	8:12:33	21.48733	144.04163	63	1600.5	Shinkailepas limpets.
4252	J2-798	12/5/2014	8:13:16	21.48734	144.04163	63	1600.5	PHOTOMOSAIC: End Line.
4254	J2-798	12/5/2014	8:13:55	21.48735	144.04164	63	1600.5	Moving Jason forward.
4255	J2-798	12/5/2014	8:14:11	21.48736	144.04165	62	1600.5	Large and small mussels here.
4256	J2-798	12/5/2014	8:14:35	21.48736	144.04165	63	1600.5	FRAMEGRABS: HD frame grab SciCam.
4258	J2-798	12/5/2014	8:15:03	21.48735	144.04165	63	1599.0	Photo of large mussel.
4259	J2-798	12/5/2014	8:15:32	21.48735	144.04165	64	1599.0	PHOTOMOSAIC: Start Line.
4260	J2-798	12/5/2014	8:15:50	21.48736	144.04164	64	1599.0	Moving to the left.
4263	J2-798	12/5/2014	8:17:17	21.48742	144.04159	63	1599.0	Lots of flow and bubbles here.
4264	J2-798	12/5/2014	8:17:31	21.48743	144.04158	63	1598.9	Chimneys and shrimp with a lot of flow and bubbles.
4265	J2-798	12/5/2014	8:17:35	21.48744	144.04158	63	1599.0	FRAMEGRABS: HD frame grab SciCam.
4266	J2-798	12/5/2014	8:17:48	21.48745	144.04157	62	1598.9	FRAMEGRABS: HD frame grab SciCam.
4268	J2-798	12/5/2014	8:18:18	21.48748	144.04156	63	1598.9	Shrimp bathing in flow and then its over-no flow.
4269	J2-798	12/5/2014	8:18:31	21.48749	144.04155	63	1598.9	Mussels and squat lobsters.
4270	J2-798	12/5/2014	8:18:35	21.48749	144.04155	62	1598.9	PHOTOMOSAIC: End Line.
4271	J2-798	12/5/2014	8:18:48	21.48749	144.04155	63	1597.8	Moving vehicle forward.
4273	J2-798	12/5/2014	8:19:27	21.48749	144.04157	62	1597.4	PHOTOMOSAIC: Start Line.
4275	J2-798	12/5/2014	8:19:55	21.48747	144.04158	63	1597.4	Moving to the right again.
4276	J2-798	12/5/2014	8:20:02	21.48747	144.04159	63	1597.5	NAV: Doppler Reset.
4277	J2-798	12/5/2014	8:20:14	21.48746	144.04160	63	1597.4	Another dissolved mussel.
4278	J2-798	12/5/2014	8:20:49	21.48742	144.04162	63	1597.4	Seeing a few dissolved mussels. At around pH 6.1. O2 is 98.3.
4280	J2-798	12/5/2014	8:21:27	21.48738	144.04164	63	1597.4	Moving over mussels.
4282	J2-798	12/5/2014	8:22:16	21.48733	144.04164	64	1597.0	Seeing different ages of mussels off of the bubble flow areas.
4283	J2-798	12/5/2014	8:22:28	21.48732	144.04165	63	1596.9	PHOTOMOSAIC: End Line.
4284	J2-798	12/5/2014	8:22:42	21.48731	144.04165	64	1596.2	Moving forward a bit and will do 1-2 more lines.
4286	J2-798	12/5/2014	8:23:29	21.48731	144.04166	63	1595.5	FRAMEGRABS: HD frame grab SciCam.
4287	J2-798	12/5/2014	8:23:39	21.48731	144.04166	63	1595.6	FRAMEGRABS: HD frame grab SciCam.
4288	J2-798	12/5/2014	8:23:45	21.48731	144.04166	64	1595.6	PHOTOMOSAIC: Start Line.
4290	J2-798	12/5/2014	8:23:54	21.48732	144.04166	63	1595.5	Moving to the left.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
4291	J2-798	12/5/2014	8:24:09	21.48734	144.04165	63	1595.5	Took frame grab of potential egg casings.
4292	J2-798	12/5/2014	8:24:35	21.48737	144.04162	63	1595.5	O2 is 99.4 as we move left.
4294	J2-798	12/5/2014	8:24:55	21.48739	144.04161	63	1595.5	Doppler is not doing well in this terrain.
4295	J2-798	12/5/2014	8:25:37	21.48744	144.04160	63	1595.5	Should be going over Champagne-2014 target about now.
4297	J2-798	12/5/2014	8:26:20	21.48748	144.04158	63	1595.4	More staining so seeing many more shrimp and fewer mussels (but some).
4298	J2-798	12/5/2014	8:26:49	21.48750	144.04157	63	1595.5	PHOTOMOSAIC: End Line.
4300	J2-798	12/5/2014	8:27:02	21.48750	144.04157	63	1595.0	Going forward again for one more line.
4301	J2-798	12/5/2014	8:27:49	21.48752	144.04159	63	1594.0	PHOTOMOSAIC: Start Line.
4303	J2-798	12/5/2014	8:28:03	21.48751	144.04160	63	1594.0	Moving to the right.
4304	J2-798	12/5/2014	8:28:43	21.48748	144.04161	63	1593.9	FRAMEGRABS: HD frame grab SciCam.
4306	J2-798	12/5/2014	8:28:53	21.48747	144.04161	63	1593.9	**Seeing just a few bubbles.**
4307	J2-798	12/5/2014	8:29:30	21.48744	144.04161	63	1593.8	PHOTOMOSAIC: End Line. Pilot believes this is a triangle shaped area and we are at the top peak.
4309	J2-798	12/5/2014	8:30:05	21.48744	144.04161	63	1592.3	Stopping the HD frame grabs.
4311	J2-798	12/5/2014	8:31:20	21.48746	144.04159	65	1586.8	Problems with the ship and wind at the moment but the survey was complete.
4314	J2-798	12/5/2014	8:33:26	21.48744	144.04147	63	1587.4	After the ship recovers Jason will go back to Champagne-2014 to deploy instruments.
4319	J2-798	12/5/2014	8:37:42	21.48753	144.04145	45	1592.5	Changed the HD framegrabs back to the regular cams.
4321	J2-798	12/5/2014	8:38:07	21.48752	144.04147	53	1592.4	Over large mussel beds with a significant population of squat lobsters.
4322	J2-798	12/5/2014	8:38:20	21.48752	144.04147	53	1592.5	Waiting for ship still.
4323	J2-798	12/5/2014	8:38:42	21.48751	144.04148	53	1592.4	None of the lobsters are moving around much.
4325	J2-798	12/5/2014	8:39:23	21.48749	144.04150	53	1592.4	Limpets on the mussel shells.
4326	J2-798	12/5/2014	8:39:34	21.48749	144.04150	53	1592.4	Also some small snails and mussel recruits.
4328	J2-798	12/5/2014	8:40:44	21.48744	144.04151	51	1594.6	We got pulled off to the west of Champagne and will head back east as the ship settles.
4331	J2-798	12/5/2014	8:42:38	21.48733	144.04143	55	1602.6	Back in the Champagne area with some bubbles. Going to move near the marker.
4333	J2-798	12/5/2014	8:42:53	21.48732	144.04141	53	1604.1	FRAMEGRABS: HD frame grab SciCam.
4334	J2-798	12/5/2014	8:43:02	21.48731	144.04140	53	1604.0	Back at the Marker (Mkr-144).
4338	J2-798	12/5/2014	8:46:16	21.48733	144.04135	53	1606.5	Preparing to deploy some samplers near Mkr-144.
4340	J2-798	12/5/2014	8:47:01	21.48736	144.04134	53	1607.4	Seeing bubbles.
4341	J2-798	12/5/2014	8:47:52	21.48737	144.04134	53	1607.6	Seeing lots of biota. Scaleworms; limpets; shrimp; mussels.
4343	J2-798	12/5/2014	8:48:16	21.48737	144.04134	52	1607.7	FRAMEGRABS: HD frame grab SciCam.
4346	J2-798	12/5/2014	8:50:11	21.48735	144.04137	53	1607.1	Going to take a temperature before deploying samplers.
4348	J2-798	12/5/2014	8:51:01	21.48734	144.04137	53	1607.2	pH is 6.8 at the moment. O2 is 99.2.
4351	J2-798	12/5/2014	8:52:54	21.48737	144.04136	56	1608.1	Getting setup to take temperature measurements.
4352	J2-798	12/5/2014	8:53:13	21.48737	144.04137	56	1608.0	When the bottom was bumped a lot of bubbles seemed to emanate.
4353	J2-798	12/5/2014	8:53:41	21.48737	144.04137	56	1608.0	Going to use the Beast to take some temperature readings.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
4355	J2-798	12/5/2014	8:54:05	21.48737	144.04138	56	1608.0	Want to get a temperature below the rock that has the mussel clump on top.
4356	J2-798	12/5/2014	8:54:11	21.48737	144.04138	56	1608.0	FRAMEGRABS: HD frame grab SciCam.
4357	J2-798	12/5/2014	8:54:33	21.48737	144.04139	56	1608.0	Moving wand into position.
4358	J2-798	12/5/2014	8:54:39	21.48737	144.04139	56	1608.0	FRAMEGRABS: HD frame grab SciCam.
4360	J2-798	12/5/2014	8:55:06	21.48737	144.04140	56	1608.0	Temperature there is only 2.8C which is about ambient.
4362	J2-798	12/5/2014	8:56:09	21.48737	144.04140	56	1608.0	That site is ambient but the pH is going down.
4364	J2-798	12/5/2014	8:57:36	21.48737	144.04140	56	1608.0	pH is about 6.3. Temperature is ambient.
4367	J2-798	12/5/2014	8:59:39	21.48737	144.04141	56	1608.0	Looking for temperature of the flow to the right of the rock.
4368	J2-798	12/5/2014	8:59:50	21.48737	144.04141	56	1608.0	FRAMEGRABS: HD frame grab SciCam.
4370	J2-798	12/5/2014	9:00:23	21.48737	144.04141	56	1608.0	FRAMEGRABS: HD frame grab SciCam. Temperature going up....9....
4372	J2-798	12/5/2014	9:01:08	21.48737	144.04141	56	1608.0	SENSOR: Temp 11.5C and rising. Don't think probe is in center of flow.
4373	J2-798	12/5/2014	9:01:20	21.48737	144.04141	56	1608.1	FRAMEGRABS: HD frame grab SciCam.
4374	J2-798	12/5/2014	9:01:48	21.48736	144.04141	56	1608.0	SENSOR: pH. Down to 4.6 pH.
4376	J2-798	12/5/2014	9:02:03	21.48736	144.04141	56	1608.0	SENSOR: Temp 12.7C
4377	J2-798	12/5/2014	9:02:28	21.48735	144.04141	56	1608.0	Adjusted the probe in the flow area to see if can get in the center of the flow.
4378	J2-798	12/5/2014	9:02:36	21.48735	144.04141	56	1608.0	FRAMEGRABS: HD frame grab PilotCam.
4380	J2-798	12/5/2014	9:03:44	21.48735	144.04142	56	1608.0	SENSOR: Temp 13.00C.
4382	J2-798	12/5/2014	9:04:05	21.48735	144.04142	56	1608.0	SENSOR: Temp 15.8 and still rising. 16.0.....
4383	J2-798	12/5/2014	9:04:41	21.48735	144.04143	56	1608.0	SENSOR: Temp 17.0C
4385	J2-798	12/5/2014	9:05:20	21.48736	144.04143	56	1608.0	SENSOR: pH 4.35.
4390	J2-798	12/5/2014	9:09:38	21.48738	144.04142	56	1608.0	SENSOR: Temp 16.0 and going up.
4392	J2-798	12/5/2014	9:10:30	21.48739	144.04142	56	1608.0	SENSOR: Temp 17.5.
4395	J2-798	12/5/2014	9:12:08	21.48739	144.04142	56	1608.0	**SAMPLE: HFS J798-HFS-01** at Mrk-144 Champagne area. Unfiltered piston #1. Start. 09:12.
4400	J2-798	12/5/2014	9:16:28	21.48740	144.04142	57	1608.0	J798-HFS-01 Stop 09:15. Tmax=16.9 Tavg=14.3 vol=400mL T2=6.
4402	J2-798	12/5/2014	9:16:57	21.48740	144.04142	56	1608.0	Location for the sample is 21 29.2442 144 2.4851.
4404	J2-798	12/5/2014	9:18:22	21.48740	144.04141	57	1608.0	FRAMEGRABS: HD frame grab SciCam. Location for the sample is just a 5-6m due west of the Mkr-144.
4406	J2-798	12/5/2014	9:19:05	21.48740	144.04141	57	1608.0	**SAMPLE: HFS Start Sterivex filter 9. J798-HFS-02**.
4411	J2-798	12/5/2014	9:23:44	21.48740	144.04142	57	1608.0	FRAMEGRABS: HD frame grab PilotCam J798-HFS-02 at same location as sample 01.
4416	J2-798	12/5/2014	9:27:10	21.48740	144.04142	57	1608.0	FRAMEGRABS: HD frame grab SciCam.
4432	J2-798	12/5/2014	9:41:50	21.48736	144.04140	56	1608.0	J798-HFS-02 Start 09:19. Stop 09:41 Tmax=26.5 Tavg-18.5 vol=3046mL T2=12.0.
4434	J2-798	12/5/2014	9:42:53	21.48737	144.04140	56	1608.0	**SAMPLE: HFS J798-HFS-03** filtered piston #4 Start 09:42.
4436	J2-798	12/5/2014	9:43:22	21.48737	144.04140	56	1608.0	Changing shift while sampling.
4441	J2-798	12/5/2014	9:47:41	21.48742	144.04141	56	1608.0	J798-HFS-03 Stop 0947. Tmax=26.2. Tavg=25.2 Vol=450mL T2=12.
4444	J2-798	12/5/2014	9:49:30	21.48742	144.04141	56	1608.0	**SAMPLE: GTHFS J798-GTHFS-04.** Port Fired 0948. Purple GTHFS.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
4452	J2-798	12/5/2014	9:56:05	21.48738	144.04141	56	1607.9	SENSOR: pH. In the position of the last 4 samples pH is 4.3. See liquid CO2 bubbles rising from the seafloor below us.
4454	J2-798	12/5/2014	9:57:48	21.48738	144.04140	55	1607.9	FRAMEGRABS: HD frame grab SuperScorpio. Great shot of the liquid CO2 bubbles rising from the seafloor in the SuperScorpio.
4456	J2-798	12/5/2014	9:58:00	21.48738	144.04140	55	1608.0	Stowing the wand.
4459	J2-798	12/5/2014	10:00:15	21.48739	144.04139	58	1607.4	FRAMEGRABS: HD frame grab SciCam. Going to check out another vent nearby just a couple meters to the east.
4461	J2-798	12/5/2014	10:01:25	21.48738	144.04139	59	1607.3	Lots of shrimp in the area. Some big Alvinocaris and some of the smaller Opapele as well.
4463	J2-798	12/5/2014	10:02:50	21.48738	144.04138	59	1607.3	Pulling out the wand and checking out the temperature. Looking for hotter fluids.
4465	J2-798	12/5/2014	10:03:23	21.48738	144.04138	59	1607.3	Little tiny white chimlet right here.
4468	J2-798	12/5/2014	10:05:40	21.48739	144.04137	59	1607.3	Preparing to take a gastight with the HFS.
4471	J2-798	12/5/2014	10:07:46	21.48740	144.04137	59	1607.2	**SAMPLE: J798-HFS-05** HFS In this hole with lots of flow surrounded by white mat.
4475	J2-798	12/5/2014	10:10:50	21.48740	144.04136	59	1607.3	Start 1008. We're at Champagne. We're 6 m NW of the marker. 70+ degree water pouring out of this hole in sulfur and some type of biology (mat?). The white could be mucopolysaccharides.
4477	J2-798	12/5/2014	10:11:26	21.48739	144.04137	59	1607.3	J798-HFS-05 Piston #2 cont. Tmax=70.9 Tavg=67. T2=25. Vol=451mL.
4480	J2-798	12/5/2014	10:13:00	21.48739	144.04140	59	1607.3	SAMPLE: HFS The last sample piston #2 was filtered.
4483	J2-798	12/5/2014	10:15:48	21.48738	144.04140	60	1607.3	**SAMPLE: HFS J797-HFS-06**. Unfiltered piston #3. Start 1012. Tmax=63 Tavg=56 T2= 21 Vol=451 mL. Stop 1015.
4485	J2-798	12/5/2014	10:16:28	21.48738	144.04139	60	1607.2	Repositioned the nozzle a bit. This site has a little white chimlet right next to the nozzle.
4487	J2-798	12/5/2014	10:17:16	21.48738	144.04139	59	1607.2	FRAMEGRABS: HD frame grab SciCam. Sampling site for HFS-05; 06.
4491	J2-798	12/5/2014	10:20:12	21.48737	144.04137	60	1607.3	**SAMPLE: HFS J798-HFS-07**. Start 1018. RNA filter 14. This will be a sample that lasts about 15 minutes.
4493	J2-798	12/5/2014	10:21:27	21.48738	144.04139	59	1607.2	This site right here does not have the droplets coming out - although Dave says that we would not see the droplets coming out of the hot water.
4498	J2-798	12/5/2014	10:25:10	21.48739	144.04138	59	1607.2	FRAMEGRABS: HD frame grab SciCam. Zooming in on some mussels. The little white guys are limpets. Also seeing Alvinocaris shrimp here. Can see the byssal threads on the mussels.
4500	J2-798	12/5/2014	10:26:19	21.48738	144.04137	59	1607.2	FRAMEGRABS: HD frame grab SciCam. Zooming in on the Alvinocaris and some scaleworms on this sulfur patch.
4501	J2-798	12/5/2014	10:26:40	21.48738	144.04136	59	1607.2	Zoomed out again. A CO2 bubble just floated by.
4511	J2-798	12/5/2014	10:34:08	21.48739	144.04137	59	1607.2	Scotty re-booted the monitor and now all is clear!! Yippee!! Bigger type for older eyes!
4513	J2-798	12/5/2014	10:35:11	21.48739	144.04138	59	1607.2	J798-HFS-07 cont. Stop 1035. Tmax=66.1 Tavg=65.1 T2=22.6 Vol=3001mL.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
4515	J2-798	12/5/2014	10:36:40	21.48739	144.04138	59	1607.2	**SAMPLE: GTHFS. J798-GTHFS-08** Start 1036. Stbd white GTHFS in same position as previous 3 samples where Tmax=66.1.
4518	J2-798	12/5/2014	10:38:04	21.48739	144.04137	60	1607.0	Going back up to where we were for the first 4 samples just a couple meters to the west.
4519	J2-798	12/5/2014	10:38:19	21.48738	144.04136	61	1606.2	Will be deploying settlement plate; proto trap and a couple MTRs.
4521	J2-798	12/5/2014	10:39:23	21.48738	144.04136	61	1607.3	Last 2 frame grabs showed both sampling sites.
4523	J2-798	12/5/2014	10:40:26	21.48738	144.04135	59	1607.9	The 2 types of traps will be placed side by side.
4524	J2-798	12/5/2014	10:40:40	21.48738	144.04135	61	1607.7	Lots of bubbles in the water here.
4527	J2-798	12/5/2014	10:42:02	21.48739	144.04136	61	1607.8	Discussing where Shawn would like to deploy her settlement plate (trap).
4529	J2-798	12/5/2014	10:43:48	21.48740	144.04136	61	1607.8	**Depl/Rec: Deploy MTR-3048** in the area where Shawn's settlement plate will be deployed.
4533	J2-798	12/5/2014	10:46:42	21.48739	144.04138	61	1607.7	Sheryl wants her MTR in/near the crack where the last fluid samples were taken. MTR-?? Will get that later.
4536	J2-798	12/5/2014	10:48:28	21.48740	144.04137	61	1607.7	**Depl/Rec: Deploy Settlement Plate (SPlate #2)** next to MTR-3048 at the base of big rock with mussels on the top.
4538	J2-798	12/5/2014	10:48:58	21.48741	144.04136	61	1607.7	FRAMEGRABS: HD frame grab SciCam. Shawn's settlement plate and MTR.
4541	J2-798	12/5/2014	10:51:03	21.48745	144.04135	62	1607.6	Depl/Rec: Deploy Settlement Plate (SPlate#3 - with pink puff ball.
4543	J2-798	12/5/2014	10:52:08	21.48745	144.04136	62	1607.6	FRAMEGRABS: HD frame grab SciCam. Frame grabs of SPlates 2 and 3 and MTR 3041 for Shawn. These will be picked up after a couple dives.
4547	J2-798	12/5/2014	10:55:46	21.48743	144.04136	57	1607.4	Positioning to deploy the protozoan trap for Sheryl.
4549	J2-798	12/5/2014	10:56:10	21.48743	144.04136	58	1606.8	Placing the sampler next to the MTR that was already deployed to accompany her trap.
4550	J2-798	12/5/2014	10:56:31	21.48744	144.04134	58	1606.0	Maneuvering Jason to get closer to the deployment spot.
4552	J2-798	12/5/2014	10:57:29	21.48746	144.04134	57	1607.1	FRAMEGRABS: HD frame grab SciCam. Both types of shrimp in this image on sulfur.
4554	J2-798	12/5/2014	10:57:55	21.48746	144.04133	57	1607.1	**Depl/Rec: Deploy Protozoan Trap (PrTrp #4)** deployed where sample 1-4 were taken. The temperature with the HFS was 25C in the venting fluid.
4558	J2-798	12/5/2014	11:01:18	21.48743	144.04134	52	1604.4	The MTR -3291 is accompanying The Protozoan Trap #4.
4560	J2-798	12/5/2014	11:02:22	21.48741	144.04133	56	1604.5	FRAMEGRABS: HD frame grab SuperScorpio. Trying to get some shots with the Superscorpio but it's too dark.
4562	J2-798	12/5/2014	11:03:22	21.48739	144.04133	56	1604.4	Cycling the power on the SuperScorpio.
4563	J2-798	12/5/2014	11:03:31	21.48739	144.04133	56	1602.9	The ship is not holding position.
4566	J2-798	12/5/2014	11:05:15	21.48737	144.04133	56	1599.7	FRAMEGRABS: HD frame grab SciCam. Looking at the instruments from above. Not having much luck capturing these experiments. Will get better pics when we return.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
4571	J2-798	12/5/2014	11:09:12	21.48739	144.04132	56	1599.6	The ship is not able to hold position right now. They are going to wake up the captain.
4577	J2-798	12/5/2014	11:14:11	21.48742	144.04129	56	1599.7	Rebooted the HFS software because the temperature sensors had stopped responding.
4578	J2-798	12/5/2014	11:14:35	21.48743	144.04129	56	1599.6	We're just sitting here waiting on the ship.
4588	J2-798	12/5/2014	11:23:07	21.48703	144.04156	57	1601.0	Just hanging out here waiting for the ship to re-position.
4589	J2-798	12/5/2014	11:23:31	21.48711	144.04155	56	1601.7	No close enough to the seafloor to see much. Not enough light.
4591	J2-798	12/5/2014	11:24:08	21.48723	144.04149	56	1604.6	Here we come. back down to the bottom again.
4593	J2-798	12/5/2014	11:25:00	21.48737	144.04138	56	1607.0	Took a few snaps with the SuperScorpio of the proto trap and settlement plates.
4594	J2-798	12/5/2014	11:25:21	21.48743	144.04136	56	1607.7	FRAMEGRABS: HD frame grab SciCam. Settlement Plates.
4595	J2-798	12/5/2014	11:25:35	21.48746	144.04134	56	1607.7	FRAMEGRABS: HD frame grab SciCam Protozoan trap and MTR.
4597	J2-798	12/5/2014	11:26:18	21.48747	144.04134	57	1606.9	Going back to Marker 144.
4598	J2-798	12/5/2014	11:26:50	21.48747	144.04135	66	1606.5	FRAMEGRABS: HD frame grab SciCam Marker 144. and Champagne vent field.
4600	J2-798	12/5/2014	11:27:35	21.48746	144.04136	65	1606.8	There is some sulfur and white mat (?) here below the marker.
4601	J2-798	12/5/2014	11:27:46	21.48745	144.04136	67	1606.8	Tons of shrimp on the sulfur.
4603	J2-798	12/5/2014	11:28:21	21.48745	144.04137	62	1606.3	FRAMEGRABS: HD frame grab SciCam Sci and Pilot cam. Snaps of Champagne; near the marker.
4605	J2-798	12/5/2014	11:29:20	21.48743	144.04139	65	1606.3	HIGHLIGHTS: Record SuperScorpio. Recording the biota in the SuperScorpio. Seeing mussels; shrimp; squat lobsters. Beautiful lighting in the camera.
4607	J2-798	12/5/2014	11:29:59	21.48743	144.04139	65	1606.3	Taking the temperature with the HFS under a slab of sulfur.
4608	J2-798	12/5/2014	11:30:34	21.48743	144.04139	65	1606.3	HIGHLIGHTS: End Highlights.
4610	J2-798	12/5/2014	11:31:42	21.48744	144.04138	65	1606.3	We don't want too hot of water for a bag sample.
4612	J2-798	12/5/2014	11:32:39	21.48744	144.04138	65	1606.3	**SAMPLE: HFS J798-HFS-09** Unfiltered bag #17. Start 1132. Temp to start is 17.5.
4616	J2-798	12/5/2014	11:34:57	21.48743	144.04138	65	1606.3	J798-HFS-09 cont. At the base of Marker 144. Actually starting at 1135.
4617	J2-798	12/5/2014	11:35:46	21.48742	144.04138	65	1606.3	J798-HFS-09 cont. At the sulfur mat sampling site. Will be sampling here with the bio mat sampler next.
4620	J2-798	12/5/2014	11:37:18	21.48742	144.04138	65	1606.3	J798-HFS-09 cont. Stop 1137. Tmax=17.6 Tavg=17.3 T2=18.5 Vol=303mL.
4622	J2-798	12/5/2014	11:38:24	21.48742	144.04138	65	1606.2	FRAMEGRABS: HD frame grab SciCam. BM Sampling site; Same spot as previous HFS sample.
4626	J2-798	12/5/2014	11:41:05	21.48743	144.04139	65	1606.2	**SAMPLE: HFS J798-HFS-10** RNA (later) filter #16. Start 1141.
4627	J2-798	12/5/2014	11:41:29	21.48743	144.04139	66	1606.2	This will be a 20 minute sample or so.
4639	J2-798	12/5/2014	11:52:10	21.48737	144.04139	66	1606.3	Still collecting the RNA filter sample.
4645	J2-798	12/5/2014	11:57:35	21.48738	144.04137	66	1606.2	J798-HFS-10 cont. Tmax=20.0 Tavg=18.90 T2=9 Vol=3007mL.
4650	J2-798	12/5/2014	12:01:41	21.48740	144.04136	66	1606.2	SENSOR: pH. Running sensors in same hole as last samples (9 and 10) pH=4.7 O2=1.6.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
4653	J2-798	12/5/2014	12:02:55	21.48741	144.04137	66	1606.2	Pulling the wand out of the sampling site.
4654	J2-798	12/5/2014	12:03:19	21.48740	144.04137	66	1606.2	Biomat sampling here in same place.
4655	J2-798	12/5/2014	12:03:29	21.48740	144.04137	66	1606.2	FRAMEGRABS: HD frame grab SciCam.
4658	J2-798	12/5/2014	12:05:00	21.48739	144.04134	66	1606.2	Going to take out the BM sampler to test if the syringes are working.
4661	J2-798	12/5/2014	12:07:21	21.48741	144.04135	66	1606.2	BM out for testing to see if the syringes are working. Cassette B testing.
4663	J2-798	12/5/2014	12:07:55	21.48741	144.04135	66	1606.2	BM Liquid CO2 bubbling up in the background.
4669	J2-798	12/5/2014	12:13:25	21.48741	144.04135	67	1606.2	**SAMPLE: BM J798-BM1-B4-11**. Cassette B. Syringe 4. In white mat overlaid on sulfur. Shrimp on the sulfur. In "creamy" white mat.
4671	J2-798	12/5/2014	12:14:06	21.48741	144.04135	67	1606.2	J798-BM1-B4-11 cont. Not coming up very well. Trying again.
4673	J2-798	12/5/2014	12:15:40	21.48741	144.04135	67	1606.2	J798-BM1-B4-11 cont. Having some problems sucking up this mat with the syringe.
4675	J2-798	12/5/2014	12:16:27	21.48742	144.04135	67	1606.2	J798-BM1-B4-11 Didn't work. Will try syringe 2 instead.
4677	J2-798	12/5/2014	12:17:01	21.48742	144.04135	67	1606.2	SAMPLE: BM J798-BM1-B2-11. Did not use syringe 4 for this sample. It was syringe 2.
4678	J2-798	12/5/2014	12:17:20	21.48742	144.04135	67	1606.2	Expelling syringe 4. Didn't sample with it.
4679	J2-798	12/5/2014	12:17:29	21.48742	144.04135	67	1606.2	The first BM sample looks pretty good.
4681	J2-798	12/5/2014	12:18:38	21.48742	144.04136	67	1606.3	**SAMPLE: BM J798-BM1-B1-12.** Same place.
4683	J2-798	12/5/2014	12:19:41	21.48741	144.04135	67	1606.2	**SAMPLE: BM 798-BM1-B6-13.** Wants to stay on the surface of this. In the fluffy white stuff.
4685	J2-798	12/5/2014	12:20:39	21.48741	144.04135	67	1606.2	**SAMPLE: 798-BM1-B5-14.** Same fluffy mat above the sulfur with liquid CO2 bubbles to the left.
4687	J2-798	12/5/2014	12:21:44	21.48742	144.04135	67	1606.2	**SAMPLE: BM 798-BM1-B4-15**. Highlight video with this sample.
4689	J2-798	12/5/2014	12:22:10	21.48742	144.04135	67	1606.2	HIGHLIGHTS: Record SciCam. BM1 samples at Champagne Mkr-144.
4691	J2-798	12/5/2014	12:23:31	21.48743	144.04134	66	1606.2	FRAMEGRABS: HD frame grab SciCam J798-BM1-14-15 finished.
4693	J2-798	12/5/2014	12:23:54	21.48743	144.04134	66	1606.3	HIGHLIGHTS: End Highlights. Going to try the "switch" to see if they can get cassette to work.
4696	J2-798	12/5/2014	12:25:57	21.48744	144.04134	66	1606.2	**SAMPLE: 798-BM1-B3-16**. Different valve. Same cassette and syringe. Frame grab of this.
4697	J2-798	12/5/2014	12:26:27	21.48744	144.04134	66	1606.2	FRAMEGRABS: HD frame grab SciCam. Stowing the cassette.
4700	J2-798	12/5/2014	12:28:08	21.48743	144.04134	66	1606.2	Jason makes that look easy. Good manipulating.
4702	J2-798	12/5/2014	12:29:52	21.48744	144.04134	67	1605.4	Seems like we are finished up here at Champagne.
4705	J2-798	12/5/2014	12:31:16	21.48748	144.04138	66	1600.9	Moving to the elevator.
4706	J2-798	12/5/2014	12:31:42	21.48749	144.04140	66	1598.8	Heading up slope.
4708	J2-798	12/5/2014	12:32:15	21.48749	144.04142	66	1597.1	The last samples at Champagne were taken at a depth of 1606m. Heading of 65 degrees.
4711	J2-798	12/5/2014	12:34:46	21.48751	144.04148	67	1582.7	FRAMEGRABS: HD frame grab SciCam. Moving up slope past tons of mussels.
4713	J2-798	12/5/2014	12:35:00	21.48752	144.04150	66	1581.3	Tons of mussels here.
4715	J2-798	12/5/2014	12:36:17	21.48755	144.04161	70	1578.8	Moving up a very steep slope toward the elevator which is about half way between Yellow Cone and Champagne.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
4716	J2-798	12/5/2014	12:36:49	21.48756	144.04169	75	1576.8	Crazy CO2 bubbles in the SuperScorpio camera.
4718	J2-798	12/5/2014	12:37:34	21.48758	144.04173	76	1574.5	We're heading toward the elevator. It's right ahead of us.
4720	J2-798	12/5/2014	12:37:58	21.48758	144.04174	82	1573.8	The elevator is sitting pretty precariously.
4726	J2-798	12/5/2014	12:43:20	21.48762	144.04178	203	1573.0	**Elevator:** Putting Cassette B on elevator (full). Grabbing cassette D and putting it on Jason. Bungee'ing in the cassettes on the elevator.
4730	J2-798	12/5/2014	12:46:41	21.48758	144.04177	11	1572.4	Elevator cont.: Moving around to other side. Will grab 2 shrimp traps and 2 markers.
4738	J2-798	12/5/2014	12:53:37	21.48758	144.04177	10	1572.5	FRAMEGRABS: HD frame grab SciCam. Elevator cont.: Grabbing shrimp traps 1 and 2 from the elevator. Grabbing Markers 146 and 124 from the elevator putting them on Jason.
4742	J2-798	12/5/2014	12:56:41	21.48759	144.04176	15	1573.1	Markers went into the stbd milk crate on the basket .
4745	J2-798	12/5/2014	12:58:32	21.48760	144.04176	16	1573.1	More elevator manipulations. Something just fell down hill.
4747	J2-798	12/5/2014	12:59:43	21.48760	144.04176	16	1573.1	Next we're going for a Later Scoop (for later).
4749	J2-798	12/5/2014	13:00:40	21.48760	144.04176	16	1573.1	Grabbing Later scoop.
4755	J2-798	12/5/2014	13:05:00	21.48758	144.04176	20	1572.1	Going in to grab another later scoop off the elevator.
4757	J2-798	12/5/2014	13:06:14	21.48758	144.04176	20	1572.1	The Jason basket is stuffed full.
4758	J2-798	12/5/2014	13:06:23	21.48758	144.04176	43	1571.6	Pulling back from the elevator.
4760	J2-798	12/5/2014	13:07:28	21.48759	144.04176	19	1570.5	We're headed to Yellow Cone next.
4761	J2-798	12/5/2014	13:07:47	21.48760	144.04176	24	1570.6	HIGHLIGHTS: Record BrowCam. Elevator lift off.
4763	J2-798	12/5/2014	13:08:31	21.48758	144.04176	34	1570.0	HIGHLIGHTS: Record BrowCam.
4765	J2-798	12/5/2014	13:09:08	21.48761	144.04180	36	1568.8	HIGHLIGHTS: Record SciCam Looks like Yellow Cone is on the other side of the summit.
4766	J2-798	12/5/2014	13:09:12	21.48761	144.04181	36	1568.9	HIGHLIGHTS: End Highlights
4768	J2-798	12/5/2014	13:10:36	21.48772	144.04185	40	1567.5	FRAMEGRABS: HD frame grab SciCam. The basket is the fullest basket I've ever seen.
4770	J2-798	12/5/2014	13:11:00	21.48774	144.04188	95	1565.3	FRAMEGRABS: HD frame grab SciCam.
4771	J2-798	12/5/2014	13:11:36	21.48774	144.04192	100	1560.7	At the top of this red ridge.
4773	J2-798	12/5/2014	13:12:11	21.48771	144.04197	121	1560.4	This is the summit ridge - not the highest point; but on the same ridge.
4774	J2-798	12/5/2014	13:12:50	21.48769	144.04200	122	1560.3	NAV: Doppler Reset
4776	J2-798	12/5/2014	13:13:14	21.48768	144.04200	120	1560.3	Incredibly steep; sheer cliff faces here.
4778	J2-798	12/5/2014	13:14:26	21.48771	144.04196	122	1560.3	We're waiting on the ship.
4781	J2-798	12/5/2014	13:15:58	21.48769	144.04199	122	1560.4	FRAMEGRABS: HD frame grab SciCam. The incredibly full Jason basket. Wow.
4786	J2-798	12/5/2014	13:20:20	21.48784	144.04205	304	1581.7	The bottom is in sight again.
4788	J2-798	12/5/2014	13:21:13	21.48785	144.04204	269	1582.0	Z=1581. Looks like we're close to the Yellow Cone 2014 target.
4790	J2-798	12/5/2014	13:21:54	21.48785	144.04199	268	1579.1	FRAMEGRABS: HD frame grab PilotCam. Yellow Cone area. Lots of thick orangish mat here; from the looks of it.
4791	J2-798	12/5/2014	13:22:52	21.48785	144.04199	269	1577.5	FRAMEGRABS: HD frame grab SuperScorpio. Craig wants to take some photos with the SuperScorpio before settling down.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
4794	J2-798	12/5/2014	13:24:16	21.48785	144.04199	269	1577.4	Looks like some thick orangish/yellowish mats here overlaid on rocky substrate.
4795	J2-798	12/5/2014	13:24:29	21.48785	144.04198	269	1577.2	Moving upslope a little bit.
4797	J2-798	12/5/2014	13:25:00	21.48785	144.04196	269	1576.0	Should see a Southern Extent target.
4799	J2-798	12/5/2014	13:26:11	21.48784	144.04194	269	1571.4	Moving up slope to try to find the top of this feature (?) outcrop.
4801	J2-798	12/5/2014	13:27:03	21.48785	144.04195	269	1573.0	Z=1570 at the top. Will now drop back down to 1580m.
4804	J2-798	12/5/2014	13:28:59	21.48787	144.04202	269	1579.8	Moving downslope along this gradual cliff face that is covered in orange-yellow mat. We're at 1580m now.
4806	J2-798	12/5/2014	13:30:11	21.48793	144.04196	269	1579.8	Going to lateral to the north (facing west). Looking at the east side of a ridge here.
4808	J2-798	12/5/2014	13:31:23	21.48795	144.04192	271	1579.8	Continuing on.
4810	J2-798	12/5/2014	13:32:05	21.48790	144.04196	226	1579.7	We're heading E/SE now pretty much re-tracing our steps over here.
4811	J2-798	12/5/2014	13:32:49	21.48784	144.04198	239	1579.9	Moving to the east. Staying at this depth (1570).
4813	J2-798	12/5/2014	13:33:47	21.48778	144.04200	240	1579.8	Will continue to the east looking for the thick iron oxide mat. Which Craig said we should be getting into it.
4815	J2-798	12/5/2014	13:34:17	21.48776	144.04200	238	1579.9	We're close to the yellow cone marker area.
4817	J2-798	12/5/2014	13:34:55	21.48776	144.04204	177	1579.9	We're at a bit of a transition here with rocky bottom on and off and looks like basalt (it is).
4819	J2-798	12/5/2014	13:36:50	21.48777	144.04215	171	1579.9	Super steep terrain. Iron oxide mats are not as thick here. More rocky (red block and black basalts).
4821	J2-798	12/5/2014	13:37:22	21.48777	144.04218	196	1579.7	FRAMEGRABS: HD frame grab SciCam.
4824	J2-798	12/5/2014	13:38:13	21.48776	144.04214	165	1578.2	End of transect to the east. Climbed up about 2 meters and will lateral along this contour to the west.
4826	J2-798	12/5/2014	13:39:08	21.48773	144.04212	161	1578.3	This is definitely iron oxidized basalts.
4829	J2-798	12/5/2014	13:41:19	21.48786	144.04197	268	1578.1	Back in a crazy zone of iron mat-covered slope.
4831	J2-798	12/5/2014	13:42:08	21.48788	144.04197	261	1578.2	Looking for a place flat enough to drop the sampling gear.
4833	J2-798	12/5/2014	13:43:13	21.48791	144.04197	256	1578.1	Continuing to the North looking at this steep oxidized area.
4835	J2-798	12/5/2014	13:44:14	21.48796	144.04193	255	1576.5	Next will head up a couple more meters now from 1578 to 1576.
4836	J2-798	12/5/2014	13:44:20	21.48796	144.04193	254	1576.0	Watch change.
4846	J2-798	12/5/2014	13:53:00	21.48777	144.04195	236	1573.9	FRAMEGRABS: HD frame grab PilotCam. Automatic pictures every 10 seconds.
4850	J2-798	12/5/2014	13:56:09	21.48789	144.04193	201	1574.0	Stopping automatic frame grabs. Done with surveying this area.
4851	J2-798	12/5/2014	13:56:23	21.48790	144.04193	201	1574.1	Also done with SuperScorpio photos.
4853	J2-798	12/5/2014	13:57:03	21.48790	144.04193	201	1574.2	Plan is to find a good place with flow to put samplers on Yellow-Cone.
4855	J2-798	12/5/2014	13:58:31	21.48788	144.04201	232	1579.5	Getting near mats.
4856	J2-798	12/5/2014	13:58:35	21.48788	144.04201	237	1579.7	Cycling power on the Beast.
4860	J2-798	12/5/2014	14:01:19	21.48780	144.04203	240	1578.5	Trying to find best mats of Yellow-Cone.
4862	J2-798	12/5/2014	14:02:26	21.48777	144.04202	271	1581.9	Seeing lots of iron mats; looking for flow.
4864	J2-798	12/5/2014	14:02:58	21.48777	144.04202	260	1582.6	Lots of animals around so we must be close!
4868	J2-798	12/5/2014	14:06:12	21.48779	144.04203	247	1583.1	Lots of floc being stirred up in water.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
4869	J2-798	12/5/2014	14:06:52	21.48780	144.04202	245	1581.3	Found cluster of shrimp; hopefully flow there.
4871	J2-798	12/5/2014	14:07:38	21.48780	144.04201	241	1581.2	Small opening in mat with white layer around hole. We've got flow!
4873	J2-798	12/5/2014	14:08:03	21.48780	144.04201	241	1581.1	Going towards it to take temp.
4874	J2-798	12/5/2014	14:08:38	21.48780	144.04201	241	1581.1	Ambient Temp on Jason = 2.37C O2= 102.4
4878	J2-798	12/5/2014	14:11:35	21.48781	144.04199	240	1581.1	Floatie is in the way of the hole we are trying to probe. Not a good view on the science cam.
4880	J2-798	12/5/2014	14:12:01	21.48781	144.04199	241	1581.0	Getting it out of the way.
4881	J2-798	12/5/2014	14:12:45	21.48780	144.04200	241	1581.0	Mat crumbled and blocked the flow. Excavating a bit right now.
4883	J2-798	12/5/2014	14:13:00	21.48780	144.04200	241	1581.0	Mat is a crusty iron layer on top of very crumbly white/black.
4884	J2-798	12/5/2014	14:13:05	21.48780	144.04200	241	1581.0	Temp rising.
4887	J2-798	12/5/2014	14:15:17	21.48779	144.04200	241	1581.1	Tmax=17.4C
4888	J2-798	12/5/2014	14:15:27	21.48779	144.04200	241	1581.1	Not great flow here. Moving on.
4889	J2-798	12/5/2014	14:15:42	21.48779	144.04200	241	1581.1	Spot with lots of shrimp; nice mat; good flow.
4890	J2-798	12/5/2014	14:15:50	21.48779	144.04200	241	1581.1	Temp probing.
4892	J2-798	12/5/2014	14:16:04	21.48779	144.04200	241	1581.0	Looks like all iron mats here; different shades of orange.
4893	J2-798	12/5/2014	14:16:24	21.48779	144.04200	241	1581.0	Maybe a good place to sample mat.
4896	J2-798	12/5/2014	14:18:34	21.48779	144.04200	241	1581.1	Tmax=23.15C
4898	J2-798	12/5/2014	14:19:45	21.48780	144.04201	244	1579.9	Looking for chimneys now.
4901	J2-798	12/5/2014	14:21:08	21.48779	144.04199	244	1579.2	Could be curds.
4903	J2-798	12/5/2014	14:22:25	21.48779	144.04198	245	1579.3	Temp probing new spot. Little chimney? Shrimp around.
4908	J2-798	12/5/2014	14:26:36	21.48778	144.04196	245	1579.3	Tmax=19.5
4910	J2-798	12/5/2014	14:27:01	21.48778	144.04196	245	1579.3	Going to place shrimp traps around here.
4912	J2-798	12/5/2014	14:28:41	21.48776	144.04196	245	1579.3	Shrimp Trap 2 placed.
4914	J2-798	12/5/2014	14:29:15	21.48776	144.04197	245	1579.4	FRAMEGRABS: HD frame grab PilotCam J798-ShrTrp2 deployed
4916	J2-798	12/5/2014	14:30:27	21.48775	144.04197	245	1579.3	**Depl/Rec: Deploy. J798-ShrTrp2** at Yellow-Cone-14 with Tmax of area=19.5C; depth=1579m; heading 244.9
4918	J2-798	12/5/2014	14:31:24	21.48774	144.04198	245	1579.3	NAV: Navigator target. Shrimp-Trap2-14
4921	J2-798	12/5/2014	14:32:57	21.48774	144.04199	245	1579.3	Getting ready to biomat sample.
4923	J2-798	12/5/2014	14:33:55	21.48774	144.04199	245	1579.3	NAV: Doppler Reset.
4927	J2-798	12/5/2014	14:37:23	21.48775	144.04198	245	1579.3	J798-BM1-C1-17 sampling.
4929	J2-798	12/5/2014	14:37:57	21.48775	144.04198	245	1579.3	HIGHLIGHTS: Record SciCam. J798-BM1-C1-17 sampling.
4930	J2-798	12/5/2014	14:38:02	21.48775	144.04198	245	1579.3	Syringe 1 not working.
4931	J2-798	12/5/2014	14:38:25	21.48775	144.04198	245	1579.3	Syringe 5 was drawing in instead of 1.
4932	J2-798	12/5/2014	14:38:37	21.48775	144.04198	245	1579.3	Testing syringe 1...not working.
4934	J2-798	12/5/2014	14:39:14	21.48775	144.04198	245	1579.3	Syringe 1 and 5 are both drawing up when syringe 1 is pressed.
4937	J2-798	12/5/2014	14:41:11	21.48776	144.04198	245	1579.4	Syringe 5 is drawing up when any of the other syringes is activated; but syringe 5 can be used without activating any of the other syringes...debating what order to use syringes.
4939	J2-798	12/5/2014	14:42:39	21.48777	144.04198	244	1579.3	Going to put cassette back in basket to disconnect and reconnect and see if we have better luck.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
4940	J2-798	12/5/2014	14:42:50	21.48777	144.04198	244	1579.3	HIGHLIGHTS: End Highlights.
4942	J2-798	12/5/2014	14:43:09	21.48777	144.04198	244	1579.3	NOTE: did not take J798-BM1-C1-17 sample yet.
4944	J2-798	12/5/2014	14:44:38	21.48777	144.04198	244	1579.3	Syringe 5 still not working right. Might be stuck.
4946	J2-798	12/5/2014	14:45:11	21.48778	144.04198	244	1579.3	Lost syringe 5 :(
4947	J2-798	12/5/2014	14:45:38	21.48778	144.04198	244	1579.3	Back to sampling.
4949	J2-798	12/5/2014	14:45:54	21.48778	144.04198	244	1579.3	HIGHLIGHTS: Record SciCam. J798-BM1-C1-17.
4950	J2-798	12/5/2014	14:46:33	21.48778	144.04197	244	1579.3	**SAMPLE: BM. J798-BM1-C1-17** location= 21deg 29.2651N taken to the right of shrimp trap; aiming for fluffy lighter colored mat.
4951	J2-798	12/5/2014	14:46:48	21.48779	144.04197	244	1579.3	Thin layer of light yellow mat on top of darker orange mat
4953	J2-798	12/5/2014	14:47:34	21.48779	144.04197	245	1579.3	HIGHLIGHTS: End Highlights.
4955	J2-798	12/5/2014	14:48:27	21.48779	144.04196	244	1579.3	Letting it settle and now expelling extra water. Going back to same spot to get more mat.
4956	J2-798	12/5/2014	14:48:46	21.48779	144.04196	245	1579.3	SAMPLE: BM. J798-BM1-C1-17 back to get more!
4958	J2-798	12/5/2014	14:49:03	21.48778	144.04196	245	1579.3	FRAMEGRABS: HD frame grab PilotCam. J798-BM1-C1-17
4959	J2-798	12/5/2014	14:49:16	21.48778	144.04197	245	1579.3	FRAMEGRABS: HD frame grab SciCam. J798-BM1-C1-17.
4961	J2-798	12/5/2014	14:50:10	21.48778	144.04197	245	1579.3	Sweet sampling Scott!
4963	J2-798	12/5/2014	14:51:47	21.48779	144.04198	245	1579.3	**SAMPLE: BM. J798-BM1-C2-18** will be combined with C1. Same sampling spot and type of mat.
4965	J2-798	12/5/2014	14:52:00	21.48779	144.04198	245	1579.3	HIGHLIGHTS: Record SciCam. J798-BM1-C2-18.
4966	J2-798	12/5/2014	14:52:19	21.48779	144.04198	245	1579.3	FRAMEGRABS: HD frame grab PilotCam.
4967	J2-798	12/5/2014	14:52:37	21.48780	144.04198	245	1579.3	FRAMEGRABS: HD frame grab SciCam. J798-BM1-C2-18.
4969	J2-798	12/5/2014	14:53:11	21.48781	144.04198	245	1579.3	HIGHLIGHTS: End Highlights.
4970	J2-798	12/5/2014	14:53:23	21.48781	144.04198	245	1579.3	Syringe not full yet but we're out of that material.
4972	J2-798	12/5/2014	14:53:58	21.48781	144.04198	245	1579.3	Letting syringe 2 settle to expel some.
4973	J2-798	12/5/2014	14:54:41	21.48781	144.04198	245	1579.3	See some more light fluffies to add to syringe 2.
4975	J2-798	12/5/2014	14:55:23	21.48781	144.04198	245	1579.3	SAMPLE: BM. J798-BM1-C2-18 continued.
4980	J2-798	12/5/2014	14:59:02	21.48777	144.04201	245	1579.3	Going to look for a place with more flow to do fluid sampling.
4982	J2-798	12/5/2014	14:59:59	21.48779	144.04200	242	1578.4	Heading to the right to try to find better mats.
4983	J2-798	12/5/2014	15:00:03	21.48779	144.04200	242	1578.3	Lots of shrimp here.
4984	J2-798	12/5/2014	15:00:51	21.48781	144.04199	243	1578.0	Lots of flow.
4987	J2-798	12/5/2014	15:02:04	21.48778	144.04198	258	1578.3	Chimney/mound with good flow coming out of it. Covered by nice iron mats; maybe some veils.
4988	J2-798	12/5/2014	15:02:30	21.48778	144.04198	256	1578.4	Probing the chimney hole.
4990	J2-798	12/5/2014	15:03:38	21.48778	144.04198	256	1578.6	Shrimp observation: some are rust colored and some are white. Rusty ones haven't molted recently?
4991	J2-798	12/5/2014	15:03:43	21.48778	144.04198	256	1578.6	Temp probe in chimney.
4994	J2-798	12/5/2014	15:05:01	21.48778	144.04198	256	1578.5	Chimney cracked. Might fall apart.
4995	J2-798	12/5/2014	15:05:14	21.48778	144.04198	256	1578.5	Tmax=21.25C.
4996	J2-798	12/5/2014	15:05:25	21.48778	144.04198	256	1578.6	Broke off large chunk of chimney.
4997	J2-798	12/5/2014	15:05:34	21.48778	144.04198	256	1578.6	FRAMEGRABS: HD frame grab PilotCam. Chimney.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
4998	J2-798	12/5/2014	15:05:39	21.48778	144.04198	256	1578.6	FRAMEGRABS: HD frame grab SciCam. Chimney.
5000	J2-798	12/5/2014	15:06:27	21.48778	144.04198	257	1578.6	Looks like there are two layers of outer chimney. Hematite?
5002	J2-798	12/5/2014	15:07:06	21.48778	144.04198	259	1578.4	Other spot where shrimp are thick. Going to temp probe there.
5003	J2-798	12/5/2014	15:07:33	21.48779	144.04198	251	1578.1	Ambient temp = 2.75C.
5006	J2-798	12/5/2014	15:09:49	21.48779	144.04198	256	1579.1	Doesn't look like there's much sulfur at this site.
5008	J2-798	12/5/2014	15:10:53	21.48779	144.04199	255	1579.1	Disturbing the shrimp for a temp probe.
5013	J2-798	12/5/2014	15:14:01	21.48780	144.04200	256	1579.1	Tmax=26.02C.
5015	J2-798	12/5/2014	15:15:44	21.48780	144.04201	255	1579.1	Probing another flow spot.
5016	J2-798	12/5/2014	15:15:49	21.48780	144.04201	256	1579.1	We broke 30C!
5018	J2-798	12/5/2014	15:16:24	21.48780	144.04201	256	1579.1	T=33C and still rising. Going to mat sample and fluid sample.
5022	J2-798	12/5/2014	15:18:59	21.48780	144.04199	257	1579.0	SAMPLE: BM. Should we sample near warmest flow area or above that where mat looks thicker?
5023	J2-798	12/5/2014	15:19:41	21.48780	144.04199	258	1579.0	Going to sample thicker mat above the flow.
5025	J2-798	12/5/2014	15:20:21	21.48781	144.04199	257	1579.0	**SAMPLE: BM. J798-BM1-C4-19**
5028	J2-798	12/5/2014	15:21:04	21.48781	144.04199	257	1579.0	Starting sample now.
5029	J2-798	12/5/2014	15:21:22	21.48781	144.04199	257	1579.0	Mat is falling away as we touch it.
5031	J2-798	12/5/2014	15:22:18	21.48781	144.04199	256	1579.0	Looks crusty not fluffy when we touch it.
5032	J2-798	12/5/2014	15:22:30	21.48781	144.04199	255	1579.1	Some of the mat underneath looks better; aiming for that now.
5036	J2-798	12/5/2014	15:24:54	21.48780	144.04199	256	1579.1	Surface of mat is crusty. Knocking it away and sampling the fluffier mat that falls away from underneath.
5037	J2-798	12/5/2014	15:24:58	21.48780	144.04200	256	1579.1	HIGHLIGHTS: End Highlights.
5039	J2-798	12/5/2014	15:26:22	21.48779	144.04201	256	1579.0	Letting settle and expelling some of syringe 4.
5042	J2-798	12/5/2014	15:27:59	21.48779	144.04201	256	1579.1	Cursor Location for J798-BM1-C4-19 = 21deg 29.2674N 144deg 2.5194E.
5043	J2-798	12/5/2014	15:28:18	21.48779	144.04200	256	1579.0	HIGHLIGHTS: Record SciCam. J798-BM1-C4-19 continued.
5045	J2-798	12/5/2014	15:29:19	21.48779	144.04199	256	1579.0	Done with syringe 4.
5046	J2-798	12/5/2014	15:29:48	21.48779	144.04199	255	1579.1	HIGHLIGHTS: End Highlights.
5049	J2-798	12/5/2014	15:31:02	21.48779	144.04199	254	1579.1	**SAMPLE: BM. J798-BM1-C6-20**.
5051	J2-798	12/5/2014	15:32:16	21.48779	144.04199	253	1579.1	Moved over slightly for syringe 6; still aiming for light fluffy mat.
5053	J2-798	12/5/2014	15:33:41	21.48779	144.04200	253	1579.1	Letting syringe 6 settle.
5055	J2-798	12/5/2014	15:34:50	21.48780	144.04200	254	1579.1	Going in for more.
5058	J2-798	12/5/2014	15:36:36	21.48781	144.04200	254	1579.1	FRAMEGRABS: HD frame grab BrowCam. J798-BM1-C6-20 sampling.
5061	J2-798	12/5/2014	15:38:47	21.48781	144.04200	255	1579.1	HFS sampling next.
5068	J2-798	12/5/2014	15:44:47	21.48778	144.04198	255	1579.1	Going to collect an HFS bag. temp probing first with HFS; steady around 9C.
5070	J2-798	12/5/2014	15:44:59	21.48779	144.04198	255	1579.1	Pushing in further to try to get higher temps.
5072	J2-798	12/5/2014	15:46:09	21.48779	144.04197	255	1579.0	**SAMPLE: HFS. J798-HFS-21** Unfiltered Bag#1 Start: 15:46:00
5076	J2-798	12/5/2014	15:49:03	21.48778	144.04196	255	1579.0	J798-HFS-21 Unfiltered Bag#1 Continued. T1max= 29.0C; Tavg= 27.3C; T2= 5C; Vol= 350ml; Stop: 15:48:15; Location= 21deg 29.2674N 144deg 2.5194E.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
5078	J2-798	12/5/2014	15:49:56	21.48778	144.04196	255	1579.0	**SAMPLE: HFS. J798-HFS-22** Filtered Bag #24 Start: 15:49:20
5081	J2-798	12/5/2014	15:52:26	21.48778	144.04196	256	1579.0	SAMPLE: HFS J798-HFS-22 Filtered Bag #24 Continued. Same location as sample21. Tmax= 30.5C; Tavg= 30.1C; T2= 7C; Vol= 353; Stop: 15:51:57
5086	J2-798	12/5/2014	15:56:29	21.48779	144.04197	256	1579.0	SENSOR: pH. HFS pH= 5.42
5087	J2-798	12/5/2014	15:56:49	21.48779	144.04197	256	1579.0	SENSOR: O2. HFS O2= 0.51 ml/L
5090	J2-798	12/5/2014	15:58:22	21.48778	144.04197	255	1579.1	**SAMPLE: HFS. J798-HFS-23** RNA Later Filter #15 start: 15:58:20
5092	J2-798	12/5/2014	15:59:00	21.48778	144.04198	255	1579.1	FRAMEGRABS: HD frame grab PilotCam. About 2 minutes ago started video of shrimp egg masses.
5094	J2-798	12/5/2014	16:00:24	21.48778	144.04198	255	1579.1	SAMPLE: HFS. J798-HFS-23 RNA Later Filter #15 continued. Same location as other HFS sampling. Going to collect 3 liters.
5099	J2-798	12/5/2014	16:04:49	21.48780	144.04197	255	1579.1	FRAMEGRABS: HD frame grab SciCam. Focusing in on crab that hasn't been seen on Eifuku before.
5101	J2-798	12/5/2014	16:05:07	21.48780	144.04197	256	1579.1	FRAMEGRABS: HD frame grab SciCam Gandalfus.
5119	J2-798	12/5/2014	16:21:57	21.48778	144.04199	255	1579.2	SAMPLE: HFS. J798-HFS-23 RNA Later Filter #15 continued. Tmax= 34.0 C; Tavg= 33.6 C; T2= 3-4C; Vol=3000 ml; Stop: 16:21:00
5120	J2-798	12/5/2014	16:22:13	21.48778	144.04199	255	1579.2	Done with the beast.
5122	J2-798	12/5/2014	16:23:52	21.48778	144.04199	256	1579.2	Going to finish the biomat sampler. Syringe 3.
5124	J2-798	12/5/2014	16:24:36	21.48778	144.04199	255	1579.1	**SAMPLE: BM. J798-BM1-C3-24** Light fluffy mat again.
5126	J2-798	12/5/2014	16:25:43	21.48778	144.04198	255	1579.2	In cassette C; syringes 1 and 2 will be combined. syringes 3; 4 and 6 will be combined.
5129	J2-798	12/5/2014	16:27:47	21.48779	144.04198	255	1579.2	Going to push some out and collect more.
5132	J2-798	12/5/2014	16:29:13	21.48779	144.04198	255	1579.2	Finishing syringe 3.
5134	J2-798	12/5/2014	16:29:55	21.48778	144.04198	255	1579.2	Done with cassette C.
5137	J2-798	12/5/2014	16:32:00	21.48777	144.04199	254	1579.2	Moving on to scoops.
5138	J2-798	12/5/2014	16:32:37	21.48777	144.04199	255	1579.1	Scoop handle came off of Lscoop4.
5145	J2-798	12/5/2014	16:38:47	21.48779	144.04200	258	1579.1	Scoop 4 going back in the box
5149	J2-798	12/5/2014	16:41:03	21.48779	144.04199	258	1579.2	Struggling with scoops and handles.
5153	J2-798	12/5/2014	16:44:29	21.48777	144.04199	259	1578.1	Scoop 2 going back in box also. Scoops 2 and 4 both have broken handles can't use.
5155	J2-798	12/5/2014	16:45:08	21.48779	144.04198	256	1577.1	Putting slide trap/productivity chambers; shrimp traps and a marker here.
5158	J2-798	12/5/2014	16:47:25	21.48777	144.04199	272	1576.9	**Depl/Rec: Deploy. J798-ShrimpTrap1** going by the chimneys. Lots of clusters of shrimp nearby.
5161	J2-798	12/5/2014	16:48:57	21.48778	144.04199	273	1577.0	Group of shrimp just above where Shrimp Trap #1 is placed.
5162	J2-798	12/5/2014	16:49:38	21.48778	144.04200	272	1576.9	NAV: Navigator target. Shrimp-Trap1-14
5164	J2-798	12/5/2014	16:50:44	21.48778	144.04200	272	1577.0	**Depl/Rec: Deploy. J798-SlideTrap1**.
5167	J2-798	12/5/2014	16:52:11	21.48777	144.04199	271	1577.0	Placing slide trap 1 near shrimp trap. disturbed group of shrimp.
5170	J2-798	12/5/2014	16:54:18	21.48778	144.04198	271	1576.9	**Depl/Rec: Deploy J798-SlideTrap2** placing right above Slide Trap 1.
5173	J2-798	12/5/2014	16:56:02	21.48776	144.04199	271	1576.9	Doesn't fit there. Looking for good spot for Slidetrap2.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
5175	J2-798	12/5/2014	16:57:11	21.48775	144.04199	271	1576.9	Placing it up a little higher on top of rock.
5177	J2-798	12/5/2014	16:58:27	21.48775	144.04199	271	1577.0	Going to go in with the arm and excavate the area a bit for the next slide trap.
5180	J2-798	12/5/2014	17:00:42	21.48777	144.04198	207	1577.6	Looking for next spot for slide trap.
5185	J2-798	12/5/2014	17:04:23	21.48779	144.04197	258	1577.3	HIGHLIGHTS: Record SciCam Excavation for Slide Trap3.
5186	J2-798	12/5/2014	17:04:36	21.48778	144.04197	258	1577.3	Hoping to open up some more flow.
5189	J2-798	12/5/2014	17:06:04	21.48778	144.04197	258	1577.4	HIGHLIGHTS: End Highlights.
5191	J2-798	12/5/2014	17:07:24	21.48778	144.04198	258	1577.3	**Depl/Rec: Deploy. MTR4001** being placed where SlideTrap3 will go.
5193	J2-798	12/5/2014	17:08:18	21.48779	144.04197	258	1577.4	Tamping it down a little to put slide trap on top of it.
5194	J2-798	12/5/2014	17:08:30	21.48779	144.04197	258	1577.4	**Depl/Rec: Deploy. J798-SlideTrap3**
5198	J2-798	12/5/2014	17:11:42	21.48780	144.04197	258	1577.4	**Depl/Rec: Deploy.NAV: Navigator target. Marker146** Location: 21deg 29.2676 N 144deg 2.5172E; Depth: 1577.3 m; Heading: 258.3
5200	J2-798	12/5/2014	17:12:04	21.48779	144.04199	257	1576.3	Marker146-2014 in Nav system.
5201	J2-798	12/5/2014	17:12:17	21.48779	144.04200	257	1576.6	FRAMEGRABS: HD frame grab PilotCam Slide traps and shrimp trap.
5202	J2-798	12/5/2014	17:12:25	21.48779	144.04200	262	1576.4	FRAMEGRABS: HD frame grab SciCam Slide traps and shrimp trap.
5204	J2-798	12/5/2014	17:12:54	21.48779	144.04199	259	1575.3	FRAMEGRABS: HD frame grab SciCam with Marker 146
5207	J2-798	12/5/2014	17:15:13	21.48778	144.04199	260	1575.3	Still have BM cassette D to collect.
5208	J2-798	12/5/2014	17:15:47	21.48781	144.04198	266	1575.2	Going to try to find the best spot at Yellow-Cone-14 that we found this morning.
5212	J2-798	12/5/2014	17:18:37	21.48787	144.04201	267	1580.8	Getting close!
5216	J2-798	12/5/2014	17:21:52	21.48792	144.04202	241	1583.8	Found active-looking mat!
5218	J2-798	12/5/2014	17:21:59	21.48792	144.04202	241	1583.7	It's flowing!
5219	J2-798	12/5/2014	17:22:24	21.48792	144.04202	240	1583.6	Mat sample first; then fluid sampling; then place a slide trap.
5221	J2-798	12/5/2014	17:23:06	21.48793	144.04200	178	1583.7	Going to sample chimney structure.
5224	J2-798	12/5/2014	17:24:57	21.48792	144.04200	184	1583.7	Mat is light-colored. looks like it could be fluffy; but also has porous texture and lots of holes.
5228	J2-798	12/5/2014	17:28:07	21.48792	144.04200	183	1583.8	Location: 21deg 29.2753N 144deg 2.5201E.
5229	J2-798	12/5/2014	17:28:20	21.48792	144.04201	183	1583.8	NAV: Doppler Reset.
5230	J2-798	12/5/2014	17:28:37	21.48792	144.04201	183	1583.8	About 10 meters from Nav marker for Yellow-Cone-14
5232	J2-798	12/5/2014	17:29:48	21.48792	144.04200	182	1583.8	Still having problems with syringe 5.
5234	J2-798	12/5/2014	17:30:40	21.48792	144.04199	181	1583.8	**SAMPLE: BM. J798-BM1-D1-25** starting toward the bottom of the structure and moving upward.
5235	J2-798	12/5/2014	17:30:46	21.48792	144.04199	181	1583.8	HIGHLIGHTS: Record SciCam J798-BM1-D1-25.
5238	J2-798	12/5/2014	17:32:08	21.48793	144.04200	182	1583.8	Letting settle to push some out.
5239	J2-798	12/5/2014	17:32:28	21.48793	144.04200	182	1583.8	HIGHLIGHTS: End Highlights.
5241	J2-798	12/5/2014	17:33:20	21.48794	144.04201	181	1583.8	Ready to continue with syringe 1.
5242	J2-798	12/5/2014	17:33:51	21.48794	144.04201	181	1583.9	SAMPLE: BM. J798-BM1-D1-25 Continued.
5244	J2-798	12/5/2014	17:34:12	21.48794	144.04200	181	1583.9	HIGHLIGHTS: Record SciCam. J798-BM1-D1-25 continued.
5246	J2-798	12/5/2014	17:35:13	21.48793	144.04200	181	1583.9	FRAMEGRABS: HD frame grab BrowCam. J798-BM1-C6-20 sampling.
5247	J2-798	12/5/2014	17:35:20	21.48793	144.04200	181	1583.9	HIGHLIGHTS: End Highlights

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
5248	J2-798	12/5/2014	17:35:35	21.48793	144.04199	181	1583.8	Going to expel some and try again.
5250	J2-798	12/5/2014	17:36:07	21.48793	144.04199	181	1583.9	SAMPLE: BM. J798-BM1-D1-25 Continued again.
5252	J2-798	12/5/2014	17:36:56	21.48793	144.04199	181	1583.9	Done with D1.
5253	J2-798	12/5/2014	17:37:14	21.48793	144.04199	181	1583.8	**SAMPLE: BM. J798-BM1-D2-26** same spot.
5255	J2-798	12/5/2014	17:38:01	21.48792	144.04199	181	1583.9	D2 looks good; done with that.
5256	J2-798	12/5/2014	17:38:18	21.48792	144.04199	181	1583.9	**SAMPLE: BM. J798-BM1-D4-27** same spot.
5260	J2-798	12/5/2014	17:41:42	21.48792	144.04199	181	1583.9	Still sampling D4.
5262	J2-798	12/5/2014	17:42:24	21.48792	144.04199	181	1583.9	**SAMPLE: BM. J798-BM1-D6-28** same spot.
5264	J2-798	12/5/2014	17:43:34	21.48792	144.04199	181	1583.9	Going to re-index cassette so that we can use syringe 3.
5266	J2-798	12/5/2014	17:44:14	21.48791	144.04200	181	1583.9	All of cassette D (minus syringe 5 which we can't use) will be combined as one sample. All were taken from fluff-covered chimney structure.
5268	J2-798	12/5/2014	17:44:55	21.48791	144.04200	182	1583.9	**SAMPLE: BM. J798-BM1-D3-29**.
5270	J2-798	12/5/2014	17:46:19	21.48791	144.04200	182	1583.9	Changing of the watch.
5278	J2-798	12/5/2014	17:53:45	21.48791	144.04201	182	1583.9	Preparing to fluid sample at the same spot as the cassette samples.
5283	J2-798	12/5/2014	17:57:09	21.48790	144.04200	183	1583.9	HFS tip is in the yellow mat and temperature is going up.
5291	J2-798	12/5/2014	18:04:41	21.48790	144.04202	183	1583.9	Same location as the D cassette. pH=5.36 O=0.29
5295	J2-798	12/5/2014	18:06:54	21.48791	144.04201	183	1583.9	**SAMPLE: HFS. J798-HFS-30** Filtered Bag 22 Start 18:06.
5299	J2-798	12/5/2014	18:10:15	21.48791	144.04200	184	1583.9	J798-HFS-30 Stop 18:09 Tmax=22.5 Tavg=21.9 T2=9 vol=450mL.
5300	J2-798	12/5/2014	18:10:49	21.48790	144.04200	184	1583.9	**SAMPLE: HFS. J798-HFS-31** Unfiltered bag 21. Start 18:10.
5305	J2-798	12/5/2014	18:14:11	21.48790	144.04202	184	1584.0	J798-HFS-31 Same location as sample 30. Stop 18:13 Tmax=23.0 Tavg=22.7 T2=9 vol=475mL.
5307	J2-798	12/5/2014	18:15:50	21.48789	144.04201	184	1584.0	**SAMPLE: HFS. J798-HFS-32** Sterivex filter 13 Start 18:15.
5314	J2-798	12/5/2014	18:21:14	21.48790	144.04201	184	1584.0	FRAMEGRABS: HD frame grab SciCam. Focusing in on crab that hasn't been seen on Eifuku before.
5315	J2-798	12/5/2014	18:21:20	21.48790	144.04201	184	1584.0	FRAMEGRABS: HD frame grab PilotCam.
5324	J2-798	12/5/2014	18:29:38	21.48791	144.04200	185	1583.9	FRAMEGRABS: HD frame grab SciCam.
5326	J2-798	12/5/2014	18:30:05	21.48791	144.04200	185	1584.0	FRAMEGRABS: HD frame grab SciCam.
5327	J2-798	12/5/2014	18:30:22	21.48791	144.04200	185	1584.0	FRAMEGRABS: HD frame grab SciCam Sample site.
5331	J2-798	12/5/2014	18:33:22	21.48793	144.04200	185	1584.0	J798-HFS-32 Stop 18:32 Tmax=25.3 Tavg=24.0 T2=10 vol=3000mL.
5332	J2-798	12/5/2014	18:33:52	21.48793	144.04200	185	1584.0	Finished watering sampling.
5334	J2-798	12/5/2014	18:34:31	21.48793	144.04200	185	1584.0	Want to scoop the material where this was just sampled which formed the orifice.
5336	J2-798	12/5/2014	18:35:39	21.48793	144.04200	185	1584.0	Those water samples looked really good according to Dave.
5338	J2-798	12/5/2014	18:36:14	21.48792	144.04200	185	1584.0	CORRECTION: most of those Framegrab notations did not have framegrabs taken.
5341	J2-798	12/5/2014	18:37:59	21.48791	144.04200	185	1584.0	Retrieving the RNALater scoop from the basket. The handle is broken off but will try anyways.
5342	J2-798	12/5/2014	18:38:18	21.48791	144.04200	185	1584.0	HIGHLIGHTS: Record PilotCam. Looking at broken scoop.
5345	J2-798	12/5/2014	18:40:32	21.48791	144.04200	184	1584.0	Checking which way to open and close the sampler. Looks like counter-clockwise then clockwise to close.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
5353	J2-798	12/5/2014	18:47:22	21.48791	144.04199	184	1584.0	HIGHLIGHTS: End Highlights.
5356	J2-798	12/5/2014	18:49:20	21.48791	144.04200	184	1584.0	Could not turn valve so will return to the elevator.
5358	J2-798	12/5/2014	18:50:48	21.48793	144.04199	177	1583.1	Marking this sampling location as a target 21 29.2739 144 2.5189 where they want to put Marker 124 (future) but it is not there yet.
5361	J2-798	12/5/2014	18:52:42	21.48777	144.04209	200	1582.8	Use that location for the last fluid samples 30-32.
5363	J2-798	12/5/2014	18:53:07	21.48776	144.04208	227	1581.7	Moving to the elevator to switch out samplers.
5368	J2-798	12/5/2014	18:57:18	21.48768	144.04194	228	1561.2	Moving over a lot of white staining and venting on the side of this hill.
5370	J2-798	12/5/2014	18:57:56	21.48767	144.04192	230	1559.4	Just going over the ridge top and less staining.
5371	J2-798	12/5/2014	18:58:10	21.48766	144.04191	229	1559.1	Moving down the ridge as head toward elevator.
5373	J2-798	12/5/2014	18:59:35	21.48763	144.04178	230	1568.9	There is the elevator.
5375	J2-798	12/5/2014	19:00:05	21.48763	144.04176	202	1572.6	Want to drop off the cassettes and unload the Lscoops.
5378	J2-798	12/5/2014	19:02:27	21.48757	144.04177	10	1572.4	**Approaching the biobox side of the elevator.**
5380	J2-798	12/5/2014	19:03:53	21.48758	144.04177	355	1572.4	Shrimp and squat lobsters.
5383	J2-798	12/5/2014	19:05:02	21.48758	144.04177	353	1572.7	Opening Bio Box 1.
5387	J2-798	12/5/2014	19:08:31	21.48759	144.04177	353	1572.7	Placing the broken Lscoops in the biobox. One in and one to go.
5389	J2-798	12/5/2014	19:09:42	21.48758	144.04177	353	1572.7	Second Lscoop in biobox.
5392	J2-798	12/5/2014	19:10:54	21.48758	144.04176	353	1572.7	Securing the biobox.
5394	J2-798	12/5/2014	19:12:19	21.48762	144.04175	127	1572.7	Next going to get some cassettes and majors if there is room.
5396	J2-798	12/5/2014	19:13:14	21.48761	144.04178	212	1572.7	Moving Jason around to the other side of elevator.
5401	J2-798	12/5/2014	19:17:09	21.48762	144.04177	212	1572.7	Putting Cassette D in the elevator.
5403	J2-798	12/5/2014	19:17:57	21.48762	144.04177	212	1572.7	Now going to retrieve cassette X out the elevator.
5408	J2-798	12/5/2014	19:21:55	21.48762	144.04176	212	1572.7	Does not appear that cassette X can be removed from the elevator.
5412	J2-798	12/5/2014	19:25:00	21.48761	144.04176	212	1572.7	Something was blocking the center part of the cassette. Putting the cassette X in a temporary space on Jason in order to put cassette C on the elevator holder.
5415	J2-798	12/5/2014	19:27:53	21.48761	144.04177	212	1572.7	Cassette C is on the elevator.
5419	J2-798	12/5/2014	19:30:10	21.48761	144.04178	212	1572.7	Putting cassette X into the Jason BM sample holders but will not be able to sample with it.
5421	J2-798	12/5/2014	19:31:17	21.48761	144.04178	212	1572.7	Securing the cassette holder on the elevator.
5424	J2-798	12/5/2014	19:33:27	21.48761	144.04177	211	1572.7	Retrieving the majors from the elevator.
5429	J2-798	12/5/2014	19:37:43	21.48760	144.04177	212	1572.8	Placed one major on Jason.
5432	J2-798	12/5/2014	19:39:30	21.48760	144.04177	213	1573.0	There is no more room for a second major in Jason's basket so will have to hold the second one in arm.
5435	J2-798	12/5/2014	19:40:59	21.48760	144.04177	215	1573.0	Dropping a Jason weight on to the elevator.
5436	J2-798	12/5/2014	19:41:47	21.48761	144.04176	194	1572.2	Put another weight from Jason on to the elevator.
5440	J2-798	12/5/2014	19:44:48	21.48760	144.04176	115	1572.9	Retrieving the last 2 LScoops from the elevator.
5443	J2-798	12/5/2014	19:46:00	21.48760	144.04176	115	1572.9	Lscoops 2 and 4 are in the biobox on the elevator (did not use-broken).
5445	J2-798	12/5/2014	19:47:02	21.48760	144.04175	115	1572.1	LScoop 3 is on Jason and we are done with the elevator.
5447	J2-798	12/5/2014	19:47:58	21.48765	144.04175	64	1571.9	Now we are going back to the Yellow Cone site to do major sampling and Lscoop.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
5449	J2-798	12/5/2014	19:49:07	21.48768	144.04182	41	1567.1	30m back to the sampling site at Yellow Cone.
5452	J2-798	12/5/2014	19:51:02	21.48773	144.04195	39	1558.4	Driving off the bottom with occasional glimpse of rocky ridges.
5455	J2-798	12/5/2014	19:52:56	21.48783	144.04197	51	1573.2	Heading back down to the bottom and overview of the yellow mats.
5456	J2-798	12/5/2014	19:53:12	21.48785	144.04198	84	1571.7	About 8m from the Yellow Cone site.
5460	J2-798	12/5/2014	19:56:27	21.48799	144.04200	183	1582.5	CHECK Sample 21 for bag number. Should be bag 23 not 1. Was written incorrectly on the hard copy log-check the dive log.
5462	J2-798	12/5/2014	19:57:16	21.48795	144.04202	195	1583.6	Nice overview of the Yellow Cone site.
5464	J2-798	12/5/2014	19:58:14	21.48791	144.04201	213	1584.1	This is the same site where the last samples were done and does not have a marker. The other site has a marker and shrimp traps.
5466	J2-798	12/5/2014	19:59:35	21.48792	144.04200	215	1584.5	SuperScorpio.
5468	J2-798	12/5/2014	20:00:11	21.48793	144.04200	215	1584.5	Great image of the yellow mat getting disturbed by Jason.
5469	J2-798	12/5/2014	20:00:35	21.48793	144.04201	215	1584.5	Looking at the same orifice we just sampled. Grabbed a few Framegrabs.
5471	J2-798	12/5/2014	20:01:14	21.48793	144.04200	215	1584.5	Will take a major first.
5474	J2-798	12/5/2014	20:03:07	21.48792	144.04200	215	1584.5	**SAMPLE: Major. J798-Major-33** Black Major fired. Took framegrab. At Yellow Cone in the same orifice as the HFS.
5476	J2-798	12/5/2014	20:04:30	21.48792	144.04201	215	1584.5	Major is filled and done.
5479	J2-798	12/5/2014	20:06:14	21.48792	144.04201	215	1584.5	Put major in the basket.
5481	J2-798	12/5/2014	20:07:09	21.48791	144.04202	215	1584.5	Want to Lscoop around the edges of the sampling orifice.
5486	J2-798	12/5/2014	20:10:54	21.48791	144.04200	215	1584.6	Opened Lscoop top valve after retrieving it from the basket.
5489	J2-798	12/5/2014	20:13:13	21.48792	144.04202	215	1584.5	SAMPLE: Lscoop. Beginning scoop but can't see number.
5490	J2-798	12/5/2014	20:13:29	21.48793	144.04202	215	1584.6	HIGHLIGHTS: Record SciCam. Lscoop 3 highlights at Yellow Cone.
5492	J2-798	12/5/2014	20:14:43	21.48793	144.04202	215	1584.5	**SAMPLE: Lscoop. J798-Lscoop3-34**. One swipe on left side of orifice. 21 29.27938 144 2.5188 (same location) using cursor position.
5494	J2-798	12/5/2014	20:15:28	21.48792	144.04201	215	1584.6	HIGHLIGHTS: End Highlights. Second scoop. Turning off highlights.
5495	J2-798	12/5/2014	20:15:51	21.48792	144.04201	215	1584.6	Sample looks full after 2 scoops and will now close the valve.
5500	J2-798	12/5/2014	20:19:10	21.48791	144.04200	215	1584.6	Valve closed successfully on the top.
5503	J2-798	12/5/2014	20:21:43	21.48791	144.04199	215	1584.6	Now will turn the second valve.
5505	J2-798	12/5/2014	20:22:24	21.48791	144.04200	215	1584.6	Second valve turned successfully as well.
5508	J2-798	12/5/2014	20:24:23	21.48791	144.04201	215	1584.6	Shaking the scoop and put upside down. Can see material in both chambers.
5509	J2-798	12/5/2014	20:24:51	21.48791	144.04202	215	1584.6	Several framegrabs were taken during the sampling.
5512	J2-798	12/5/2014	20:26:46	21.48792	144.04202	215	1584.6	This looks about the same as 2006 and speculate that it does not regenerate quickly.
5514	J2-798	12/5/2014	20:27:36	21.48793	144.04202	215	1584.6	Placed Lscoop on the basket and now retrieving the yellow major.
5517	J2-798	12/5/2014	20:29:42	21.48792	144.04201	215	1584.6	Tip of the major is in the same orifice.
5520	J2-798	12/5/2014	20:31:04	21.48792	144.04201	215	1584.6	**SAMPLE: Major. J798-Major-35** Yellow Major Fired.
5522	J2-798	12/5/2014	20:31:30	21.48792	144.04201	215	1584.6	FRAMEGRABS: HD frame grab SciCam. Sample 35.
5525	J2-798	12/5/2014	20:33:31	21.48792	144.04201	215	1584.6	All done with this major.
5527	J2-798	12/5/2014	20:33:57	21.48792	144.04201	215	1584.6	Putting major in the basket.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
5529	J2-798	12/5/2014	20:35:31	21.48791	144.04199	215	1584.6	Planning to do another LScoop next.
5531	J2-798	12/5/2014	20:36:33	21.48792	144.04200	215	1584.7	Looking around for a good place to Lscoop that won't make too much of a mess.
5534	J2-798	12/5/2014	20:38:12	21.48792	144.04201	215	1584.4	Found a spot behind old small chimneys. Going to have to move to get them though.
5538	J2-798	12/5/2014	20:41:06	21.48790	144.04199	215	1580.4	Moved up from the last sample site and aiming for the saddle above.
5541	J2-798	12/5/2014	20:43:28	21.48784	144.04195	214	1574.4	Going to continue up to try to map out the extent of this area.
5543	J2-798	12/5/2014	20:44:00	21.48782	144.04194	215	1572.8	Catching glimpses of the shrimp traps and Marker 146.
5545	J2-798	12/5/2014	20:45:00	21.48786	144.04202	227	1574.2	View of Marker 146.
5547	J2-798	12/5/2014	20:46:32	21.48786	144.04206	294	1579.8	Stirred up a lot of mat.
5549	J2-798	12/5/2014	20:47:31	21.48788	144.04209	296	1579.2	Originally saw 3 mounds at this site so Jason is laterally around to find the other one. Only a few meters apart.
5551	J2-798	12/5/2014	20:48:09	21.48787	144.04215	295	1583.1	Waiting for dust to clear.
5556	J2-798	12/5/2014	20:52:12	21.48800	144.04205	208	1582.3	There was the place we just sampled.
5557	J2-798	12/5/2014	20:52:51	21.48796	144.04204	211	1583.8	Looking for a different place to scoop.
5560	J2-798	12/5/2014	20:54:01	21.48795	144.04204	211	1583.3	That is the area where Jason touched and made a crease.
5562	J2-798	12/5/2014	20:54:58	21.48796	144.04204	211	1582.4	That is the place to sample.
5563	J2-798	12/5/2014	20:55:22	21.48794	144.04203	224	1583.2	It is located up and to the right of the crease. No shimmer seen.
5566	J2-798	12/5/2014	20:57:18	21.48791	144.04202	296	1583.4	Some squat lobsters nearby. Looks like dark orange mini-chimneys surrounded by the brighter orange mat.
5568	J2-798	12/5/2014	20:58:00	21.48791	144.04201	295	1583.8	Jason has set down and will get a temperature reading of the mats.
5570	J2-798	12/5/2014	20:59:52	21.48789	144.04200	296	1583.9	FRAMEGRABS: HD frame grab SciCam. Framegrabs of pulsing hole but do not see any shimmer.
5572	J2-798	12/5/2014	21:00:23	21.48789	144.04200	296	1583.9	Using Jason temperature probe to poke around.
5573	J2-798	12/5/2014	21:00:53	21.48789	144.04199	296	1583.9	FRAMEGRABS: HD frame grab SciCam.
5575	J2-798	12/5/2014	21:01:25	21.48789	144.04199	296	1583.9	SENSOR: Temp T=2.68 at first poke.
5579	J2-798	12/5/2014	21:04:35	21.48790	144.04201	296	1583.9	SENSOR: Temp Moved in to get a deeper reading. T=11.25. Not high enough for sampling.
5581	J2-798	12/5/2014	21:05:10	21.48789	144.04202	296	1583.9	Will drop a marker here but samples were taken from below.
5583	J2-798	12/5/2014	21:05:58	21.48789	144.04203	296	1583.9	Retrieving Marker 124 from the basket.
5585	J2-798	12/5/2014	21:07:17	21.48791	144.04203	296	1583.7	**Depl/Rec: Deploy. Marker 124** deployed on the saddle spot. 21 29.2738 144 2.5188 Heading 296 Depth 1584m.
5589	J2-798	12/5/2014	21:10:04	21.48776	144.04204	259	1579.3	Marker 124 is at the Yellow Cone sampling site near where Lscoop 3 was taken. It is very close to Mrk-146 where the shrimp traps were deployed.
5590	J2-798	12/5/2014	21:10:41	21.48775	144.04202	259	1579.5	Jason has moved back to the shrimp trap area to look for a scoop site.
5592	J2-798	12/5/2014	21:11:06	21.48775	144.04202	258	1579.5	More animals visible here compared to where the last marker was deployed. Flow is visible.
5594	J2-798	12/5/2014	21:12:17	21.48773	144.04202	257	1579.5	There is a regular crab (Gandalf?)
5596	J2-798	12/5/2014	21:12:56	21.48773	144.04202	258	1579.5	FRAMEGRABS: HD frame grab SciCam. Frame grab of the crab.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
5597	J2-798	12/5/2014	21:13:42	21.48773	144.04202	259	1579.5	That crab has not been seen here before. Scaleworms and shrimp here.
5599	J2-798	12/5/2014	21:13:59	21.48773	144.04202	258	1579.5	That is shrimp.
5600	J2-798	12/5/2014	21:14:21	21.48772	144.04202	259	1579.1	Believe the shrimp is Opapele.
5602	J2-798	12/5/2014	21:15:01	21.48772	144.04201	259	1579.3	We are about 4-5m to the left of the shrimp trap at Mkr-146.
5603	J2-798	12/5/2014	21:15:36	21.48772	144.04201	259	1579.6	That is shrimp trap 2.
5607	J2-798	12/5/2014	21:18:27	21.48772	144.04200	259	1579.8	HIGHLIGHTS: Record SciCam. We are just below Red Top.
5608	J2-798	12/5/2014	21:18:36	21.48772	144.04200	259	1579.8	Highlights of the crab.
5610	J2-798	12/5/2014	21:19:47	21.48773	144.04200	259	1579.8	Want to get a temperature of the lighter material.
5611	J2-798	12/5/2014	21:19:50	21.48773	144.04200	259	1579.8	HIGHLIGHTS: End Highlights. Second scoop. Turning off highlights.
5613	J2-798	12/5/2014	21:20:25	21.48774	144.04201	259	1579.8	Temperature just to the right of the crab den.
5615	J2-798	12/5/2014	21:21:23	21.48774	144.04201	259	1579.8	SENSOR: Temp. Temperature is not coming up too much. 4.21..4.26.
5616	J2-798	12/5/2014	21:21:37	21.48774	144.04201	259	1579.8	Moving closer to the crab.
5618	J2-798	12/5/2014	21:22:30	21.48774	144.04201	259	1579.8	Shrimp in the same crevice and a scaleworm above. Temp not rising.
5619	J2-798	12/5/2014	21:22:47	21.48773	144.04201	259	1579.8	Going to try in the crab hole.
5621	J2-798	12/5/2014	21:23:44	21.48773	144.04201	259	1579.8	Crab movie.
5623	J2-798	12/5/2014	21:24:01	21.48773	144.04201	259	1579.8	Still not getting over 9.13C.
5624	J2-798	12/5/2014	21:24:27	21.48772	144.04201	258	1579.8	HIGHLIGHTS: End Highlights. Second scoop. Turning off highlights.
5626	J2-798	12/5/2014	21:25:46	21.48772	144.04201	259	1579.8	SENSOR: Temp Temperature is rising 14.25C.
5628	J2-798	12/5/2014	21:25:59	21.48772	144.04201	259	1579.8	This would be a difficult place to sample.
5629	J2-798	12/5/2014	21:26:49	21.48772	144.04201	259	1579.8	Would like to lateral back over closer to the shrimp trap looking for a better sampling location.
5631	J2-798	12/5/2014	21:27:50	21.48775	144.04202	258	1579.0	There is the shrimp trap.
5633	J2-798	12/5/2014	21:28:08	21.48775	144.04203	259	1579.2	Do not see any shrimp in it.
5634	J2-798	12/5/2014	21:28:26	21.48776	144.04202	259	1579.1	See shrimp around the other trap but none inside it either.
5636	J2-798	12/5/2014	21:29:28	21.48778	144.04200	257	1578.5	Those are the slide traps next to the shrimp trap.
5638	J2-798	12/5/2014	21:30:13	21.48779	144.04202	257	1578.0	Looking below the lower shrimp trap where the small chimneys are.
5639	J2-798	12/5/2014	21:30:49	21.48779	144.04203	257	1577.5	Can see flow around the chimneys.
5641	J2-798	12/5/2014	21:31:20	21.48779	144.04201	255	1577.8	FRAMEGRABS: HD frame grab SciCam Chimneys near trap.
5643	J2-798	12/5/2014	21:32:22	21.48778	144.04199	243	1578.7	Small chimney with shrimp. Looks like a hole on the base left side with flow.
5645	J2-798	12/5/2014	21:33:21	21.48778	144.04199	267	1578.9	Jason knocked off a chunk of mat on the approach.
5647	J2-798	12/5/2014	21:34:22	21.48778	144.04199	270	1579.1	That is shrimp trap 1 that is next to these chimneys.
5648	J2-798	12/5/2014	21:34:45	21.48778	144.04200	269	1579.1	Parked below the chimney and will try to get a temperature reading of the flow.
5652	J2-798	12/5/2014	21:37:32	21.48778	144.04200	269	1579.1	Moving probe around the flow area looking for higher temperature. Only up to 5.5....6....7.77.
5654	J2-798	12/5/2014	21:38:09	21.48778	144.04199	269	1579.1	Pushed further down and encountered rock...7.78C....8.34C.
5656	J2-798	12/5/2014	21:39:14	21.48778	144.04198	269	1579.1	Moved a bit more. Temp 16...17...18....19. Shrimp are interested.
5657	J2-798	12/5/2014	21:39:34	21.48778	144.04198	269	1579.1	19.09C was the high. Looking for a deep hole.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
5659	J2-798	12/5/2014	21:40:35	21.48778	144.04198	269	1579.1	This site is 17.65C. Craig satisfied that it is a good sampling site.
5661	J2-798	12/5/2014	21:40:55	21.48778	144.04199	269	1579.1	Will try for a RNALater scoop here.
5662	J2-798	12/5/2014	21:41:49	21.48778	144.04200	269	1579.1	Looks like 2 different species of shrimp here.
5664	J2-798	12/5/2014	21:42:18	21.48778	144.04200	269	1579.1	There is flow from the top of the chimney.
5667	J2-798	12/5/2014	21:44:39	21.48777	144.04198	269	1579.2	Not seeing flow on the top of the other chimney.
5678	J2-798	12/5/2014	21:54:45	21.48778	144.04197	270	1579.1	**SAMPLE: Lscoop. J798-LScoop-36** here at Yellow Cone. This is a new site at position of Shrimp Trap #1. 144 25.185 21 29.2652 Z=1579 hdg=270. Alt 5m. ~5m S of Mkr-146.
5683	J2-798	12/5/2014	21:58:37	21.48778	144.04199	269	1579.4	J798-LScoop-36 cont. In thick red iron oxide mat. The sample looks pretty good. Scooping a bit more red fluffy iron oxide mat.
5686	J2-798	12/5/2014	22:00:15	21.48777	144.04198	270	1579.5	J798-LScoop-36 cont. The handle came off the bottom part of the trap. This is J798-LScoop2-36. Bottom handle broke. Top handle closed.
5689	J2-798	12/5/2014	22:02:44	21.48778	144.04200	270	1579.5	FRAMEGRABS: HD frame grab PilotCam. J768-LScoop-36 pic.
5691	J2-798	12/5/2014	22:03:25	21.48779	144.04200	270	1579.5	J798-LScoop-36 cont. This sample is about 5m down slope from the other samples.
5695	J2-798	12/5/2014	22:06:37	21.48780	144.04201	273	1578.7	Going to Mkr-124 the last fluid sampling site at Mkr-124 to deploy a protist trap.
5697	J2-798	12/5/2014	22:07:11	21.48784	144.04202	266	1579.2	FRAMEGRABS: HD frame grab SciCam. Will head up slope to the marker.
5698	J2-798	12/5/2014	22:07:35	21.48786	144.04204	266	1580.8	NAV: Doppler Reset.
5701	J2-798	12/5/2014	22:08:34	21.48792	144.04204	239	1582.1	FRAMEGRABS: HD frame grab SciCam. Mkr-124 in view.
5703	J2-798	12/5/2014	22:09:27	21.48792	144.04202	214	1584.4	Marker sitting on top of little mound with thick iron oxide mats on the edge of this steep slope.
5705	J2-798	12/5/2014	22:10:35	21.48792	144.04202	214	1584.8	There is venting coming out of this mound. Will deploy a prototrap and MTR here. It was venting 25C here.
5708	J2-798	12/5/2014	22:11:56	21.48793	144.04200	214	1584.8	**Depl/Rec: Deploy. MTR 4094** at same position as previous HFS sampling. Temp was 25C.
5710	J2-798	12/5/2014	22:13:22	21.48793	144.04199	214	1584.8	**Depl/Rec: Deploy. Protozoan Trap 104** next to the MTR (on top of MTR) (PrTrp-104 deployed.)
5712	J2-798	12/5/2014	22:14:26	21.48793	144.04200	213	1584.8	FRAMEGRABS: HD frame grab SciCam. Protozoan trap and MTR 4094.
5715	J2-798	12/5/2014	22:16:26	21.48793	144.04201	214	1584.9	Protozoan Trap 104 and MTR 4094 at Mkr-124. Z=1585. 21 29.2738 144 2.5188.
5719	J2-798	12/5/2014	22:18:47	21.48788	144.04204	212	1580.8	Going to Cliff House next?
5721	J2-798	12/5/2014	22:19:33	21.48776	144.04205	211	1578.7	We are heading to the elevator and then Cliff House.
5724	J2-798	12/5/2014	22:21:31	21.48765	144.04201	217	1556.2	On our way to the elevator.
5727	J2-798	12/5/2014	22:21:54	21.48763	144.04199	228	1551.6	The plan is to do the plankton net during the MB survey.
5729	J2-798	12/5/2014	22:23:18	21.48763	144.04184	233	1561.8	Elevator in sight in brow cam.
5731	J2-798	12/5/2014	22:23:56	21.48763	144.04178	197	1568.1	The winds and sea are supposed to come up this evening so want Jason on deck at 1700 local.
5732	J2-798	12/5/2014	22:24:11	21.48762	144.04178	199	1570.7	The elevator will be on deck before lunch local.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
5733	J2-798	12/5/2014	22:24:48	21.48761	144.04178	203	1573.8	Correction: The elevator will be coming up soon. Will take ~ 1 hour to get to the surface.
5736	J2-798	12/5/2014	22:26:25	21.48761	144.04178	204	1573.5	Tito wants us on the surface at 1800. Will leave the bottom at 1700. Local times.
5740	J2-798	12/5/2014	22:29:41	21.48762	144.04180	204	1573.5	The colonization experiments should go out this dive. Not sure if we will have time for HFS sampling as well as the MB Survey.
5742	J2-798	12/5/2014	22:30:39	21.48763	144.04180	204	1573.5	Elevator maintenance.
5744	J2-798	12/5/2014	22:31:52	21.48763	144.04180	205	1573.6	Putting the majors on the elevator. Grabbing a couple dive weights.
5747	J2-798	12/5/2014	22:33:34	21.48764	144.04181	207	1573.5	Removing the last of the dive weights.
5749	J2-798	12/5/2014	22:34:15	21.48765	144.04179	177	1572.5	Moving around the elevator.
5751	J2-798	12/5/2014	22:35:47	21.48759	144.04180	20	1572.0	FRAMEGRABS: HD frame grab SciCam. Moving around the elevator. Circling around to put the later scoops in the gray boxes to come up in the elevator.
5756	J2-798	12/5/2014	22:39:00	21.48758	144.04179	18	1572.8	Emptying the biobox on the elevator and pulling everything out so that the Later Scoops can go in there.
5758	J2-798	12/5/2014	22:40:53	21.48758	144.04179	18	1572.8	Pulling the markers out of the box.
5760	J2-798	12/5/2014	22:41:30	21.48758	144.04179	17	1572.8	Elevator maintenance.
5762	J2-798	12/5/2014	22:42:11	21.48758	144.04178	17	1572.8	Jimmy is grabbing the little mussel bag and putting it on the Jason basket.
5764	J2-798	12/5/2014	22:43:04	21.48758	144.04178	18	1572.9	Pulling the markers out of the biobox on the elevator.
5765	J2-798	12/5/2014	22:43:38	21.48758	144.04178	18	1572.8	The port arm on Jason is stronger. The stbd arm on Jason is more dexterous.
5768	J2-798	12/5/2014	22:45:37	21.48759	144.04178	18	1572.8	FRAMEGRABS: HD frame grab SciCam. Now Jason is grabbing the later scoops and putting them both into the biobox.
5772	J2-798	12/5/2014	22:48:20	21.48758	144.04178	18	1572.8	Basket maintenance.
5774	J2-798	12/5/2014	22:49:07	21.48758	144.04178	19	1572.8	Bill and Craig are discussing ops between the dives.
5776	J2-798	12/5/2014	22:49:58	21.48758	144.04178	17	1572.8	Closing the lid on the biobox.
5779	J2-798	12/5/2014	22:52:53	21.48758	144.04177	14	1573.9	Going to release the last weight. Pick up the marker and release the elevator.
5782	J2-798	12/5/2014	22:54:26	21.48758	144.04177	15	1573.9	All the dive weights are now off the elevator.
5784	J2-798	12/5/2014	22:55:42	21.48759	144.04177	38	1573.0	HIGHLIGHTS: Record SciCam. Elevator release at NW Eifuku highlights.
5787	J2-798	12/5/2014	22:57:47	21.48758	144.04180	319	1567.7	HIGHLIGHTS: Record SciCam. Pulling the pin on the elevator now.
5789	J2-798	12/5/2014	22:57:56	21.48758	144.04181	285	1567.1	HIGHLIGHTS: End Highlights
5790	J2-798	12/5/2014	22:58:23	21.48759	144.04179	297	1566.1	Jason is coming up off the bottom.
5793	J2-798	12/5/2014	23:00:13	21.48761	144.04178	194	1573.6	HIGHLIGHTS: Record SciCam. Correction: The elevator has NOT been released. They have to re-position. It's still on the bottom. Jason is moving in to release it.
5795	J2-798	12/5/2014	23:01:45	21.48765	144.04176	194	1573.5	Still attempting the elevator release.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
5797	J2-798	12/5/2014	23:02:34	21.48765	144.04176	184	1573.8	HIGHLIGHTS: End Highlights The elevator is STILL on the bottom. Problem with the pull pin.
5800	J2-798	12/5/2014	23:04:43	21.48764	144.04178	199	1573.5	Haven't tried the burn-wire method of the elevator release.
5803	J2-798	12/5/2014	23:06:35	21.48764	144.04178	197	1573.3	HIGHLIGHTS: Record SciCam. Trying this again. The elevator is stubborn and doesn't want to come up. Reaching in again and grabbing the release line.
5805	J2-798	12/5/2014	23:07:23	21.48767	144.04178	197	1573.0	The pin is not coming out. Dropped the line.
5807	J2-798	12/5/2014	23:08:39	21.48769	144.04177	197	1572.7	Sending the release command to burn the wire and let it go from the anchor (big stack of weights). Will take about 10 minutes.
5813	J2-798	12/5/2014	23:12:58	21.48769	144.04179	197	1572.7	Looks like a rock may be sitting on the elevator leg.
5816	J2-798	12/5/2014	23:15:27	21.48769	144.04178	197	1572.6	HIGHLIGHTS: Record SciCam. Taking off.
5817	J2-798	12/5/2014	23:15:48	21.48769	144.04178	197	1572.6	HIGHLIGHTS: End Highlights. Elevator off the bottom at 23:15.
5819	J2-798	12/5/2014	23:16:31	21.48769	144.04177	197	1572.3	Bringing in the basket.
5820	J2-798	12/5/2014	23:16:52	21.48769	144.04178	197	1571.3	FRAMEGRABS: HD frame grab SciCam. Will come off the bottom.
5822	J2-798	12/5/2014	23:17:06	21.48770	144.04179	197	1569.1	FRAMEGRABS: HD frame grab SciCam. Elevator area.
5824	J2-798	12/5/2014	23:18:45	21.48772	144.04197	274	1552.9	We will be off the bottom for about an hour.
5908	J2-798	12/6/2014	0:41:43	21.48814	144.04518	242	1410.0	Coming up to 1400m in the water column.
5910	J2-798	12/6/2014	0:41:58	21.48813	144.04520	241	1410.1	The line tension is not working on the winch. Have to test it.
5921	J2-798	12/6/2014	0:52:14	21.48811	144.04536	243	1410.2	The elevator has been on board for quite a while.
5923	J2-798	12/6/2014	0:53:03	21.48812	144.04530	247	1410.3	Now we're maneuvering back toward Cliff House still off the bottom. Will have to wait for the ship to get there.
5925	J2-798	12/6/2014	0:53:55	21.48810	144.04522	243	1410.5	FRAMEGRABS: HD frame grab SciCam. Squat lobster on suction hose.
5926	J2-798	12/6/2014	0:54:27	21.48808	144.04515	246	1410.6	FRAMEGRABS: HD frame grab SciCam. Squat lobster on suction hose.
5941	J2-798	12/6/2014	1:08:06	21.48739	144.04328	242	1410.1	HIGHLIGHTS: Record SciCam. Squat lobster on suction hose.
5944	J2-798	12/6/2014	1:10:15	21.48738	144.04305	242	1410.2	HIGHLIGHTS: Record SciCam. Recording Science Cam now - last highlight clip was a mistake recording the pilot cam.
5947	J2-798	12/6/2014	1:12:06	21.48730	144.04280	243	1410.1	FRAMEGRABS: HD frame grab SciCam. Munidiposis. Galatheid Crab - also known as a squat lobster.
5949	J2-798	12/6/2014	1:13:00	21.48728	144.04271	242	1410.2	Turned highlight video off a minute or so ago.
5951	J2-798	12/6/2014	1:14:51	21.48726	144.04251	244	1410.8	There will be no more cassette samples. It is not working so do not sample with it says Dave Emerson.
5960	J2-798	12/6/2014	1:22:48	21.48756	144.04196	325	1497.1	NAV: Doppler Reset.
5962	J2-798	12/6/2014	1:23:33	21.48761	144.04187	256	1500.2	We pretty much did not have any Jason nav during the elevator recovery until now. There will be a nav gap during the elevator recovery. We were off the bottom anyway.
5964	J2-798	12/6/2014	1:24:38	21.48763	144.04186	138	1504.3	Starting down toward the bottom. Have ~100m to go.
5968	J2-798	12/6/2014	1:27:47	21.48755	144.04181	111	1553.3	Bottom in sight.
5970	J2-798	12/6/2014	1:28:51	21.48755	144.04180	110	1560.0	We're looking at a steep slope with mussels; etc.
5973	J2-798	12/6/2014	1:30:35	21.48752	144.04173	145	1565.6	NAV: Doppler Reset.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
5975	J2-798	12/6/2014	1:30:55	21.48750	144.04173	143	1565.5	FRAMEGRABS: HD frame grab SciCam. Marker at Razorback. (Note: originally thought to be CliffHouse but it is NOT.)
5978	J2-798	12/6/2014	1:33:52	21.48749	144.04175	120	1566.9	FRAMEGRABS: HD frame grab SciCam. Marker 145 on the edge of this steep ridge 21 29.2498 144 2.5039 Z=1566.
5980	J2-798	12/6/2014	1:34:28	21.48749	144.04175	120	1566.9	FRAMEGRABS: HD frame grab SciCam. Shinkai Lepas limpets.
5984	J2-798	12/6/2014	1:37:29	21.48749	144.04176	144	1566.0	We're trying to get in a look at the temperature.
5986	J2-798	12/6/2014	1:38:46	21.48749	144.04176	143	1566.1	HIGHLIGHTS: Record SciCam. Shinkai Lepas Limpets and egg cases.
5988	J2-798	12/6/2014	1:39:22	21.48749	144.04177	144	1566.1	Highlights.
5989	J2-798	12/6/2014	1:39:29	21.48749	144.04177	143	1566.1	We are upslope of Champagne.
5991	J2-798	12/6/2014	1:40:36	21.48750	144.04177	143	1566.1	Taking a Jason temperature here.
5994	J2-798	12/6/2014	1:41:58	21.48750	144.04177	143	1566.1	WE ARE NOT SURE THAT WE ARE CLIFF HOUSE. WE ARE JUST GOING TO REFER TO THIS AS MARKER 145. WE WILL INVESTIGATE THIS FURTHER. (Later site named Razorback).
6000	J2-798	12/6/2014	1:47:43	21.48752	144.04177	143	1566.1	Jason temperature got up to 21.7 here. The marker is just a meter away. Marker145.
6006	J2-798	12/6/2014	1:52:41	21.48752	144.04177	144	1566.1	**Depl/Rec: Deploy. Settlement Plates (SPlate 4)** Hdg 143 at Mkr-145. 21 29.2498 144 2.5039 Z=1566 Hdg 144deg. T here was 21.7C.
6009	J2-798	12/6/2014	1:54:49	21.48752	144.04177	144	1566.1	FRAMEGRABS: HD frame grab SciCam. SPlate 4 deployment.
6010	J2-798	12/6/2014	1:54:53	21.48752	144.04177	144	1566.1	FRAMEGRABS: HD frame grab PilotCam.
6013	J2-798	12/6/2014	1:56:11	21.48751	144.04177	144	1566.1	MTR3173 being placed next to settlement plates.
6016	J2-798	12/6/2014	1:58:43	21.48751	144.04177	144	1566.1	Trying to find a stable spot for the MTR...very precarious!
6018	J2-798	12/6/2014	1:59:48	21.48750	144.04176	143	1566.1	Found solid spot for MTR3173 near settlement plates and it will also be placed well for the protist traps that will be put out.
6021	J2-798	12/6/2014	2:01:26	21.48750	144.04176	144	1566.2	FRAMEGRABS: HD frame grab SuperScorpio. Mussels at settlement plate 4 site.
6025	J2-798	12/6/2014	2:04:22	21.48750	144.04176	144	1566.1	Trying to deploy protist trap but it's stuck to the other settlement trap.
6026	J2-798	12/6/2014	2:04:25	21.48750	144.04176	144	1566.1	Trying to untangle.
6032	J2-798	12/6/2014	2:09:26	21.48751	144.04175	144	1566.1	**Depl/Rec: Deploy. J798-PrTrp113.** Placing Protist Trap by MTR3173.
6036	J2-798	12/6/2014	2:12:18	21.48752	144.04174	143	1564.4	HIGHLIGHTS: Record SciCam. Settlement trap and Protist trap deployment.
6038	J2-798	12/6/2014	2:13:47	21.48752	144.04177	170	1565.4	HIGHLIGHTS: End Highlights. Elevator off the bottom at 23:15.
6040	J2-798	12/6/2014	2:14:03	21.48752	144.04177	170	1565.4	Mussel collection time!
6042	J2-798	12/6/2014	2:15:39	21.48752	144.04180	165	1560.3	Going to get on top of mound to find denser mussel beds and a flat spot to sit Jason.
6044	J2-798	12/6/2014	2:16:47	21.48749	144.04182	161	1560.2	Will put mussels in port biobox.
6048	J2-798	12/6/2014	2:18:55	21.48752	144.04180	161	1560.1	Mound is steep; covered in mussels.
6049	J2-798	12/6/2014	2:19:07	21.48752	144.04180	162	1560.3	Going to sample here and get conditions first.
6053	J2-798	12/6/2014	2:22:05	21.48749	144.04181	158	1561.3	FRAMEGRABS: HD frame grab SuperScorpio. pH probe of mussel beds.
6054	J2-798	12/6/2014	2:22:36	21.48749	144.04181	158	1561.3	We're just upslope of Marker 145.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
6057	J2-798	12/6/2014	2:24:11	21.48749	144.04181	157	1561.4	Still getting ready to probe.
6059	J2-798	12/6/2014	2:25:02	21.48749	144.04180	157	1561.3	Tucking probe under mussels.
6060	J2-798	12/6/2014	2:25:21	21.48749	144.04180	157	1561.3	Mussels are covered in shrimp and squat lobsters.
6062	J2-798	12/6/2014	2:26:02	21.48749	144.04180	157	1561.3	HIGHLIGHTS: Record SciCam. Temp probe of mussel beds.
6063	J2-798	12/6/2014	2:26:14	21.48749	144.04180	157	1561.3	FRAMEGRABS: HD frame grab SuperScorpio. Mussel beds probing.
6064	J2-798	12/6/2014	2:26:43	21.48749	144.04180	157	1561.3	Probing with the Beast to get pH and O2.
6066	J2-798	12/6/2014	2:27:38	21.48749	144.04180	157	1561.3	Low pH=7.076; pH reading= 7.090
6068	J2-798	12/6/2014	2:28:04	21.48749	144.04180	157	1561.4	Temp= 2.6C
6069	J2-798	12/6/2014	2:28:16	21.48749	144.04180	157	1561.3	Moving probe about a foot to the right where there are denser mussels.
6071	J2-798	12/6/2014	2:29:17	21.48749	144.04180	157	1561.3	When the probe was moved across the water the pH dropped to below 7. Higher in the mussels.
6073	J2-798	12/6/2014	2:30:45	21.48749	144.04180	157	1561.3	This spot of mussels lower pH. pH= 6.975
6074	J2-798	12/6/2014	2:30:50	21.48749	144.04180	157	1561.3	Moving probe again.
6077	J2-798	12/6/2014	2:32:35	21.48749	144.04180	157	1561.3	HIGHLIGHTS: Record SciCam. Probing mussels.
6079	J2-798	12/6/2014	2:33:00	21.48749	144.04180	157	1561.3	FRAMEGRABS: HD frame grab PilotCam. "Hairy" crab
6080	J2-798	12/6/2014	2:33:07	21.48749	144.04180	157	1561.3	Growing bacteria on it.
6081	J2-798	12/6/2014	2:33:11	21.48749	144.04180	157	1561.3	HIGHLIGHTS: End Highlights. Elevator off the bottom at 23:15.
6082	J2-798	12/6/2014	2:33:30	21.48749	144.04180	157	1561.3	SENSOR: pH. Last probe pH got up to 7.30.
6084	J2-798	12/6/2014	2:33:54	21.48749	144.04180	157	1561.3	HIGHLIGHTS: Record PilotCam. "Hairy" squat lobster growing a film of bacteria on it.
6086	J2-798	12/6/2014	2:34:54	21.48750	144.04180	157	1561.3	pH = 7.433 in new spot.
6087	J2-798	12/6/2014	2:35:09	21.48750	144.04180	157	1561.3	Moving probe around same bed of mussels to get a range of pH readings.
6088	J2-798	12/6/2014	2:35:20	21.48750	144.04180	157	1561.4	HIGHLIGHTS: End Highlights. Elevator off the bottom at 23:15.
6089	J2-798	12/6/2014	2:35:33	21.48750	144.04180	157	1561.3	HIGHLIGHTS: Record PilotCam New highlights of squat lobster and probing around area.
6091	J2-798	12/6/2014	2:36:00	21.48749	144.04180	157	1561.4	HIGHLIGHTS: End Highlights.
6092	J2-798	12/6/2014	2:36:05	21.48749	144.04180	157	1561.4	Ready to scoop some mussels!
6096	J2-798	12/6/2014	2:39:00	21.48749	144.04181	157	1561.3	HIGHLIGHTS: Record SciCam. Mussel Bag collection
6097	J2-798	12/6/2014	2:39:49	21.48749	144.04181	158	1561.3	**SAMPLE: Mbag. J798-Mbag-37** up the slope from Marker 145. Trying to collect 25 mussels.
6100	J2-798	12/6/2014	2:41:45	21.48749	144.04181	159	1561.3	Got a few in the bag.
6101	J2-798	12/6/2014	2:41:49	21.48749	144.04181	159	1561.3	Readjusting.
6103	J2-798	12/6/2014	2:42:34	21.48749	144.04181	159	1561.3	Got about 5 more. 7 total we think.
6105	J2-798	12/6/2014	2:43:53	21.48749	144.04181	160	1561.4	3 more. up to 10.
6107	J2-798	12/6/2014	2:44:39	21.48749	144.04181	160	1561.4	16 total.
6109	J2-798	12/6/2014	2:45:41	21.48749	144.04181	161	1561.4	At least 5 more.
6110	J2-798	12/6/2014	2:45:52	21.48749	144.04181	161	1561.4	Going for one more scoopful.
6113	J2-798	12/6/2014	2:47:02	21.48749	144.04181	161	1561.5	Done collecting.
6114	J2-798	12/6/2014	2:47:16	21.48749	144.04181	161	1561.5	Bag of mussels going into the port biobox. J798-Mbag-37.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
6116	J2-798	12/6/2014	2:48:10	21.48749	144.04181	161	1561.5	HIGHLIGHTS: End Highlights.
6118	J2-798	12/6/2014	2:49:08	21.48750	144.04181	160	1561.5	Location: 21deg 29.2502N 144deg 2.5086E.
6122	J2-798	12/6/2014	2:52:31	21.48750	144.04180	165	1561.5	Going to suction in mussel bed. Going to get whatever we get.
6124	J2-798	12/6/2014	2:52:57	21.48750	144.04180	164	1561.6	Maybe get some baby mussels.
6129	J2-798	12/6/2014	2:56:19	21.48751	144.04179	167	1561.5	Depth= 1561.6 m. Heading= 166.5.
6131	J2-798	12/6/2014	2:57:22	21.48750	144.04179	167	1561.5	Getting ready to suction.
6134	J2-798	12/6/2014	2:59:09	21.48750	144.04179	164	1561.5	FRAMEGRABS: HD frame grab PilotCam. Start the suction.
6135	J2-798	12/6/2014	2:59:44	21.48750	144.04180	165	1561.5	HIGHLIGHTS: Record SciCam. Mussel suction sampling. J798-SS-38.
6136	J2-798	12/6/2014	2:59:51	21.48749	144.04180	165	1561.5	**SAMPLE: SS. J798-SS-38.**
6138	J2-798	12/6/2014	3:00:53	21.48749	144.04180	165	1561.5	Looking for the baby mussels.
6140	J2-798	12/6/2014	3:01:36	21.48749	144.04180	165	1561.6	We got a shrimp! Still trying for mussels..
6142	J2-798	12/6/2014	3:02:50	21.48749	144.04180	164	1561.5	Got one!
6146	J2-798	12/6/2014	3:05:33	21.48750	144.04180	165	1561.6	Still trying for small mussels. Difficult because they are all clumped together.
6149	J2-798	12/6/2014	3:06:59	21.48750	144.04180	165	1561.6	Not really working. Will move on. Some mussels in the hose. Putting Suction sampler away.
6150	J2-798	12/6/2014	3:07:39	21.48750	144.04180	166	1561.7	We're about 5 meters from Marker 145.
6152	J2-798	12/6/2014	3:08:08	21.48750	144.04180	167	1561.6	Going to place some shrimp traps here.
6155	J2-798	12/6/2014	3:10:00	21.48750	144.04180	166	1561.6	Need to find a flat enough spot to place shrimp traps.
6158	J2-798	12/6/2014	3:11:55	21.48750	144.04179	167	1561.6	**Depl/Rec: Deploy. J798-ShrTrp3 and J798-ShrTrp4** deployed at mussel bed site . Cursor location= 21deg 29.2504N 144deg 2.5079E.
6159	J2-798	12/6/2014	3:12:09	21.48750	144.04179	166	1561.7	FRAMEGRABS: HD frame grab SciCam. Shrimp traps 3 and 4 deployed.
6160	J2-798	12/6/2014	3:12:12	21.48750	144.04179	166	1561.7	FRAMEGRABS: HD frame grab PilotCam.
6163	J2-798	12/6/2014	3:14:11	21.48750	144.04179	167	1562.0	Need to store settlement plates in starboard swing arm biobox. Sitting on top of box with MTRs right now.
6167	J2-798	12/6/2014	3:17:50	21.48751	144.04177	167	1561.9	Placed unused settlement plate on top of unused slide traps in starboard biobox.
6171	J2-798	12/6/2014	3:19:59	21.48753	144.04177	134	1561.0	Setting out Marker 140 and Marker 123 next to shrimp traps-just stowing for next dive. At Shrimp3 target in Nav system.
6173	J2-798	12/6/2014	3:20:56	21.48753	144.04176	135	1561.2	NAV: Navigator target. Depth= 1561.1.
6175	J2-798	12/6/2014	3:21:58	21.48758	144.04172	134	1561.1	FRAMEGRABS: HD frame grab BrowCam. Tower above Marker 145.
6176	J2-798	12/6/2014	3:22:01	21.48758	144.04172	135	1561.1	FRAMEGRABS: HD frame grab SciCam.
6181	J2-798	12/6/2014	3:25:58	21.48762	144.04150	271	1560.7	NAV: Navigator targe.t May not have described Nav Target when it was marked where Shrimp traps were set out (same spot as mussel collection) about 5 meters up from Marker 145. Nav called Shrimp-3-14. Location=21deg 29.2504N 144deg 2.5079E depth= 1561.1m.
6182	J2-798	12/6/2014	3:26:17	21.48765	144.04137	271	1560.6	Constant bottom recorders turned off at 03:25.
6188	J2-798	12/6/2014	3:31:40	21.48766	144.04109	265	1569.1	Jason video turned off because we are setting up for the Reson multibeam survey.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
6192	J2-798	12/6/2014	3:34:12	21.48764	144.04091	265	1582.4	We are moving the ship to the west. We will start the Reson survey at the SW end of the NW-most survey line.
6194	J2-798	12/6/2014	3:35:00	21.48764	144.04085	266	1585.7	The Reson survey lines are oriented SW-NE. There are 8 lines that are each 600 m long and the spacing between lines is 75 m.
6195	J2-798	12/6/2014	3:35:46	21.48763	144.04079	265	1588.6	We will fly the lines at about 50 meter altitude. We are likely to have problems with Doppler bottom lock during the whole survey because of steep terrain.
6197	J2-798	12/6/2014	3:36:31	21.48763	144.04073	265	1592.6	The survey navigation will have to be mainly USBL. The USBL nav has been good so far - about 10 m diameter dot cloud.
6219	J2-798	12/6/2014	3:57:10	21.48769	144.03887	255	1683.0	The survey speed will be about half a knot.
6222	J2-798	12/6/2014	3:59:25	21.48762	144.03864	255	1695.0	We are not running a patch test.
6228	J2-798	12/6/2014	4:04:53	21.48771	144.03830	256	1713.4	Altimeters are turned off.
6230	J2-798	12/6/2014	4:05:51	21.48770	144.03830	255	1712.8	Jason is using the 300 kHz Doppler.
6234	J2-798	12/6/2014	4:08:31	21.48770	144.03811	255	1719.3	NAV: Doppler Reset.
6247	J2-798	12/6/2014	4:19:56	21.48769	144.03820	51	1721.8	**MBSURVEY: Start Line.**
6249	J2-798	12/6/2014	4:21:00	21.48776	144.03823	56	1716.7	MBSURVEY: Start Line. Start of Line 1 from SW end toward NE end. Jason heading is 050.
6251	J2-798	12/6/2014	4:22:17	21.48775	144.03830	49	1712.6	We have the plankton net unfurled in front of the basket and being held by the starboard arm.
6253	J2-798	12/6/2014	4:22:59	21.48775	144.03830	50	1712.3	We will be collecting a plankton net sample during this Reson multibeam survey for Shawn Arellano.
6255	J2-798	12/6/2014	4:24:23	21.48775	144.03831	51	1712.0	Actually we have to get the ship moving first so we're waiting for that before we start moving forward.
6257	J2-798	12/6/2014	4:25:17	21.48776	144.03831	51	1712.3	NAV: Doppler Reset.
6261	J2-798	12/6/2014	4:28:33	21.48780	144.03842	51	1710.8	MBSURVEY: Start. Line 1 from SW end to NE end. Jason heading is 050. Ship is now moving down the line.
6270	J2-798	12/6/2014	4:35:55	21.48830	144.03902	52	1684.4	Increase in altitude in response to obstacle seen in Tritech sonar.
6307	J2-798	12/6/2014	5:12:34	21.49088	144.04240	51	1772.3	MBSURVEY: End Line 1. We are at the NE end of Line 1. Turning now to go to the NE end of Line 2. Doppler seemed to do pretty well on this line.
6308	J2-798	12/6/2014	5:12:42	21.49088	144.04240	51	1772.3	NAV: Doppler Reset.
6328	J2-798	12/6/2014	5:31:53	21.49065	144.04298	241	1754.3	NAV: Doppler Reset.
6334	J2-798	12/6/2014	5:36:34	21.49065	144.04300	228	1757.7	MBSURVEY: Start. Line 2 at NE end. Jason heading = 230. Driving toward SW end of Line 2.
6346	J2-798	12/6/2014	5:47:39	21.48979	144.04227	353	1693.8	Bit of a jog away from the track evident in the nav history; perhaps 20m SE of intended track.
6349	J2-798	12/6/2014	5:49:01	21.48975	144.04203	261	1702.2	NAV: Doppler Reset. Hard jog WNW to get back to line.
6355	J2-798	12/6/2014	5:54:45	21.48937	144.04144	225	1674.2	Back on line. 50m altitude.
6362	J2-798	12/6/2014	5:59:56	21.48875	144.04080	233	1620.0	Altitude dropped to 35m. Driving up.
6363	J2-798	12/6/2014	6:00:20	21.48867	144.04068	230	1617.9	Back at 50m.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
6382	J2-798	12/6/2014	6:18:01	21.48703	144.03864	214	1708.7	MBSURVEY: End Line. End of line 2.
6384	J2-798	12/6/2014	6:18:55	21.48698	144.03865	132	1711.8	Got pH signal at the end of line 2 (SW corner).
6388	J2-798	12/6/2014	6:22:36	21.48652	144.03925	140	1730.5	NAV: Doppler Reset.
6394	J2-798	12/6/2014	6:27:39	21.48651	144.03940	50	1726.8	MBSURVEY: Start Line. Start of Line3 at SW end to NE end (heading = 050).
6398	J2-798	12/6/2014	6:30:16	21.48668	144.03964	49	1698.8	Altitude is up to 40m.
6401	J2-798	12/6/2014	6:32:11	21.48683	144.03981	52	1672.9	Entered another low pH zone.
6402	J2-798	12/6/2014	6:32:27	21.48685	144.03983	52	1669.5	Stopped for a minute.
6407	J2-798	12/6/2014	6:36:10	21.48702	144.04002	50	1661.8	Waiting for Medea.
6409	J2-798	12/6/2014	6:37:41	21.48712	144.04002	50	1662.9	Restarting line.
6415	J2-798	12/6/2014	6:42:09	21.48748	144.04039	52	1632.2	FRAMEGRABS: HD frame grab SciCam Photo of the net being towed while on Reson Line #3.
6417	J2-798	12/6/2014	6:43:26	21.48758	144.04047	52	1620.5	pH is going down again. Looks like we are due west of the Ice Fall site about 75m away.
6419	J2-798	12/6/2014	6:44:51	21.48769	144.04057	52	1610.5	Doppler having a hard time tracking so altitudes not displaying.
6422	J2-798	12/6/2014	6:46:11	21.48780	144.04067	51	1607.0	Doppler tracking and altitude is 24m.
6426	J2-798	12/6/2014	6:49:25	21.48802	144.04089	51	1585.8	Getting some altitude readings again and at 45m.
6438	J2-798	12/6/2014	7:00:29	21.48792	144.04054	52	1647.1	Jason dinner watch change.
6445	J2-798	12/6/2014	7:06:38	21.48855	144.04136	51	1699.2	About 100m until the end of Line 3.
6454	J2-798	12/6/2014	7:14:08	21.48917	144.04215	51	1729.7	End of Line 3. End of survey for this dive due to weather. Final altitude = 48.
6455	J2-798	12/6/2014	7:14:39	21.48921	144.04221	52	1732.0	**MBSURVEY: End Line Stopped recording of data.**
6457	J2-798	12/6/2014	7:15:48	21.48923	144.04223	51	1734.4	Closing up net by twirling and looking for a place to stow it in the basket.
6459	J2-798	12/6/2014	7:16:27	21.48923	144.04223	51	1732.9	**SAMPLE: HFS. J798-HFS-39** Background water sample.
6462	J2-798	12/6/2014	7:18:08	21.48923	144.04221	353	1732.0	Position of sample 21 29.4238 144 2.6141 from cursor.
6464	J2-798	12/6/2014	7:19:36	21.48919	144.04213	189	1734.2	J798-HFS-39 Filtered Bag 20.
6466	J2-798	12/6/2014	7:20:18	21.48917	144.04212	190	1725.5	**SAMPLE: HFS J798-HFS-40** Unfiltered Bag 19 Start 07:17. Stop 07:20. Background water sample.
6469	J2-798	12/6/2014	7:22:32	21.48910	144.04202	217	1691.8	Coming up. At 1700 m.
6471	J2-798	12/6/2014	7:23:46	21.48913	144.04203	219	1659.6	Dropping weights.
6473	J2-798	12/6/2014	7:24:35	21.48916	144.04202	223	1634.8	Dropped more weights. At 1635 m.
6476	J2-798	12/6/2014	7:26:12	21.48919	144.04201	227	1583.9	Have some hitchhikers on the basket: galatheid crabs and mussels. We'll see if they make it on board the ship.
6479	J2-798	12/6/2014	7:28:11	21.48926	144.04208	226	1516.1	Cod end of plankton net floating a bit. Trying to trap it in the basket better.
6519	J2-798	12/6/2014	7:59:07	21.48927	144.04207	247	436.1	Moving port arm on top of the cassette sampler for recovery.
6535	J2-798	12/6/2014	8:20:19	21.48926	144.04208	215	0.5	Jason on surface.
6536	J2-798	12/6/2014	8:20:49	21.48926	144.04208	215	0.9	Medea out of water.
6538	J2-798	12/6/2014	8:21:09	21.48926	144.04208	214	0.9	Beast powered off.
6539	J2-798	12/6/2014	8:21:57	21.48926	144.04208	220	0.8	Medea on deck.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
6540	J2-798	12/6/2014	8:49:08	21.48930	144.04208	339	1.5	JASON: Jason out of water. Recovery line in Jason thruster. Will need to relaunch Medea for second recovery attempt.
6541	J2-798	12/6/2014	8:50:45	21.48929	144.04207	300	1.3	Medea off deck.
6542	J2-798	12/6/2014	8:51:24	21.48930	144.04207	314	1.5	Medea in water.
6543	J2-798	12/6/2014	8:51:56	21.48930	144.04207	326	2.9	Going down at 15m/min.
6544	J2-798	12/6/2014	8:55:49	21.48929	144.04207	305	47.8	Recovery line is in the starboard horizontal thruster.
6545	J2-798	12/6/2014	8:57:06	21.48929	144.04206	293	72.9	Plan is to go down to 1000m depth and ride out the weather and/or get daylight for recovery.
6546	J2-798	12/6/2014	8:58:20	21.48929	144.04206	291	103.7	Recovery line is no longer in the thruster.
6550	J2-798	12/6/2014	9:01:19	21.48928	144.04207	269	189.0	Heading down to 1000m.

5.7-3 J2-799 NW Eifuku

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
Deployment location: NW Eifuku at Mkr-124. 21deg 29.274'N; 144deg 2.519'D Z=1584m. Main goals: Recover experiments on the bottom; BioMat and fluid sampling; Scoop sampling; Mussel bag sampling. On all dives: Beast with 2 gastights in back. Super Scorpio camera; Jason high-temperature probe. Basket: BioMat Sampler and 3 cassettes; HFS. Tasks: 1) Go to Mkr-124 (Upper Yellow Cone) Z=1584m. Mkr-124 tasks: Biomat and fluid sampling; Recover PrTrap#104; MTR#4094; Scoop sampling and fluid sampling. 2) Go to Mke-146 (Upper Yellow Cone) Z=1577m. Biomat and fluid sampling; Recover: ShrimpTrap#1 and #2; Slide Traps#1-3;MTR#4001. Scoop sampling; Gastight. 3) Go to Mkr-145 (Razorback); Z=1566m. Fluid sampling. Recover SPlate#4; PrTrap#113; MTR#3173. 4) Go upslope to Razorback to un-deployed Mkrs-123 and 140. Z=1562m. Recover ShrimpTraps#3 and 4. 5)Go to Mkr-144 (downslope of Champagne); Z=1608m. BioMat and fluid sampling; gastight. Recover: MTR#3048; SPlate#2or #3 (not both); PrTrap#4; MTR#3291. One SPlate stays on seafloor. 6) Collect mussels in 3 mussel bags coordinated with fluid samples an pH. 1st collection near Champagne: 2nd in DENSE mussels; 3rd in SPARSE mussels.								
11824	J2-799	12/13/2014	13:18	21.48794	144.04167	109	1594.73	JASON: Jason on bottom Heading to Mkr-124.
11826	J2-799	12/13/2014	13:19	21.48793	144.04168	121	1592.24	The bottom is in sight. Looking at a big ridge here.
11829	J2-799	12/13/2014	13:20	21.48792	144.04171	117	1590.67	Steep Ridge with some white mat staining.
11830	J2-799	12/13/2014	13:20	21.48793	144.04176	127	1590.66	Steep knife-like ridge here.
11832	J2-799	12/13/2014	13:21	21.48794	144.04186	129	1588.07	Moving toward the Marker 124 nav target at Lower Yellow Cone.
11834	J2-799	12/13/2014	13:22	21.48794	144.04191	132	1583.84	Coming up with steep ridge. Not much of anything visible except some squat lobsters and large lava blocks.
11836	J2-799	12/13/2014	13:23	21.48794	144.04202	130	1583.73	FRAMEGRABS: HD frame grab SciCam Taking HD frame grabs with the Sci and Pilot cam as we head toward Mkr-124.
11837	J2-799	12/13/2014	13:24	21.48792	144.04204	174	1582.46	The marker is in the background. The navigation works!
11839	J2-799	12/13/2014	13:24	21.48791	144.04206	192	1582.88	Zooming in on Mkr-124.
11840	J2-799	12/13/2014	13:24	21.48791	144.04207	193	1583.12	Here at Lower Yellow Top.
11842	J2-799	12/13/2014	13:25	21.4879	144.04208	193	1583.71	There is Sheryl's Protozoan trap.
11844	J2-799	12/13/2014	13:25	21.4879	144.04208	193	1583.69	The Protozoan trap and MTR are still here.
11845	J2-799	12/13/2014	13:26	21.48789	144.04209	193	1583.68	Ballasting the vehicle figuring out how much weight he has to drop.
11847	J2-799	12/13/2014	13:26	21.48789	144.04208	193	1583.73	Dropping a dive weight.
11849	J2-799	12/13/2014	13:27	21.48789	144.04207	193	1583.46	Quite a lot of iron-oxide mat disturbed as the dive weights are dropped.
11853	J2-799	12/13/2014	13:30	21.48788	144.04208	207	1584.24	Going to go in and recover Sheryl's Protozoan trap.
11857	J2-799	12/13/2014	13:33	21.48788	144.04208	209	1584.23	**SAMPLE: PrTrp J799-PrTrp104-01**. Recovering from this steep slope in thick iron-oxide sediments. Sitting on top of MTR deployed at the same time.
11858	J2-799	12/13/2014	13:33	21.48788	144.04208	209	1584.16	HIGHLIGHTS: Record SciCam Protozoan trap and MTR.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
11860	J2-799	12/13/2014	13:35	21.48787	144.04208	209	1584.17	J799-PrTrp104-01 cont. Moving in to grab the trap. This site is at the edge of a steep ridge. Thick iron-oxide mat covering the seafloor here. Trap is beneath the marker ~1m.
11862	J2-799	12/13/2014	13:35	21.48786	144.04208	209	1584.22	J799-PrTrp104-01. Z=1584m.
11863	J2-799	12/13/2014	13:35	21.48786	144.04207	209	1584.16	Depl/Rec: Recover MTR 4094 from Lower Yellow Cone; along with the PrTrap.
11866	J2-799	12/13/2014	13:37	21.4879	144.04205	250	1581.9	Checking out the area here. Looking at the steep ridge above the marker and heading up toward the next marker.
11868	J2-799	12/13/2014	13:38	21.4879	144.04202	178	1582.59	Craig wants to see places where he sampled earlier to know whether the mats have grown back at all.
11869	J2-799	12/13/2014	13:38	21.4879	144.04201	173	1582.96	Craig wants to move in here for a scoop sample.
11870	J2-799	12/13/2014	13:39	21.4879	144.04201	173	1583.08	It looks pretty cool here.
11871	J2-799	12/13/2014	13:39	21.48791	144.04201	172	1583.32	Shrimp floating by.
11873	J2-799	12/13/2014	13:39	21.4879	144.04201	170	1583.24	Zooming in here looking for flow.
11874	J2-799	12/13/2014	13:40	21.48791	144.04201	174	1583.35	Craig wants to put a temperature probe in this and see if there is any flow.
11877	J2-799	12/13/2014	13:41	21.48791	144.04202	169	1583.08	We're half way in between Mkr124 and 146. Checking the temperature in this iron-oxide mat.
11878	J2-799	12/13/2014	13:41	21.48791	144.04202	169	1583.1	Squat lobster sitting on this iron mat.
11879	J2-799	12/13/2014	13:41	21.48791	144.04202	169	1583.07	The temperature is rising here.
11882	J2-799	12/13/2014	13:43	21.48792	144.04202	169	1583.1	Tmax=20C. The probe was stuck deep into the iron-oxide sediments.
11885	J2-799	12/13/2014	13:45	21.48791	144.04202	169	1583.17	**SAMPLE: LScoop J799-LScoop -02** in these deep iron-oxide sediments half way between Mkr-124 and 146.
11897	J2-799	12/13/2014	13:56	21.48788	144.04202	169	1583.1	J799-LScoop 4-02 cont. 144 2.5211 21 29.2746 Z=1583 hdg=169. RNA later scoop
11899	J2-799	12/13/2014	13:57	21.48789	144.04202	170	1583.14	FRAMEGRABS: HD frame grab SciCam J799-LScoop4
11900	J2-799	12/13/2014	13:58	21.48789	144.04202	169	1583.14	"It's like a good chocolate chip cookie: crunchy and chewy" -Heather
11902	J2-799	12/13/2014	13:58	21.48789	144.04202	170	1583.15	Make is breaking apart in crusty chunks; but also has a jello-like give to it
11904	J2-799	12/13/2014	13:59	21.48789	144.04202	169	1583.15	Stirred up lots of iron floc.
11905	J2-799	12/13/2014	13:59	21.48788	144.04202	170	1583.18	Shaking scoop and letting settle. Lots of room to scoop up more.
11907	J2-799	12/13/2014	14:00	21.48788	144.04202	170	1583.14	FRAMEGRABS: HD frame grab SciCam Going for more. LScoop4 continued.
11913	J2-799	12/13/2014	14:05	21.48788	144.04201	170	1583.14	Lots of material in the scoop. Closing outer handle and then will open second handle for RNA Later.
11917	J2-799	12/13/2014	14:08	21.4879	144.04201	170	1583.2	RNA Later side open.
11920	J2-799	12/13/2014	14:10	21.4879	144.04201	170	1583.22	NAV: Doppler Reset
11922	J2-799	12/13/2014	14:11	21.48791	144.04201	170	1583.18	Fluid sampling next in same area as scoop was taken.
11927	J2-799	12/13/2014	14:15	21.48789	144.042	170	1583.18	SAMPLE: HFS Just going to take pH and O2.
11931	J2-799	12/13/2014	14:18	21.48789	144.042	170	1583.17	Still waiting on the beast.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
11934	J2-799	12/13/2014	14:20	21.4879	144.04201	170	1583.13	Probing now.
11935	J2-799	12/13/2014	14:20	21.4879	144.04202	170	1583.12	It's definitely sucking goo. Going deeper into mat.
11936	J2-799	12/13/2014	14:20	21.4879	144.04202	170	1583.13	Temp coming up. around 10C.
11938	J2-799	12/13/2014	14:21	21.48791	144.04202	170	1583.12	At 15C.
11939	J2-799	12/13/2014	14:21	21.48791	144.04202	170	1583.1	pH down to 5.24.
11940	J2-799	12/13/2014	14:21	21.48791	144.04202	170	1583.11	O2= 1.57 ml/L
11942	J2-799	12/13/2014	14:22	21.48791	144.04201	170	1583.13	SENSOR: O2 O2=1.42 ml/L
11943	J2-799	12/13/2014	14:22	21.48791	144.04201	170	1583.14	SENSOR: Temp T=12C
11944	J2-799	12/13/2014	14:22	21.48791	144.042	170	1583.09	Going to take a couple of bag samples.
11947	J2-799	12/13/2014	14:25	21.48791	144.04201	170	1583.1	**SAMPLE: HFS J799-HFS-03 Unfiltered Bag #23** Start Time:14:24
11950	J2-799	12/13/2014	14:27	21.48791	144.04202	170	1583.16	J799-HFS-03 Unfiltered Bag #23 Continued. Tmax= 11.6C; Tavg= 11.0C; T2= 4.2C Vol= 400 ml; Stop Time: 14:26:39
11952	J2-799	12/13/2014	14:27	21.48791	144.04201	170	1583.12	**SAMPLE: J799-HFS-04 Filtered Bag #24** Start Time: 14:27:32
11956	J2-799	12/13/2014	14:30	21.48791	144.042	170	1583.09	J799-HFS-04 Filtered Bag #24 continued: Tmax= 12.3C; Tavg= 12.0C; T2= 4.2 C; Vol= 413ml; Stop Time: 14:29:55
11958	J2-799	12/13/2014	14:31	21.48792	144.04199	170	1583.1	Putting the Beast away.
11960	J2-799	12/13/2014	14:32	21.48791	144.04197	170	1583.14	To clarify: LScoop4 and HFS bags 23 and 24 taken in same spot. Location= 21 29.275N 144 2.521E
11962	J2-799	12/13/2014	14:33	21.4879	144.04197	170	1583.12	FRAMEGRABS: HD frame grab SciCam after sampling.
11963	J2-799	12/13/2014	14:33	21.4879	144.04198	170	1583.14	FRAMEGRABS: HD frame grab PilotCam
11967	J2-799	12/13/2014	14:36	21.48777	144.04209	225	1578.08	FRAMEGRABS: HD frame grab SciCam Arrived at Marker 146.
11969	J2-799	12/13/2014	14:37	21.48775	144.04211	225	1578.08	Both shrimp traps and all three slide traps are still there!
11972	J2-799	12/13/2014	14:39	21.48771	144.04207	247	1579.51	Can't see any shrimp in ShrimpTrap#2
11974	J2-799	12/13/2014	14:40	21.48771	144.04206	248	1579.56	Empty. Leaving ShrTrp2 behind.
11975	J2-799	12/13/2014	14:40	21.48771	144.04206	246	1579.53	Still lots of shrimp in the area.
11977	J2-799	12/13/2014	14:41	21.48771	144.04206	262	1577.91	FRAMEGRABS: HD frame grab SciCam Slide traps and shrimp traps.
11978	J2-799	12/13/2014	14:42	21.48771	144.04206	261	1578.28	At this spot: ShrimpTrap1; Slide Traps 1 2 and 3; MTR4001
11980	J2-799	12/13/2014	14:42	21.48771	144.04206	261	1578.26	ShrTrp1 also surrounded by shrimp but doesn't look like any are inside. Will pick up and shake to confirm.
11982	J2-799	12/13/2014	14:43	21.48771	144.04206	261	1578.26	2 Shrimp inside!
11983	J2-799	12/13/2014	14:43	21.48771	144.04206	260	1578.28	**Depl/Rec: Recover SAMPLE: J799-ShrTrp1-05**
11986	J2-799	12/13/2014	14:45	21.4877	144.04205	262	1578.16	Location: 21 29.2626N 144 2.5232E
11987	J2-799	12/13/2014	14:46	21.4877	144.04205	264	1577.26	Slide Traps also surrounded by shrimp.
11991	J2-799	12/13/2014	14:48	21.48771	144.04206	270	1577.76	**Depl/Rec: Recover SAMPLE: J799-SlideTrap1-06**
11992	J2-799	12/13/2014	14:49	21.48771	144.04206	270	1577.74	**Depl/Rec: Recover SAMPLE: J799-SlideTrap2-07**
11995	J2-799	12/13/2014	14:50	21.48771	144.04205	270	1577.78	**Depl/Rec: Recover SAMPLE: J799-SlideTrap3-08**
11996	J2-799	12/13/2014	14:50	21.48771	144.04205	270	1577.81	All slide traps into right swing arm biobox.
11997	J2-799	12/13/2014	14:50	21.48771	144.04205	270	1577.78	on top of protist traps.
11998	J2-799	12/13/2014	14:51	21.48771	144.04205	270	1577.79	**Depl/Rec: Recover MTR4001**

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
12001	J2-799	12/13/2014	14:52	21.48771	144.04205	270	1577.76	Seeing lots of flow here and also nice mat. Will fluid sample and also biomat sample.
12003	J2-799	12/13/2014	14:53	21.4877	144.04205	270	1577.77	Mat is very crusty. Edge of mat temp is 4C.
12005	J2-799	12/13/2014	14:54	21.4877	144.04206	270	1577.76	Going to move probe up to fluffier mat.
12007	J2-799	12/13/2014	14:55	21.4877	144.04206	270	1577.77	Mat still looks crusty here. some fluffy mat also. White patches underneath .
12008	J2-799	12/13/2014	14:55	21.4877	144.04206	270	1577.77	Only getting 10C here.
12010	J2-799	12/13/2014	14:57	21.4877	144.04206	270	1577.77	Trying to find a good spot with flow and higher temps.
12013	J2-799	12/13/2014	14:58	21.4877	144.04205	269	1577.83	Not seeing enough flow here to sample here. Going to bag it.
12015	J2-799	12/13/2014	14:59	21.48769	144.04205	269	1577.84	Didn't see any temps higher than 10C. Not fluid sampling here.
12018	J2-799	12/13/2014	15:01	21.4877	144.04207	268	1578.22	Going to use mat sampler with ferrozine; Cassette C.
12024	J2-799	12/13/2014	15:06	21.4877	144.04206	268	1578.28	SAMPLE: BM J799-BM1-C1 sampling in crevice with flow coming out.
12025	J2-799	12/13/2014	15:06	21.4877	144.04206	268	1578.31	HIGHLIGHTS: Record SciCam J799-BM1-C1
12026	J2-799	12/13/2014	15:06	21.4877	144.04206	268	1578.31	**SAMPLE: BM J799-BM1-C1-09**
12027	J2-799	12/13/2014	15:07	21.4877	144.04206	268	1578.31	Collecting fluid not mat.
12030	J2-799	12/13/2014	15:09	21.48771	144.04207	268	1578.27	Can see some pink color. Drew in about 5ml
12032	J2-799	12/13/2014	15:09	21.48771	144.04207	269	1578.26	Pulling in a little bit more.
12033	J2-799	12/13/2014	15:09	21.48771	144.04207	268	1578.25	Stopping around 40ml.
12035	J2-799	12/13/2014	15:10	21.48771	144.04208	268	1578.24	This is the first time a ferrozine sample has been taken on the bottom of the ocean! Victory!
12036	J2-799	12/13/2014	15:10	21.4877	144.04208	268	1578.24	HIGHLIGHTS: Record SciCam
12037	J2-799	12/13/2014	15:10	21.4877	144.04208	268	1578.3	Filter on syringe2 is broken off.
12039	J2-799	12/13/2014	15:12	21.4877	144.04207	268	1578.3	Ferrozine turned slightly pink. There is iron in the fluid; but not much.
12041	J2-799	12/13/2014	15:12	21.4877	144.04207	268	1578.28	Putting Cassette C away.
12042	J2-799	12/13/2014	15:12	21.4877	144.04207	268	1578.26	Not going to mat sample or scoop sample here.
12043	J2-799	12/13/2014	15:12	21.48771	144.04206	268	1578.26	Going to look a little bit below here for good mat.
12048	J2-799	12/13/2014	15:16	21.48772	144.04206	245	1579.52	Found nice mat with lots of shrimp on it. Follow the shrimp!
12050	J2-799	12/13/2014	15:17	21.48773	144.04206	245	1579.51	Next will sample with Cassette D.
12051	J2-799	12/13/2014	15:18	21.48773	144.04206	245	1579.53	Just downhill from marker 146.
12054	J2-799	12/13/2014	15:19	21.48773	144.04205	245	1579.52	**SAMPLE: BM J799-BM1-D1-10** mat sample. Lots of flow with light colored mat surrounding. Looks like dark crusty mat a little further away from flow.
12055	J2-799	12/13/2014	15:19	21.48773	144.04205	245	1579.52	HIGHLIGHTS: Record SciCam J799-BM1-D1-10
12058	J2-799	12/13/2014	15:21	21.48772	144.04206	245	1579.51	J799-BM1-D2-11 same spot.
12059	J2-799	12/13/2014	15:22	21.48773	144.04206	245	1579.51	Location= 21 29.2635N 144 2.5244E
12061	J2-799	12/13/2014	15:23	21.48773	144.04207	245	1579.48	**SAMPLE: BM J799-BM1-D2-11**
12064	J2-799	12/13/2014	15:24	21.48773	144.04207	245	1579.47	HIGHLIGHTS: End Highlights
12066	J2-799	12/13/2014	15:25	21.48773	144.04207	244	1579.5	**SAMPLE: BM J799-BM1-D4-12** going a little to the left. want to see what's under the crust.
12067	J2-799	12/13/2014	15:25	21.48773	144.04206	245	1579.47	Pretty thick mat.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
12070	J2-799	12/13/2014	15:27	21.48773	144.04204	245	1579.37	Syringe 4 continued.
12072	J2-799	12/13/2014	15:28	21.48772	144.04203	245	1579.41	Putting away cassette D for now.
12073	J2-799	12/13/2014	15:29	21.48772	144.04204	245	1579.39	Fluid sample next at same spot.
12076	J2-799	12/13/2014	15:31	21.48771	144.04205	245	1579.39	HFS temp 10C
12079	J2-799	12/13/2014	15:32	21.48772	144.04205	245	1579.38	Moving wand to find spot with better flow and higher temp.
12081	J2-799	12/13/2014	15:34	21.48773	144.04206	245	1579.37	Temp rising.
12083	J2-799	12/13/2014	15:34	21.48773	144.04206	245	1579.38	This might be the spot!
12084	J2-799	12/13/2014	15:35	21.48774	144.04206	245	1579.39	HFS sensors T=30C pH=5.21 O2=1.19
12087	J2-799	12/13/2014	15:36	21.48775	144.04206	245	1579.36	**SAMPLE: HFS J799-HFS-13 Unfiltered Piston #1** Start Time: 15:36:20
12091	J2-799	12/13/2014	15:39	21.48773	144.04206	245	1579.35	J799-HFS-13 Unfiltered Piston #1 cont. Tmax= 33.4C; Tavg= 33.2C; T2= 16.2C; Vol= 601ml; Stop time: 15:39:35
12094	J2-799	12/13/2014	15:41	21.48773	144.04205	245	1579.35	**SAMPLE: J799-GTHFS-14** Starboard side Start Time: 15:41:12
12095	J2-799	12/13/2014	15:41	21.48773	144.04205	245	1579.33	Retracting 15:41:35
12097	J2-799	12/13/2014	15:42	21.48773	144.04205	245	1579.35	Location of all HFS sampling (same as biomat)= 21 29.2639N 144 2.5234E
12098	J2-799	12/13/2014	15:42	21.48773	144.04205	245	1579.4	Going to do more chemistry/ferrozine syringes on cassette C.
12101	J2-799	12/13/2014	15:44	21.48771	144.04205	245	1579.37	HIGHLIGHTS: Record SciCam J799-BM1-C5-15
12102	J2-799	12/13/2014	15:45	21.48771	144.04205	245	1579.38	**SAMPLE: BM J799-BM1-C5-15** same hole we were in with fluid sampler. Collecting fluid into ferrozine-filled syringe.
12104	J2-799	12/13/2014	15:45	21.48771	144.04205	245	1579.38	turned pink!
12105	J2-799	12/13/2014	15:45	21.48771	144.04205	245	1579.35	This is the second time EVER that a ferrozine sample was taken on the bottom of the ocean!
12106	J2-799	12/13/2014	15:45	21.48771	144.04205	245	1579.36	Thanks to everyone who made this possible.
12107	J2-799	12/13/2014	15:46	21.48772	144.04205	245	1579.34	HIGHLIGHTS: End Highlights
12109	J2-799	12/13/2014	15:46	21.48771	144.04206	245	1579.36	HIGHLIGHTS: Record SciCam J799-BM1-C4-16 for chemistry
12110	J2-799	12/13/2014	15:47	21.48771	144.04206	245	1579.34	**SAMPLE: BM J799-BM1-C4-16**
12113	J2-799	12/13/2014	15:48	21.48771	144.04206	245	1579.33	Syringe has filter for geochemistry.
12115	J2-799	12/13/2014	15:49	21.48772	144.04207	245	1579.37	HIGHLIGHTS: End Highlights
12116	J2-799	12/13/2014	15:50	21.48772	144.04207	245	1579.37	Thinking about taking a scoop sample here.
12124	J2-799	12/13/2014	15:56	21.48771	144.04208	245	1579.36	SAMPLE: LScoop Opening up a scoop.
12125	J2-799	12/13/2014	15:57	21.48771	144.04207	245	1579.32	**SAMPLE: LScoop J799-LScoop1-17**
12127	J2-799	12/13/2014	15:57	21.48771	144.04207	245	1579.31	Rock face where sampling is covered with shrimp and a scale worm.
12129	J2-799	12/13/2014	15:58	21.48772	144.04207	244	1579.32	This scoop is crustier than the last scoop.
12131	J2-799	12/13/2014	16:00	21.48773	144.04208	245	1579.31	FRAMEGRABS: HD frame grab PilotCam
12133	J2-799	12/13/2014	16:00	21.48773	144.04208	245	1579.28	FRAMEGRABS: HD frame grab SciCam
12135	J2-799	12/13/2014	16:02	21.48773	144.04206	245	1579.34	Depth= 1579.3m heading= 245.1
12137	J2-799	12/13/2014	16:02	21.48773	144.04205	245	1579.32	Shaking scoop
12142	J2-799	12/13/2014	16:06	21.48772	144.04206	245	1579.32	Opening RNA later part.
12143	J2-799	12/13/2014	16:06	21.48772	144.04206	245	1579.36	Shake it up!
12146	J2-799	12/13/2014	16:08	21.48772	144.04206	245	1579.45	Going to look around and do another mat sample before moving on.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
12151	J2-799	12/13/2014	16:12	21.48775	144.0421	241	1581.92	Not seeing many iron mats. Still looking around.
12152	J2-799	12/13/2014	16:12	21.48774	144.04211	242	1581.98	Some iron mats; maybe a little flow.
12154	J2-799	12/13/2014	16:13	21.48774	144.04211	242	1582.01	This spot looks pretty hard. Moving further to the left to look.
12156	J2-799	12/13/2014	16:15	21.48772	144.04209	233	1582.24	We're about 3 meters below where we were just scooping.
12158	J2-799	12/13/2014	16:15	21.48771	144.04209	233	1582.21	Group of shrimp sitting under a ledge right next to where we sat down before.
12159	J2-799	12/13/2014	16:15	21.48771	144.04208	229	1582.04	Nice mat and good flow!
12163	J2-799	12/13/2014	16:18	21.4877	144.04206	223	1580.75	Getting ready to sample mat with Cassette D.
12167	J2-799	12/13/2014	16:21	21.48772	144.04208	223	1580.74	HIGHLIGHTS: Record SciCam J799-BM1-D5-18
12168	J2-799	12/13/2014	16:21	21.48772	144.04208	224	1580.74	**SAMPLE: BM J799-BM1-D5-18**
12169	J2-799	12/13/2014	16:22	21.48772	144.04208	224	1580.75	Mat is very crusty but there might be good mat underneath.
12170	J2-799	12/13/2014	16:22	21.48772	144.04208	223	1580.74	Haven't started sampling yet.
12172	J2-799	12/13/2014	16:22	21.48772	144.04207	224	1580.75	Pretty gooey under there1
12173	J2-799	12/13/2014	16:22	21.48772	144.04207	224	1580.76	Used syringe 6 instead.
12174	J2-799	12/13/2014	16:22	21.48772	144.04207	224	1580.78	CORRECTION: sample is J799-BM1-D6-18
12176	J2-799	12/13/2014	16:23	21.48772	144.04207	224	1580.74	**SAMPLE: BM** Going for same spot with syringe 5. **J799-BM1-D5-19**
12177	J2-799	12/13/2014	16:24	21.48772	144.04207	226	1581.23	HIGHLIGHTS: End Highlights
12180	J2-799	12/13/2014	16:25	21.48771	144.04208	230	1580.59	Going back in for more with syringe 5.
12182	J2-799	12/13/2014	16:26	21.4877	144.04208	230	1580.55	Reindexing cassette so we can use syringe 3.
12184	J2-799	12/13/2014	16:27	21.4877	144.04208	230	1580.55	Going to go for the fluffies under the crusties!
12185	J2-799	12/13/2014	16:27	21.4877	144.04208	230	1580.54	HIGHLIGHTS: Record SciCam J799-BM1-D3-20 very fluffy light colored mat.
12187	J2-799	12/13/2014	16:28	21.48771	144.04207	230	1580.54	**SAMPLE: BM J799-BM1-D3-20** done
12188	J2-799	12/13/2014	16:29	21.48771	144.04207	230	1580.55	HIGHLIGHTS: End Highlights
12190	J2-799	12/13/2014	16:29	21.48771	144.04207	230	1580.56	Moving on to cassette B.
12191	J2-799	12/13/2014	16:29	21.48771	144.04207	230	1580.57	Looking for more fluffies.
12194	J2-799	12/13/2014	16:31	21.48771	144.04209	230	1580.54	Lots of white filamentous stuff surrounding hole where fluid is coming out of.
12196	J2-799	12/13/2014	16:32	21.4877	144.04209	230	1580.54	FRAMEGRABS: HD frame grab SciCam Nice venting hole with lots of gooey mat; different colors; can see moving in the flow.
12197	J2-799	12/13/2014	16:33	21.4877	144.04209	229	1580.55	Going to aim just for cobweb white material in the first syringe.
12199	J2-799	12/13/2014	16:33	21.4877	144.04209	230	1580.53	HIGHLIGHTS: Record SciCam
12201	J2-799	12/13/2014	16:35	21.4877	144.04208	230	1580.55	SAMPLE: BM Didn't turn out to be as gooey as it looked. Lots of crust fell away.
12203	J2-799	12/13/2014	16:35	21.4877	144.04208	230	1580.55	HIGHLIGHTS: End Highlights
12205	J2-799	12/13/2014	16:36	21.48771	144.04208	230	1580.55	mat sampler isn't working at the moment...
12206	J2-799	12/13/2014	16:37	21.48771	144.04208	230	1580.57	Going to reholster and decouple it and try again.
12210	J2-799	12/13/2014	16:39	21.48771	144.04209	230	1580.57	HIGHLIGHTS: Record SciCam J799-BM1-B looking around
12212	J2-799	12/13/2014	16:40	21.48771	144.0421	230	1580.55	SAMPLE: BM J799-BM1-B1-21 knocked away crusty mat to reveal nice fluffy mats!

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
12213	J2-799	12/13/2014	16:40	21.48771	144.0421	230	1580.57	Pretty crusty; hard to get to the fluff.
12215	J2-799	12/13/2014	16:42	21.48771	144.04209	230	1580.58	Expelling all of syringe 1
12217	J2-799	12/13/2014	16:42	21.4877	144.04208	229	1580.55	HIGHLIGHTS: End Highlights
12219	J2-799	12/13/2014	16:43	21.4877	144.04208	230	1580.53	**SAMPLE: BM J799-BM1-B1-21** redo.
12220	J2-799	12/13/2014	16:43	21.4877	144.04208	230	1580.52	Found a much fluffier spot!
12224	J2-799	12/13/2014	16:47	21.4877	144.04209	229	1580.53	**SAMPLE: BM J799-BM1-B2-22** right next to where syringe 1 was taken.
12226	J2-799	12/13/2014	16:47	21.4877	144.04209	230	1580.57	HIGHLIGHTS: Record SciCam J799-BM1-B2-22
12227	J2-799	12/13/2014	16:48	21.4877	144.04209	229	1580.56	Edit: syringe 2 doesn't have an O-ring.
12229	J2-799	12/13/2014	16:48	21.4877	144.04209	230	1580.54	SAMPLE: BM J799-BM1-B6-22
12230	J2-799	12/13/2014	16:48	21.4877	144.04209	230	1580.54	B2 is not a sample.
12231	J2-799	12/13/2014	16:49	21.4877	144.04208	229	1580.53	**SAMPLE: BM J799-BM1-B5-23** same place
12234	J2-799	12/13/2014	16:50	21.48769	144.04208	229	1580.56	HIGHLIGHTS: End Highlights
12235	J2-799	12/13/2014	16:50	21.48769	144.04208	229	1580.61	Saving last two syringes on cassette B for sulfur mats. Getting more ferrozine samples here.
12239	J2-799	12/13/2014	16:53	21.48771	144.04209	229	1580.57	**SAMPLE: BM J799-BM1-C3-24** ferrozine in flow of spot where we just sampled with cassette B.
12242	J2-799	12/13/2014	16:56	21.48771	144.04209	229	1580.53	It turned pink! There's iron!
12244	J2-799	12/13/2014	16:56	21.48771	144.04209	229	1580.51	FRAMEGRABS: HD frame grab SciCam Pink ferrozine syringe C3.
12246	J2-799	12/13/2014	16:58	21.48771	144.04209	229	1580.53	Sean Scoop next at same spot.
12248	J2-799	12/13/2014	16:58	21.48771	144.04209	229	1580.54	There's no RNA later in it.
12250	J2-799	12/13/2014	16:59	21.48772	144.04209	229	1580.53	standy!
12256	J2-799	12/13/2014	17:04	21.48773	144.04212	229	1580.49	HIGHLIGHTS: Record SciCam J799-Scoop3-25
12258	J2-799	12/13/2014	17:05	21.48773	144.04212	229	1580.49	**SAMPLE: LScoop J799-Scoop3-25** No RNA Later
12259	J2-799	12/13/2014	17:05	21.48773	144.04212	229	1580.5	Still waiting for water to leave scoop before sampling.
12261	J2-799	12/13/2014	17:06	21.48773	144.04212	229	1580.45	Scoopin!
12264	J2-799	12/13/2014	17:08	21.48773	144.04214	230	1580.48	Very crusty sample. Big chunks.
12267	J2-799	12/13/2014	17:10	21.48775	144.04214	231	1578.88	Ship has to move. Coming off the bottom.
12268	J2-799	12/13/2014	17:10	21.48775	144.04214	231	1576.57	HIGHLIGHTS: End Highlights
12270	J2-799	12/13/2014	17:11	21.48774	144.04213	232	1568	Leaving Upper Yellow Cone. Can see marker 146.
12271	J2-799	12/13/2014	17:11	21.48773	144.04213	232	1561.43	Headed to Marker 145 (Razorback)
12277	J2-799	12/13/2014	17:17	21.48753	144.04203	151	1540.1	Waiting for ship to stabilize.
12281	J2-799	12/13/2014	17:19	21.48741	144.04179	169	1542.31	Working on holding Medea in place
12288	J2-799	12/13/2014	17:25	21.48718	144.04153	260	1519.29	Ship still heading south.
12294	J2-799	12/13/2014	17:30	21.48685	144.04132	205	1520.02	Still waiting on ship.
12303	J2-799	12/13/2014	17:38	21.4858	144.04128	191	1519.25	Same.
12307	J2-799	12/13/2014	17:41	21.4856	144.04138	178	1519.42	Changing of the watch.
12318	J2-799	12/13/2014	17:51	21.48497	144.04202	181	1519.35	Need ship to move 280m to the site. Winds are up to 20kts.
12328	J2-799	12/13/2014	18:00	21.48569	144.04206	351	1519.19	Heading north back to the site.
12338	J2-799	12/13/2014	18:09	21.48677	144.04205	351	1528.44	Made it over to the site. Jason descending.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
12340	J2-799	12/13/2014	18:10	21.48693	144.04195	350	1561.61	That is the ship is at the site and we now wait for Medea and Jason to arrive.
12343	J2-799	12/13/2014	18:12	21.48711	144.04195	33.9	1561.37	There is the bottom.
12344	J2-799	12/13/2014	18:13	21.48723	144.04204	23.7	1561.73	Looks like a lot of white staining. We are south of Razorback.
12345	J2-799	12/13/2014	18:13	21.48723	144.04204	23.7	1561.73	TXT:
12347	J2-799	12/13/2014	18:13	21.48726	144.04198	24.8	1561.13	Seeing a ridge of in place lava with white staining in between.
12348	J2-799	12/13/2014	18:13	21.48729	144.04197	25.4	1560.98	Could be squat lobsters but not close enough.
12350	J2-799	12/13/2014	18:14	21.48735	144.0419	9.38	1560.52	We are SE of the site and higher up on a ridge. There is the marker.
12352	J2-799	12/13/2014	18:15	21.48739	144.04187	25.5	1560.61	Tall pinnacle of rock with Marker 145 below on a flattened portion of the bottom.
12353	J2-799	12/13/2014	18:16	21.48743	144.04187	79.2	1559.21	Instruments are at a heading of 143.
12357	J2-799	12/13/2014	18:18	21.48749	144.04176	156	1565.95	There are instruments 10 and 12 on the video. Can see MTR 3173 as well in the video.
12358	J2-799	12/13/2014	18:19	21.4875	144.04176	156	1566.02	HIGHLIGHTS: End Highlights Highlights had been on to look at the instruments.
12360	J2-799	12/13/2014	18:19	21.4875	144.04176	157	1565.54	Going to pick up all instruments and put in STBD biobox.
12361	J2-799	12/13/2014	18:19	21.4875	144.04176	159	1565.67	Doing HD framegrabs as we approach.
12363	J2-799	12/13/2014	18:20	21.4875	144.04176	157	1566.08	Many animals at this site. Limpets; scaleworms; some mussels.
12364	J2-799	12/13/2014	18:20	21.4875	144.04176	157	1566.06	NAV: Doppler Reset
12365	J2-799	12/13/2014	18:21	21.4875	144.04176	157	1565.96	This is SPlate #4 to recover and it will be a sample.
12367	J2-799	12/13/2014	18:21	21.4875	144.04177	157	1565.94	Lots of limpet egg casings covering the rocks.
12368	J2-799	12/13/2014	18:22	21.4875	144.04177	157	1565.96	Jason has the instruments.
12370	J2-799	12/13/2014	18:22	21.4875	144.04177	157	1566.02	**Depl/Rec: Recover Have SPlate #4** in the arm.
12371	J2-799	12/13/2014	18:22	21.4875	144.04178	157	1566.02	HIGHLIGHTS: Record SciCam Closeup of the instruments and looks like they do have samples.
12373	J2-799	12/13/2014	18:23	21.48749	144.04178	157	1566.01	**SAMPLE: SPlate J799-Splate-26.** Recovered Splate #4 at Razorback and placing in Biobox #2.
12375	J2-799	12/13/2014	18:24	21.48748	144.04179	157	1565.98	Placed nicely in the biobox and box is secured.
12376	J2-799	12/13/2014	18:25	21.48748	144.0418	158	1565.98	Cursor position of recovered instrument and sample is 21 29.2498 144 2.5074. (At Marker 145).
12378	J2-799	12/13/2014	18:25	21.48747	144.04179	176	1565.64	Next will try to recover the MTR but Jason has pulled away from the recover site.
12380	J2-799	12/13/2014	18:26	21.48747	144.0418	173	1566.07	Repositioning for the next recovery.
12382	J2-799	12/13/2014	18:27	21.48747	144.0418	173	1565.92	Also the Protist trap 113 is next to the MTR for recovery.
12383	J2-799	12/13/2014	18:27	21.48746	144.0418	174	1565.96	Opening the right swing arm biobox.
12386	J2-799	12/13/2014	18:29	21.48746	144.0418	174	1565.93	**Depl/Rec: Recover Grabbing PrTrp #113.**
12388	J2-799	12/13/2014	18:30	21.48747	144.0418	174	1565.87	**SAMPLE: J799-PrTrp-27** at Marker 145. Put in swing arm biobox STBD. Same location as last recovery just a different heading.
12389	J2-799	12/13/2014	18:31	21.48747	144.0418	173	1565.83	SAMPLE: SPlate Last entry was the recovery time.
12391	J2-799	12/13/2014	18:31	21.48747	144.0418	173	1565.85	Next trying to get a rock with egg casings on it.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
12392	J2-799	12/13/2014	18:31	21.48747	144.0418	175	1565.87	HIGHLIGHTS: Record SciCam Rock and egg casing recovery.
12393	J2-799	12/13/2014	18:31	21.48747	144.0418	174	1565.86	Looks like a good sample. Hass larger limpets on it as well.
12395	J2-799	12/13/2014	18:32	21.48747	144.0418	174	1565.89	**SAMPLE: BioGeo J799-Biogeo-28** at same place. Put in same biobox in STBD swing arm.
12396	J2-799	12/13/2014	18:32	21.48747	144.0418	174	1565.89	Next will do fluid sampling.
12398	J2-799	12/13/2014	18:33	21.48748	144.0418	174	1565.92	**Depl/Rec: Recover** Note: Just after protist trap recovery the MTR 3173 was also recovered and put in the same biobox.
12400	J2-799	12/13/2014	18:34	21.48748	144.0418	173	1565.88	MTR was recovered before the biogeo sample.
12401	J2-799	12/13/2014	18:35	21.48748	144.0418	173	1565.86	Placing the Beast intake in the top of the sulfide structure with strong flow evident.
12403	J2-799	12/13/2014	18:35	21.48748	144.0418	173	1565.84	Structure is very fragile and could fall apart.
12404	J2-799	12/13/2014	18:35	21.48749	144.0418	173	1565.85	Got 16deg at first probe. When pushed in it did start to crumble.
12406	J2-799	12/13/2014	18:36	21.48749	144.0418	173	1565.85	SAMPLE: HFS Still holding at 16deg at the top.
12407	J2-799	12/13/2014	18:36	21.48749	144.0418	173	1565.85	First taking a pH reading and O2.
12409	J2-799	12/13/2014	18:37	21.48749	144.0418	173	1565.87	SENSOR: pH HFS sensor: pH=4.45 O2=1.45.
12411	J2-799	12/13/2014	18:38	21.48749	144.0418	173	1565.84	**SAMPLE: HFS J2-HFS-29 Filtered Piston #29**. Start 18:38.
12413	J2-799	12/13/2014	18:39	21.48749	144.0418	173	1565.81	This is from the top of the sulfide structure where the SPlate #4 and PrTrp #113 were located on either side.
12416	J2-799	12/13/2014	18:41	21.48749	144.04181	173	1565.83	SAMPLE: HFS J799-HFS-29 Stop 18:41. Tmax=20.8 Tavg=18.3 T2=9 vol=450 mL.
12417	J2-799	12/13/2014	18:42	21.48749	144.04181	173	1565.82	**SAMPLE: HFS Start J799-HFS-30** Unfiltered Piston #3.
12419	J2-799	12/13/2014	18:42	21.48749	144.04181	174	1565.85	Unfiltered Piston #3 - CORRECTION at J799-HFS-30.
12421	J2-799	12/13/2014	18:43	21.48749	144.04181	173	1565.87	Appears the tip of the probe is slightly moving above the flow while sampling as pieces of sulfide crumble.
12423	J2-799	12/13/2014	18:44	21.48749	144.04181	172	1565.8	J799-HFS-30 Unfiltered Piston #3 Stop 18:45. Tmax=20.6 Tavg=17.9 T2=7 vol=450 mL.
12424	J2-799	12/13/2014	18:44	21.48749	144.04181	173	1565.85	Done fluid sampling at Razorback Marker 145.
12426	J2-799	12/13/2014	18:45	21.48749	144.04181	176	1563.79	Next will look at shrimp traps up on the ridge with the marker. The sampling was just below the marker.
12427	J2-799	12/13/2014	18:46	21.48749	144.04181	177	1560.99	Framegrab rate is at 5 seconds now.
12429	J2-799	12/13/2014	18:46	21.48749	144.04181	176	1561.25	Need to get close to see if there is shrimp. There is a lot of shrimp in the traps.
12430	J2-799	12/13/2014	18:46	21.48749	144.04181	175	1561.14	Closeup of Shrimp Trap #4.
12431	J2-799	12/13/2014	18:46	21.48749	144.04181	173	1561.21	HIGHLIGHTS: Record SciCam
12432	J2-799	12/13/2014	18:47	21.48748	144.04181	175	1561.61	Recording highlights of the traps and the unused markers.
12434	J2-799	12/13/2014	18:47	21.48748	144.04181	175	1561.33	Also quite a few mussels and squat lobsters here.
12435	J2-799	12/13/2014	18:47	21.48748	144.04181	162	1561.16	Positioning to recover the traps.
12438	J2-799	12/13/2014	18:49	21.48748	144.04181	156	1561.5	Port swing arm biobox open and ready.
12439	J2-799	12/13/2014	18:49	21.48747	144.04181	156	1561.52	**Depl/Rec: Recover Shrimp Trap #**4 grabbed.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
12440	J2-799	12/13/2014	18:50	21.48747	144.04181	156	1561.49	**SAMPLE: ShrTrp J799-ShrTrp-31.** Recovered Shrimp Trap #4 from the top of the ridge at Razorback.
12442	J2-799	12/13/2014	18:50	21.48747	144.04181	156	1561.46	HIGHLIGHTS: End Highlights
12443	J2-799	12/13/2014	18:51	21.48747	144.04182	156	1561.45	Trap is in the biobox.
12445	J2-799	12/13/2014	18:51	21.48747	144.04182	156	1561.52	**Depl/Rec: Recover Next is ShrimpTrap #3.**
12446	J2-799	12/13/2014	18:51	21.48747	144.04182	155	1561.5	Going to try to squeeze into the same biobox.
12447	J2-799	12/13/2014	18:51	21.48747	144.04182	156	1561.48	Like a spring that doesn't want to collapse.
12448	J2-799	12/13/2014	18:52	21.48747	144.04183	155	1561.48	There are many shrimp in this trap.
12450	J2-799	12/13/2014	18:53	21.48746	144.04183	155	1561.48	**SAMPLE: ShrTrp J799-ShrTrp-32.** Shrimp Trap #3 from the same location with the unused markers on the ridge.
12452	J2-799	12/13/2014	18:53	21.48746	144.04184	154	1561.54	Attempting to close the biobox with the second arm while holding the springy traps in the biobox.
12453	J2-799	12/13/2014	18:54	21.48746	144.04184	154	1561.72	This shrimp is an undescribed shrimp species.
12455	J2-799	12/13/2014	18:54	21.48747	144.04185	175	1561.68	Jason moving off the site and the biobox is still open. Need both arms to close.
12457	J2-799	12/13/2014	18:55	21.48747	144.04185	175	1562.35	The unused markers are just below the top of the ridge at a heading 0f 175.
12459	J2-799	12/13/2014	18:56	21.48748	144.04185	172	1562.39	Using the Jason temperature probe to help shut the biobox. Doesn't look like the cable is long enough.
12461	J2-799	12/13/2014	18:57	21.48749	144.04185	173	1562.37	Stowing the Jason temperature probe.
12462	J2-799	12/13/2014	18:57	21.48749	144.04185	172	1562.39	Going to use the Beast wand to hold it down.
12464	J2-799	12/13/2014	18:58	21.4875	144.04184	173	1562.41	HFS wand holding the top shrimp trap.
12465	J2-799	12/13/2014	18:59	21.48751	144.04183	173	1562.44	Using port arm to try to close the box after tamping it down again.
12467	J2-799	12/13/2014	18:59	21.48752	144.04182	173	1562.37	Removing the HFS wand before final closing of the biobox.
12468	J2-799	12/13/2014	19:00	21.48752	144.04182	173	1562.44	Stowing the wand.
12470	J2-799	12/13/2014	19:00	21.48754	144.04179	174	1562.43	Now securing the biobox all the way.
12471	J2-799	12/13/2014	19:01	21.48754	144.04179	173	1562.45	Done at this site. Need to get over to Marker 144 now.
12472	J2-799	12/13/2014	19:01	21.48754	144.04179	173	1562.46	Swing arm stowed.
12475	J2-799	12/13/2014	19:02	21.48757	144.04177	228	1567.84	At the next site we will only recover one of the two Splates as there is no room for both on the basket.
12476	J2-799	12/13/2014	19:02	21.48759	144.04179	121	1571.12	On our way to Marker 144.
12477	J2-799	12/13/2014	19:02	21.48759	144.04178	102	1575.16	Marker 144 is at 1608m. in the Champagne area.
12479	J2-799	12/13/2014	19:03	21.48756	144.0417	76.8	1582.13	Descending down to the site.
12481	J2-799	12/13/2014	19:04	21.48754	144.04165	86.5	1584.72	More talus and in place rocks with many mussels and squat lobsters.
12482	J2-799	12/13/2014	19:04	21.48754	144.04163	47.5	1583.56	FRAMEGRABS: HD frame grab SuperScorpio 5 second interval.
12484	J2-799	12/13/2014	19:05	21.48753	144.04161	52	1583.93	Very steep drop with ridges covered in squat lobsters. Mussels appear to be more concentrated on ridge tops.
12485	J2-799	12/13/2014	19:06	21.48752	144.0416	52	1589.23	Looks like a sheer wall. Seeing staining.
12487	J2-799	12/13/2014	19:06	21.48749	144.04154	40.2	1596.8	Flattening out at 1595m. Lots of white.
12489	J2-799	12/13/2014	19:08	21.48741	144.04141	54.2	1605.65	Heading further down in more staining.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
12491	J2-799	12/13/2014	19:08	21.48739	144.04138	56.3	1609.37	At the correct depth and looking to either side for the marker.
12492	J2-799	12/13/2014	19:09	21.48737	144.04136	63.8	1609.66	Smoke from the west.
12494	J2-799	12/13/2014	19:09	21.48736	144.04135	61	1610	Looking for the marker now to the east.
12495	J2-799	12/13/2014	19:09	21.48736	144.04135	57.5	1609.92	Lots of smoke in this area.
12497	J2-799	12/13/2014	19:10	21.48733	144.04131	92	1610.39	We are a little deep.
12499	J2-799	12/13/2014	19:11	21.48738	144.04142	80.5	1605.47	Fish.
12501	J2-799	12/13/2014	19:12	21.48741	144.04145	58.7	1604.26	Seeing more staining. Looking like more of the area. See some chimneys.
12502	J2-799	12/13/2014	19:12	21.48742	144.04146	59.1	1605.04	There is the marker.
12504	J2-799	12/13/2014	19:13	21.48744	144.04146	60.2	1607.56	Can see smoke coming from a chimney east of the marker.
12505	J2-799	12/13/2014	19:14	21.48745	144.04147	61.2	1606.96	There are the instruments just to the west of the marker about 7m away.
12507	J2-799	12/13/2014	19:14	21.48745	144.04147	61.1	1606.72	HIGHLIGHTS: Record SciCam
12508	J2-799	12/13/2014	19:15	21.48746	144.04146	73.1	1607.2	Bringing out STBD swing arm biobox.
12511	J2-799	12/13/2014	19:16	21.48748	144.04144	93.8	1607.72	Can see numbers 4 and 6 on SPlate #3 on the right is going to be picked up.
12512	J2-799	12/13/2014	19:17	21.48749	144.04143	93.3	1607.7	The MTR is between the two Splates.
12514	J2-799	12/13/2014	19:18	21.4875	144.04142	92.9	1607.8	**SAMPLE: HFS J799-HFS-33** Sterivex in the holster. Start.
12516	J2-799	12/13/2014	19:18	21.4875	144.04142	92.8	1607.82	Sterivex #13 in the holster.
12517	J2-799	12/13/2014	19:19	21.48751	144.04142	92.9	1607.88	**Depl/Rec: Recover Splate #3** on the right grabbed by Jason and going in stbd swing arm biobox.
12520	J2-799	12/13/2014	19:20	21.48751	144.04142	92.6	1607.87	**SAMPLE: J799-SPlate0-34**. SPlate #3 recovered at the Marker 144 site of Champagne.
12521	J2-799	12/13/2014	19:20	21.48751	144.04142	92.8	1607.86	HIGHLIGHTS: End Highlights
12522	J2-799	12/13/2014	19:21	21.48751	144.04142	92.7	1607.87	It is in the small rock biobox not the swing arm biobox.
12524	J2-799	12/13/2014	19:21	21.48751	144.04142	92.8	1607.86	Biobox is not fully closed so will need to do that on the way up.
12525	J2-799	12/13/2014	19:22	21.48751	144.04142	93.1	1607.88	**Depl/Rec: Recover Next is the MTR recover. MTR 3048** is in the stbd swing arm biobox.
12527	J2-799	12/13/2014	19:23	21.4875	144.04142	93	1607.94	Next need to get the Protist trap that is tangled with the MTR3291.
12529	J2-799	12/13/2014	19:23	21.4875	144.04142	84.3	1606.98	This is Protist Trap #4.
12530	J2-799	12/13/2014	19:23	21.4875	144.04143	68.9	1606.57	FRAMEGRABS: HD frame grab SciCam
12532	J2-799	12/13/2014	19:24	21.4875	144.04143	53.3	1606.79	Depl/Rec: Recover Sterivex sample is still running during these recoveries.
12533	J2-799	12/13/2014	19:24	21.48749	144.04143	53.5	1606.8	Depl/Rec: Recover Grabbing the Protist Trap #4. MTR is no longer tangled.
12535	J2-799	12/13/2014	19:25	21.48749	144.04143	53.4	1606.78	**SAMPLE: PrTrp J799-PrTrp-35** recovered at Marker 144 location.
12536	J2-799	12/13/2014	19:25	21.48749	144.04144	51.9	1606.74	Put in stbd biobox.
12537	J2-799	12/13/2014	19:26	21.48749	144.04144	54.1	1606.82	**Depl/Rec: Recover Recovered MTR 3291** from the same site.
12539	J2-799	12/13/2014	19:26	21.48749	144.04144	54.2	1606.84	MTR put in same biobox.
12540	J2-799	12/13/2014	19:26	21.48749	144.04144	54	1606.83	Biobox closed and stowing.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
12543	J2-799	12/13/2014	19:28	21.48749	144.04144	54	1606.84	Going to grab some mussels at this same site. Sterivex still running volume was under 2000 at this point.
12544	J2-799	12/13/2014	19:29	21.48749	144.04144	60.4	1607.29	Repositioning Jason slightly and seeing bubbles. Want the mussels adjacent the sulfide.
12546	J2-799	12/13/2014	19:29	21.48749	144.04144	70.9	1607.72	J799-HFS-33 Stop 19:30.
12547	J2-799	12/13/2014	19:30	21.48749	144.04144	70.8	1607.74	Picking up HFS probe for pH reading.
12549	J2-799	12/13/2014	19:30	21.48749	144.04144	70.9	1607.71	J799-HFS-33 Sterivex 33. Tmax=3.0 Tavg=2.7 vol=2196 mL.
12551	J2-799	12/13/2014	19:31	21.48749	144.04144	71	1607.7	HFS sensor: pH=5.24 and going down.
12552	J2-799	12/13/2014	19:32	21.48749	144.04144	70.8	1607.69	SENSOR: pH 02=1.92 pH=5.22 from HFS.
12554	J2-799	12/13/2014	19:32	21.48749	144.04144	70.8	1607.69	Slight reposition into a clump of mussels.
12555	J2-799	12/13/2014	19:33	21.48749	144.04143	70.8	1607.67	SENSOR: pH HFS sensor: pH=5.27
12557	J2-799	12/13/2014	19:33	21.48749	144.04143	70.9	1607.67	Now repositioning the probe into the white mat just below the mussels.
12558	J2-799	12/13/2014	19:33	21.48749	144.04143	71	1607.65	HIGHLIGHTS: Record SciCam
12560	J2-799	12/13/2014	19:35	21.48749	144.04142	70.8	1607.67	SENSOR: pH In the white mat. HFS sensor: Temp=3.2 (slightly warmer than previous). pH=4.95.
12562	J2-799	12/13/2014	19:35	21.48749	144.04143	70.7	1607.69	SENSOR: pH HFS sensor: pH=4.8.
12563	J2-799	12/13/2014	19:35	21.48749	144.04143	70.7	1607.67	That was the final pH reading.
12565	J2-799	12/13/2014	19:36	21.48749	144.04143	70.5	1607.71	Done with pH. Next will grab the same mussels from the pH readings.
12566	J2-799	12/13/2014	19:36	21.48749	144.04143	70.6	1607.72	HIGHLIGHTS: End Highlights
12568	J2-799	12/13/2014	19:38	21.4875	144.04142	70.6	1607.7	Grabbing scoop for mussels.
12570	J2-799	12/13/2014	19:38	21.4875	144.04142	70.4	1607.65	HIGHLIGHTS: Record SciCam Scooping.
12571	J2-799	12/13/2014	19:39	21.4875	144.04142	70.6	1607.7	**SAMPLE: Biomacro Square net is sampling mussels. J799-biomacro-36** Start.
12573	J2-799	12/13/2014	19:39	21.4875	144.04143	71.2	1607.73	Same location as pH measurements. Cursor position 21 29.2498 144 2.4857.
12574	J2-799	12/13/2014	19:40	21.48749	144.04143	70	1607.67	J799-biomacro-36 still scooping.
12576	J2-799	12/13/2014	19:40	21.48749	144.04143	70.5	1607.69	Looks like about 8-9 in the scoop.
12577	J2-799	12/13/2014	19:41	21.4875	144.04143	69.9	1607.66	J799-biomacro-36 done.
12578	J2-799	12/13/2014	19:41	21.4875	144.04142	70	1607.71	HIGHLIGHTS: End Highlights
12580	J2-799	12/13/2014	19:41	21.4875	144.04142	69.7	1607.74	Next will got to dense mussel site for another scoop to the NW.
12581	J2-799	12/13/2014	19:41	21.48752	144.0414	72.4	1607.28	Mussels are on top of the basket in the arm at the moment.
12582	J2-799	12/13/2014	19:42	21.48753	144.04139	70	1605.88	Moving a bit north.
12583	J2-799	12/13/2014	19:42	21.48753	144.04139	70.3	1605.36	NAV: Doppler Reset
12585	J2-799	12/13/2014	19:42	21.48755	144.04138	59.2	1604.4	Mussel density increasing as moving west.
12586	J2-799	12/13/2014	19:43	21.48758	144.04137	61.4	1605.77	Here is a good spot with high density on a small ridge/ledge.
12588	J2-799	12/13/2014	19:43	21.48761	144.04135	74.4	1606.09	Preparing for sample.
12590	J2-799	12/13/2014	19:44	21.48762	144.04134	75	1606.13	Going to need pH here with the mussels. Grabbing the wand.
12592	J2-799	12/13/2014	19:45	21.48762	144.04134	75	1606.12	Highlights are on.
12594	J2-799	12/13/2014	19:46	21.48761	144.04135	74.8	1606.09	SENSOR: pH HFS sensor in the clump of mussels at GoldenLips site at Champagne. Cursor position is 21 29.2567 144 2.4813.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
12595	J2-799	12/13/2014	19:46	21.4876	144.04135	74.8	1606.1	SENSOR: pH HFS pH=5.78
12597	J2-799	12/13/2014	19:47	21.4876	144.04135	74.8	1606.08	**SAMPLE: HFS Unfiltered Bag #19. J799-HFS-37.** Start.
12598	J2-799	12/13/2014	19:47	21.4876	144.04136	74.6	1606.07	J799-HFS-37 Start now.
12602	J2-799	12/13/2014	19:50	21.48761	144.04134	74.5	1606.05	J799-HFS-37 Stop. Tmax=2.7 Tavg=2.7 vol=473 mL.
12603	J2-799	12/13/2014	19:51	21.48761	144.04134	74.2	1606.04	Stow the wand and get some mussels.
12605	J2-799	12/13/2014	19:52	21.4876	144.04134	74.7	1606.08	Wand is stowed.
12607	J2-799	12/13/2014	19:52	21.4876	144.04134	74.4	1605.99	Grabbing the scoop from the upper port side of basket.
12608	J2-799	12/13/2014	19:52	21.4876	144.04135	74.5	1606.04	Many squat lobsters and shrimp around the mussels.
12610	J2-799	12/13/2014	19:53	21.4876	144.04135	74.5	1606	This is the red rectangle scoop.
12611	J2-799	12/13/2014	19:53	21.4876	144.04135	74.8	1606	HIGHLIGHTS: Record SciCam
12612	J2-799	12/13/2014	19:53	21.48761	144.04135	74.8	1606.03	**SAMPLE: Start J799-biomacro-38**. Dense mussel scoop.
12614	J2-799	12/13/2014	19:54	21.48761	144.04136	74.4	1606.02	J799-biomacro-38 Lots of abyssal threads. Large clump that needed to break up to go down the scoop.
12615	J2-799	12/13/2014	19:55	21.48761	144.04136	74.3	1606.02	Going to use the stbd arm to push them in.
12617	J2-799	12/13/2014	19:55	21.48761	144.04136	74.1	1606.02	Measuring ph.=5.65 as scooping.
12619	J2-799	12/13/2014	19:56	21.4876	144.04136	74.2	1606.02	J799-biomacro-38 clump in the scoop. Need to scoop some more.
12620	J2-799	12/13/2014	19:56	21.4876	144.04136	74.7	1606.04	J799-biomacro-38 Second scoop and going down easier.
12622	J2-799	12/13/2014	19:57	21.4876	144.04135	74.6	1606.03	J799-biomacro-38 one last scoop. Stop. Excellent sample.
12623	J2-799	12/13/2014	19:57	21.4876	144.04135	74.7	1606.06	HIGHLIGHTS: End Highlights 5 minutes left on this dive.
12624	J2-799	12/13/2014	19:57	21.4876	144.04135	74.6	1606.05	May have time for one more mussel scoop.
12626	J2-799	12/13/2014	19:58	21.4876	144.04135	74.4	1606.07	Stowing the mussels on top of the basket for now.
12627	J2-799	12/13/2014	19:59	21.4876	144.04134	74.2	1605.96	Not enough time to do any more sampling.
12629	J2-799	12/13/2014	19:59	21.4876	144.04134	74.6	1605.93	Dropping weights.
12630	J2-799	12/13/2014	19:59	21.4876	144.04134	74.2	1605.92	Mussel scoop was the same location as the HFS sample from cursor position.
12631	J2-799	12/13/2014	19:59	21.4876	144.04134	73.9	1605.94	Dropping more weight.
12632	J2-799	12/13/2014	20:00	21.4876	144.04134	73.7	1606.01	SAMPLE: HFS Filtered Bag #20. Start.
12634	J2-799	12/13/2014	20:00	21.4876	144.04134	73.7	1606	**SAMPLE: HFS J799-HFS-39** as they are taking care of the basket while still at the same mussel scoop site. Wand is in the holster.
12635	J2-799	12/13/2014	20:01	21.4876	144.04134	73.9	1605.95	Repositioning the Splate in the forward biobox to make it easier to close.
12637	J2-799	12/13/2014	20:01	21.48761	144.04135	73.9	1605.96	Biobox is secured.
12639	J2-799	12/13/2014	20:03	21.48761	144.04134	76.5	1605.28	**SAMPLE: J799-GTHFS-40** GTHFS Port GTHFS Fired at same site with wand in holster. J799-GTHFS-40 Port Purple.
12641	J2-799	12/13/2014	20:03	21.4876	144.04134	79	1603.15	Lifting off.
12642	J2-799	12/13/2014	20:03	21.48758	144.04129	187	1601.08	J799-HFS-39 Stop. Tmax=2.8 Tavg=2.7 vol=550.
12644	J2-799	12/13/2014	20:04	21.48744	144.0413	185	1602.3	J799-GTHFS-40 T=2.8.
12645	J2-799	12/13/2014	20:04	21.48741	144.0413	183	1602.22	JASON: Jason off bottom

5.7-4 J2-800 NW Rota-1

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments

Deployment Location 14deg 36.054'N 144deg 46.505'E; depth=567. Phantom Vent.
Main goals: Recon eruptive and hydrothermal vents BioMat and fluid sampling. Suction sample of shrimp collect barnacles and limpets.
On Jason: Beast with 2 GTHFS; Super Scorpio camera in basket; high-temperature probe; O2 wand; BioMat Sampler; HFS fluid sampler intake; 3 hand-held gas-tights; suction sampler hose (single-chamber); 1 mesh bag; 1 scoop sampler; 3 markers; 2 SPME samplers; 2 major samplers; portable hydrophone.
Tasks:
1-Start at Phantom Vent.
2-Go to eruptive vent locations W-->E (Phantom; Sulfur Mkr120; Brimstone Mkr161; Styx; Charon.
3-Opportunistic HFS fluid sampling; filtering; gastight sampling.
4- Go to low-temp vent markers. (Sulfur Wall Mkr164; Iceberg Mkr110; Limpet Lair Mkr117).
5- BioMat and scoop sampling at Iceberg and fluid sampling.
6. Opportunistic suction sample of shrimp (could be from multiple sites)
7- At any 40-80decC vent collect SPME sample in vent fluid.
8- Transit to Barnacles Mkr119.
9- Sample rock with barnacles at Mkr119 Barnacles Site.
10- Go to Fault Shrimp Mkr112 (fluid and suction sampling; possible hydrophone deployment).
11- Sample rock with limpet egg cases.
12- Take background SPME sample.
New pH sensor on the Beast for this dive.

12810	J2-800	2014/12/16	21:25	14.60074	144.77507	88	550.2	Bottom!
12811	J2-800	2014/12/16	21:25	14.60106	144.77495	88	555.2	Looks like a lot of white staining.
12813	J2-800	2014/12/16	21:26	14.60102	144.77502	89	559.0	Jelly.
12814	J2-800	2014/12/16	21:26	14.60096	144.77511	89	559.9	No marker at Phantom.
12816	J2-800	2014/12/16	21:27	14.60092	144.77515	90	559.8	Bag creatures.
12817	J2-800	2014/12/16	21:27	14.60089	144.77517	90	560.0	FRAMEGRABS: HD frame grab SciCam
12818	J2-800	2014/12/16	21:27	14.60088	144.77517	90	559.9	Looks like egg cases on the rocks (dots on rocks).
12819	J2-800	2014/12/16	21:27	14.60087	144.77517	90	559.7	Bag creatures indicative of post-eruptive event.
12821	J2-800	2014/12/16	21:28	14.60087	144.77517	91	559.4	Fish.
12822	J2-800	2014/12/16	21:28	14.60087	144.77516	90	559.4	HIGHLIGHTS: Record SciCam Bag creature highlights.
12824	J2-800	2014/12/16	21:29	14.60089	144.77514	90	559.5	A lot of hairy-like mats coating between the rocks.
12825	J2-800	2014/12/16	21:29	14.60090	144.77515	91	559.4	Not seen here before. Did see this at West Mata after its activity had ceased.
12826	J2-800	2014/12/16	21:30	14.60090	144.77515	90	558.8	Brown coating on some rocks and blacker on others.
12828	J2-800	2014/12/16	21:30	14.60091	144.77516	91	558.0	Very rough surfaces coasted in brown sediment.
12829	J2-800	2014/12/16	21:30	14.60091	144.77517	90	557.6	Crude pillow-like structures.
12830	J2-800	2014/12/16	21:30	14.60091	144.77518	91	557.0	Looks like a small ridge of pillows but not very smooth ones.
12831	J2-800	2014/12/16	21:31	14.60091	144.77518	90	556.6	Highlights are still on.
12833	J2-800	2014/12/16	21:31	14.60091	144.77518	90	556.2	Smoke is in the air now.
12834	J2-800	2014/12/16	21:31	14.60091	144.77519	91	555.5	Climbing up the small ridge.
12835	J2-800	2014/12/16	21:31	14.60091	144.77519	90	555.0	This looks like the old vent where the pillows came out of.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
12836	J2-800	2014/12/16	21:31	14.60090	144.77520	90	554.5	Don't recall these fish being here. Had been over on the east side.
12838	J2-800	2014/12/16	21:32	14.60090	144.77520	88	554.8	Bright yellow line of iron (very small).
12839	J2-800	2014/12/16	21:33	14.60087	144.77521	60	555.3	Venting down to the right. Taking a look.
12841	J2-800	2014/12/16	21:33	14.60087	144.77523	56	555.4	See venting and limpets (lepidodrilus sp.). Certainly not here before.
12842	J2-800	2014/12/16	21:33	14.60087	144.77523	59	556.4	Shinkaii ones as well.
12843	J2-800	2014/12/16	21:33	14.60087	144.77523	61	555.8	See shrimp as well.
12845	J2-800	2014/12/16	21:34	14.60087	144.77522	53	555.3	Lots of microbial mat waving in the current.
12846	J2-800	2014/12/16	21:34	14.60087	144.77523	57	555.6	Lots of shrimp concentrated by the venting fluid.
12847	J2-800	2014/12/16	21:34	14.60087	144.77523	55	555.6	Shimmering water.
12849	J2-800	2014/12/16	21:35	14.60087	144.77523	55	555.6	Looks like Loihi shrimp. Alvinocaris on the right.
12850	J2-800	2014/12/16	21:35	14.60087	144.77523	55	555.6	Loihi in the venting and Alvinocaris on the outside.
12852	J2-800	2014/12/16	21:36	14.60087	144.77523	55	555.5	Retrieving the HFS wand to measure pH.
12853	J2-800	2014/12/16	21:36	14.60087	144.77523	55	555.5	HIGHLIGHTS: End Highlights.
12855	J2-800	2014/12/16	21:37	14.60087	144.77523	55	555.5	HFS pH numbers may not be accurate and needing adjusting post-dive.
12856	J2-800	2014/12/16	21:37	14.60087	144.77523	55	555.5	HIGHLIGHTS: Record SciCam.
12859	J2-800	2014/12/16	21:39	14.60088	144.77524	55	555.5	Limpets are moving.
12860	J2-800	2014/12/16	21:39	14.60088	144.77524	55	555.4	SENSOR: pH. HFS sensor: pH=6.2; Temp: 9C; O2=1.0.
12862	J2-800	2014/12/16	21:40	14.60088	144.77524	54	555.5	**SAMPLE: HFS. J800-HFS-01.** Unfiltered Bag #17. Start. J800-HFS-01.
12867	J2-800	2014/12/16	21:44	14.60089	144.77524	54	555.4	J800-HFS-01 cont. Stop 21:44. Tmax=9.9 Tavg=9.5 T2=7.8 vol=500mL.
12868	J2-800	2014/12/16	21:44	14.60089	144.77524	54	555.4	HIGHLIGHTS: End Highlights. Done fluid sampling here. Done with highlights.
12870	J2-800	2014/12/16	21:45	14.60089	144.77524	54	555.4	Pile of snails on the sci cam.
12871	J2-800	2014/12/16	21:45	14.60089	144.77524	54	555.4	FRAMEGRABS: HD frame grab. SciCam Grab of snail pile.
12875	J2-800	2014/12/16	21:48	14.60088	144.77524	52	554.1	**SAMPLE: Biomacro J800-biogeo-02.** Rock with limpets and egg cases. Same location as HFS sample-01 at Phantom Vent.
12879	J2-800	2014/12/16	21:50	14.60089	144.77524	52	554.2	Cursor position for samples: 144 46.5139 14 36.0515 z=554 52hdg.
12880	J2-800	2014/12/16	21:50	14.60089	144.77523	53	554.2	Note the sulfur vent is just a little above the marker.
12882	J2-800	2014/12/16	21:51	14.60084	144.77526	83	555.1	NAV: Doppler Reset.
12884	J2-800	2014/12/16	21:52	14.60078	144.77534	82	555.4	Moving from Phantom to Sulfur Crust.
12886	J2-800	2014/12/16	21:53	14.60077	144.77535	82	555.3	Lots of stuff in the water.
12887	J2-800	2014/12/16	21:53	14.60074	144.77540	81	555.6	White bacterial mat on the rocks ahead.
12889	J2-800	2014/12/16	21:54	14.60082	144.77546	52	553.2	The rocks are encrusted in white filamentous mat. See more bag creatures as well.
12890	J2-800	2014/12/16	21:54	14.60082	144.77547	53	553.0	SENSOR: pH. Background pH up to 7.04.
12892	J2-800	2014/12/16	21:55	14.60083	144.77552	54	552.3	Seeing a shoot area here.
12893	J2-800	2014/12/16	21:55	14.60081	144.77553	51	552.3	Little piece of sulfur.
12895	J2-800	2014/12/16	21:56	14.60085	144.77553	42	550.5	Continuing up this incline with blocks of rock to each side and a slide in between.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
12896	J2-800	2014/12/16	21:56	14.60086	144.77554	42	550.4	Lots of shrimp on this one.
12898	J2-800	2014/12/16	21:57	14.60086	144.77553	41	550.5	FRAMEGRABS: HD frame grab SciCam. Taking super scorpio frame grabs every 10 seconds.
12900	J2-800	2014/12/16	21:58	14.60086	144.77553	41	550.5	FRAMEGRABS: HD frame grab SuperScorpio. We're taking frame grabs every 10 seconds with the sci and super scorpio.
12902	J2-800	2014/12/16	21:59	14.60086	144.77553	41	550.5	Zooming in on this area. In this area of ash flow.
12903	J2-800	2014/12/16	21:59	14.60086	144.77553	41	550.6	SENSOR: pH. Lower pH here.
12904	J2-800	2014/12/16	21:59	14.60086	144.77553	41	550.5	HIGHLIGHTS: Record SciCam. Shrimp on this ash layers on this outcrop.
12906	J2-800	2014/12/16	22:00	14.60087	144.77553	42	550.6	Zooming in with the science cam. Going to take a temperature reading.
12907	J2-800	2014/12/16	22:01	14.60087	144.77553	39	550.7	Zooming in on these shrimp between Phantom and sulfur.
12909	J2-800	2014/12/16	22:01	14.60087	144.77553	39	550.7	Big limpets (Shinkai lepas); Alvinocaris and Opapaeli shrimp.
12910	J2-800	2014/12/16	22:01	14.60087	144.77553	39	550.7	SENSOR: Temp. Background temp was 7.2.
12913	J2-800	2014/12/16	22:03	14.60087	144.77553	39	550.7	Shrimp are swimming around the temperature probe. Not much of a temperature difference.
12914	J2-800	2014/12/16	22:03	14.60087	144.77553	38	550.7	No temperature change.
12916	J2-800	2014/12/16	22:04	14.60087	144.77553	38	550.7	Zooming in on this area with a temperature increase. We're up to 9C in a little crevice in the rock.
12917	J2-800	2014/12/16	22:05	14.60087	144.77553	38	550.7	SENSOR: Temp. Temperature is 9.2.
12919	J2-800	2014/12/16	22:05	14.60087	144.77553	38	550.7	Not terribly exciting. Lots of both types of shrimp.
12921	J2-800	2014/12/16	22:07	14.60087	144.77553	38	550.7	pH 6.12. Lots of little bits of sulfur here. Shrimp are grazing on the bacterial mat and sulfur(?)
12925	J2-800	2014/12/16	22:09	14.60087	144.77553	38	550.6	**SAMPLE: HFS J800-HFS-03.** Filtered bag #18. Start 22:07. Hdg 38. 144 46.5323 14 36.0518. Z=551.
12927	J2-800	2014/12/16	22:10	14.60087	144.77553	38	550.6	FRAMEGRABS: HD frame grab SciCam Sample-03. Fluid filter #18.
12928	J2-800	2014/12/16	22:10	14.60087	144.77553	38	550.6	HIGHLIGHTS: Record SciCam. Shrimp in area of fluid sampling. Seeing into this little crevice.
12930	J2-800	2014/12/16	22:11	14.60087	144.77553	38	550.6	SAMPLE: HFS J800-HFS-03. Tmax=9.2 Tavg=8.9 T2=7.5 Vol=500ml. Stop 2211.
12932	J2-800	2014/12/16	22:12	14.60089	144.77556	44	547.6	FRAMEGRABS: HD frame grab SciCam. We've already passed sulfur. We're closer to Brimstone then Sulfur.
12933	J2-800	2014/12/16	22:12	14.60091	144.77557	46	546.6	FRAMEGRABS: HD frame grab SuperScorpio. Super Scorpio on with the frame grabs on sulfur plates here.
12935	J2-800	2014/12/16	22:13	14.60092	144.77557	45	546.1	Keeping moving up this slope.
12936	J2-800	2014/12/16	22:13	14.60094	144.77558	45	544.8	FRAMEGRABS: HD frame grab SciCam. Thick sulfur crust with lots of shrimp.
12938	J2-800	2014/12/16	22:14	14.60097	144.77559	44	543.3	We're in the area of the cliff behind Brimstone.
12939	J2-800	2014/12/16	22:14	14.60097	144.77559	44	543.6	Tons of shrimp on this area of hard rock in sulfur.
12941	J2-800	2014/12/16	22:15	14.60097	144.77559	48	543.5	Turned on the lasers to look at the shrimp and sulfur in the area of Arrowhead (2010).

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
12943	J2-800	2014/12/16	22:16	14.60097	144.77559	48	543.5	The shrimp are thick here on this incline behind Brimstone in the area of "Arrowhead" target from 2010.
12945	J2-800	2014/12/16	22:17	14.60097	144.77559	48	543.5	There is some pretty intense.
12946	J2-800	2014/12/16	22:17	14.60097	144.77559	48	543.5	The Super Scorpio video and DSC control is with Bill.
12947	J2-800	2014/12/16	22:18	14.60097	144.77559	48	543.5	The temperature is up to 99C here.
12949	J2-800	2014/12/16	22:18	14.60097	144.77559	47	543.5	SENSOR: Temp. Temp is up to 102C. Will take a couple piston samples here.
12951	J2-800	2014/12/16	22:19	14.60097	144.77559	47	543.5	HIGHLIGHTS: Record SciCam Shrimp on the sulfur wall to the north of Brimstone.
12953	J2-800	2014/12/16	22:20	14.60097	144.77558	47	543.5	**SAMPLE: HFS. J800-HFS-04.** Filtered piston #2. Start 2220. 144 46.5353 14 36.0577 Z=544 Hdg 57.
12955	J2-800	2014/12/16	22:21	14.60097	144.77558	47	543.6	HIGHLIGHTS: Record SciCam. Intense swarm of shrimp highlight video while sampling.
12956	J2-800	2014/12/16	22:21	14.60097	144.77558	47	543.5	The shrimp prefer the sulfur on the wall but not on the floor of this outcrop. Temp is over 100C.
12958	J2-800	2014/12/16	22:22	14.60096	144.77558	47	543.5	The shrimp are having sex.
12959	J2-800	2014/12/16	22:22	14.60096	144.77558	47	543.5	J800-HFS-04 stop. Tmax=102.3 Tavg=102 T2=33 Vol=450mL.
12962	J2-800	2014/12/16	22:24	14.60098	144.77558	47	543.6	**SAMPLE: HFS. J800-HFS-05.** Piston #3. Start 2223. Hdg 47C. Z=544C.
12963	J2-800	2014/12/16	22:24	14.60098	144.77558	47	543.6	HIGHLIGHTS: End Highlights.
12965	J2-800	2014/12/16	22:25	14.60099	144.77559	47	543.6	J800-HFS-05 cont. Highlights back on. Watching the big guy clear a path.
12967	J2-800	2014/12/16	22:26	14.60099	144.77560	46	543.6	J800-HFS-05 cont. Done Tmax=101.6 Tavg=100.6 T2=34. Vol=450mL
12970	J2-800	2014/12/16	22:28	14.60097	144.77559	46	543.7	**SAMPLE: GTHFS. J800-GTHFS-06.** port. Fired in same hole as the 2 previous HFS samples.
12973	J2-800	2014/12/16	22:30	14.60098	144.77559	46	543.6	**SAMPLE: HFS J800-HFS-07.** Unfiltered bag #24. Z=544. Same position as previous. These 4 samples were taken in the area of the old "Arrowhead" target. Just north of Brimstone.
12976	J2-800	2014/12/16	22:33	14.60098	144.77559	47	543.7	J800-HFS-07 stop 2231. Tmax=101.8 Tavg=101.6 T2=33 Vol=450mL. Arrowhead area north of Brimstone.
12979	J2-800	2014/12/16	22:35	14.60097	144.77559	46	543.6	HIGHLIGHTS: Record SciCam. We're calling this spot Arrowhead-14. It's approximately the same spot as our target in 2010 but looks different. More shrimp and sulfur.
12983	J2-800	2014/12/16	22:37	14.60098	144.77559	46	543.6	**SAMPLE: SS. J800-SS-08.** Suctioning shrimp. 144 46.5353 14 36.0577. Z=544. Going for a few more shrimp. This area is coated in white sulfur.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
12985	J2-800	2014/12/16	22:38	14.60098	144.77559	46	543.6	This is exactly at the same spot as Arrowhead 2010!! Arrowhead-14 now. This is the wall of the main eruptive conduit that we're looking at.
12989	J2-800	2014/12/16	22:41	14.60098	144.77560	45	543.4	**SAMPLE: Major. J800-Major-09.** here at the same spot as the previous HFS; GTHFS; and Suction. Tmax was 102 here. This is the red major.
12991	J2-800	2014/12/16	22:42	14.60098	144.77560	45	543.4	Zoomed in on the major in this shimmering flow in the hole where the previous samples were taken.
12993	J2-800	2014/12/16	22:43	14.60099	144.77560	45	543.4	FRAMEGRABS: HD frame grab SciCam Samples J800-Major-09.
12996	J2-800	2014/12/16	22:45	14.60099	144.77559	45	543.4	HIGHLIGHTS: End Highlights
12997	J2-800	2014/12/16	22:45	14.60099	144.77559	45	543.4	The major is taking a while.
13000	J2-800	2014/12/16	22:47	14.60099	144.77560	45	543.4	Re-triggered the red major sampler. It's taking too long.
13003	J2-800	2014/12/16	22:49	14.60098	144.77560	45	543.3	J800-Major-09. Retracting and stowing the major. Looks like a good sample. Lots of sulfur coming out of here.
13005	J2-800	2014/12/16	22:50	14.60098	144.77560	45	543.4	We didn't see anything at Brimstone. We went right by it.
13007	J2-800	2014/12/16	22:51	14.60097	144.77559	75	542.8	Next we will head SE toward the Styx vent target.
13008	J2-800	2014/12/16	22:51	14.60091	144.77560	68	543.0	Turning around and looking downslope now. Recording highlights.
13010	J2-800	2014/12/16	22:52	14.60089	144.77567	37	544.9	This looks like sulfur crust on the wall here.
13012	J2-800	2014/12/16	22:54	14.60089	144.77577	37	552.5	Had to re-start the frame grabber. Grabbing sci and super scorpio at 10 sec intervals.
13014	J2-800	2014/12/16	22:54	14.60090	144.77580	38	553.0	We're looking at the base of the wall here.
13015	J2-800	2014/12/16	22:54	14.60087	144.77577	33	557.0	We're pretty much at the target for Styx vent. There's no smoke.
13017	J2-800	2014/12/16	22:55	14.60085	144.77577	339	556.9	The heading for Styx was 338deg at 558m in 2010.
13018	J2-800	2014/12/16	22:56	14.60082	144.77577	338	558.8	Zoomed out all the way.
13020	J2-800	2014/12/16	22:56	14.60084	144.77578	338	558.7	Not much here. This is where Styx was. "Looks like dirt" says Jimmy. We're going to head to the SE toward Charon now.
13022	J2-800	2014/12/16	22:57	14.60085	144.77582	48	558.9	Charon was at 526m. Hdg 327.
13024	J2-800	2014/12/16	22:58	14.60081	144.77590	57	563.9	Looking at massive lavas here. Giant plug of massive lavas that makes up the peak of this volcano - that's always been here.
13025	J2-800	2014/12/16	22:58	14.60080	144.77595	55	566.0	Moving along this wall - facing it and heading to the east.
13027	J2-800	2014/12/16	22:59	14.60079	144.77598	56	567.2	We haven't seen a marker yet although we've only gone by one place where we would have.
13028	J2-800	2014/12/16	23:00	14.60076	144.77604	47	572.0	This area of the wall looks the same; but not as active.
13031	J2-800	2014/12/16	23:01	14.60070	144.77605	47	578.8	CORRECTION: CHARON WAS AT 586M; NOT 526M AS STATED EARLIER.
13034	J2-800	2014/12/16	23:03	14.60067	144.77602	48	578.7	Looking at this massive sulfur wall. Just going to follow this wall - Heading to the sulfur wall target.
13037	J2-800	2014/12/16	23:05	14.60064	144.77609	14	581.8	We intend to go deeper down the wall to the south to see the base of this.
13038	J2-800	2014/12/16	23:05	14.60063	144.77609	15	581.9	NAV: Doppler Reset.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
13039	J2-800	2014/12/16	23:05	14.60063	144.77608	14	582.0	We're going to come away from the cliff a bit to go deeper.
13042	J2-800	2014/12/16	23:08	14.60044	144.77607	306	586.2	**SAMPLE: HFS. J800-HFS-10.** Sterivex #13 for Sheryl. A background sample. Start 2306. Hdg 61deg. 144 46.5636 14 36.0287.
13044	J2-800	2014/12/16	23:09	14.60053	144.77606	336	586.2	We're at the depth of Charon. Seeing cloudy water here. Seeing lots of mat-encrusted rocks here.
13046	J2-800	2014/12/16	23:09	14.60053	144.77608	49	586.5	We're at the right depth for Charon; although it does not look correct on the map.
13047	J2-800	2014/12/16	23:10	14.60054	144.77615	358	586.3	Still have some smoking going on.
13049	J2-800	2014/12/16	23:10	14.60051	144.77616	359	586.2	This area is smoking a bit. Nothing really obvious though. We've stirred up the sediments.
13051	J2-800	2014/12/16	23:11	14.60056	144.77618	356	590.2	The venting seems to be coming out of this pile of rocks. Z=587m.
13053	J2-800	2014/12/16	23:12	14.60056	144.77618	359	590.8	We see a little bit of smoke coming out of this pile of rocks here. That looks promising.
13055	J2-800	2014/12/16	23:13	14.60056	144.77618	359	590.7	Stopping the Sterivex background sample at 1500mL right now so we can use the HFS sensors.
13056	J2-800	2014/12/16	23:13	14.60056	144.77617	359	590.8	Looks like rough pillows here in a pile.
13058	J2-800	2014/12/16	23:14	14.60056	144.77617	359	590.8	Shrimp here. Will poke around in the cracks in the pillows here to see if there is any heat here.
13059	J2-800	2014/12/16	23:14	14.60056	144.77616	343	590.6	We're seeing the Shinkai lepas limpets; and both species of shrimp here.
13061	J2-800	2014/12/16	23:15	14.60056	144.77616	343	590.6	Getting the temp probe out here in this smokey area.
13062	J2-800	2014/12/16	23:15	14.60056	144.77616	342	590.5	Seeing some shimmer here. Temperature is going up a little.
13065	J2-800	2014/12/16	23:17	14.60056	144.77616	342	590.5	Repositioning. We got up to 10.7C. pH=5.8 O2=1.0.
13066	J2-800	2014/12/16	23:17	14.60057	144.77616	342	590.5	Repositioning here again in this area with a little smoke. Temp going down.
13067	J2-800	2014/12/16	23:17	14.60057	144.77616	342	590.5	Repositioning again.
13069	J2-800	2014/12/16	23:18	14.60057	144.77615	346	590.5	Stopped auto frame grabs while manipulating the HFS and taking temperatures.
13072	J2-800	2014/12/16	23:20	14.60056	144.77614	316	590.5	The temperature is going up slowly.
13075	J2-800	2014/12/16	23:22	14.60056	144.77614	318	590.4	Getting a cursor position of this "Smoking Stones-14" area. 144 46.5698 14 36.0331. Z=-590m. 318 hdg.
13077	J2-800	2014/12/16	23:23	14.60056	144.77614	318	590.5	Going to do a HFS sample here. Lots of smoke here but not that hot.
13079	J2-800	2014/12/16	23:24	14.60056	144.77614	318	590.5	FRAMEGRABS: HD frame grab SciCam Smoking Stone area.
13081	J2-800	2014/12/16	23:25	14.60056	144.77614	318	590.5	FRAMEGRABS: HD frame grab SciCam Verena is driving the SciCam. We're doing highlights. Looking at shrimp and limpets and egg cases.
13083	J2-800	2014/12/16	23:26	14.60056	144.77614	318	590.4	**SAMPLE: HFS. J800-HFS-11.** Unfiltered bag #19. Start 2326.
13085	J2-800	2014/12/16	23:27	14.60056	144.77614	318	590.4	HIGHLIGHTS: Record SciCam J800-HFS-11 cont.
13087	J2-800	2014/12/16	23:28	14.60056	144.77614	318	590.4	Alvinocaris and Opaepale and limpet egg cases.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
13088	J2-800	2014/12/16	23:28	14.60056	144.77615	318	590.4	Little limpets are laying their egg cases all over these rocks.
13090	J2-800	2014/12/16	23:29	14.60056	144.77615	318	590.4	J800-HFS-11 cont. Tmax=10.4 Tavg=10.2 T2=8. Vol=475m.
13092	J2-800	2014/12/16	23:30	14.60056	144.77615	318	590.4	**SAMPLE: HFS. J800-HFS-12** Filtered Bag #20.
13093	J2-800	2014/12/16	23:30	14.60056	144.77615	318	590.4	Stopped highlight video about a minute ago.
13095	J2-800	2014/12/16	23:31	14.60056	144.77615	318	590.4	FRAMEGRABS: HD frame grab SciCam Looking around this area.
13097	J2-800	2014/12/16	23:32	14.60056	144.77616	318	590.4	FRAMEGRABS: HD frame grab SuperScorpio J800-HFS-12 cont. stop 2332. Tmax=10.7 Tavg=10.4 T2=8.2 Vol=475mL.
13099	J2-800	2014/12/16	23:34	14.60056	144.77616	318	590.4	SAMPLE: HFS J800-HFS-13 Sterivex #14. Start 2334.
13101	J2-800	2014/12/16	23:35	14.60056	144.77616	318	590.5	FRAMEGRABS: HD frame grab SciCam J800-HFS-13 cont. Framegrabs of this sample. Here at Smoking Stones.
13105	J2-800	2014/12/16	23:37	14.60056	144.77616	318	590.6	FRAMEGRABS: HD frame grab SciCam Shrimp fight.
13109	J2-800	2014/12/16	23:39	14.60056	144.77616	318	590.5	J800-HFS-13 cont. Looking at shrimp and limpets.
13111	J2-800	2014/12/16	23:40	14.60057	144.77616	318	590.4	FRAMEGRABS: HD frame grab SciCam. Smoking Stones. Tmax here was 10.7. Temp is dropping quite quickly. It's down to 8.7C.
13113	J2-800	2014/12/16	23:41	14.60057	144.77616	318	590.4	FRAMEGRABS: HD frame grab SciCam. Bill took a HD snap of the shrimp etc. on the Super Scorpio.
13117	J2-800	2014/12/16	23:45	14.60057	144.77616	318	590.5	FRAMEGRABS: HD frame grab SciCam. Are the shrimp eating the limpet eggs? There are barnacles there.
13119	J2-800	2014/12/16	23:45	14.60057	144.77616	318	590.5	HIGHLIGHTS: Record SciCam. Highlights of shrimp and barnacles etc. at 2345.
13121	J2-800	2014/12/16	23:46	14.60057	144.77615	318	590.4	J800-HFS-13 stop 2346. Tmax=10.7 Tavg=10.0 T2=7.5 Vol=3000mL.
13124	J2-800	2014/12/16	23:48	14.60057	144.77615	318	590.5	**SAMPLE: GTHFS. J800-GTHFS-14.** Stbd. Fired 2348. Temp=10.5.
13127	J2-800	2014/12/16	23:50	14.60057	144.77615	315	590.5	Finished with fluid sampling here.
13128	J2-800	2014/12/16	23:50	14.60057	144.77615	315	590.5	Stowed HFS intake. Next will try to grab a rock with limpets.
13130	J2-800	2014/12/16	23:52	14.60057	144.77616	297	589.9	SAMPLE: Biogeo Going for a rock with limpet casings - it will be the next sample.
13132	J2-800	2014/12/16	23:52	14.60057	144.77616	303	590.0	Repositioning a bit to get the swing arm box out.
13134	J2-800	2014/12/16	23:53	14.60057	144.77616	301	590.0	**SAMPLE: Biogeo. J800-biogeo-15.** Rock has several limpets on it.
13135	J2-800	2014/12/16	23:53	14.60057	144.77616	300	589.9	Z=590m. Here at Smoking Stones.
13137	J2-800	2014/12/16	23:54	14.60057	144.77616	301	589.9	J800-biogeo-15 placed in stbd biobox.
13140	J2-800	2014/12/16	23:56	14.60057	144.77616	21	588.9	We're finished here. These stones actually look like blocky lavas. Gnarly looking pasty pillow lavas. We don't think we saw this in 2010.
13141	J2-800	2014/12/16	23:56	14.60058	144.77619	42	589.2	Pillow-like view in the super scorpio.
13143	J2-800	2014/12/16	23:57	14.60065	144.77623	40	589.4	We were on a local high .
13144	J2-800	2014/12/16	23:57	14.60069	144.77625	41	589.5	HIGHLIGHTS: Record SuperScorpio. Video as we climb along this wall.
13145	J2-800	2014/12/16	23:57	14.60071	144.77626	47	589.6	These pillows were not here before.
13146	J2-800	2014/12/16	23:57	14.60071	144.77627	42	589.4	We're already at the wall. There is some alteration here.
13148	J2-800	2014/12/16	23:58	14.60072	144.77626	356	589.5	Sulfur on the wall. A little bit of shimmer as we are coming up the wall.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
13149	J2-800	2014/12/16	23:59	14.60073	144.77626	335	589.5	Shrimp like the sulfur.
13151	J2-800	2014/12/16	23:59	14.60075	144.77625	341	589.4	There are limpets on this sulfur on the wall.
13152	J2-800	2014/12/16	23:59	14.60075	144.77626	340	589.4	The limpets are taking over here.
13153	J2-800	2014/12/16	23:59	14.60076	144.77626	340	589.3	Turning on the lasers to get some scale.
13155	J2-800	2014/12/17	00:00	14.60076	144.77626	340	588.6	Zooming in with the lasers along this wall.
13156	J2-800	2014/12/17	00:00	14.60076	144.77626	347	587.2	Climbing up this wall. Taking highlight video.
13157	J2-800	2014/12/17	00:01	14.60076	144.77625	359	581.6	The highlights are on as we go up the wall.
13159	J2-800	2014/12/17	00:01	14.60075	144.77624	3	578.7	There are more limpets than shrimp here.
13161	J2-800	2014/12/17	00:02	14.60076	144.77624	1	567.8	Going up this wall we're looking at massive lavas. This is a vertical cliff here.
13162	J2-800	2014/12/17	00:02	14.60076	144.77624	3	565.9	This is quite the wall.
13163	J2-800	2014/12/17	00:03	14.60076	144.77624	349	560.7	We're heading to Limpet Lair (Marker 117 should be there - at least it was in 2010).
13166	J2-800	2014/12/17	00:04	14.60078	144.77623	344	546.0	The limpets were not this abundant before. The change in the volcano has made it a nice place for them. Verena says it's the "ambiance".
13167	J2-800	2014/12/17	00:05	14.60079	144.77623	357	542.6	Heading up this steep wall.
13169	J2-800	2014/12/17	00:05	14.60080	144.77624	7	539.1	HIGHLIGHTS: End Highlights We're at the top of the wall.
13171	J2-800	2014/12/17	00:06	14.60084	144.77627	6	542.9	Pillow lavas on the top of this cliff. We are moving over to Limpet Lair area.
13173	J2-800	2014/12/17	00:07	14.60085	144.77627	334	543.6	NAV: Doppler Reset
13175	J2-800	2014/12/17	00:08	14.60090	144.77630	303	540.2	We are lateraling to the NE at the depth of Limpet Lair. Z=540m.
13177	J2-800	2014/12/17	00:09	14.60093	144.77631	304	540.0	Sulfur on these rocks. Also looks like some bacterial mat here.
13178	J2-800	2014/12/17	00:09	14.60094	144.77632	303	540.2	Little fish in the bacterial mat.
13180	J2-800	2014/12/17	00:10	14.60096	144.77634	303	540.0	White filamentous bacterial mat on these rocks.
13183	J2-800	2014/12/17	00:12	14.60097	144.77634	304	540.0	Lots of bacterial mat. Limpet Lair was just a shelf on a steep slope.
13184	J2-800	2014/12/17	00:12	14.60096	144.77633	305	539.8	Looks like some sulfur coating interspersed with the bacterial mat here. Did not find Limpet Lair.
13186	J2-800	2014/12/17	00:13	14.60096	144.77632	304	537.7	SENSOR: pH 7.0 ambient pH.
13187	J2-800	2014/12/17	00:13	14.60095	144.77630	303	533.9	lots of little grenadier here. They are just juveniles.
13189	J2-800	2014/12/17	00:14	14.60095	144.77629	313	532.0	We're approaching the top of this wall.
13190	J2-800	2014/12/17	00:15	14.60095	144.77629	312	531.5	Zooming in here on the sulfur and white filamentous bacteria.
13193	J2-800	2014/12/17	00:16	14.60096	144.77629	317	532.0	We want to belly-up here and check things out.
13194	J2-800	2014/12/17	00:16	14.60095	144.77629	313	532.0	More juvenile grenadier here.
13196	J2-800	2014/12/17	00:17	14.60096	144.77630	313	532.0	HIGHLIGHTS: Record SciCam Turning on the highlights here. We see some flow here.
13197	J2-800	2014/12/17	00:17	14.60096	144.77631	314	532.0	Highlights on at 0017.
13200	J2-800	2014/12/17	00:19	14.60097	144.77632	312	531.5	HIGHLIGHTS: End Highlights We are going to look around some more.
13202	J2-800	2014/12/17	00:20	14.60099	144.77633	313	531.6	We had a hard time putting out markers here as we recall.
13203	J2-800	2014/12/17	00:20	14.60101	144.77634	316	531.7	Still looking at this slope with lots of filamentous bacterial mat.
13204	J2-800	2014/12/17	00:21	14.60100	144.77633	314	531.4	NAV: Doppler Reset

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
13206	J2-800	2014/12/17	00:21	14.60099	144.77632	315	530.0	Heading back the way we came from.
13208	J2-800	2014/12/17	00:22	14.60097	144.77631	321	528.7	FRAMEGRABS: HD frame grab SciCam Auto snapping every 20 seconds.
13209	J2-800	2014/12/17	00:22	14.60098	144.77630	326	527.9	FRAMEGRABS: HD frame grab SuperScorpio Steep ridge here. Seems like Iceberg area.
13210	J2-800	2014/12/17	00:22	14.60100	144.77629	327	527.5	TXT:
13211	J2-800	2014/12/17	00:23	14.60103	144.77627	327	526.3	Heading to the top of this steep ridge.
13213	J2-800	2014/12/17	00:23	14.60104	144.77625	26	524.2	This seems like the iceberg area. Have not spotted any markers.
13215	J2-800	2014/12/17	00:24	14.60107	144.77624	19	524.5	Looking around here.
13217	J2-800	2014/12/17	00:25	14.60104	144.77622	20	521.5	Doing some tether management. Coming off the bottom again.
13218	J2-800	2014/12/17	00:25	14.60103	144.77618	306	519.5	Stopped the auto framegrabs every 20 seconds.
13223	J2-800	2014/12/17	00:29	14.60109	144.77605	6	524.1	We're further west than we were before. We're going to come down to the depth of Iceberg and lateral east.
13225	J2-800	2014/12/17	00:30	14.60104	144.77607	19	529.7	FRAMEGRABS: HD frame grab SciCam Lots of white bacterial mat covering the lavas on this slope.
13226	J2-800	2014/12/17	00:30	14.60103	144.77609	18	531.1	NAV: Doppler Reset
13228	J2-800	2014/12/17	00:31	14.60095	144.77619	53	533.0	NAV: Doppler Reset
13230	J2-800	2014/12/17	00:32	14.60090	144.77622	89	532.8	That reset seemed to have worked. The doppler lock has to be on with Medea or it doesn't work.
13231	J2-800	2014/12/17	00:32	14.60090	144.77621	90	533.8	We're getting into some type of venting. The ambient pH went down.
13232	J2-800	2014/12/17	00:32	14.60090	144.77622	94	534.4	He's changing the doppler.
13234	J2-800	2014/12/17	00:33	14.60091	144.77622	115	535.9	Shimmer here. Looking for shimmering water.
13236	J2-800	2014/12/17	00:34	14.60091	144.77623	105	534.5	Looks pretty good here. Baby rattail. Seeing flow; shrimp; barnacles.
13237	J2-800	2014/12/17	00:34	14.60091	144.77623	99	534.6	Big shrimp with little shrimp.
13238	J2-800	2014/12/17	00:34	14.60091	144.77624	100	536.1	This looks like a good spot for sampling.
13240	J2-800	2014/12/17	00:35	14.60091	144.77624	94	535.8	We're probably 10m to the NW of Iceberg target in 2010.
13241	J2-800	2014/12/17	00:35	14.60091	144.77624	81	535.8	Lots of biology here and diffuse venting.
13246	J2-800	2014/12/17	00:38	14.60091	144.77623	72	533.8	FRAMEGRABS: HD frame grab SciCam Seen our second crab "Gandalfus".
13247	J2-800	2014/12/17	00:38	14.60091	144.77623	72	533.8	NAV: Doppler Reset
13249	J2-800	2014/12/17	00:39	14.60091	144.77623	71	533.9	**Of this area with lots of biology: shrimp; crabs; barnacles.**
13250	J2-800	2014/12/17	00:39	14.60091	144.77623	71	533.9	HIGHLIGHTS: End Highlights
13252	J2-800	2014/12/17	00:40	14.60091	144.77623	71	533.9	The next sample will be J800-HFS-16. Setting up. HFS=11C.
13253	J2-800	2014/12/17	00:40	14.60091	144.77623	70	533.9	The temperature is rising here. 15C now.
13255	J2-800	2014/12/17	00:41	14.60091	144.77623	71	533.9	Seems like more really diffuse vent flow coming out through the rocks.
13258	J2-800	2014/12/17	00:43	14.60091	144.77623	70	533.9	SAMPLE: HFS pH 5.59. O2=0.44.
13260	J2-800	2014/12/17	00:44	14.60091	144.77623	71	533.9	HIGHLIGHTS: Record SciCam Biology here at this diffuse site with a diverse ecosystem.
13262	J2-800	2014/12/17	00:45	14.60091	144.77623	70	533.9	**SAMPLE: HFS J800-HFS-16.** Unfiltered bag #23. Start 0045. This site is Menagerie-14.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
13264	J2-800	2014/12/17	00:46	14.60091	144.77623	70	533.9	Only some filamentous mat here and lots of biology.
13265	J2-800	2014/12/17	00:47	14.60091	144.77623	70	533.9	J800-HFS-16. Menagerie 144 46.5741 14 36.0547 Z=534. Hdg=070.
13267	J2-800	2014/12/17	00:47	14.60091	144.77623	70	533.9	HIGHLIGHTS: Record SciCam Verena is controlling the highlights. White floc floating up after we bumped something.
13269	J2-800	2014/12/17	00:48	14.60091	144.77624	70	533.9	J800-HFS-16. Stop 0048. Tmax=18.8 Tavg=18.7 T2=11 Vol=476mL.
13271	J2-800	2014/12/17	00:49	14.60091	144.77624	70	534.0	**SAMPLE: HFS J800-HFS-17** Filter bag #22. Start 0049. Here at Menagerie. The Opapeili at the top has more of a sulfur crust.
13272	J2-800	2014/12/17	00:50	14.60091	144.77624	70	534.0	Seeing limpets "nuzzling up".
13274	J2-800	2014/12/17	00:50	14.60091	144.77624	70	534.0	We're looking at the back end of one limpet and the front end of another.
13276	J2-800	2014/12/17	00:52	14.60092	144.77624	70	534.0	J800-HFS-16 cont. Step 0052. Tmax=19.1 Tavg=18.6 T2=11 Vol=476.
13279	J2-800	2014/12/17	00:53	14.60092	144.77624	70	534.0	**SAMPLE: HFS J800-JFS-18**. Sterivex #15. Start 0053. Same position as previous HFS samples here at Menagerie.
13280	J2-800	2014/12/17	00:53	14.60092	144.77624	70	534.0	That's a very red Alvinocaris.
13282	J2-800	2014/12/17	00:54	14.60092	144.77624	70	534.0	The red area is underneath - that's where the gonads start to develop.
13283	J2-800	2014/12/17	00:54	14.60093	144.77624	70	534.0	Great highlights of the shrimp at Menagerie.
13285	J2-800	2014/12/17	00:55	14.60093	144.77623	70	534.0	We're here at the wild kingdom that we are calling Menagerie. The Alvinocaris is very active. Moving around all the time.
13298	J2-800	2014/12/17	01:07	14.60092	144.77619	71	534.0	Sample stop at 0106. J800-HFS-18. Tmax=19.6 Tavg=19.4 T2=11. Vol=3000mL.
13299	J2-800	2014/12/17	01:07	14.60092	144.77619	70	534.0	Highlights on watching this poor lonely crab.
13300	J2-800	2014/12/17	01:07	14.60092	144.77619	70	534.0	HIGHLIGHTS: End Highlights
13303	J2-800	2014/12/17	01:09	14.60094	144.77619	70	534.0	SENSOR: pH Taking pH measurement for last 3 HFS samples (16-18) here at Menagerie. pH=5.67. O2=0.20.
13304	J2-800	2014/12/17	01:09	14.60094	144.77619	70	534.0	Finished up with HFS.
13311	J2-800	2014/12/17	01:15	14.60096	144.77617	71	534.2	**SAMPLE: GTB J800-GTB-19**. Same position (approx. - the same water) as the previous HFS samples where Tmax=19.6. Green GTB#2.
13313	J2-800	2014/12/17	01:16	14.60097	144.77617	71	534.2	J800-GTB-19 cont. Slightly different part of the flow. Fired 0116.
13314	J2-800	2014/12/17	01:17	14.60097	144.77618	71	534.2	Finished up HFS suite here at Menagerie. Parking the GTB in the vo.
13318	J2-800	2014/12/17	01:19	14.60096	144.77619	79	534.0	We are now heading to the Iceberg target now.
13319	J2-800	2014/12/17	01:19	14.60091	144.77621	86	534.0	FRAMEGRABS: HD frame grab SciCam Taking HD framegrabs every 10 seconds.
13321	J2-800	2014/12/17	01:20	14.60092	144.77620	39	533.8	FRAMEGRABS: HD frame grab SuperScorpio Going around the corner.
13322	J2-800	2014/12/17	01:20	14.60093	144.77619	11	534.2	Dave and Bill think that we were at the old Iceberg vent area.
13325	J2-800	2014/12/17	01:22	14.60095	144.77622	342	531.5	NAV: Doppler Reset
13327	J2-800	2014/12/17	01:24	14.60099	144.77625	339	531.2	There is some left-over white stuff here. Dave says that we were in the vicinity of Iceberg.
13330	J2-800	2014/12/17	01:25	14.60102	144.77626	311	530.9	Resuming the background Sterivex filter #13 (That was HFS-10).
13332	J2-800	2014/12/17	01:26	14.60103	144.77626	314	528.0	This area does look Iceberg-esque. It looks a little thicker up here.
13334	J2-800	2014/12/17	01:27	14.60105	144.77625	6	526.4	That looks like sulfur crust and white bacterial mat.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
13339	J2-800	2014/12/17	01:31	14.60103	144.77626	8	527.1	Going in for a temperature reading. T=7.9 on this volcanic sand / white bacterial mat area.
13344	J2-800	2014/12/17	01:35	14.60102	144.77626	8	527.0	**SAMPLE: LScoop J800-LScoop2 -20**. TipIce-14 site (new name). 144 46.5767 14 36.0610 Z=527 8deg hdg.
13345	J2-800	2014/12/17	01:35	14.60101	144.77627	8	527.0	HIGHLIGHTS: Record SciCam J800-LScoop2 -20.
13349	J2-800	2014/12/17	01:38	14.60104	144.77625	8	527.1	Did not go for that scoop. Something is going on with the hydraulic pressure in the arm?
13350	J2-800	2014/12/17	01:38	14.60104	144.77625	8	527.1	HIGHLIGHTS: End Highlights
13352	J2-800	2014/12/17	01:39	14.60107	144.77623	8	527.1	J800-HFS-10 Stop at 0138. Tavg=6.9 Vol=4516mL. Sterivex #13. This sample was stopped mid-sample then re-started after many other samples.
13353	J2-800	2014/12/17	01:40	14.60107	144.77623	8	527.0	The issues with the arms seem to be better now.
13356	J2-800	2014/12/17	01:41	14.60104	144.77622	8	527.0	SAMPLE: Scoop J800-Scoop2 -20 cont. Back to starting the sampling with the later scoop. Second attempt. T=7.9 earlier in this volcanic sand coated with white bac mat.
13360	J2-800	2014/12/17	01:44	14.60103	144.77622	8	527.0	J800-LScoop2 -20 cont. Scooping up more of these sediments. Into the LScoop sampler.
13361	J2-800	2014/12/17	01:45	14.60103	144.77622	8	527.0	HIGHLIGHTS: End Highlights
13367	J2-800	2014/12/17	01:50	14.60104	144.77633	9	527.0	Finishing up with the LScoop here.
13370	J2-800	2014/12/17	01:51	14.60104	144.77632	9	527.0	J800-LScoop2 -20 cont. Stop at 0150. The temperature was 7.9 in the sediments. Ambient is 6.9. 1 degree above ambient.
13372	J2-800	2014/12/17	01:52	14.60104	144.77632	8	527.0	J800-LScoop2 -20 cont. Finished up. Good job.
13375	J2-800	2014/12/17	01:54	14.60103	144.77633	11	527.0	Next we will be doing a cassette sample. Bio Mat Sampler here at Tip Ice.
13380	J2-800	2014/12/17	01:58	14.60102	144.77632	52	526.1	SAMPLE: BM Looking around at white filamentous bacterial mat on these rocks. Searching for the perfect spot to do the cassette samples.
13384	J2-800	2014/12/17	02:01	14.60102	144.77632	64	526.5	Retrieved BM1 Cassette C from the basket.
13388	J2-800	2014/12/17	02:04	14.60101	144.77632	64	526.4	**SAMPLE: BM J800-BM1-B1-21** Start.
13390	J2-800	2014/12/17	02:05	14.60101	144.77632	64	526.4	Correction: J800-BM1-C1-21. Cassette C.
13391	J2-800	2014/12/17	02:05	14.60101	144.77631	64	526.4	**SAMPLE: BM J800-BM1-C2-22**. Same location.
13393	J2-800	2014/12/17	02:06	14.60101	144.77631	64	526.4	More into syringe 2. J800-BM1-C2-22.
13394	J2-800	2014/12/17	02:06	14.60101	144.77631	64	526.4	And some more into J800-BM1-C2-22 in the white sediments at TipIce.
13397	J2-800	2014/12/17	02:08	14.60101	144.77630	64	526.4	**SAMPLE: BM J800-BM1-C4-23** at the same location at TipIce.
13399	J2-800	2014/12/17	02:10	14.60100	144.77628	63	526.5	Done with Biomat sampling at TipIce.
13401	J2-800	2014/12/17	02:10	14.60100	144.77627	63	526.5	Ship is drifting a bit.
13404	J2-800	2014/12/17	02:12	14.60100	144.77627	77	526.0	Preparing to transit east to Barnacles at Mkr-119. Looks like about 113m at 090.
13405	J2-800	2014/12/17	02:12	14.60099	144.77627	100	526.0	Drive will be mid-water.
13412	J2-800	2014/12/17	02:19	14.60115	144.77645	90	523.6	Highlights of ctenophore.
13414	J2-800	2014/12/17	02:19	14.60117	144.77642	90	522.5	Salp instead according to Verena.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
13418	J2-800	2014/12/17	02:23	14.60115	144.77671	96	524.5	Nope-correction it really was a ctenophore.
13431	J2-800	2014/12/17	02:34	14.60108	144.77714	101	561.7	Bottom in sight.
13433	J2-800	2014/12/17	02:35	14.60107	144.77714	98	561.8	This looks like a knife edge ridge-just like where the marker 'was'.
13434	J2-800	2014/12/17	02:35	14.60107	144.77715	93	567.4	There's marker!
13435	J2-800	2014/12/17	02:36	14.60104	144.77716	72	568.6	The marker is covered in bacteria.
13438	J2-800	2014/12/17	02:37	14.60104	144.77717	16	568.0	The marker is not at the same location as it was placed at Barnacles.
13439	J2-800	2014/12/17	02:37	14.60103	144.77718	358	566.9	Looks like it has gone down the hill and its depth is a meter less.
13440	J2-800	2014/12/17	02:37	14.60103	144.77719	359	566.8	Crab.
13441	J2-800	2014/12/17	02:38	14.60104	144.77719	352	566.7	Barnacles here and a lot of wavy bacteria.
13443	J2-800	2014/12/17	02:38	14.60105	144.77719	354	567.7	Highlights have been on when we saw the marker.
13444	J2-800	2014/12/17	02:38	14.60105	144.77719	354	567.7	More barnacles than before.
13446	J2-800	2014/12/17	02:39	14.60105	144.77720	355	567.6	Framegrabs set to 10 seconds.
13447	J2-800	2014/12/17	02:39	14.60105	144.77720	354	567.6	NAV: Doppler Reset
13450	J2-800	2014/12/17	02:41	14.60105	144.77720	354	567.6	The shape looks different than the other barnacles.
13451	J2-800	2014/12/17	02:42	14.60105	144.77720	354	567.7	Neolepas species of barnacles. It may represent a deep divergence that goes back to the Mesozoic.
13453	J2-800	2014/12/17	02:42	14.60105	144.77721	354	567.6	A split from the modern barnacles that became the acorn barnacles.
13455	J2-800	2014/12/17	02:43	14.60105	144.77721	353	567.0	Position of the cursor is 14 36.0629N 144deg 46.6324. Only about 5-8 meters west of the prior target position for Barnacles.
13457	J2-800	2014/12/17	02:44	14.60106	144.77721	353	567.3	Depth is 567 and heading is 353.5.
13459	J2-800	2014/12/17	02:45	14.60106	144.77721	353	567.3	**SAMPLE: BioGeo J800-biogeo-24** at Barnacles. Rock with barnacles.
13460	J2-800	2014/12/17	02:46	14.60106	144.77720	353	567.2	J800-biogeo-24 into the port biobox from the swing-arm.
13462	J2-800	2014/12/17	02:46	14.60106	144.77720	353	567.3	**SAMPLE: BioGeo J800-biogeo-25** in two pieces from Barnacles into the port swingarm biobox. With filamentous bacteria and barnacles.
13465	J2-800	2014/12/17	02:48	14.60106	144.77720	353	567.2	**SAMPLE: J800-biogeo-26** with just filamentous bacteria and no barnacles. Very small rock into the biobox.
13467	J2-800	2014/12/17	02:49	14.60106	144.77719	353	567.2	**SAMPLE: BioGeo J800-biogeo-27** Large rock with barnacles and a little small piece as well. Has bacteria too.
13468	J2-800	2014/12/17	02:49	14.60106	144.77719	353	567.1	Heading has been 353 at depth 567.
13470	J2-800	2014/12/17	02:50	14.60105	144.77719	353	567.2	HIGHLIGHTS: End Highlights Highlights off.
13471	J2-800	2014/12/17	02:50	14.60105	144.77718	353	567.3	Fish.
13472	J2-800	2014/12/17	02:51	14.60105	144.77718	353	567.2	Closed up the biobox.
13476	J2-800	2014/12/17	02:53	14.60102	144.77717	351	567.2	SENSOR: Temp Jason temperature probe on this ridge with the barnacles. First probe was ambient temperature. Second stab about 10cm in. T= 7.03 (ambient was 6.8C).
13479	J2-800	2014/12/17	02:55	14.60092	144.77731	55	564.9	Heading for Fault Shrimp and Marker-112. (Verena took the other marker here as a sample last time-Mkr109).
13481	J2-800	2014/12/17	02:56	14.60073	144.77745	92	563.2	There is the marker and there are two markers. One is Sulfur Slide and there is Fault Shrimp.
13482	J2-800	2014/12/17	02:57	14.60071	144.77748	81	564.3	Yellow mat along the edge.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
13484	J2-800	2014/12/17	02:57	14.60070	144.77750	82	564.7	Doing 20 second frame grabs with Sci Cam and Super Scorpio.
13486	J2-800	2014/12/17	02:58	14.60069	144.77750	68	563.6	Not seeing any shrimp here where there used to be so many.
13487	J2-800	2014/12/17	02:59	14.60069	144.77751	68	563.5	These should be Markers 112 and 113 now.
13489	J2-800	2014/12/17	02:59	14.60068	144.77752	66	566.0	This point on the ridge looks like a little cone but probably isn't.
13491	J2-800	2014/12/17	03:00	14.60068	144.77753	66	567.0	Seeing sulfur coating on surfaces.
13492	J2-800	2014/12/17	03:00	14.60068	144.77754	66	566.8	Fish.
13493	J2-800	2014/12/17	03:00	14.60068	144.77755	67	566.6	Not seeing any flow here at all.
13495	J2-800	2014/12/17	03:01	14.60068	144.77755	6	566.5	There is filamentous bacteria and sulfur but no shrimp to be seen.
13500	J2-800	2014/12/17	03:05	14.60082	144.77742	28	566.6	That is Marker 112.
13502	J2-800	2014/12/17	03:06	14.60083	144.77743	108	568.8	Going over to the second marker which should be Marker 113.
13503	J2-800	2014/12/17	03:06	14.60083	144.77745	106	568.7	That is Marker 113 with a lot of bacteria on it.
13505	J2-800	2014/12/17	03:07	14.60084	144.77747	94	567.4	Good overview of Marker 113 and yellow sulfur slope behind it.
13506	J2-800	2014/12/17	03:07	14.60085	144.77746	72	567.0	Marker 112 used to be called East Fault Shrimp.
13508	J2-800	2014/12/17	03:08	14.60090	144.77745	47	566.7	Cursor position for Marker 113 14 36.0499 144 46.6482 for Sulfur Slide-14.
13511	J2-800	2014/12/17	03:11	14.60094	144.77749	41	568.2	Cursor position for Marker112-14 is 14 36.0552N 144 46.6488'E. Fault Shrimp.
13513	J2-800	2014/12/17	03:11	14.60094	144.77748	41	568.2	Lasers on.
13515	J2-800	2014/12/17	03:12	14.60095	144.77748	40	568.3	SENSOR: Temp Jason temperature probe: 7.5degC next to Marker112.
13517	J2-800	2014/12/17	03:13	14.60095	144.77748	34	565.2	Marker 112 is in the same place as 2010 when looking at the virtual van.
13518	J2-800	2014/12/17	03:13	14.60095	144.77748	32	565.1	Going up the ridge.
13519	J2-800	2014/12/17	03:13	14.60095	144.77748	31	565.3	Seeing limpets and a crab so there must be some flow.
13520	J2-800	2014/12/17	03:13	14.60096	144.77749	34	565.7	HIGHLIGHTS: Record SciCam Highlights of the crab and limpets.
13522	J2-800	2014/12/17	03:14	14.60096	144.77749	25	565.9	Seeing a little bit of flow. Limpets; scaleworm and crab.
13523	J2-800	2014/12/17	03:14	14.60097	144.77751	26	565.9	There is a white barnacle above the crab. Some bag creatures.
13525	J2-800	2014/12/17	03:15	14.60098	144.77752	26	565.9	A lot of filamentous bacteria and many crabs.
13526	J2-800	2014/12/17	03:16	14.60098	144.77753	33	565.4	Seeing more barnacles as well.
13528	J2-800	2014/12/17	03:16	14.60098	144.77754	46	565.5	The crab cavern looks like a good place to sample.
13530	J2-800	2014/12/17	03:17	14.60098	144.77756	49	565.1	Preparing the HFS wand to sample in the cavern.
13532	J2-800	2014/12/17	03:18	14.60098	144.77756	50	565.1	HIGHLIGHTS: End Highlights
13533	J2-800	2014/12/17	03:18	14.60097	144.77756	50	565.0	Pumping the HFS sampler.
13534	J2-800	2014/12/17	03:19	14.60097	144.77755	50	565.0	Not seeing much of a temperature rise here.
13536	J2-800	2014/12/17	03:19	14.60096	144.77754	50	565.0	Unidentified snail.
13538	J2-800	2014/12/17	03:20	14.60094	144.77753	54	565.1	Provanna snail-not new.
13540	J2-800	2014/12/17	03:21	14.60093	144.77750	54	565.1	HFS temperature is now rising.
13545	J2-800	2014/12/17	03:25	14.60091	144.77748	52	565.2	Good cursor position is 144 46.6496 'E 14 36.0559'N. Depth=565. Heading=052.
13546	J2-800	2014/12/17	03:25	14.60091	144.77748	52	565.2	This is the location for the Crab Cavern site.
13548	J2-800	2014/12/17	03:26	14.60090	144.77748	52	565.2	HFS pH=6.0. Temperature=11.0 as HFS continues to pump.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
13549	J2-800	2014/12/17	03:27	14.60090	144.77748	52	565.2	**J800-HFS-28. Piston #1. Start. Crab Cavern.**
13551	J2-800	2014/12/17	03:27	14.60090	144.77748	52	565.2	J800-HFS-28 cont. Unfiltered Piston #1. At Crab Cavern.
13552	J2-800	2014/12/17	03:28	14.60090	144.77748	52	565.2	FRAMEGRABS: HD frame grab BrowCam Pilot and brow cam framegrabs.
13554	J2-800	2014/12/17	03:28	14.60090	144.77748	52	565.2	HIGHLIGHTS: Record SciCam Barnacles at Crab Cavern.
13555	J2-800	2014/12/17	03:29	14.60090	144.77748	52	565.2	Only a few meters away from Marker 112.
13557	J2-800	2014/12/17	03:29	14.60090	144.77748	52	565.1	Crab Cavern is a sampling hole at Fault Shrimp.
13559	J2-800	2014/12/17	03:30	14.60089	144.77748	52	565.2	J800-HFS-28 cont. Stop. 03:30. Tmax=10.7 Tavg=10.6 T2=7.9 vol=550mL.
13561	J2-800	2014/12/17	03:31	14.60089	144.77748	52	565.2	**J800-HFS-29 Filtered Piston #4.** Start 03:31.
13562	J2-800	2014/12/17	03:31	14.60089	144.77748	52	565.2	SAMPLE: HFS J800-HFS-29 cont. Filtered Piston #4. Crab video.
13564	J2-800	2014/12/17	03:32	14.60088	144.77748	52	565.2	Highlights still on and there is the snail.
13565	J2-800	2014/12/17	03:32	14.60088	144.77748	52	565.2	Barnacle and snails.
13568	J2-800	2014/12/17	03:34	14.60087	144.77748	52	565.2	HIGHLIGHTS: End Highlights
13569	J2-800	2014/12/17	03:34	14.60087	144.77748	52	565.2	J800-HFS-29 cont. Stop 03:34. Tmax=10.5 Tavg=10.4 T2=7.8 vol=550 mL.
13571	J2-800	2014/12/17	03:35	14.60087	144.77748	52	565.2	**SAMPLE: HFS J800-HFS-30 Unfiltered Bag #21.** Start 03:36.
13576	J2-800	2014/12/17	03:39	14.60094	144.77746	52	565.2	J800-HFS-30 cont. Stop 03:39. Tmax=10.4 Tavg=10.3 T2=7.7 vol=500mL. (Only have seen 2 shrimp here.)
13578	J2-800	2014/12/17	03:40	14.60097	144.77746	52	565.3	Stowing the HFS wand.
13582	J2-800	2014/12/17	03:43	14.60098	144.77747	51	565.2	**SAMPLE: Major J800-major-31**. White major at Crab Cavern. Tmax was 10.4 in this site. Fired.
13583	J2-800	2014/12/17	03:43	14.60098	144.77747	51	565.1	Major is filling.
13585	J2-800	2014/12/17	03:44	14.60098	144.77747	50	565.2	J800-major-31 is done extending.
13586	J2-800	2014/12/17	03:44	14.60099	144.77747	50	565.2	Next will be a gas-tight in the same location.
13588	J2-800	2014/12/17	03:45	14.60099	144.77747	50	565.2	Securing the major in the basket.
13591	J2-800	2014/12/17	03:47	14.60099	144.77746	50	565.3	**SAMPLE: GTB J800-GTB-32** Red-9 Gas-tight at Crab Cavern. Fired.
13593	J2-800	2014/12/17	03:48	14.60099	144.77745	48	565.3	Impossible to tell if the nozzle was in the hole but in the cavern.
13594	J2-800	2014/12/17	03:48	14.60098	144.77745	48	565.3	Securing the gas-tight in the basket.
13596	J2-800	2014/12/17	03:49	14.60098	144.77746	49	564.6	Going to lift-off and go over to the yellow stained area to test for iron.
13597	J2-800	2014/12/17	03:49	14.60094	144.77750	85	563.2	Moving over to the right and over to the ridge edge.
13599	J2-800	2014/12/17	03:50	14.60090	144.77757	83	563.2	FRAMEGRABS: HD frame grab PilotCam Science Cam and Super Scorpio.
13600	J2-800	2014/12/17	03:50	14.60090	144.77758	51	563.4	FRAMEGRABS: HD frame grab BrowCam Switched to Brow Cam.
13601	J2-800	2014/12/17	03:51	14.60092	144.77757	345	564.4	Very distinct yellow on the knife ridge.
13603	J2-800	2014/12/17	03:51	14.60092	144.77758	317	565.8	White is on the left and yellow is on the right side of the ridge. Extends down the sheer face.
13605	J2-800	2014/12/17	03:52	14.60094	144.77760	318	567.1	Anemone and fish. Frame grab.
13606	J2-800	2014/12/17	03:52	14.60094	144.77761	318	567.1	Looks like it could be iron mat.
13608	J2-800	2014/12/17	03:53	14.60094	144.77760	319	567.1	Framegrabs are set to every 10 seconds.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
13609	J2-800	2014/12/17	03:53	14.60094	144.77760	320	567.1	Going to first use the Jason temperature probe.
13611	J2-800	2014/12/17	03:54	14.60094	144.77760	320	567.1	Rocks looks a bit brown which could be iron or weathering. Highlights on.
13612	J2-800	2014/12/17	03:54	14.60094	144.77760	320	567.1	This site will be called Olde Iron Slides.
13614	J2-800	2014/12/17	03:55	14.60094	144.77760	321	567.1	SENSOR: Temp Jason probe not seeing any temperature anomaly.
13616	J2-800	2014/12/17	03:56	14.60094	144.77760	321	567.1	Ambient is 6.85 and probe is reading 6.85.
13619	J2-800	2014/12/17	03:58	14.60093	144.77760	321	567.1	Cursor position for this site is 14 36.0563'N 144 46.6560'E at Olde Iron Slides. Depth is 567 and Heading=321.
13621	J2-800	2014/12/17	03:59	14.60092	144.77759	321	567.1	Jason temperature probe seems locked so will try the HFS temperature.
13622	J2-800	2014/12/17	03:59	14.60092	144.77758	321	567.1	Stopping auto Framegrabs and highlights.
13623	J2-800	2014/12/17	03:59	14.60092	144.77758	321	567.2	Stowing the Jason wand.
13624	J2-800	2014/12/17	03:59	14.60091	144.77757	321	567.1	HFS wand is reading 7.0-7.1 for ambient.
13626	J2-800	2014/12/17	04:00	14.60090	144.77756	321	567.1	SENSOR: Temp HFS wand is in 4-5cm (totally buried). Temperature only 7.2C.
13627	J2-800	2014/12/17	04:00	14.60090	144.77756	321	567.1	SENSOR: Temp Tmax was 7.3 before pulling out.
13628	J2-800	2014/12/17	04:01	14.60090	144.77755	321	567.1	Moved over slightly into deeper sediments.
13632	J2-800	2014/12/17	04:03	14.60090	144.77756	321	567.1	SENSOR: Temp Just above the anemone. HFS wand Tmax=11.5.
13633	J2-800	2014/12/17	04:03	14.60090	144.77756	321	567.1	Going to do some biomat sampling at Olde Iron Slides.
13635	J2-800	2014/12/17	04:04	14.60091	144.77755	321	567.1	Going to use Cassette B for the biomat sampler.
13639	J2-800	2014/12/17	04:07	14.60092	144.77756	317	567.1	**SAMPLE: BM J800-BM1-B1-33** at Olde Iron Slides. Lasers on. Syringe 1. Looks like the good stuff.
13640	J2-800	2014/12/17	04:08	14.60093	144.77759	318	567.0	J800-BM1-B1-33 Stop.
13642	J2-800	2014/12/17	04:08	14.60093	144.77761	318	567.0	**SAMPLE: J800-BM1-B2-34** at the same location. Start.
13643	J2-800	2014/12/17	04:09	14.60093	144.77765	318	567.0	J800-BM1-B2-34 Stop.
13645	J2-800	2014/12/17	04:09	14.60094	144.77767	319	567.1	**SAMPLE: J800-BM1-B4-35** at same location. Start.
13648	J2-800	2014/12/17	04:11	14.60094	144.77769	320	567.1	J800-BM1-B4-35 Stop.
13650	J2-800	2014/12/17	04:12	14.60095	144.77768	321	567.1	**SAMPLE: J800-BM1-B5-36**. Start.
13652	J2-800	2014/12/17	04:13	14.60095	144.77768	321	567.1	J800-BM1-B5-36 Trying again. Start again. Not filling.
13654	J2-800	2014/12/17	04:14	14.60095	144.77768	321	567.1	Small landslides created from tip.
13655	J2-800	2014/12/17	04:15	14.60095	144.77768	321	567.1	J800-BM1-B5-36 is half-full.
13657	J2-800	2014/12/17	04:15	14.60095	144.77768	321	567.0	Moved over a bit to a better patch of material. Crumbled away.
13659	J2-800	2014/12/17	04:16	14.60095	144.77769	322	567.0	Moved over again and looks like a good spot.
13661	J2-800	2014/12/17	04:17	14.60096	144.77769	321	567.1	**SAMPLE: J800-BM1-B6-37**. Start.
13662	J2-800	2014/12/17	04:17	14.60096	144.77769	322	567.1	Fish!
13663	J2-800	2014/12/17	04:17	14.60097	144.77769	321	567.1	Stop. J800-BM1-B6-37.
13665	J2-800	2014/12/17	04:18	14.60097	144.77770	321	567.1	This cassette is full (syringe 3 did not have an O-ring).
13668	J2-800	2014/12/17	04:20	14.60097	144.77771	323	567.1	Next going to take a regular scoop (not RNA Later).
13669	J2-800	2014/12/17	04:20	14.60097	144.77771	323	567.1	HIGHLIGHTS: Record SciCam
13671	J2-800	2014/12/17	04:21	14.60095	144.77772	322	567.1	This will be the gray scoop which is number 8.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
13673	J2-800	2014/12/17	04:22	14.60090	144.77774	322	567.1	**SAMPLE: J800-Scoop8-38**. At Olde Iron Slide-14. Valve opened. Start scoop.
13675	J2-800	2014/12/17	04:23	14.60089	144.77775	325	567.0	Big landslide from the scoop.
13676	J2-800	2014/12/17	04:23	14.60088	144.77775	322	567.1	Scoop is half full at this point.
13678	J2-800	2014/12/17	04:24	14.60088	144.77775	322	567.2	SAMPLE: J800-Scoop8-38 Stop. Closing valve.
13679	J2-800	2014/12/17	04:24	14.60088	144.77775	321	567.3	Scoop is in the box.
13680	J2-800	2014/12/17	04:24	14.60088	144.77775	321	567.3	HIGHLIGHTS: End Highlights
13682	J2-800	2014/12/17	04:25	14.60088	144.77775	321	567.3	Fish coming in over the sampling scar.
13683	J2-800	2014/12/17	04:26	14.60085	144.77734	291	564.3	Bye-bye NW Rota 1!
13684	J2-800	2014/12/17	04:26	14.60086	144.77735	300	564.4	Coming off bottom.
13686	J2-800	2014/12/17	04:26	14.60084	144.77734	269	564.6	JASON: Jason off bottom

5.7-5 J2-801 Urashima

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments

Deployment Location: Urashima Vent Site/Saipanda Horn Vent/Mariana back-arc 12deg 55.335N 143deg 38.950E; Z=2930 m
Main goals: Biomat and fluid sampling; suction sample of iron mat; deploy and recover settling traps
On all dives: Beast with 2 gas-tights in back; super scorpio camera in basket; Jason high-temp probe; O2 wand; BioMat Sampler; HFS-Fluid-Sampler intake.
Basket for this dive: Suction sampler hose (single chamber); 1 mesh bag; 4 Scoop samplers; 3 markers; 2 Major samplers in starboard swing arm; Settling trap in port swing arm biobox; 2 SPME samplers in port swing arm biobox.
Tasks:
1) Start at Saipanda Horn Vent
2) BioMat and Scoop sampling at Saipanda Horn and Fluid sampling
3) Opportunistic HFS fluid sampling and filtering and gastight sampling
4) Elevator deploy to Urashima ~100m away from central sites
5)Resume BioMat and Scoop sampling and fluid sampling
6)Opportunistic suction sample of iron mat- Sean M
7) Transit to Snail Vents (~4.5 km away ~2hrs)
8) Elevator deploy to Snail site
9) Resume BioMat and Scoop sampling and Fluid sampling
10) Recover rock with biology (put into Elevator BioBox) - Jason S.
11) Deploy/recover settling traps and plankton tow (port swing arm biobox)- Shawnn A.
12) Take background and vent SPME* samples (port swing arm biobox)- Verena T.
*SPME: Solid Phase Micro Extraction: Coated pins exposed in vent fluid. Coating absorbs organic compounds for later mass spec analysis.

NOTE: At beginning of dive the first chimney sampled was thought to be Baltan. While sampling it was then believed to be Eleking but ultimately it was determined to be GoldenHorn when Jason could pan around the top of the chimney and identify its relative location to Ultra-no-chichi. These logs have been changed to indicate GoldenHorn but the Virtual Van will have the other names. (Original names displayed with strikethrough text).

13830	J2-801	2014/12/17	17:59	12.92202	143.64850	46	2914.7	JASON: Jason on bottom.
13833	J2-801	2014/12/17	18:00	12.92205	143.64861	45	2909.0	Depth of target is 2930m.
13834	J2-801	2014/12/17	18:00	12.92209	143.64862	43	2907.1	Lots of fine sediment and a few angular rocks.
13836	J2-801	2014/12/17	18:01	12.92222	143.64863	26	2896.4	Small mound with lots of sediment.
13839	J2-801	2014/12/17	18:03	12.92241	143.64884	80	2913.8	Now heading toward the chimney area.
13841	J2-801	2014/12/17	18:04	12.92236	143.64891	112	2917.5	Moving over flat and heavily sedimented rubble.
13843	J2-801	2014/12/17	18:05	12.92229	143.64899	155	2923.0	Some white patches that really stand out in the sediment.
13845	J2-801	2014/12/17	18:06	12.92230	143.64905	124	2927.4	Old dead chimneys. This is at the Target 6 site that should be called Old Dead Chimneys. Was at the same location and depth 2926 as before. Didn't stop.
13847	J2-801	2014/12/17	18:07	12.92229	143.64909	124	2927.9	Looks like some lighter staining at the top of some of the chimneys so might not be dead yet.
13848	J2-801	2014/12/17	18:07	12.92238	143.64911	114	2927.4	Fish but no other visible animals.
13849	J2-801	2014/12/17	18:08	12.92232	143.64918	113	2926.9	Moving over dead chimney terrain.
13851	J2-801	2014/12/17	18:08	12.92232	143.64920	114	2925.7	Setting the framegrab rate to 10 sec on Super Scorpio.
13852	J2-801	2014/12/17	18:08	12.92236	143.64921	113	2923.9	Here are the big chimneys.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
13855	J2-801	2014/12/17	18:10	12.92250	143.64922	144	2928.4	This is GoldenHorn/~~Baltan~~.
13856	J2-801	2014/12/17	18:10	12.92244	143.64924	143	2929.3	Taking video of GoldenHorn/~~Baltan~~.
13857	J2-801	2014/12/17	18:11	12.92235	143.64927	143	2929.4	We are midway up the chimney and 7m off bottom.
13859	J2-801	2014/12/17	18:11	12.92236	143.64926	143	2929.4	Chimney is coated in iron with orange and black layers (OSU Beaver colors!).
13861	J2-801	2014/12/17	18:12	12.92235	143.64927	143	2928.9	Can see shimmer all over the structure.
13862	J2-801	2014/12/17	18:12	12.92239	143.64925	138	2928.3	Lasers on.
13864	J2-801	2014/12/17	18:13	12.92240	143.64926	126	2928.8	Looking for a sampling location on GoldenHorn.
13866	J2-801	2014/12/17	18:14	12.92239	143.64927	127	2928.9	Bright red patches on top of chimney.
13867	J2-801	2014/12/17	18:14	12.92240	143.64928	126	2928.9	Zeroing in on the fluffy and lighter material on the side of the chimney at hdg 126.
13868	J2-801	2014/12/17	18:14	12.92240	143.64928	126	2928.9	Turning framegrabs off.
13870	J2-801	2014/12/17	18:16	12.92236	143.64930	156	2929.6	Framegrabs on science cam.
13873	J2-801	2014/12/17	18:17	12.92238	143.64928	154	2929.8	Suspect that this area was sampled last dive and has grown back.
13874	J2-801	2014/12/17	18:17	12.92239	143.64927	154	2929.8	Going to take a temperature of this before sampling.
13875	J2-801	2014/12/17	18:17	12.92239	143.64927	154	2929.8	Highest standing iron structure!
13877	J2-801	2014/12/17	18:18	12.92238	143.64926	154	2929.8	SENSOR: Temp Jason temperature probe. First stab in the flow area of the light-fluffy material.
13880	J2-801	2014/12/17	18:20	12.92237	143.64926	154	2929.8	SENSOR: Temp Temperature high was 83.97C at the base. 2929.8 m depth.
13881	J2-801	2014/12/17	18:20	12.92237	143.64926	154	2929.9	Probing up further in the flow.
13882	J2-801	2014/12/17	18:20	12.92237	143.64927	154	2929.8	SENSOR: Temp Second spot up to 70.7C.
13884	J2-801	2014/12/17	18:21	12.92237	143.64927	154	2929.9	Having problems with the framegrabber.
13886	J2-801	2014/12/17	18:22	12.92237	143.64927	154	2929.8	NOTE: We are actually at GoldenHorn not Eleking Chimney nor Baltan.
13888	J2-801	2014/12/17	18:23	12.92239	143.64926	154	2929.9	SENSOR: Temp Taking temperature at top of fluffy mat. Lots of shimmer. Max temperature was 20C.
13889	J2-801	2014/12/17	18:23	12.92239	143.64926	154	2929.8	Moving the probe slightly.
13891	J2-801	2014/12/17	18:24	12.92242	143.64925	154	2929.8	SENSOR: Temp Max temperature here was 20.5C.
13892	J2-801	2014/12/17	18:24	12.92242	143.64925	154	2929.8	Stowing the probe.
13894	J2-801	2014/12/17	18:25	12.92243	143.64924	154	2929.8	Going to use cassette C at this site where just took temperatures.
13895	J2-801	2014/12/17	18:26	12.92243	143.64925	154	2929.9	There was a doppler reset a while ago.
13898	J2-801	2014/12/17	18:27	12.92239	143.64926	154	2929.9	Sample location is 12 55.3426'N 143 38.9555'E at GoldenHorn/ ~~Eleking~~.
13901	J2-801	2014/12/17	18:29	12.92235	143.64925	154	2929.8	**SAMPLE: BM J801-BM1-C1-01** is a Geochem filtered syringe. Just pulling water above the mat-no mat. Highlights running On pilot cam. Start.
13902	J2-801	2014/12/17	18:29	12.92235	143.64925	154	2929.7	Pulling up water slowly.
13905	J2-801	2014/12/17	18:31	12.92235	143.64926	153	2929.9	J801-BM1-C1-01 cont. Stop.
13907	J2-801	2014/12/17	18:32	12.92235	143.64927	153	2929.8	Putting target in nav for Eleking Target #31. Same location.
13909	J2-801	2014/12/17	18:33	12.92234	143.64929	153	2929.7	**SAMPLE: BM J801-BM1-C2-02** Ferrozine at same location.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
13910	J2-801	2014/12/17	18:33	12.92233	143.64930	153	2929.7	Did not move much and not seeing color change instantly.
13912	J2-801	2014/12/17	18:34	12.92233	143.64930	153	2929.8	There is the color change-sample done.
13913	J2-801	2014/12/17	18:34	12.92234	143.64930	153	2929.8	Switching cassettes for the biomat sampler.
13915	J2-801	2014/12/17	18:35	12.92235	143.64929	153	2929.9	Eleking chimney target is #31 at 12 55.3426'N 143 38.9555'E.
13917	J2-801	2014/12/17	18:37	12.92236	143.64927	153	2929.8	Have cassette B now with the RNA later biomat samplers.
13920	J2-801	2014/12/17	18:39	12.92235	143.64925	154	2929.9	**SAMPLE: BM J801-BM1-B4-03** with the RNA later at same location on chimney as samples 1-2. Start.
13922	J2-801	2014/12/17	18:39	12.92234	143.64924	154	2929.8	Inserted intake into the fluffy material slightly.
13923	J2-801	2014/12/17	18:40	12.92233	143.64924	154	2929.8	**SAMPLE: J801-BM1-B5-04** RNA later at the same site.
13925	J2-801	2014/12/17	18:40	12.92233	143.64924	154	2929.8	Done.
13927	J2-801	2014/12/17	18:41	12.92230	143.64925	153	2929.8	**SAMPLE: J801-BM1-B6-05** RNA later at same location. Looks like this pulled at the same time as 5.
13928	J2-801	2014/12/17	18:42	12.92230	143.64926	153	2929.8	Next will be fluid sampling with the Beast.
13930	J2-801	2014/12/17	18:42	12.92229	143.64926	153	2929.8	Before the Beast will do separate O2 probe.
13934	J2-801	2014/12/17	18:45	12.92232	143.64922	153	2929.8	SENSOR: O2 First reading is above the flow. O2=129.7uM. 137.2uM at the upper sampling spot in the fluffy material.
13937	J2-801	2014/12/17	18:47	12.92233	143.64923	153	2929.8	SENSOR: O2 Moving probe to the lower flow area. O2=83.1uM.
13938	J2-801	2014/12/17	18:48	12.92233	143.64924	153	2929.8	Taking another reading on the upper part. (Note on lower area that it was not inside the fluffy which had a high temperature of 80degC).
13941	J2-801	2014/12/17	18:49	12.92234	143.64924	153	2929.7	SENSOR: O2 Back near the top of the material O2=52.3uM (jumps around a lot as now at 161.5uM. Then down to 86.4uM).
13943	J2-801	2014/12/17	18:50	12.92234	143.64924	153	2929.7	Stow the O2 probe.
13945	J2-801	2014/12/17	18:51	12.92236	143.64924	153	2929.8	Next will be the Beast and would like the upper HFS probe: O2=2.8 (126uM) at 1.9degC. pH=6.46. Beast wand is still in the holster for a background reading.
13947	J2-801	2014/12/17	18:52	12.92236	143.64925	153	2929.7	HFS pumps are off until wand is in position.
13948	J2-801	2014/12/17	18:52	12.92236	143.64925	153	2929.8	Retrieving HFS wand from basket.
13949	J2-801	2014/12/17	18:53	12.92236	143.64925	153	2929.8	Wand is in the upper portion of the sampling site at GoldenHorn/~~Eleking~~.
13951	J2-801	2014/12/17	18:53	12.92236	143.64925	153	2929.7	Framegrabs.
13952	J2-801	2014/12/17	18:53	12.92236	143.64925	153	2929.8	HIGHLIGHTS: Record PilotCam
13959	J2-801	2014/12/17	18:59	12.92230	143.64926	153	2929.7	108uM at 11.8 pH=5.68. Highlights off while waiting for HFS to stabilize. Tip is above the mat in the flow. (Jason O2 in holster is reading 132.5uM in the holster)
13961	J2-801	2014/12/17	19:00	12.92231	143.64925	153	2929.7	**SAMPLE: HFS J801-HFS-06** Unfiltered Bag #17 Start. GoldenHorn Chimney base location (same spot as samples 1-5).
13966	J2-801	2014/12/17	19:04	12.92231	143.64926	154	2929.7	J801-HFS-06 cont. Stop 19:04 Tmax=14.5 Tavg=13.1 T2=5.1 vol=575mL. (Site is the upper part of the fluffy mat located at the base of GoldenHorn/~~Eleking~~). Some tube-like feature in the mat seen on the sci cam while sampling).

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
13967	J2-801	2014/12/17	19:05	12.92231	143.64926	154	2929.7	**SAMPLE: HFS. J801-HFS-07** Filtered Bag #18. Start 19:05. Same location.
13969	J2-801	2014/12/17	19:05	12.92231	143.64926	154	2929.7	SAMPLE: HFS J801-HFS-07
13970	J2-801	2014/12/17	19:06	12.92231	143.64926	154	2929.7	Red bacteria in the pilot camera. Black material may be manganese.
13974	J2-801	2014/12/17	19:08	12.92232	143.64924	154	2929.7	J801-HFS-07 cont. Stop 19:08 Tmax=10.0 Tavg=8.2 T2=4.0 vol=575mL.
13976	J2-801	2014/12/17	19:09	12.92231	143.64925	154	2929.7	SAMPLE: HFS Filtered Bag #18 is J801-HFS-07.
13977	J2-801	2014/12/17	19:09	12.92231	143.64925	154	2929.7	Repositioning the wand into the lower part of the fluffy where the Jason probe measured 80degC water.
13983	J2-801	2014/12/17	19:14	12.92233	143.64925	155	2929.8	Getting 29-33degC at this spot. HFS sensor: O2=84uM. Temperature going up to 35C...going up. Framegrabs of the sampling area (upper and lower).
13985	J2-801	2014/12/17	19:15	12.92233	143.64925	155	2929.7	Temperature up to 42degC. Now at 38degC get O2=1.69 or O2=75uM.
13986	J2-801	2014/12/17	19:16	12.92233	143.64925	154	2929.7	29-40degC temperature fluctuations on the HFS wand.
13988	J2-801	2014/12/17	19:17	12.92233	143.64926	155	2929.7	**SAMPLE: HFS J801-HFS-08** Sterivex #13. Start 19:17.
14005	J2-801	2014/12/17	19:32	12.92229	143.64924	154	2929.7	Stop. 19:31 Tmax=30.2 Tavg=25.0 T2=9.4 vol=3000mL. J801-HFS-08.
14006	J2-801	2014/12/17	19:32	12.92229	143.64925	154	2929.7	Moved probe a bit to see if there is a higher temperature reading.
14010	J2-801	2014/12/17	19:35	12.92232	143.64923	154	2929.7	SENSOR: Temp HFS: Temp=30-33C range. Turned pumps up and now getting T=36C.
14011	J2-801	2014/12/17	19:35	12.92232	143.64923	154	2929.8	Stowing HFS wand.
14013	J2-801	2014/12/17	19:36	12.92232	143.64922	154	2929.9	Would like to go up slowly looking for potential sampling spots along this chimney. Ideally 6-7m up GoldenHorn/~~Eleking~~.
14014	J2-801	2014/12/17	19:36	12.92231	143.64922	154	2929.9	At 2929.9m depth here at the base.
14015	J2-801	2014/12/17	19:36	12.92231	143.64921	153	2929.7	Moving up.
14016	J2-801	2014/12/17	19:37	12.92232	143.64921	154	2929.7	HIGHLIGHTS: Record SciCam
14018	J2-801	2014/12/17	19:37	12.92232	143.64921	153	2929.3	Ascending slowly.
14019	J2-801	2014/12/17	19:37	12.92232	143.64921	153	2928.9	Heading is 153.
14021	J2-801	2014/12/17	19:38	12.92230	143.64921	153	2927.9	Up 2m.
14022	J2-801	2014/12/17	19:38	12.92231	143.64921	153	2926.8	That was 2927.9
14023	J2-801	2014/12/17	19:39	12.92232	143.64921	153	2926.6	Now up 3m at 2926.7.
14025	J2-801	2014/12/17	19:40	12.92229	143.64923	153	2924.7	Shar-pen in background.
14027	J2-801	2014/12/17	19:40	12.92229	143.64923	153	2924.4	At 2924.7 (up 5m from base).
14028	J2-801	2014/12/17	19:40	12.92230	143.64923	153	2923.7	At 6m above base at 2923.7.
14030	J2-801	2014/12/17	19:41	12.92230	143.64924	154	2922.1	At the top 2922.
14031	J2-801	2014/12/17	19:41	12.92231	143.64924	154	2921.9	NAV: Doppler Reset
14033	J2-801	2014/12/17	19:42	12.92231	143.64923	153	2922.2	Want to go back down the chimney to sample mid-way.
14034	J2-801	2014/12/17	19:42	12.92232	143.64923	153	2923.6	Top view of this chimney.
14037	J2-801	2014/12/17	19:44	12.92232	143.64924	153	2928.5	Craig thinks this is Baltan but does not look like it in the photos. The background one looks like Ultra-no-chichi in the background NOT Shar-pen.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
14038	J2-801	2014/12/17	19:44	12.92232	143.64924	153	2928.3	Highlights off.
14040	J2-801	2014/12/17	19:45	12.92229	143.64924	153	2927.7	Going back down looking for flow and sampling site mid-chimney.
14041	J2-801	2014/12/17	19:46	12.92231	143.64924	153	2926.7	Was 7.5meters from the first sampling area to the top of the chimney.
14043	J2-801	2014/12/17	19:46	12.92232	143.64924	153	2926.8	Not seeing much flow at this heading as we descend.
14045	J2-801	2014/12/17	19:47	12.92231	143.64925	131	2927.2	Akel has found a spot at 2926.7m. About 3m up from the original sampling site.
14047	J2-801	2014/12/17	19:48	12.92230	143.64925	134	2927.7	Jason moving in for sampling.
14049	J2-801	2014/12/17	19:49	12.92232	143.64925	133	2927.7	At 2927.8m so only 2m up from the original sample site.
14053	J2-801	2014/12/17	19:52	12.92230	143.64925	133	2927.6	First will take a temperature with the Jason probe at this potential sampling spot.
14056	J2-801	2014/12/17	19:54	12.92230	143.64925	133	2927.7	Controversy over which chimney this is again. Can definitely see Ultra-no-chi-chi in the background on the port side camera at our heading 132.
14057	J2-801	2014/12/17	19:54	12.92230	143.64925	133	2927.6	Is this actually Golden Horn and not Eleking. Would love to have a spin over the top of this when done sampling.
14059	J2-801	2014/12/17	19:55	12.92230	143.64925	133	2927.6	SENSOR: Temp Jason Tmax=27.5degC.
14062	J2-801	2014/12/17	19:57	12.92230	143.64924	132	2927.6	The imagery map shows Golden Horn and Ultra-no-chichi together. Eleking would not be possible from this view of Ultra-no-chichi.
14063	J2-801	2014/12/17	19:57	12.92230	143.64924	132	2927.6	Retrieving cassette C for biomat sampling.
14066	J2-801	2014/12/17	20:00	12.92230	143.64924	132	2927.6	SAMPLE: BM Looks like syringe #6 has already been pulled at some point.
14068	J2-801	2014/12/17	20:01	12.92230	143.64924	132	2927.6	**SAMPLE: BM J801-BM1-C5-09** Want the surface of the mat for this sample (just fluid). Pulling. Geochem filter.
14071	J2-801	2014/12/17	20:02	12.92229	143.64922	132	2927.6	J801-BM1-C5-09. Stop. Water only. Sample looks good.
14073	J2-801	2014/12/17	20:03	12.92228	143.64922	132	2927.6	Not going to do a Ferrozine here.
14074	J2-801	2014/12/17	20:03	12.92228	143.64922	132	2927.6	Next going to do a mat sample.
14075	J2-801	2014/12/17	20:03	12.92228	143.64922	132	2927.6	Stowing cassette C.
14076	J2-801	2014/12/17	20:03	12.92228	143.64922	132	2927.6	Will retrieve Cassette B.
14079	J2-801	2014/12/17	20:06	12.92229	143.64924	132	2927.6	Syringe #1 started to pull prematurely.
14081	J2-801	2014/12/17	20:06	12.92230	143.64925	132	2927.6	**SAMPLE: J801-BM1-B2-10** RNA Later. Great sample.
14083	J2-801	2014/12/17	20:07	12.92230	143.64925	132	2927.6	Putting sampler back to re-index for syringe 3.
14087	J2-801	2014/12/17	20:10	12.92231	143.64925	132	2927.7	Note last sample is BM1-B2-10 not MB1-B2-10.
14089	J2-801	2014/12/17	20:11	12.92232	143.64924	132	2927.6	**SAMPLE: BM J801-BM1-B3-11** RNA later at the mid-chimney location and same as sample #10. Start.
14090	J2-801	2014/12/17	20:12	12.92232	143.64924	132	2927.6	Sample is full and good.
14092	J2-801	2014/12/17	20:12	12.92232	143.64923	132	2927.6	Stowing the cassette.
14094	J2-801	2014/12/17	20:13	12.92232	143.64923	133	2927.6	Next will be O2 readings.
14097	J2-801	2014/12/17	20:15	12.92231	143.64924	133	2927.6	SENSOR: O2 Jason probe: O2=131.0uM background.
14098	J2-801	2014/12/17	20:16	12.92231	143.64925	132	2927.5	SENSOR: O2 Jason probe in sample site 127.6uM. Want to move up slightly to better flow/mat.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
14101	J2-801	2014/12/17	20:17	12.92230	143.64926	132	2927.5	SENSOR: O2 Jason probe O2=123.5uM in mat. Fairly stable now at O2=123.8uM.
14102	J2-801	2014/12/17	20:17	12.92230	143.64926	132	2927.6	Done with Jason probe. Next will try HFS probe at same spot.
14105	J2-801	2014/12/17	20:19	12.92229	143.64926	132	2927.6	Placing HFS wand in the sample spot.
14106	J2-801	2014/12/17	20:20	12.92229	143.64926	132	2927.6	Turning on the HFS pump.
14108	J2-801	2014/12/17	20:20	12.92229	143.64925	132	2927.6	Going to put the wand in closer.
14110	J2-801	2014/12/17	20:21	12.92229	143.64925	132	2927.6	Little bit of flow in this location.
14111	J2-801	2014/12/17	20:22	12.92230	143.64925	132	2927.6	Pump sucked in a bit of material here.
14113	J2-801	2014/12/17	20:22	12.92230	143.64925	132	2927.6	Going to move the probe over to the observed flow slightly behind.
14114	J2-801	2014/12/17	20:22	12.92230	143.64925	132	2927.6	Temperature at the last little spot was 4degC.
14115	J2-801	2014/12/17	20:22	12.92230	143.64925	132	2927.6	Now in the flow better.
14117	J2-801	2014/12/17	20:23	12.92231	143.64926	133	2927.6	Pump on and getting 7-8degC.
14120	J2-801	2014/12/17	20:25	12.92230	143.64927	132	2927.6	SENSOR: Temp HFS wand: Sensor pump running not flush pump. Temp=8degC.
14122	J2-801	2014/12/17	20:26	12.92230	143.64927	132	2927.6	Flush pump is back on.
14124	J2-801	2014/12/17	20:27	12.92229	143.64925	132	2927.6	SENSOR: Temp HFS sensor: Temp=7-8degC. O2=114uM. pH=5.95 (questionable).
14125	J2-801	2014/12/17	20:27	12.92228	143.64925	133	2927.6	pH has been reading less than 7 in background which seems off.
14129	J2-801	2014/12/17	20:30	12.92230	143.64924	133	2927.7	**SAMPLE: HFS J801-HFS-12** Unfiltered Bag #19. At mid-chimney site as like previous biomat samples. Start 20:30.
14133	J2-801	2014/12/17	20:34	12.92231	143.64923	133	2927.7	J801-HFS-12 cont. Stop 20:33. Tmax=10.3 Tavg=8.5 T2=5 vol=575mL.
14137	J2-801	2014/12/17	20:36	12.92231	143.64923	133	2927.6	SAMPLE: HFS Beast having a valve problem.
14139	J2-801	2014/12/17	20:37	12.92231	143.64923	133	2927.6	Restarting the pump.
14141	J2-801	2014/12/17	20:38	12.92230	143.64924	133	2927.6	HFS not getting any good temperature reading so moving the wand tip up a little bit.
14143	J2-801	2014/12/17	20:39	12.92229	143.64924	133	2927.6	Seeing a temperature rise at this new spot now.
14144	J2-801	2014/12/17	20:39	12.92229	143.64924	133	2927.6	Temperature back up to 8degC.
14146	J2-801	2014/12/17	20:40	12.92229	143.64925	133	2927.6	**SAMPLE: HFS J801-HFS-13** Filtered Bag #20. Start.
14150	J2-801	2014/12/17	20:44	12.92230	143.64922	133	2927.6	J801-HFS-13 cont. Stop 20:44. Tmax=10.4 Tavg=10.1 T2=4.5 vol=575mL.
14154	J2-801	2014/12/17	20:46	12.92230	143.64922	133	2927.6	HFS sensor: O2=108uM at same spot as sample-13.
14155	J2-801	2014/12/17	20:46	12.92229	143.64922	133	2927.6	Not sure of pH=5.9 with HFS wand.
14157	J2-801	2014/12/17	20:47	12.92229	143.64922	133	2927.6	Stow the HFS wand.
14159	J2-801	2014/12/17	20:48	12.92229	143.64923	133	2927.5	Next retrieving the Jason temperature probe.
14160	J2-801	2014/12/17	20:49	12.92230	143.64924	133	2927.6	SENSOR: Temp Ambient 1.61C. with Jason probe.
14163	J2-801	2014/12/17	20:51	12.92232	143.64924	133	2927.6	SENSOR: Temp Probe in mat where flow sampled. Jason probe Temp=33.9 degC.
14165	J2-801	2014/12/17	20:51	12.92232	143.64924	133	2927.6	Moving probe slightly to the left.
14167	J2-801	2014/12/17	20:53	12.92232	143.64924	133	2927.6	SENSOR: Temp Jason probe in the middle of the fluffy mat. Temp=3.44degC max.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
14171	J2-801	2014/12/17	20:55	12.92230	143.64924	133	2927.6	SENSOR: Temp Pushed in further (length of wand). Temp=5.06degC max. Not good enough for a scoop.
14172	J2-801	2014/12/17	20:55	12.92229	143.64923	133	2927.6	Going to hold wand and take temperature at the top sampling site.
14173	J2-801	2014/12/17	20:55	12.92230	143.64923	133	2927.6	Jason pushing back and heading up to the top of this chimney.
14174	J2-801	2014/12/17	20:56	12.92231	143.64923	133	2927.4	Mid-site was 2927.7m depth.
14176	J2-801	2014/12/17	20:56	12.92232	143.64923	133	2926.9	Slowly ascending at this heading.
14178	J2-801	2014/12/17	20:57	12.92233	143.64923	134	2923.2	Nice view of the other chimney in port pilot camera.
14180	J2-801	2014/12/17	20:58	12.92233	143.64924	133	2922.3	Here is the top of this chimney at 2922.3m.
14181	J2-801	2014/12/17	20:58	12.92233	143.64925	149	2922.4	Hard to tell from Japanese image if this really looks like Golden Horn from this view.
14184	J2-801	2014/12/17	21:00	12.92234	143.64925	148	2922.5	Flow at the base of the top chimney piece where little chimlets are in center of sci cam view.
14185	J2-801	2014/12/17	21:00	12.92234	143.64925	148	2922.5	Jason temperature probe into the flow area.
14188	J2-801	2014/12/17	21:02	12.92232	143.64925	148	2922.5	SENSOR: Temp Jason sensor: Temp=8.64degC (Highlights had been on and now turning off).
14189	J2-801	2014/12/17	21:03	12.92231	143.64925	148	2922.5	Moving probe down into more flow. Temperature is rising.
14191	J2-801	2014/12/17	21:04	12.92227	143.64925	148	2922.4	SENSOR: Temp Jason probe: Temp=17.32was high.
14194	J2-801	2014/12/17	21:05	12.92223	143.64926	148	2922.3	SENSOR: Temp Moved probe. More flow and higher temperature. Temp=28.06degC.
14195	J2-801	2014/12/17	21:05	12.92229	143.64924	149	2920.3	Jason hit the top and stirred up the mat.
14196	J2-801	2014/12/17	21:05	12.92235	143.64923	149	2919.3	Backed away to let the dust settle.
14198	J2-801	2014/12/17	21:06	12.92242	143.64920	149	2919.5	FRAMEGRABS: HD frame grab SciCam Sci cam view of the top after the bump.
14199	J2-801	2014/12/17	21:07	12.92242	143.64920	149	2919.6	Stowing temperature probe.
14201	J2-801	2014/12/17	21:07	12.92243	143.64920	149	2919.5	Next will be biomat sampling with Cassette C.
14203	J2-801	2014/12/17	21:08	12.92239	143.64922	148	2921.1	Jason has Cassette C. Moving toward the chimney top for sampling.
14207	J2-801	2014/12/17	21:11	12.92233	143.64927	166	2922.3	Going to start with syringe 4 which is the ferrozine syringe.
14210	J2-801	2014/12/17	21:13	12.92234	143.64927	167	2922.3	**SAMPLE: BM J801-BM1-C4-14.** Start. At the top of this chimney now believed to be Golden Horn. Tip looks like in mat. Highlights on. Nozzle in the flow area at top.
14212	J2-801	2014/12/17	21:14	12.92234	143.64927	167	2922.2	Pulled just under 20mL.
14213	J2-801	2014/12/17	21:14	12.92234	143.64927	167	2922.2	HIGHLIGHTS: End Highlights
14214	J2-801	2014/12/17	21:14	12.92234	143.64927	167	2922.2	Next need to re-index to get syringe #3.
14217	J2-801	2014/12/17	21:16	12.92231	143.64926	167	2922.3	Sampler is re-indexed and ready.
14219	J2-801	2014/12/17	21:17	12.92230	143.64926	167	2922.3	**SAMPLE: BM J801-BM1-C3-15** Start. Geochem filtered biomat sample at the top of the chimney. Tip in flow.
14222	J2-801	2014/12/17	21:19	12.92229	143.64926	167	2922.3	J801-BM1-C3-15 cont. Stop. Fluid only.
14223	J2-801	2014/12/17	21:19	12.92229	143.64926	167	2922.3	Done with biomat sampling with full cassettes.
14226	J2-801	2014/12/17	21:21	12.92229	143.64926	167	2922.3	Next sampling is back down at the base for some scoop samples.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
14228	J2-801	2014/12/17	21:22	12.92229	143.64926	167	2922.2	Actually need to do HFS sampling at the top before heading back to the bottom.
14230	J2-801	2014/12/17	21:23	12.92229	143.64926	167	2922.3	Jason has HFS wand.
14233	J2-801	2014/12/17	21:25	12.92230	143.64926	167	2922.3	Nav target #31 has been changed to GoldenHorn instead of Eleking for target name.
14234	J2-801	2014/12/17	21:25	12.92231	143.64926	167	2922.3	Preparing for HFS sampling. Tip in flow.
14237	J2-801	2014/12/17	21:27	12.92232	143.64926	167	2922.2	HFS wand got 13degC in that spot. Going to move it around for higher temperature.
14238	J2-801	2014/12/17	21:27	12.92232	143.64926	167	2922.2	Knocked some of the mat away.
14239	J2-801	2014/12/17	21:28	12.92232	143.64926	167	2922.3	Temperature going up as moved down into flow a bit.
14241	J2-801	2014/12/17	21:28	12.92232	143.64926	167	2922.3	Pushed tip in a bit. Temperature rising.
14245	J2-801	2014/12/17	21:31	12.92233	143.64925	167	2922.3	HFS temperature=21degC.
14246	J2-801	2014/12/17	21:31	12.92233	143.64925	167	2922.3	SENSOR: O2 HFS O2=89uM. Temp-19degC.
14248	J2-801	2014/12/17	21:33	12.92233	143.64924	167	2922.2	**SAMPLE: J801-HFS-16** Filtered Piston #8. Start 21:33. Top of Golden Horn in flow where O2 and temperature sensors just read.
14252	J2-801	2014/12/17	21:35	12.92235	143.64923	167	2922.2	J801-HFS-16 cont. Kraft cam has been having great view of the Ultra-no-chichi.
14256	J2-801	2014/12/17	21:37	12.92235	143.64925	167	2922.2	J801-HFS-16 cont. Stop 21:37. Tmax=15.9 Tavg=11.6 T2=5 vol=700mL.
14258	J2-801	2014/12/17	21:38	12.92234	143.64926	167	2922.2	**SAMPLE: HFS J801-HFS-17** Unfiltered Piston #7 Start 21:38.
14263	J2-801	2014/12/17	21:42	12.92232	143.64926	167	2922.2	J801-HFS-17 cont. Stop 21:42. Tmax=12.8 Tavg=12.6 T2=5.2 vol=640mL.
14265	J2-801	2014/12/17	21:43	12.92232	143.64925	167	2922.2	**SAMPLE: HFS J801-HFS-18** Sterivex #14. Top of Golden Horn in the same flow as samples 16 and 17. Start 21:43.
14277	J2-801	2014/12/17	21:54	12.92235	143.64927	167	2922.2	J801-HFS-18 cont. The samples at the bottom; middle and top of this chimney are at Golden Horn (not Eleking - Dave is correcting his log).
14278	J2-801	2014/12/17	21:54	12.92235	143.64927	168	2922.2	J801-HFS-18 cont. 28C was the highest temp here at this chimney.
14282	J2-801	2014/12/17	21:57	12.92234	143.64928	167	2922.2	There's a tall skinny chimney in the background that is believed to be Ultra-no-chichi chimney.
14285	J2-801	2014/12/17	21:59	12.92233	143.64927	168	2922.2	The fluids coming out of this chimney are clear and robust.
14286	J2-801	2014/12/17	21:59	12.92233	143.64926	168	2922.2	J801-HFS-18 stop 2159. Tmax=14.1 Tavg=12.1 T2=5.3 Vol=3000mL.
14287	J2-801	2014/12/17	22:00	12.92233	143.64926	168	2922.2	Dropping down to the bottom to take a scoop sample.
14289	J2-801	2014/12/17	22:00	12.92232	143.64926	168	2922.2	FRAMEGRABS: HD frame grab SciCam Golden horn chimney. Sampling site for last HFS.
14292	J2-801	2014/12/17	22:02	12.92240	143.64924	183	2932.1	Tall skinny chimney in the back with an expanded base. Craig thinks that one is Ultra-no-chichi chimney.
14295	J2-801	2014/12/17	22:04	12.92240	143.64926	204	2935.0	At the base here at 2935m The top where we sampled was 2922m. So this structure is at least 13m high. It's sitting on a slope (sulfide mound?).
14296	J2-801	2014/12/17	22:04	12.92246	143.64920	196	2934.4	Moving around to get the best position for a scoop sample.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
14297	J2-801	2014/12/17	22:04	12.92239	143.64921	197	2933.2	Coming up a meter of two.
14299	J2-801	2014/12/17	22:05	12.92236	143.64925	175	2932.8	Looking at t line of smaller chimneys here. No visible flow. Shorter and squat.
14301	J2-801	2014/12/17	22:06	12.92236	143.64926	177	2932.7	FRAMEGRABS: HD frame grab SciCam Looking at the whole structure zoomed out.
14303	J2-801	2014/12/17	22:07	12.92234	143.64929	223	2930.6	Getting some pics here.
14304	J2-801	2014/12/17	22:08	12.92228	143.64929	294	2930.4	FRAMEGRABS: HD frame grab SciCam This is still Golden Horn.
14307	J2-801	2014/12/17	22:09	12.92239	143.64928	249	2931.4	LScoop J801-LScoop -19 coming up.
14308	J2-801	2014/12/17	22:09	12.92239	143.64928	249	2931.5	NAV: Doppler Reset
14309	J2-801	2014/12/17	22:09	12.92239	143.64929	252	2931.8	First we will take a temperature here.
14311	J2-801	2014/12/17	22:11	12.92237	143.64930	252	2931.7	Tambient is 1.5C. It's cold down at almost 3000m. Z=2940m here.
14313	J2-801	2014/12/17	22:12	12.92236	143.64929	251	2931.7	Pulling out the Jason temp probe and placing it at the base of this little knob covered in fluffy iron mat.
14315	J2-801	2014/12/17	22:12	12.92236	143.64928	252	2931.7	T=9.2C now.
14316	J2-801	2014/12/17	22:12	12.92236	143.64928	251	2931.6	No sign of visible flow but the temp did go up.
14322	J2-801	2014/12/17	22:17	12.92239	143.64924	155	2930.2	Temp got up to 23.9C..
14324	J2-801	2014/12/17	22:18	12.92230	143.64923	113	2928.8	Looking around this chimney.
14325	J2-801	2014/12/17	22:18	12.92236	143.64923	135	2928.3	This is where we sampled before. The bottom of Golden Horn.
14327	J2-801	2014/12/17	22:19	12.92244	143.64923	175	2928.3	Lateraling around the bottom of the same chimney.
14328	J2-801	2014/12/17	22:19	12.92228	143.64930	253	2929.1	Looking around for a place to scoop.
14331	J2-801	2014/12/17	22:21	12.92237	143.64928	277	2928.8	Bringing out the temperature probe.
14333	J2-801	2014/12/17	22:23	12.92236	143.64929	287	2928.5	From this view the chimney is wider at the top than the bottom.
14335	J2-801	2014/12/17	22:23	12.92234	143.64930	282	2927.2	Seeing some shimmering water here.
14336	J2-801	2014/12/17	22:23	12.92235	143.64929	290	2927.6	Tambient is 1.5C.
14337	J2-801	2014/12/17	22:24	12.92234	143.64929	293	2927.7	HIGHLIGHTS: Record SciCam Taking some highlights of this area on Golden Horn chimney with shimmering water.
14339	J2-801	2014/12/17	22:24	12.92232	143.64929	293	2927.7	The little fingers and lighter water is where the iron mats are hotter; fresher and active.
14341	J2-801	2014/12/17	22:25	12.92231	143.64928	293	2927.7	Putting the Jason temp probe in this area of flow. Temperature is rising.
14342	J2-801	2014/12/17	22:25	12.92231	143.64928	293	2927.7	HIGHLIGHTS: End Highlights
14343	J2-801	2014/12/17	22:25	12.92231	143.64928	293	2927.7	The temperature is rising. Now up to 40C and rising. 45C.
14345	J2-801	2014/12/17	22:26	12.92232	143.64928	293	2927.7	HIGHLIGHTS: Record PilotCam Golden Horn pilot cam highlights.
14347	J2-801	2014/12/17	22:27	12.92234	143.64927	293	2927.7	Golden Horn in intense flow with the Jason temp probe. T=60C. Zooming in and out.
14348	J2-801	2014/12/17	22:27	12.92234	143.64927	293	2927.7	HIGHLIGHTS: End Highlights
14350	J2-801	2014/12/17	22:28	12.92236	143.64928	293	2927.7	Tmax=63C. Stowing the Jason temp probe. Next task is an RNA Later Scoop.
14355	J2-801	2014/12/17	22:32	12.92234	143.64927	293	2927.7	**Sample: LScoop J801-LScoop-19**. Same chimney (Golden Horn). Another position for comparison sake. 143 38.9568 12 55.3398. Z=2930 Hdg 293deg. Alt 6m.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
14357	J2-801	2014/12/17	22:33	12.92234	143.64926	293	2927.7	HIGHLIGHTS: Record PilotCam Golden Horn LScoop sample.
14358	J2-801	2014/12/17	22:33	12.92233	143.64926	293	2927.7	HIGHLIGHTS: Record PilotCam
14360	J2-801	2014/12/17	22:34	12.92233	143.64926	293	2927.7	Scooping in this thick mat deposit. Iron mat "balls" floating around as Jimmy jostles the mat.
14363	J2-801	2014/12/17	22:36	12.92235	143.64928	294	2927.7	Nice video on the pilot cam. Big glob of mat at the top of the LScoop. That scoop is full. Jimmy is jiggling it back and forth.
14365	J2-801	2014/12/17	22:37	12.92235	143.64928	294	2927.7	HIGHLIGHTS: End Highlights
14367	J2-801	2014/12/17	22:38	12.92236	143.64929	293	2927.7	Want to tap it on the basket to get the big clump in the top of the scoop down into the chamber.
14368	J2-801	2014/12/17	22:38	12.92236	143.64929	293	2927.7	TXT:
14370	J2-801	2014/12/17	22:39	12.92236	143.64930	293	2927.7	J801-LScoop#?-19 cont. Closing the scoop up now. That's a full scoop sample.
14374	J2-801	2014/12/17	22:42	12.92234	143.64927	293	2927.7	Closing the bottom valve now and shaking it up. Couldn't get more in there.
14376	J2-801	2014/12/17	22:43	12.92235	143.64927	293	2927.7	J801-LScoop1-19. That's scoop #1.
14377	J2-801	2014/12/17	22:43	12.92235	143.64927	293	2927.7	HIGHLIGHTS: Record SciCam
14378	J2-801	2014/12/17	22:43	12.92235	143.64927	293	2927.7	Short highlight video of LScoop sample.
14379	J2-801	2014/12/17	22:44	12.92235	143.64928	294	2927.7	Next will take a gray scoop #8 on the other side.
14382	J2-801	2014/12/17	22:45	12.92235	143.64929	293	2927.7	These chimneys are so fragile. The little skinny chimlets just fall right off.
14383	J2-801	2014/12/17	22:45	12.92235	143.64929	294	2927.7	They look like "iron pipes" says Craig.
14386	J2-801	2014/12/17	22:47	12.92234	143.64929	294	2927.8	Going for the gray scoop now. The next sample will be J801-Scoop8-20.
14387	J2-801	2014/12/17	22:47	12.92234	143.64929	294	2927.7	This scoop has a clear tube with a gray top. No fixative; just scooping up the mat.
14390	J2-801	2014/12/17	22:49	12.92235	143.64928	294	2927.7	**SAMPLE: J801-Scoop8-20.** Same batch of chimney "pipes". Tilling the chamber with large globs of this golden iron mat.
14393	J2-801	2014/12/17	22:51	12.92236	143.64928	294	2927.7	J801-Scoop8-20 cont. At Golden Horn still. Same position as previous sample. Not in the direct flow for this and the previous sample.
14394	J2-801	2014/12/17	22:51	12.92237	143.64928	294	2927.7	Tmax got up to 63C in this area - but directly in the flow (These samples are not directly in the flow but close)..
14396	J2-801	2014/12/17	22:52	12.92237	143.64927	294	2927.7	J801-Scoop08-20. Closing it up. Looks like a good sample. Lots of iron mat in the tube.
14398	J2-801	2014/12/17	22:53	12.92237	143.64927	294	2927.7	J801-Scoop8=-20 was a great sample!
14400	J2-801	2014/12/17	22:54	12.92238	143.64926	294	2927.6	That wraps it up here. Buttoning it up. Next will head to the elevator. Things are stirred up here.
14401	J2-801	2014/12/17	22:54	12.92236	143.64927	292	2927.7	Backing away
14403	J2-801	2014/12/17	22:55	12.92232	143.64928	293	2927.6	HIGHLIGHTS: Record PilotCam Golden Horn bacterial ball storm. Clearing now.
14405	J2-801	2014/12/17	22:56	12.92232	143.64929	293	2927.5	This is really fluffy stuff. Jimmy "never felt rock". Seems these "pipes" may be totally iron mat?

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14407	J2-801	2014/12/17	22:57	12.92229	143.64929	293	2927.6	FRAMEGRABS: HD frame grab PilotCam Doing highlights here.
14409	J2-801	2014/12/17	22:58	12.92233	143.64928	294	2924.8	HIGHLIGHTS: Record PilotCam Golden horn chimney highlights.
14411	J2-801	2014/12/17	22:59	12.92230	143.64929	295	2922.6	FRAMEGRABS: HD frame grab PilotCam Looking at the top of Golden Horn.
14413	J2-801	2014/12/17	23:00	12.92233	143.64929	295	2922.5	FRAMEGRABS: HD frame grab PilotCam Convinced that it is Golden Horn after looking at the top. Z=2922. Hdg=295.
14417	J2-801	2014/12/17	23:03	12.92209	143.64927	242	2921.8	FRAMEGRABS: HD frame grab SuperScorpio Off the bottom heading to the elevator.
14418	J2-801	2014/12/17	23:03	12.92207	143.64920	244	2920.4	Going to swap out cassettes at the elevator.
14425	J2-801	2014/12/17	23:09	12.92171	143.64867	238	2793.6	We're waiting for the elevator to come down. It hasn't been launched yet.
14433	J2-801	2014/12/17	23:16	12.92136	143.64878	197	2804.6	Jason up off the bottom
14439	J2-801	2014/12/17	23:22	12.92134	143.64895	186	2784.7	Elevator on deck ready to be deployed
14449	J2-801	2014/12/17	23:31	12.92129	143.64923	166	2784.7	Jason elevator weight released as elevator was lifted off the deck.
14455	J2-801	2014/12/17	23:36	12.92132	143.64935	151	2798.0	Weight stack back on elevator.
14472	J2-801	2014/12/17	23:51	12.92149	143.64962	134	2797.9	Working on the release mechanism on the elevator (still on deck).
14478	J2-801	2014/12/17	23:56	12.92156	143.64965	131	2797.9	Elevator in the water. Deployed. Going down (finally).
14539	J2-801	2014/12/18	00:56	12.92256	143.64986	64	2797.9	Elevator is on the bottom.
14554	J2-801	2014/12/18	01:11	12.92177	143.64947	42	2797.9	Medea is settling out. The ship is slowing down. Should be able to get back on the bottom soon.
14568	J2-801	2014/12/18	01:23	12.92116	143.64941	221	2897.2	Bottom in sight!! Elevator is 230 bearing.
14570	J2-801	2014/12/18	01:24	12.92112	143.64938	216	2897.2	Lots of brown/orange sediments here interspersed with rocks.
14572	J2-801	2014/12/18	01:25	12.92107	143.64935	217	2893.4	The elevator is 30m from the vehicle. It landed 162m due south of Golden Horn. Went down at 50m / minute.
14573	J2-801	2014/12/18	01:26	12.92102	143.64932	216	2891.0	More rocks among the sediments here.
14575	J2-801	2014/12/18	01:26	12.92100	143.64931	217	2890.1	NAV: Doppler Reset
14576	J2-801	2014/12/18	01:26	12.92096	143.64929	216	2888.0	Seeing a bit of white staining on rocks here and there.
14577	J2-801	2014/12/18	01:26	12.92095	143.64928	230	2887.9	Frame_Grab:
14579	J2-801	2014/12/18	01:27	12.92094	143.64927	232	2885.5	Frame_Grab:
14580	J2-801	2014/12/18	01:27	12.92094	143.64927	233	2885.2	Frame_Grab:
14581	J2-801	2014/12/18	01:27	12.92094	143.64927	232	2884.8	Frame_Grab:
14582	J2-801	2014/12/18	01:27	12.92094	143.64927	230	2884.6	Frame_Grab:
14583	J2-801	2014/12/18	01:27	12.92094	143.64927	226	2884.1	Frame_Grab:
14584	J2-801	2014/12/18	01:27	12.92095	143.64927	214	2883.9	Frame_Grab:
14585	J2-801	2014/12/18	01:27	12.92095	143.64927	206	2883.8	Frame_Grab:
14586	J2-801	2014/12/18	01:27	12.92094	143.64926	242	2883.1	Looks like some white staining on the boulders.
14588	J2-801	2014/12/18	01:28	12.92093	143.64927	231	2883.0	Mostly brown/red sediments.
14589	J2-801	2014/12/18	01:28	12.92091	143.64924	231	2882.8	32m ahead. Moving the ship a little.
14591	J2-801	2014/12/18	01:29	12.92079	143.64912	208	2873.2	Elevator in sight. Looks like it's in a good spot. Seeing some orangish mat on the rocks.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
14593	J2-801	2014/12/18	01:30	12.92077	143.64911	220	2872.0	The white stuff commented on earlier is actually brown/orange/yellow fluffy mat.
14594	J2-801	2014/12/18	01:30	12.92076	143.64911	232	2871.8	Seeing some white bacterial mat as well.
14596	J2-801	2014/12/18	01:31	12.92074	143.64912	289	2870.7	Debating where to put the scoops. Port biobox.
14597	J2-801	2014/12/18	01:32	12.92074	143.64911	274	2870.7	Approaching the elevator.
14599	J2-801	2014/12/18	01:32	12.92073	143.64910	270	2870.8	Lots of boulders in this area. Less sediment.
14600	J2-801	2014/12/18	01:32	12.92073	143.64910	272	2871.0	Elevator right in front of us in the pilot cam.
14602	J2-801	2014/12/18	01:33	12.92073	143.64910	272	2871.0	Getting out the stbd arm and opening the biobox to transfer samplers.
14604	J2-801	2014/12/18	01:34	12.92072	143.64910	272	2871.0	HIGHLIGHTS: Record PilotCam Elevator manipulation. Grabbing samplers and transferring them to the ROV.
14607	J2-801	2014/12/18	01:36	12.92072	143.64910	272	2871.0	Grabbing the full LScoop #1 and putting it in the large biobox. Both sample 19 and 20 are in the FeMO left biobox.
14608	J2-801	2014/12/18	01:36	12.92072	143.64910	272	2871.0	HIGHLIGHTS: End Highlights
14610	J2-801	2014/12/18	01:37	12.92071	143.64909	272	2871.0	Going to grab the big boy scoop from the elevator and put on the ROV. First will grab the plankton net and transfer it from the elevator to Jason.
14613	J2-801	2014/12/18	01:39	12.92072	143.64908	273	2871.0	Grabbing the plankton net out of the stbd Femo biobox and transferring it to Jason.
14614	J2-801	2014/12/18	01:40	12.92072	143.64907	273	2871.1	The stbd FeMO biobox is now empty on the elevator after removing the plankton net.
14616	J2-801	2014/12/18	01:40	12.92072	143.64907	278	2870.5	Next will grab the cassettes and the Big Boy scoop.
14618	J2-801	2014/12/18	01:42	12.92076	143.64906	81	2870.4	Moving around to the back side of the elevator. Big Boy scoop is now on the right side in the elevator.
14621	J2-801	2014/12/18	01:43	12.92077	143.64907	85	2870.5	Opening up the milk crate lid (wow) with the 2 cassette samplers.
14623	J2-801	2014/12/18	01:44	12.92079	143.64909	85	2870.5	Grabbing the full cassette and placing it in the elevator box. Cassette B now on elevator and cassette D is on the Jason basket.
14625	J2-801	2014/12/18	01:45	12.92081	143.64911	84	2870.5	Next placing cassette C on the elevator. Grabbing cassette X and transferring it to Jason.
14631	J2-801	2014/12/18	01:50	12.92081	143.64914	84	2870.4	X Cassette on Jason. Getting Big Boy Scoop now.
14635	J2-801	2014/12/18	01:53	12.92079	143.64912	84	2870.4	Done with exchange between Jason and elevator.
14637	J2-801	2014/12/18	01:55	12.92078	143.64910	84	2870.4	Removing some weights from elevator.
14644	J2-801	2014/12/18	02:00	12.92077	143.64909	67	2869.9	Removing more weights from the elevator.
14647	J2-801	2014/12/18	02:02	12.92077	143.64911	151	2871.9	Checking the feet on the elevator to make sure it's secure.
14648	J2-801	2014/12/18	02:02	12.92077	143.64911	151	2872.0	Looks good!
14651	J2-801	2014/12/18	02:04	12.92085	143.64908	351	2866.5	Heading to Urashima.
14655	J2-801	2014/12/18	02:07	12.92097	143.64906	357	2871.2	Hello.
14664	J2-801	2014/12/18	02:15	12.92105	143.64902	357	2882.7	Still in transit.
14689	J2-801	2014/12/18	02:39	12.92212	143.64898	35	2923.5	Bottom in sight!
14690	J2-801	2014/12/18	02:40	12.92214	143.64901	68	2926.5	Looking for the spire.
14693	J2-801	2014/12/18	02:41	12.92228	143.64912	49	2924.5	Think we've spotted Baltan chimney.
14694	J2-801	2014/12/18	02:42	12.92230	143.64913	49	2924.1	Ok here is Golden Horn (the big tower)!!

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
14696	J2-801	2014/12/18	02:42	12.92233	143.64914	57	2920.4	FRAMEGRABS: HD frame grab PilotCam Golden Horn
14697	J2-801	2014/12/18	02:42	12.92233	143.64914	57	2920.3	FRAMEGRABS: HD frame grab SciCam
14699	J2-801	2014/12/18	02:43	12.92239	143.64923	167	2920.4	It's covered in iron! Very tall and skinny spire.
14701	J2-801	2014/12/18	02:44	12.92239	143.64920	160	2922.1	Looking at the very top of the spire: depth= 2922 meters.
14702	J2-801	2014/12/18	02:45	12.92236	143.64920	162	2922.1	Venting coming out top! Lots of delicate iron mats.
14704	J2-801	2014/12/18	02:45	12.92236	143.64920	162	2922.1	Going to start with Cassette D with 2 RNA Laters and 3 regular syringes.
14705	J2-801	2014/12/18	02:46	12.92236	143.64919	167	2922.1	NAV: Doppler Reset
14712	J2-801	2014/12/18	02:51	12.92242	143.64934	176	2922.6	Jason situated on the spire a little below the top.
14713	J2-801	2014/12/18	02:51	12.92242	143.64934	176	2922.6	Getting ready for cassette D.
14724	J2-801	2014/12/18	03:01	12.92242	143.64933	176	2922.6	Dropped cassette D. Getting everything back in order.
14727	J2-801	2014/12/18	03:03	12.92242	143.64933	176	2922.7	**SAMPLE: BM J801-BM1-D6-21** RNA Later syringe right near flow at top of chimney. Golden Horn.
14729	J2-801	2014/12/18	03:04	12.92243	143.64932	176	2922.7	HIGHLIGHTS: Record BrowCam J801-BM1-D6-21
14733	J2-801	2014/12/18	03:07	12.92244	143.64931	176	2922.7	**SAMPLE: BM J801-BM1-D5-22** RNA Later syringe same spot as syringe 6. In flow at top of chimney. Golden Horn.
14734	J2-801	2014/12/18	03:07	12.92244	143.64931	176	2922.7	CORRECTION: Syringe 6 does not have RNA Later. Just a normal syringe.
14735	J2-801	2014/12/18	03:08	12.92245	143.64931	176	2922.7	**SAMPLE: J801-BM1-D1-23** RNA Later syringe in same spot as D5 and D6. Golden Horn.
14737	J2-801	2014/12/18	03:08	12.92245	143.64931	176	2922.7	Waiting for dust to clear out.
14740	J2-801	2014/12/18	03:10	12.92245	143.64931	176	2922.7	**SAMPLE: J801-BM1-D2-24** Normal syringe same spot as rest of cassette right near flow at top of chimney. Golden Horn.
14741	J2-801	2014/12/18	03:10	12.92245	143.64930	176	2922.7	D5 isn't all the way full. Going back in.
14743	J2-801	2014/12/18	03:11	12.92246	143.64930	176	2922.7	Syringe D5 not moving any further. Stuck.
14745	J2-801	2014/12/18	03:12	12.92246	143.64930	176	2922.6	**SAMPLE: BM J801-BM1-D4-25** Normal syringe in same spot right near flow at top of chimney. Golden Horn.
14746	J2-801	2014/12/18	03:13	12.92246	143.64930	176	2922.6	Need to re-index cassette to use syringe 3.
14748	J2-801	2014/12/18	03:13	12.92247	143.64930	176	2922.6	HIGHLIGHTS: End Highlights
14752	J2-801	2014/12/18	03:16	12.92247	143.64929	176	2922.6	**SAMPLE: BM J801-BM1-D3-26** RNA Later syringe in same spot. Flow at top of chimney. Golden Horn.
14753	J2-801	2014/12/18	03:16	12.92247	143.64929	176	2922.6	HIGHLIGHTS: Record BrowCam J801-BM1-D3
14756	J2-801	2014/12/18	03:18	12.92248	143.64928	176	2922.6	Might be a problem with the check valves.
14757	J2-801	2014/12/18	03:18	12.92248	143.64928	176	2922.6	Can't expel because there's RNA Later in the syringe. Going to stow it and suction sample here.
14759	J2-801	2014/12/18	03:19	12.92249	143.64928	176	2922.6	HIGHLIGHTS: End Highlights
14760	J2-801	2014/12/18	03:20	12.92248	143.64928	176	2922.6	The top mound of the chimney just fell off.
14763	J2-801	2014/12/18	03:21	12.92248	143.64928	176	2922.6	Debating whether this is too crusty for suction sample. Still lots of light colored fluff at top of chimney.
14764	J2-801	2014/12/18	03:21	12.92248	143.64928	176	2922.6	Will start high and work our way down.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
14765	J2-801	2014/12/18	03:21	12.92249	143.64928	177	2922.5	Have to back Jason off of spire to get suction hose free.
14768	J2-801	2014/12/18	03:23	12.92255	143.64925	175	2922.8	**SAMPLE: SS J801-SS-27** top of Golden horn.
14771	J2-801	2014/12/18	03:25	12.92248	143.64928	178	2922.8	HIGHLIGHTS: Record SciCam suction sampler
14774	J2-801	2014/12/18	03:27	12.92248	143.64928	178	2922.8	Starting suction.
14781	J2-801	2014/12/18	03:33	12.92247	143.64930	178	2922.8	still suction sampling golden horn.
14783	J2-801	2014/12/18	03:34	12.92246	143.64930	178	2922.8	HIGHLIGHTS: End Highlights
14787	J2-801	2014/12/18	03:38	12.92246	143.64931	178	2922.8	Done with suction.
14790	J2-801	2014/12/18	03:39	12.92247	143.64930	177	2922.5	Going to take an RNA Later scoop here next.
14791	J2-801	2014/12/18	03:40	12.92247	143.64930	177	2922.4	Readjusting Jason.
14797	J2-801	2014/12/18	03:45	12.92247	143.64930	177	2922.5	Still putting scoop away.
14799	J2-801	2014/12/18	03:45	12.92247	143.64930	177	2922.4	Orange scoop next in spot where we just suction sampled.
14801	J2-801	2014/12/18	03:46	12.92247	143.64931	177	2922.4	**SAMPLE: LScoop J801-LScoop4-28**
14803	J2-801	2014/12/18	03:47	12.92247	143.64931	177	2922.4	Aiming for the highest point of the chimney.
14808	J2-801	2014/12/18	03:51	12.92244	143.64932	212	2923.1	HIGHLIGHTS: Record SciCam LScoop4
14811	J2-801	2014/12/18	03:53	12.92243	143.64932	212	2923.1	Big chunks are blocking the entrance to the scoop.
14815	J2-801	2014/12/18	03:56	12.92242	143.64931	212	2923.1	HIGHLIGHTS: End Highlights
14816	J2-801	2014/12/18	03:56	12.92242	143.64931	212	2923.1	Not much got into the scoop. Going to stick the temp probe to try to break up the mass in the top of the scoop.
14818	J2-801	2014/12/18	03:57	12.92242	143.64931	212	2923.1	It worked!
14823	J2-801	2014/12/18	04:01	12.92243	143.64931	212	2923.1	Heading to the base of Golden Horn now. Depth around 2929 and heading 153
14824	J2-801	2014/12/18	04:01	12.92243	143.64931	212	2923.1	Plan is for more cassette sampling and big boy scoop.
14828	J2-801	2014/12/18	04:04	12.92244	143.64928	152	2930.2	Starting with Cassette X. Here we go!
14830	J2-801	2014/12/18	04:05	12.92244	143.64928	145	2930.1	See two holes with flow coming out; surrounded by iron mat. Lighter mats here than at the top;
14835	J2-801	2014/12/18	04:09	12.92244	143.64929	147	2929.6	**SAMPLE: BM J801-BM1-X6-29**
14836	J2-801	2014/12/18	04:09	12.92244	143.64929	146	2929.6	HIGHLIGHTS: Record SciCam J801-BM1-X6-29
14838	J2-801	2014/12/18	04:10	12.92244	143.64929	147	2929.6	Very light fluffy mat. Almost veil-like.
14840	J2-801	2014/12/18	04:11	12.92244	143.64929	146	2929.6	Looks like a very dark crusty layer right underneath the light fluffy mat.
14841	J2-801	2014/12/18	04:11	12.92244	143.64929	146	2929.7	**SAMPLE: BM J801-BM1-X1-30**
14842	J2-801	2014/12/18	04:11	12.92244	143.64929	146	2929.7	same stuff.
14844	J2-801	2014/12/18	04:12	12.92244	143.64929	146	2929.8	SAMPLE: BM X1 looks really nice.
14845	J2-801	2014/12/18	04:12	12.92244	143.64929	146	2929.8	**SAMPLE J801-BM1-X2-31** same place
14847	J2-801	2014/12/18	04:13	12.92244	143.64929	146	2929.8	Jason is a little twitchy.
14848	J2-801	2014/12/18	04:14	12.92244	143.64929	147	2929.7	Done with X cassette for now. Going to finish it at the midpoint of the chimney.
14850	J2-801	2014/12/18	04:14	12.92244	143.64929	148	2929.7	X cassette was a success!
14851	J2-801	2014/12/18	04:15	12.92244	143.64929	147	2929.8	Big Boy scoop next.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
14855	J2-801	2014/12/18	04:17	12.92245	143.64929	147	2929.9	**SAMPLE: BBScoop J801-BBScoop-32** in same place that we just mat sampled. Nice chunk of mat that looks like it has some structure to it. Not curds; not veil...
14859	J2-801	2014/12/18	04:20	12.92239	143.64921	139	2930.6	HIGHLIGHTS: Record SciCam
14863	J2-801	2014/12/18	04:23	12.92238	143.64921	139	2930.6	Crusty mat stuck in the top of the scoop. Will try tapping gently.
14864	J2-801	2014/12/18	04:23	12.92238	143.64921	139	2930.6	HIGHLIGHTS: End Highlights
14867	J2-801	2014/12/18	04:25	12.92238	143.64921	139	2930.6	There is rock in the top of the scoop.
14869	J2-801	2014/12/18	04:26	12.92238	143.64921	140	2930.6	Done with BBScoop
14870	J2-801	2014/12/18	04:26	12.92238	143.64921	140	2930.6	Major next.
14875	J2-801	2014/12/18	04:30	12.92238	143.64921	137	2930.5	Temp check.
14876	J2-801	2014/12/18	04:30	12.92238	143.64921	134	2930.6	Got 84C here earlier.
14877	J2-801	2014/12/18	04:30	12.92238	143.64921	134	2930.5	Now a depth 2930m
14882	J2-801	2014/12/18	04:34	12.92239	143.64921	135	2930.5	Tmax=74C
14887	J2-801	2014/12/18	04:38	12.92239	143.64921	136	2930.2	**SAMPLE: Major J801-Major-33** Black at spot where temp was 74C
14891	J2-801	2014/12/18	04:41	12.92238	143.64921	134	2930.4	Waiting for dust to settle a bit. Haven't fired major yet.
14893	J2-801	2014/12/18	04:43	12.92238	143.64921	135	2930.4	Trigger.
14894	J2-801	2014/12/18	04:43	12.92238	143.64921	135	2930.4	FRAMEGRABS: HD frame grab SciCam
14895	J2-801	2014/12/18	04:43	12.92238	143.64921	135	2930.4	FRAMEGRABS: HD frame grab PilotCam
14897	J2-801	2014/12/18	04:44	12.92237	143.64921	134	2930.4	Correction: happening NOW!
14899	J2-801	2014/12/18	04:44	12.92237	143.64921	135	2930.4	Black major done.
14901	J2-801	2014/12/18	04:45	12.92237	143.64920	135	2930.4	Depth: 2930 heading: 135.2
14902	J2-801	2014/12/18	04:45	12.92237	143.64920	138	2930.4	Heading to depth=2927.6m heading=154
14903	J2-801	2014/12/18	04:46	12.92238	143.64920	137	2929.9	Cycling the beast power.
14909	J2-801	2014/12/18	04:50	12.92239	143.64920	130	2926.6	Actually want to go to heading of 133 on other side of spire. same depth.
14912	J2-801	2014/12/18	04:52	12.92237	143.64919	92	2927.5	Lateralling a little more the right. looking for nice flow spot from this morning.
14914	J2-801	2014/12/18	04:53	12.92237	143.64918	93	2927.6	Bingo!
14917	J2-801	2014/12/18	04:55	12.92237	143.64920	96	2928.0	Already have chemistry here from earlier in the dive.
14918	J2-801	2014/12/18	04:55	12.92237	143.64920	96	2927.9	Going to sample with remaining syringes.
14920	J2-801	2014/12/18	04:56	12.92236	143.64920	96	2928.0	**SAMPLE: BM J801-BM1-X5-34** Golden horn midway up. Light fluffy veil-like mat. mix of textures.
14921	J2-801	2014/12/18	04:56	12.92236	143.64920	96	2927.9	HIGHLIGHTS: Record SciCam J801-BM1-X5-34
14923	J2-801	2014/12/18	04:57	12.92236	143.64920	96	2928.0	Mat is very fluffy. pretty thick too
14924	J2-801	2014/12/18	04:57	12.92236	143.64920	96	2927.9	**SAMPLE: BM J801-BM1-X4-35** same stuff
14926	J2-801	2014/12/18	04:58	12.92236	143.64920	96	2927.9	Re-indexing cassette for X3.
14927	J2-801	2014/12/18	04:58	12.92236	143.64920	96	2927.9	HIGHLIGHTS: End Highlights
14928	J2-801	2014/12/18	04:58	12.92236	143.64920	96	2927.9	Large chuck near where we were sampling fell off.
14929	J2-801	2014/12/18	04:59	12.92236	143.64920	96	2927.9	**SAMPLE: BM J801-BM1-X3-36**
14931	J2-801	2014/12/18	04:59	12.92236	143.64920	96	2927.9	HIGHLIGHTS: Record SciCam J801-BM1-X3-36

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
14932	J2-801	2014/12/18	04:59	12.92236	143.64920	96	2927.9	X5; X4 and X3 all sampled same fluffy mat from middle of Golden Horn.
14934	J2-801	2014/12/18	05:00	12.92236	143.64920	96	2927.9	Going back to the top of the horn to run a sterivex.
14935	J2-801	2014/12/18	05:00	12.92237	143.64919	98	2925.7	HIGHLIGHTS: End Highlights
14942	J2-801	2014/12/18	05:06	12.92237	143.64923	185	2922.1	Getting ready to sample with the beast.
14943	J2-801	2014/12/18	05:06	12.92237	143.64923	185	2922.1	Temp up to 8C.
14944	J2-801	2014/12/18	05:06	12.92237	143.64923	185	2922.1	Re-doing this spot with a sterivex filter because the sample they took earlier in the dive did not have a filter on it (number 14).
14945	J2-801	2014/12/18	05:07	12.92237	143.64923	185	2922.1	Temp still rising.
14947	J2-801	2014/12/18	05:07	12.92237	143.64923	185	2922.1	at 10c
14948	J2-801	2014/12/18	05:07	12.92237	143.64923	185	2922.1	**SAMPLE: J801-HFS-37** Sterivex Filter #10 Start time: 05:07:16
14949	J2-801	2014/12/18	05:07	12.92237	143.64923	185	2922.1	FRAMEGRABS: HD frame grab SciCam
14950	J2-801	2014/12/18	05:07	12.92237	143.64923	185	2922.1	FRAMEGRABS: HD frame grab PilotCam
14954	J2-801	2014/12/18	05:10	12.92237	143.64923	185	2922.2	This sample will take about 20 minutes.
14960	J2-801	2014/12/18	05:15	12.92237	143.64923	185	2922.1	we're halfway
14969	J2-801	2014/12/18	05:23	12.92237	143.64923	185	2922.1	SAMPLE: HFS J801-HFS-37 cont. Sterivex Filter #10 Tmax=11.8 C; Tavg= 9.6C; T2=4.0C; Vol= 3004ml; Stop time: 5:23:16
14972	J2-801	2014/12/18	05:25	12.92237	143.64923	185	2922.1	Location: 12deg 55.34311N 143deg 38.9534E
14973	J2-801	2014/12/18	05:25	12.92237	143.64923	185	2922.1	SENSOR: pH pH= 5.68
14974	J2-801	2014/12/18	05:25	12.92237	143.64923	185	2922.1	SENSOR: O2 O2= 2.43 ml/L
14976	J2-801	2014/12/18	05:26	12.92237	143.64923	185	2922.1	Stowing the HFS wand.
14978	J2-801	2014/12/18	05:27	12.92239	143.64921	184	2921.8	Going to active chimney site next.
14979	J2-801	2014/12/18	05:27	12.92239	143.64920	183	2922.0	For hot water sampling.
14982	J2-801	2014/12/18	05:29	12.92233	143.64916	117	2929.0	Found it!
14983	J2-801	2014/12/18	05:29	12.92233	143.64917	133	2929.4	Iron mats; sulfur; hot water; crab.
14984	J2-801	2014/12/18	05:30	12.92233	143.64917	131	2929.5	Shrimp too!
14986	J2-801	2014/12/18	05:30	12.92233	143.64917	133	2929.4	Temp probe.
14988	J2-801	2014/12/18	05:31	12.92233	143.64917	132	2929.4	It's hot! Rising above 100C
14990	J2-801	2014/12/18	05:32	12.92233	143.64917	132	2929.4	Tmax was around 206C and it was still rising.
14993	J2-801	2014/12/18	05:35	12.92233	143.64917	133	2929.4	**SAMPLE: HFS J801-HFS-38** Piston #2 Filtered Start time: 5:34:57
14998	J2-801	2014/12/18	05:38	12.92233	143.64917	132	2929.4	SAMPLE: HFS J801-HFS-38 cont. Piston#2 Filtered Tmax= 184.2C; Tavg= 179.3C; T2=58.9C; Vol= 554ml; Stop time: 5:37:54Location: 12deg 55.3378N 143deg 38.9521E Active Chimney
15000	J2-801	2014/12/18	05:39	12.92233	143.64917	132	2929.4	**SAMPLE: HFS J801-HFS-39** Unfiltered piston #3 Start time: 05:38:37.
15003	J2-801	2014/12/18	05:42	12.92233	143.64917	132	2929.4	J801-HFS-39 cont Unfiltered piston #3 Tmax= 178.7C; Tavg= 173.3C; T2= 57.3C; Vol= 554ml; Stop time: 5:41:40 Same location as Piston#2.
15006	J2-801	2014/12/18	05:43	12.92233	143.64917	132	2929.4	**SAMPLE: GTHFS J801-GTHFS-40** starboard.
15007	J2-801	2014/12/18	05:43	12.92233	143.64917	132	2929.4	SAMPLE: J801-GTHFS-41 port.
15013	J2-801	2014/12/18	05:48	12.92233	143.64917	132	2929.5	SAMPLE: Major Cycling the beast.
15014	J2-801	2014/12/18	05:48	12.92233	143.64917	132	2929.5	Power up on Beast again.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
15020	J2-801	2014/12/18	05:53	12.92233	143.64917	132	2929.4	**SAMPLE: Major J2-major-42**. Active Chimney at same location as GTHFS.Red Major. See exhaust from the hole. Fired.
15022	J2-801	2014/12/18	05:55	12.92233	143.64917	132	2929.4	J801-major-42 cont. Same location as the last 2 pistons and the gas-tight. Temperature was 178-184degC.
15025	J2-801	2014/12/18	05:56	12.92234	143.64917	132	2929.4	Stowing major.
15030	J2-801	2014/12/18	06:00	12.92234	143.64917	123	2929.2	Craig says that Active Chimney is Ultra-no-chichi. Note: Check the first dive for this chimney.
15031	J2-801	2014/12/18	06:00	12.92233	143.64917	123	2929.2	Jason pulled off and is going to flow site up slightly to measure temperature and pH.
15034	J2-801	2014/12/18	06:02	12.92233	143.64917	123	2929.2	
15035	J2-801	2014/12/18	06:02	12.92233	143.64917	123	2929.2	Using the HFS wand for readings.
15036	J2-801	2014/12/18	06:03	12.92233	143.64917	123	2929.1	Wand is at the top of the flow area above the black hole at the base.
15039	J2-801	2014/12/18	06:04	12.92233	143.64917	123	2929.1	SENSOR: Temp HFS sensor: Temp is rising 12...13degC...20deg. pH is dropping. pH=5.2. Temp=23deg. (pH numbers need to be checked for calibration post-dive).
15041	J2-801	2014/12/18	06:05	12.92233	143.64917	123	2929.1	SENSOR: O2 HFS sensor: O2=2.1mL/. =94uM
15042	J2-801	2014/12/18	06:05	12.92234	143.64917	123	2929.2	Moving probe down where the few shrimp are sitting.
15044	J2-801	2014/12/18	06:06	12.92233	143.64917	123	2929.1	SENSOR: Temp HFS sensor: Temperature is 17-18.5C.
15045	J2-801	2014/12/18	06:06	12.92233	143.64917	123	2929.2	Moving tip on to the shrimp who are now scattering.
15046	J2-801	2014/12/18	06:06	12.92233	143.64917	123	2929.2	SENSOR: Temp HFS sensor: Temperature is 16.5 at the shrimp spot.
15049	J2-801	2014/12/18	06:08	12.92233	143.64917	123	2929.2	**SAMPLE: J801-HFS-43** Unfiltered Piston #5. Start 06:08.
15051	J2-801	2014/12/18	06:09	12.92232	143.64917	123	2929.2	SAMPLE: HFS J801-HFS-43 cont. This is the location of the shrimp habitat where the SPME sampler will be tried next. Temperature was 16-18degC.
15055	J2-801	2014/12/18	06:12	12.92232	143.64917	123	2929.1	J801-HFS-43 Stop 06:11 Tmax=17.3 Tavg=16.3 T2=8 vol=600mL.
15056	J2-801	2014/12/18	06:12	12.92232	143.64917	123	2929.1	Stowing the HFS wand.
15058	J2-801	2014/12/18	06:13	12.92232	143.64918	123	2929.1	Retrieving the SPME sampler from the left swing-arm biobox.
15060	J2-801	2014/12/18	06:14	12.92232	143.64918	123	2929.1	HIGHLIGHTS: Record SciCam Highlights of SPME sample at Ultra-no-chichi.
15062	J2-801	2014/12/18	06:15	12.92232	143.64918	123	2929.1	Port arm will hold sampler in the flow and the starboard arm will squeeze.
15065	J2-801	2014/12/18	06:18	12.92231	143.64918	123	2929.1	**SAMPLE: J801-SPME4-44** in the shrimp habitat flow. Start 0618.
15067	J2-801	2014/12/18	06:18	12.92231	143.64918	123	2929.1	Needs to be squeezed for 6 minutes for a complete sample.
15068	J2-801	2014/12/18	06:18	12.92231	143.64918	123	2929.1	Rotating the sampler so the exposed white parts are in the flow. Rotated 90degrees.
15075	J2-801	2014/12/18	06:24	12.92230	143.64918	123	2929.0	J801-SPME4-44 cont. Stop squeezing 06:24. Species of back-arc shrimp.
15076	J2-801	2014/12/18	06:24	12.92230	143.64918	123	2929.1	Stowing the sampler in the biobox in left swing-arm. Want to put out a settling plate and marker here before departing.
15078	J2-801	2014/12/18	06:25	12.92230	143.64918	123	2929.0	SPME-4 is in the biobox.

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
15079	J2-801	2014/12/18	06:25	12.92230	143.64918	123	2929.0	HIGHLIGHTS: End Highlights
15081	J2-801	2014/12/18	06:26	12.92230	143.64918	123	2929.0	Reaching for a settling plate. Looking for a place it will stay.
15085	J2-801	2014/12/18	06:29	12.92230	143.64918	123	2929.0	**Depl/Rec: Deploy** This is SPlate #5 on top of the chimney. J801-Splate#5 deployed.
15086	J2-801	2014/12/18	06:29	12.92230	143.64918	123	2929.0	Going to put a marker out here next. Grabbing Marker 125.
15088	J2-801	2014/12/18	06:30	12.92230	143.64918	123	2929.0	**Depl/Rec: Deploy Marker 125** at heading 123 at 2929m depth. On top with the Splate.
15090	J2-801	2014/12/18	06:31	12.92230	143.64917	123	2929.0	#14 in the back and #15 is nestled for the Splate #5 as far as the individual samplers.
15091	J2-801	2014/12/18	06:31	12.92230	143.64917	123	2929.0	Framegrabs of the sampler and marker.
15095	J2-801	2014/12/18	06:34	12.92228	143.64921	325	2927.96	SAMPLE: Rock Attempting to take a piece of chimney. Highlights overview of site. See the Japanese marker on the other part of the chimney (higher one). Mkr-125 is on a lower part.
15097	J2-801	2014/12/18	06:36	12.92228	143.64921	325	2928.4	Looking at Marker 125 and Splate at heading 324 and depth 2928.
15099	J2-801	2014/12/18	06:36	12.92228	143.64921	324	2928.4	Great view in Pilot camera.
15101	J2-801	2014/12/18	06:37	12.92228	143.64921	319	2928.6	Lasers on the target chimney. Other piece fell down. Crumbled away exposing black surface. More is crumbling away.
15103	J2-801	2014/12/18	06:38	12.92228	143.64921	319	2928.6	**SAMPLE: Rock J801-rock-45** taken from near the laser target to the right before the fog.
15104	J2-801	2014/12/18	06:38	12.92228	143.64921	320	2928.7	Placed in the biobox.
15105	J2-801	2014/12/18	06:38	12.92226	143.64920	319	2925.4	Backing away from the site.
15107	J2-801	2014/12/18	06:39	12.92222	143.64911	321	2924.6	JASON: Jason off bottom
15108	J2-801	2014/12/18	06:39	12.92221	143.64910	353	2923.6	We will take some background samples as Jason ascends.
15114	J2-801	2014/12/18	06:44	12.92200	143.64857	246	2858.6	Going to retrieve SPME #1 for background.
15117	J2-801	2014/12/18	06:46	12.92197	143.64854	244	2826.1	**SAMPLE: J801-SPME1-46** background. Depth=2828. Squeezing.
15118	J2-801	2014/12/18	06:46	12.92196	143.64852	244	2812.5	Needs six minutes of squeezing. (Location not important as we are ascending and moving).
15125	J2-801	2014/12/18	06:52	12.92190	143.64847	246	2667.7	J801-SPME1-46 cont. Stop squeeze.(Ambient temperature is 1.53degC)
15126	J2-801	2014/12/18	06:52	12.92190	143.64847	245	2662.7	Depth 2667 at end of squeeze.
15132	J2-801	2014/12/18	06:57	12.92190	143.64847	246	2525.0	**SAMPLE: HFS J801-HFS-47** Unfiltered Bag #23. Start 06:57. background sample
15137	J2-801	2014/12/18	07:01	12.92189	143.64847	242	2387.5	J801-HFS-47 cont. Stop 07:01. Did not record temperature but 2.1degC on the Jason probe.
15138	J2-801	2014/12/18	07:01	12.92189	143.64847	242	2375.5	**SAMPLE: J801-HFS-48** Filtered Bag #24. Background sample. Started 07:02.
15139	J2-801	2014/12/18	07:02	12.92190	143.64847	243	2370.3	SAMPLE: HFS J801-HFS-48
15144	J2-801	2014/12/18	07:05	12.92189	143.64847	241	2259.1	J801-HFS-48 cont. Stop 07:05. depth=2262.
15145	J2-801	2014/12/18	07:05	12.92189	143.64847	241	2242.1	J801-HFS-48 cont. Temperature 2.1 vol=600mL.
15219	J2-801	2014/12/18	08:26	12.92190	143.64846	257	0.7	Medea on deck

VV #	Dive	Date	Time	Latitude	Longitude	Gyro	Depth	Logged comments
15220	J2-801	2014/12/18	08:34	12.92190	143.64847	246	0.3	JASON: Jason out of water
15221	J2-801	2014/12/18	08:35	12.92194	143.64848	360	0.6	JASON: Jason on deck

Appendix:

Metadata and data from this expedition has been submitted to the Marine Geoscience Data System available at:

www.marine-geo.org

The expedition ID for this cruise is RR1413.

The Jason Virtual Van, 2014→ SRoF14-Ironman [rr1413], is available for this expedition's dives at:

http://4dgeo.whoi.edu/jason/

The SRoF2014-Ironman cruise report (with and without the dive logs) and data can be obtained at:

http://www.pmel.noaa.gov/eoi/marianas_site.html/

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