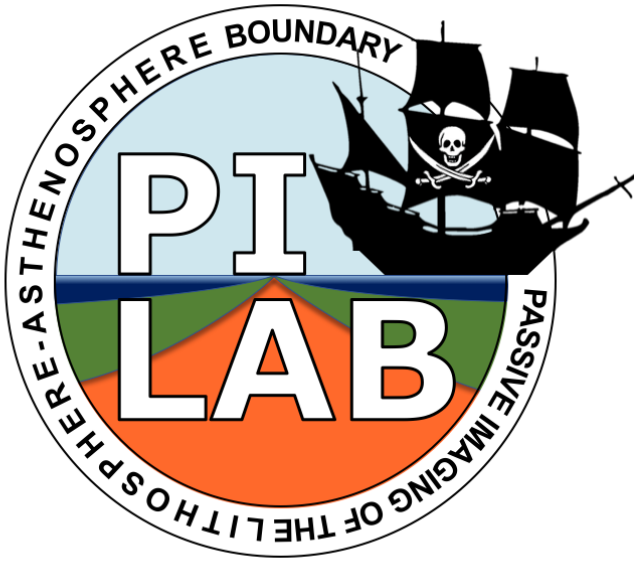

DY072

28 February – 2 April 2017

Cruise Report

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1. Introduction

The goal of the Passive Imaging of the Lithosphere Asthenosphere Boundary (PILAB) project is a better understanding of the tectonic plate. The transition from a rigid plate to a weaker, convecting asthenosphere is fundamental to plate tectonic theory. Yet the thickness of the plate and the mechanism that causes the transition from the lithospheric plate to the deeper asthenosphere is the subject of much debate. The nature of this boundary likely has implications for our understanding of the driving forces of plate tectonic theory, mantle dynamics, earthquakes, volcanos and tsunamis, and our understanding of sea level rise/climate change on geologic timescales. The driving question of the experiment is to determine what makes a plate "plate-like".

The oceanic lithosphere is an ideal system to understand the tectonic plate, as it has a simple history, and it is well suited for hypothesis testing. For instance, half space cooling model, which relies on a thermally defined plate, has been very successful in explaining the seafloor subsidence and heat flow measurements with increasing seafloor age. However, recent observations of sharp seismic and resistivity discontinuities at a constant 60-80 km depth challenge the notion of a purely thermally defined lithosphere-asthenosphere, which is predicted to be very gradual in depth. This suggests composition or a phase change such as melt transition occurs at the LAB. Discriminating between these hypotheses has been difficult because the previous work has been carried out at a variety of scales from local to global, using a variety of geophysical methods with different resolutions and sensitivities. In addition, direct comparison between studies is difficult due to the difference in location of these investigations. Many experiments have focused on the fast spreading lithosphere of the Pacific plate, wheras in situ measurements on slower spreading oceanic lithosphere, such as the Atlantic, are rare.

The PI-LAB experiment will image the crust and mantle at the same location using a variety of geophysical methods with multiple scales of resolution and sensitivity to determine the defining mechanism of the tectonic plate. Specifically, the project will use passive source seismology and magnetotellurics to image the crust and upper most mantle beneath 0 M.y. to 80 M.y. aged seafloor from the slow spreading Mid-Atlantic Ridge near the Chain and Romanche Fracture Zones. This work will complement active seismic reflection and refraction work by project partners. The experiment is designed as 3 linear arrays crossing the Mid-Atlantic Ridge twice on two separate ridge segments and 50-80 M.y. seafloor across the Romanche Fracture Zone. The location was chosen to optimize lithospheric simplicity, i.e. focusing on a relatively long ridge segment. In addition, it was chosen to overlap at least partially with previously collected reflection data from Satish Singh, to maximize the scale of resolutions.

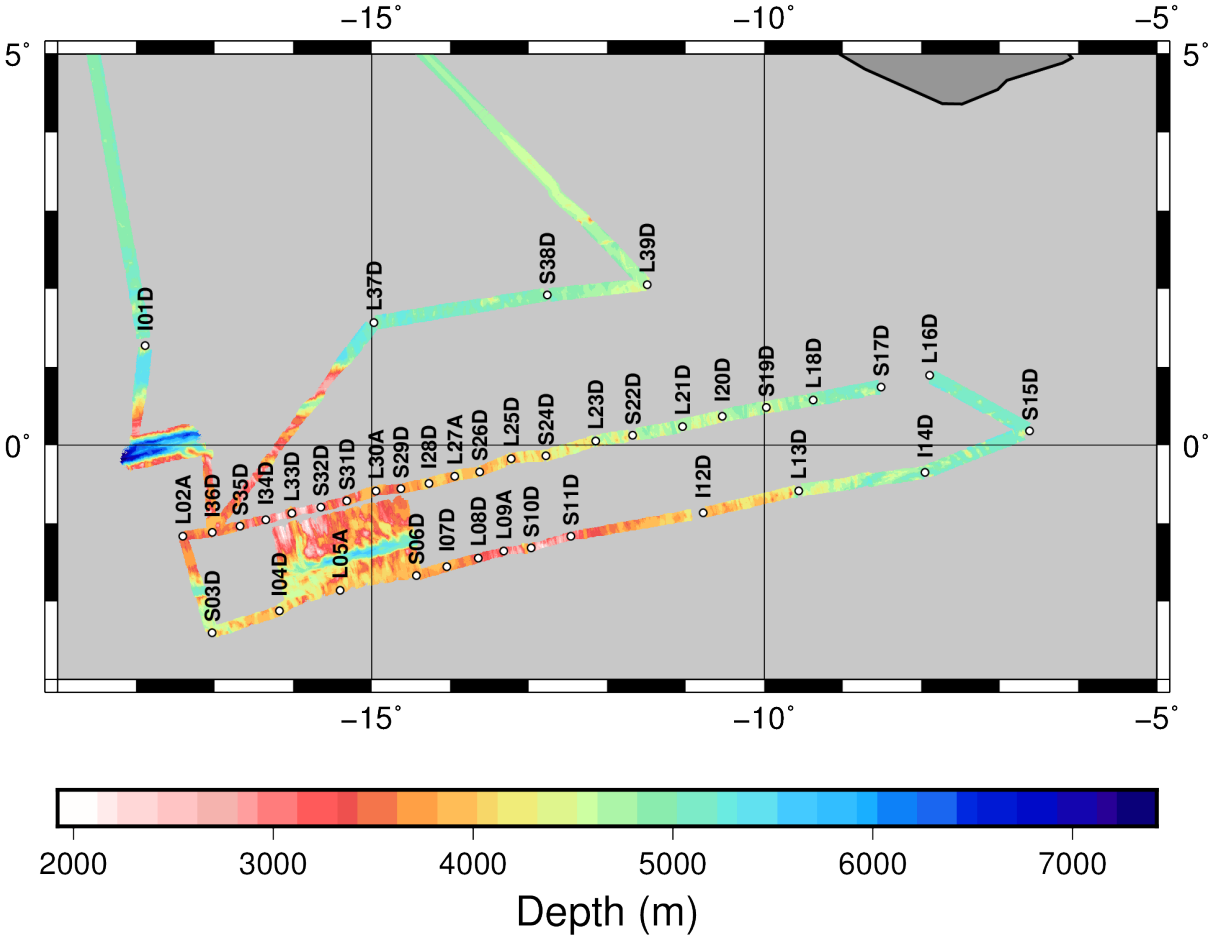

Figure 1: Ship track for DY07 and OBS station locations over bathymetry. OBMT are deployed within 1 km of the OBS

The PI-LAB instruments were recovered on the Royal Research Ship Discovery on cruise DY072. The cruise departed at 20:30 on 28 February 2017 from Santa Cruz Tenerife and returned to Tenerife 2 April 2017. The ship track is shown in Figure 1. The Principal Scientist was Associate Prof. Catherine Rychert and the Senior Scientist was Prof. Mike Kendall.

The project and cruise DY072 is funded by the Natural Environment Research Council (NERC), the European Research Council (ERC) and the National Science Foundation (NSF). The Principal Investigator for the passive seismic deployment NERC funding is Catherine Rychert, University of Southampton. The Co-Investigators on the NERC PI-LAB grant are Nicholas Harmon (U. Southampton) and Michael Kendall (University of Bristol). Catherine Rychert is also funded by an ERC Starter Grant. Steve Constable (University of California, San Diego) is the Principal Investigator for the magnetotelluric study funded by NSF, with Kerry Key as Co-Investigator. Project partners include Satish Singh who is funded by an ERC Advanced Grant, to collect multi channel seismic data across the study area, and Ingo Grevemeyer from GEOMAR to perform refraction experiments in the area.

The PI-LAB experiment was deployed on the Marcus G. Langseth from 1 – 25 March 2016 (MGL1602). The experiment consists of 39 ocean bottom seismometers and 39 ocean bottom magnetotelluric instruments deployed at 39 sites near the mid-Atlantic ridge on 0 – 80 My

old seafloor. The OBS and the OBMT were collocated, separated by ~1 km at each site. The deployment cruise also surveyed the eastern side of the Chain Fracture Zone performing multibeam swath bathymetry, gravity, and magnetics. The recovery cruise surveyed the western half of the Chain Fracture Zone and also a region of the Romanche Fracture Zone that experienced a 7.1 magnitude earthquake during the deployment at 04:30 on 29 August. The recovery surveys also included multibeam swath bathymetry, gravity, and magnetics.

2. Security Risks, Pirates

A health and safety review of DY072 was carried out in the beginning of 2017. In mid-February 2017 we were informed all activities south of 2° N, encompassing all of our stations, were considered 'at risk' for piracy. We were told that the ship would be fitted with extra security hardware including additional locks. In addition, we might be required to only operate during daylight hours and only recover instruments in an east to west pattern, away from land. Night operations would involve lights on deck that decrease visibility from the bridge. These recommendations came from a security company called Dryad Maritime, hired to assess and advise. Implementing these regulations would be at the discretion of the captain. Our departure date was moved forward from 2 March to the night of the 28th February and a third engine was added to the ship. This was to speed up the cruise in case the restrictions on working hours were implemented. Before we left port we were given a briefing on security by a representative of Dryad Maritime. The ship's hold was prepared as a citadel, filled with water, rations, and portable toilets. We performed drills evacuating to the hold. The plan was that we would seal ourselves in the citadel and drive the ship from there in the event of a pirate attack. In the end we only encountered two ships when we were at the eastern edge of our study area on 16 March at 10 am. One was a fishing boat, named Panofi Fore Runner. The other appeared to be travelling with Panofi, although unnamed, without fishing gear. We diverted to Starboard by 1 mile to avoid them, and the ships continued their course. We reencountered the Panofi two days later. However, in neither case did the ships divert toward us, and danger was assessed to be low. At the sites closest to land (S17D, L16D, S15D, I14D) we closed all windows at night. We also closed the hanger and as many doors as possible. This was to reduce light coming off the ship and also to make the ship more secure. In the end we were allowed to work through the night and collect stations in either steaming direction, either west-to-east or east-to-west. This allowed us to complete the scientific goals, which would have otherwise been in jeopardy if the pirate working restrictions were put into practice.

3. Cruise Scientific Activities

The primary scientific objective of the DY072 cruise was the recovery and triangulation of 39 broadband ocean bottom seismometers (OBS) and the recovery of 39 ocean bottom magnetotelluric instruments (OBMT). We also completed a marine geophysical survey of the western Chain Fracture zone and the area of a large magnitude (7.1) earthquake that occurred on Romanche Fracture Zone on 29 August at 04:30.

3.1 Ocean Bottom Seismic and Magnetotelluric Deployment Hardware Overview

Three groups provided instruments for the ocean bottom seismic deployments. Scripps Institution of Oceanography (SIO) provided 15 broadband ocean bottom seismometers equipped with Nanometrics Trillium 240 s period seismometers and differential pressure gauges (DPG), Institut de Physique du Globe de Paris (IPGP) of the University of Paris

provided 9 broadband ocean bottom seismometers with Nanometrics Trillum 240 s period seismometers and differential pressure gauges, and Lamont Doherty Earth Observatory (LDEO) of Columbia University provided 15 broadband ocean bottom seismometers with Nanometrics Trillium Compact 120 s periods seismometers with differential pressure gauges or absolute pressure gauged (APG). Scripps Institution of Oceanography provided 39 ocean bottom magnetotelluric (MT) instruments equipped with electrodes for measuring the electric field, 17 capable recording both the AC and DC electric fields and magnetometers for measuring the magnetic field. Table 1 details the acquisition parameters and instrumentation hardware for the deployments.

Table 1: Description of instrumentation deployed

Instrument	Sensor Type	Sampling Rate	Leveling Schedule	Number
SIO OBS	Nanometrics Trillium 240 s /DPG	50 Hz	1day/1 week	15
LDEO OBS	Nanometrics Trillium Compact 120 s/DPG/APG	100 Hz	1 day/1 week	10/5 (DPG/APG)
IPGP OBS	Nanometrics Trillum 240 s /DPG	62.5 Hz	1 Hr or 1 day/1 week	15, 2 with 1 day/1 week leveling
SIO OBMT	Electrodes AC/DC Magnetometer	62.5 Hz	NA	39 (17/21 6 channels recording AC/DC, otherwise 4 channels)

Deployment stations were assigned a code based on the following: first letter indicate the institution of the equipment, I=IPGP, L=LDEO, S=SIO, the two digit number indicates the sequence that the instrument was deployed, and the last letter indicates the type of instrument being deployed, M=MT, D=DPG, A=APG. So for example S02M indicates a Scripps magnetotellurics instrument at the second station deployment location, while L02A indicates the LDEO ocean bottom seismometer equipped with and absolute pressure gauge at the second station deployment location. Table 2 gives the OBS station locations, and Table 3 gives the OBMT station locations. Appendix 1, has detailed bathymetry maps including recovery ship track. Figure 2 shows the locations of the OBS/OBMT.REPLACE FIGURE 2

Table 2: Ocean Bottom Deployment Locations

Site	Lon (Deg)	Lat (Deg)	Depth (m)	Notes
I01D	xx	xx		Communicated, but never properly, of instance only giving 7 beeps (not 3) in response. We tried trolling for it, and may have hit it, but it stayed down. We sent burn commands, then disabled it.
L02A	-17.4085	-1.1667	3499	Battery died after 5/6 months.
S03M	-17.0315	-2.4021	3750	OK
I04D	-16.1733	-2.1238	3928	OK
L05A	-15.4058	-1.8577	4052	Battery died after 5/6 months probably because of levelling.
S06D	-14.4298	-1.6703	3778	OK
I07D	-14.0428	-1.5565	3819	Ran for only 2 weeks
L08D	-13.6409	-1.4493	3357	Only 1 horizontal channel was recorded
L09A	-13.3185	-1.3569	3378	One horizontal channel was not recorded, no APG
S10D	-12.9697	-1.318	3015	OK
S11D	-12.4602	-1.1691	2905	OK
I12D	-10.7766	-0.8683	4022	OK
L13D	-9.5619	-0.5862	4659	Only recorded for some time, looks similar to L05 and L02
I14D	-7.9524	-0.3522	4702	OK
S15D	-6.6228	0.1814	4927	On a slope, long period noise, leveled every week, ran out of battery on day 300.
L16D	-7.8953	0.8933	4581	Small amount of water in the sensor, periodic drop outs, only recorded for 10 months
S17D	-8.5121	0.7422	5205	OK
L18D	-9.3765	0.5769	4890	OK
S19D	-9.9754	0.4809	4607	OK
I20D	-10.5352	0.3681	4724	The gimble did not unlock. This is one of 2 that were reprogrammed to get rid of hourly spike. However, it may not have been programmed to level to the correct directions. Dpg OK
L21D	-11.038	0.2364	4625	OK
S22D	-11.6799	0.1254	4352	OK
L23D	-12.1478	0.0521	4631	OK
S24D	-12.7806	-0.1383	4453	Flat line, did not level, tried to level weekly until day 240 when it ran out of battery. dpg OK
L25D	-13.223	-0.1745	4207	Flat line, no dpg
S26D	-13.626	-0.3434	4216	Ok
L27A	-13.9425	-0.4007	3954	Cable to large battery corroded, so only recorded 2 channels for 5 months + hydrophone. No APG
I28D	-14.2684	-0.4918	3711	OK
S29D	-14.6272	-0.5597	3626	OK
L30A	-14.9459	-0.5888	4022	No APG
S31D	-15.3188	-0.7141	3408	OK
S32D	-15.647	-0.7968	2957	Sensor was flooded – instrument was dropped on the previous cruise. DPG OK.
L33D	-16.0165	-0.8738	3919	OK
I34D	-16.3485	-0.9579	2964	OK
S35D	-16.6798	-1.0372	3773	Did not write to disk, error in log that board was not loaded when it was turned on, although it was not noticed
I36D				No communication, burn commands sent, but did not surface, also revisited, at end of cruise, still no comm. – the other instrument (of 2) that was reprogrammed to get rid of spikes
L37D	-14.9718	1.5657	5053	OK
S38D	-12.7623	1.9218	4926	Broken solder point. Ran out of battery after 11 or 12 months. One battery came back fully charged (7V), while the rest were at 4V.
L39D	-11.4904	2.0557	4685	OK

Table 3: OBMT out of water station locations-SF indicates syntactic foam used in body, and 4x or 6x indicates the number of channels recorded in the Notes column (the SF and channel info is copied from deployment cruise report).

Station	Lon (Deg)	Lat (Deg)	Notes
S01M	-17.8952	1.2856	4 x 62.5 Hz/SF
S02M	-17.4117	-1.1750	6 x 62.5 Hz/SF
S03M	-17.0387	-2.4030	4 x 62.5 Hz/SF
S04M	-16.1774	-2.1202	6 x 62.5 Hz/SF
S05M	-15.3921	-1.8556	4 x 62.5 Hz/SF
S06M	-14.4264	-1.6822	6 x 62.5 Hz/SF
S07M	-14.0380	-1.5483	4 x 62.5 Hz/SF
S08M	-13.6499	-1.4523	6 x 62.5 Hz/SF
S09M	-13.3248	-1.3601	4 x 62.5 Hz/SF
S10M	-12.9650	-1.3204	6 x 62.5 Hz/SF
S11M	-12.4775	-1.1712	4 x 62.5 Hz/SF
S12M	-10.7872	-0.8718	6 x 62.5 Hz/SF
S13M	-9.5748	-0.5826	4 x 62.5 Hz
S14M	-7.9535	-0.3658	6 x 62.5 Hz
S15M	-6.6291	0.1825	4 x 62.5 Hz
S16M	-7.8906	0.8825	6 x 62.5 Hz
S17M	-8.5064	0.7447	4 x 62.5 Hz
S18M	-9.3917	0.5770	6 x 62.5 Hz
S19M	-9.9928	0.4804	4 x 62.5 Hz
S20M	-10.5401	0.3650	6 x 62.5 Hz
S21M	-11.0513	0.2387	4 x 62.5 Hz
S22M	-11.6705	0.1274	6 x 62.5 Hz
S23M	-12.1360	0.0542	4 x 62.5 Hz
S24M	Not recovered		
S25M	-13.2144	-0.1686	4 x 62.5 Hz/SF
S26M	-13.6211	-0.3418	6 x 62.5 Hz/SF
S27M	-13.9307	-0.3960	4 x 62.5 Hz/SF
S28M	-14.2722	-0.4796	6 x 62.5 Hz/SF
S29M	-14.6254	-0.5645	4 x 62.5 Hz/SF
S30M	-14.9384	-0.5784	6 x 62.5 Hz/SF
S31M	-15.3233	-0.7139	6 x 62.5 Hz/SF
S32M	-15.6396	-0.7932	4 x 62.5 Hz/SF
S33M	-16.0163	-0.8618	6 x 62.5 Hz/SF

S34M	-16.3689	-0.9604	4 x 62.5 Hz/SF
S35M	-16.6832	-1.0308	6 x 62.5 Hz/SF
S36M	-17.0438	-1.1199	4 x 62.5 Hz/SF
S37M	-14.9769	1.5579	4 x 62.5 Hz
S38M	-12.7836	1.9275	4 x 62.5 Hz
S39M	-11.5051	2.0571	4 x 62.5 Hz

2.2 Recovery Procedures

The following procedure was followed for all deployments. 1 hour before watch standers make wake up calls. Swath bathymetry of the region was assessed to estimate potential communication problems such as a very deep station or reverberations from a valley. 20 minutes before reaching the site the magnetometer was brought in, if it was out. 15 minutes before reaching the site the multibeam and single beam were turned off. The OBMT group performs the following: 1) establish communication with the OBMT instrument 2) send a burn command 3) range to instrument to confirm it is rising 4) disable instrument 5) calculate ETA on surface and communicate this to watchstanders/bridge. When the ship reaches the ½ water depth distance from the seismic site it stops, it goes into dynamic positioning mode (DP), and drops the drop keel. After the MT group disables their instrument the OBS group establishes communication with the OBS. Once communication is established we survery in the OBS, ranging to it while steaming 270 degrees of a circle at radius = ½ water depth from the OBS. The ship goes into DP mode and the OBS group sends a burn command to the OBS. The seismic group ranges to the OBS to establish it is rising and gives an ETA at the surface to the watchstanders/bridge. We then performed a sound velocity profile (SVP) of the water column. The ship then proceeded to wait 500 m away from the OBS or the OBMT site. OBS rise times are on the order of 40 m/min (Lamont/IPGP) to 50 m/min (Scripps), about 1.5 hours. OBMT rise times are on the order of 20 m/min, about 4 hours, except for shallow sites where syntactic foam gives them slightly shorter rise times. OBS was picked up first in many cases since it has no GPS, and there is a greater risk of losing sight of it. However, in the cases where the OBMT ETA was > 30 min earlier than seismic we picked up the OBMT first. The multibeam and single beam were turned on. The instrument was secured. The second instrument (OBS or OBMT) was recovered and secured. The magnetometer was deployed, if scheduled for deployment. The drop keel was raised in the cases of longer transits > 3 hours. The next site ETA was updated on the ship screens.

The survey procedure was the same for all sites except for the first few, where instead we used 4 points at ½ water depth (diamond) (station 39) or 3 points (triangle) with a point in the middle (station 38). We did this when we were working out the problem with the hull transducer and also when the Scripps group could not get their software running, so needed to take manual GPS (phone shot of navigation screen) readings and ranges. It was later determined that the manual reading could also be done during a circular survey. Lamont did manual recording using screen shots of the navigation or the navigation webpage. They then used a code written by Andrew Barclay to invert for station location. The Scripps group used their own GPS feed and a python program to relocate the instrument in real time. IPGP used the automatic program from Scripps and also manually recorded the ranges and locations in the same way as Lamont. The IPGP group has their own matlab relocation script. The Scripps program can only handle an average water column velocity, whereas the IPGP and Lamont calculations can handle a full 1D velocity profile. In a few locations we also continued

surveying into 500 m from the seismic instrument at the request of the OBS groups. However, once we established good communication with the hull transducer and established that steaming to the centre the circle did affect the instrument location, we began to use the consistent 270 degree circle survey, stopping on the circle to burn the OBS and do the SVP.

3.3 Underway Geophysics Survey of the PILAB study region and eastern Chain Fracture Zone

We performed an underway geophysical survey of the western end of the Chain Fracture zone from March 18, 2017 to March 22, 2017. The gravity meter was an Air-Sea Sytem II Gravity Meter by Micro-g Lacoste. The magnetometer was a pulsed Overhauser Marine Magnetometer by Seaspy.

During these segments, swath bathymetry, swath sidescan sonar, gravity and total field magnetics measurements were collected. Figure 3 shows the illuminated compiled swath bathymetry and side scan sonar for the Chain Fracture Zone survey region. Swath data was minimally processed and will eventually be properly ping edited, etc. in the next few months, but the raw data is of high quality (Figure 3).

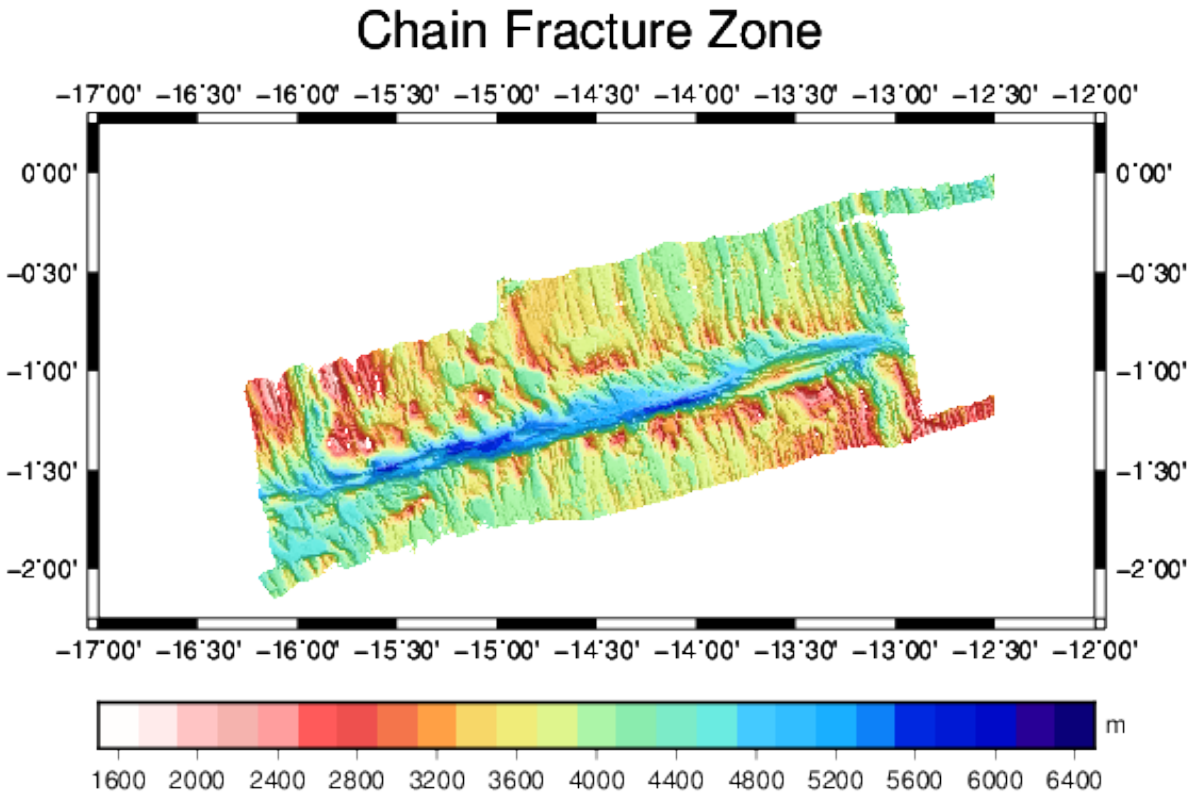

Figure 2: Swath bathymetry) of the western (from DY072) and eastern (from deployment) portion of the Chain Fracture Zone. The bathymetry is illuminated from the North and West

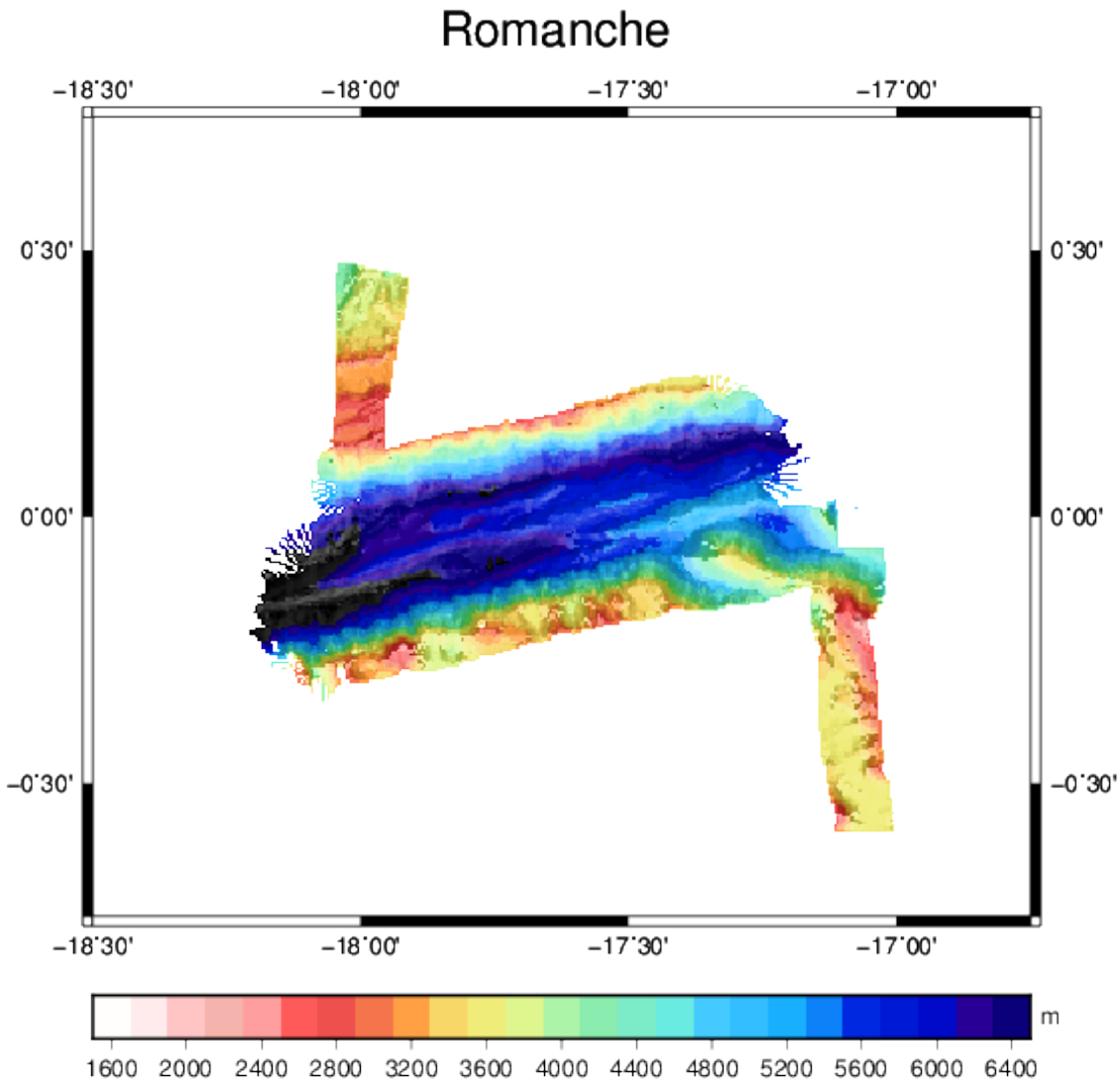

Figure 3: Swath bathymetry) of Romanche Fracture Zone in the region of the magnitude 7.1 earthquake on 29 August 2017 at 4:30 am.

Gravity data was processed from the raw data output in the following way. To convert from raw data counts to mGal, we used a scale factor of 4.99017410 mGal/count and a bias of 855022.630 mGal. The gravity data was then merged with the CNAV navigation file, Eotvos corrected and filtered with a 300 s (5 min) window moving average filter. Turns in the data were removed and the straight trackline segments were gridded. The gravity data was linearly interpolated onto a grid with the same dimension as the swath bathymetry (200 m by 200 m per pixel). We checked the cross over errors for the trackline on this cruise and were < 4 mGal in all cases. Figure 4 shows the gridded gravity and the trackline wiggles.

Figure 2: Gridded free air gravity (FAA) anomaly for the eastern Chain Fracture zone. Black contours of 500 m bathymetry invervals shown for reference. White lines show trackline gravity measurements used in the gridding.

Magnetics data was gridded in the following way. The magnetic data was merged with the CNAV navigation file. We calculated the background total magnetic field intensity using the

International Geomagnetic Reference Field, and subtracted it from the magnetics data. To account for diurnal variation, we fit a 3rd order polynomial to the data set and subtracted it from the data. Data from turns was discarded and then the data was linearly interpolated onto a grid with the same dimension as the swath bathymetry (200 m by 200 m per pixel). The cross-over error in the magnetics was 11 nT. Figure 5 shows the gridded magnetics data and trackline wiggles.

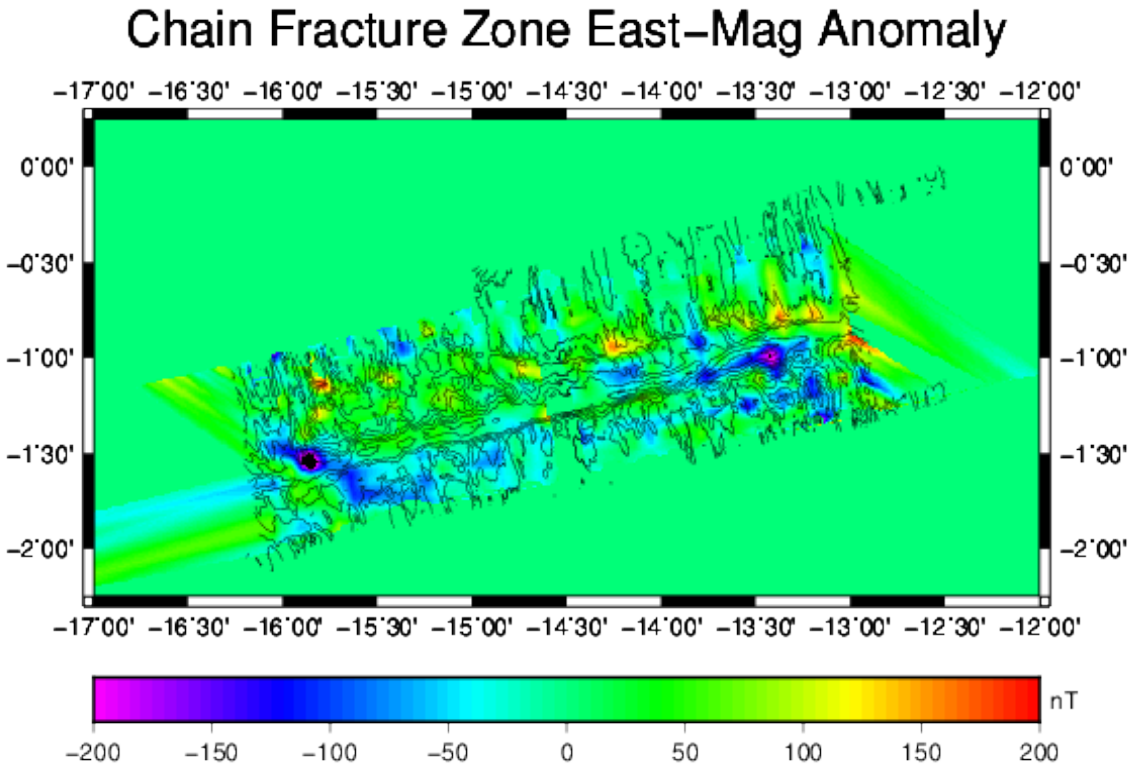

Figure 3: Gridded total field magnetic anomaly from western (from DYo07) and eastern (from deployment cruise) portions of the Chain Fracture Zone. Black contours of bathymetry plotted for reference.

2.3 Technical Issues

We encountered one technical issue with the hull transducer. Upon departure we learned that a previous oceanography cruise was unable to communicate with moorings at > 4 km depth using the hull transducer from Martin, the Ship System Technicain (SST). The hypothesized reason was that the patching from the transducer to the lab was through the incorrect type of cable, which could attenuate the signal. To test the strength of the transducer signal we slowed the ship and did a bounce test off the seafloor at 3.5 km depth during the transit to the study area. We found we could hear the bounce and so we believed we would be able to communicate with even the deepest stations, given the shorter travel distance to our stations (one way, instead of two). However, when we arrived at the first site, we could not establish communication with the instrument. We tried a variety of things. We switched the wiring of the transducer in the lab back and forth, positive/negative. We moved closer to the instrument. To reduce noise we dropped the drop keel and we went into drift mode. Finally,

we tried an over the side transducer, at which point we were able to communicate with the MT instruments. We moved closer to the OBS and were able to communicate patching directly into the hull transducer cable in the 'hole,' an electronics closet. However, after moving to ½ water depth for the survey, communication was more difficult, and we reverted to the over the side transducer. We surveyed in the instrument at 4 points at ½ water depth and sent burn commands with the over the side transducer. At the next site we tried the acoustics box in the 'hole' again, directly patching to the hull transducer, and were able to communicate. At this point we were confident that the problem was the patching of the transducer to the lab via the incorrect cable. We did a triangle at this second site (S38D) since the software for automatic location was crashing, and the Scripps group needed to get this working. After this, communication using the hull transducer continued smoothly from the hole. We settled on 270 degree circles for the survey. Some surveys included a transit in towards the seismic site, to 500 m away, at the request of the OBS groups. However, this additional transit did not improve OBS location, and was later dropped in favor of releasing the OBS earlier to save time. The hole was less desirable in terms of working conditions since it was hot and crowded, it had bad wifi, which was needed for GPS. In addition, the hole was in the residential areas where scientists were sleeping at all hours, so everyone needed to be as silent as possible. Between site S17D and L16D we realized that the lab was above the hole, and that the cable was long enough to go directly up by one floor, so the acoustics box was moved from the hole to the main lab, which generally improved working conditions.

We had 2 instruments not respond at all S24M and I 36D. At I 36 we tried to communicate on the ½ water depth circle, at 500 m to the east, over the instrument, 500 m to the west (burn also sent) and over the instrument again (burn sent) and then waited 3 hours to see if it had risen. At S24M we tried communicating at four points around the site and then over it. We later revisited I36D, communicating from the south, east, north, and over the instrument, waiting until the instrument would have risen based on the initial burn commands. We also tried all other codes used on the other instruments.

We had 2 instruments that communicated but did not rise, I04D and I01D. We tried to troll for both using the SVP weight at the end of a 7000 m cable. At the first station we tried to put a USBL on the cable, but neither of the instruments was fully charged. For the second station the USBL was charged and we put one on the end of the cable, above the weak link to determine where it hit the seafloor. We let out cable in a square shape around I04D and then steamed closing the noose, eventually pulling in cable as well. It worked and it was determined that the mechanism to release the pins on the IPGP instruments were a bit too tight. At I01D the instrument communicated but not normally. It gave weak responses, 3 pings, rather than 7 back. After going into the burn cycle, we could still communicate with it sometimes. After many burn commands we tried trolling. Near the end of the troll a slight change in the range was noted, and it was hypothesized that we might have dragged it a bit, but that the weights might still be attached. We sent more burn commands, but in the end disabled the instrument. This instrument would be worth revisiting on one of the other cruises to the region scheduled in the coming year.

4. Conclusions and Future Work

Overall the cruise was very successful, 37 ocean bottom seismometers and 38 ocean bottom magnetotelluric instruments were recovered. The mapping of the western end of the Chain Fracture zone compliments the survey done on the eastern side during the deployment cruise. The survey over Romanche will provide insight into earthquake rupture dynamics and

tectonics of the region. Overall the seismic and magnetotelluric data from the seafloor combined with the shipboard surveys will allow us to better understand oceanic lithosphere and the defining mechanism of the plate.

Appendix 1: Scientific Party Cruise Participants

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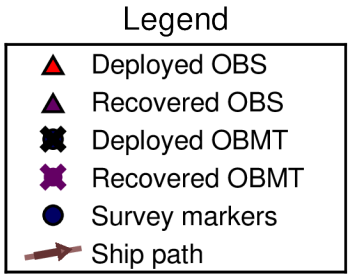
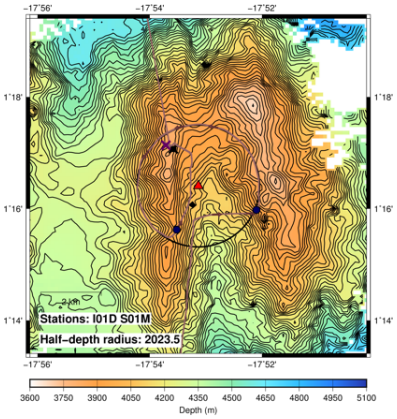
Appendix 2: Station Maps

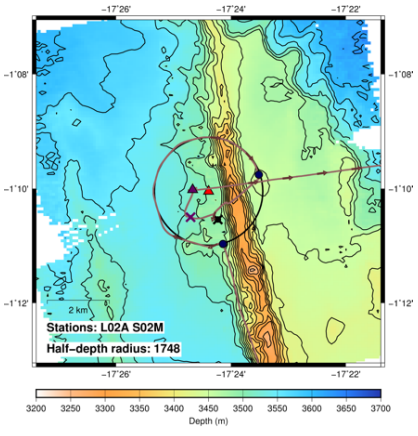
This section shows logs taken during the stations recovery. Maps show ship tracks on site, including survey of the seismic location and recovery of both OBS and OBMT.



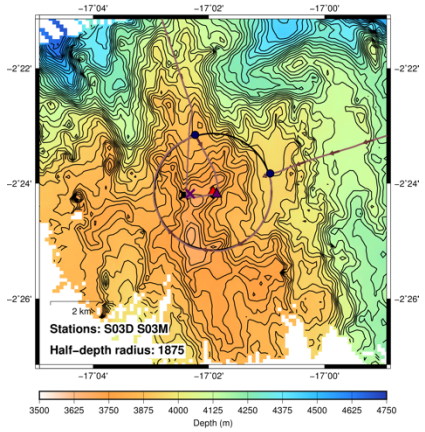
Site	1								
OBMT	S01M	Comm.	Yes						
Activity	**Date**	**Time**	**Lon (Deg)**	**Lon (Min)**	**Lat (Deg)**	**Lat (Min)**	**Lon (Deg)**	**Lat (Deg)**	**Notes**
Release	2017 03 26	07:14	-17	53.27	1	15.31	-17.89	1.26	
Out of water	2017 03 26	10:09	-17	53.71	1	17.13	-17.90	1.29	
OBS	I01D	Comm.	Yes				Survey type		Circular 270 degrees
Activity	**Date**	**Time**	**Lon (Deg)**	**Lon (Min)**	**Lat (Deg)**	**Lat (Min)**	**Lon (Deg)**	**Lat (Deg)**	**Notes**
Point (SE)	2017 03 26	08:06	-17	52.10	1	15.98	-17.87	1.27	Circular survey 1/2 water depth radius from OBS, SE to SW counter clockwise.
Point (SW)	2017 03 26	08:55	-17	53.52	1	15.62	-17.89	1.26	Signal lost. Heading towards station.
Release	2017 03 26								Several release commands were sent. Dragging was performed to no avail.



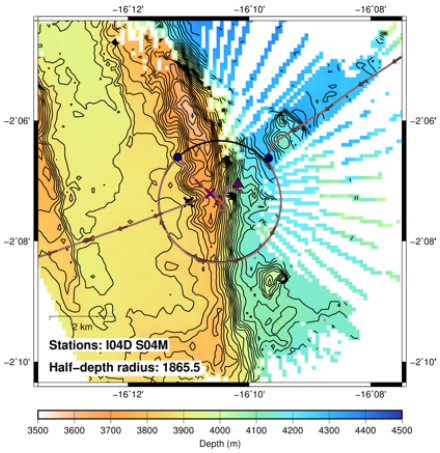
Site	2								
OBMT	S02M	Comm.	Yes						
Activity	**Date**	**Time**	**Lon (Deg)**	**Lon (Min)**	**Lat (Deg)**	**Lat (Min)**	**Lon (Deg)**	**Lat (Deg)**	**Notes**
Release	2017 03 24	17:58	-17	23.82	-1	12.18	-17.40	-1.20	
Visual	2017 03 24	20:26	-17	23.51	-1	9.76	-17.39	-1.16	
Out of water	2017 03 24	20:36	-17	24.70	-1	10.50	-17.41	-1.18	
OBS	L02A	Comm.	Yes				Survey type		Circular 270 degrees
Activity	**Date**	**Time**	**Lon (Deg)**	**Lon (Min)**	**Lat (Deg)**	**Lat (Min)**	**Lon (Deg)**	**Lat (Deg)**	**Notes**
Point 1 (S)	2017 03 24	18:04	-17	24.14	-1	10.97	-17.40	-1.18	Circular survey 1/2 water depth radius from OBS, S to E clockwise.
Point 2 (E)	2017 03 24	18:54	-17	23.51	-1	9.76	-17.39	-1.16	
Release	2017 03 24	18:36	-17	23.51	-1	9.76	-17.39	-1.16	
SVP	2017 03 24	19:28	-17	23.51	-1	9.76	-17.39	-1.16	Reached 700 m depth.
Visual	2017 03 24	20:42	-17	24.79	-1	10.45	-17.41	-1.17	
Out of water	2017 03 24	21:02	-17	24.67	-1	10.02	-17.41	-1.17	
Preliminary location estimate			-17	24.51	-1	10.00	-17.41	-1.17	3499 m depth.



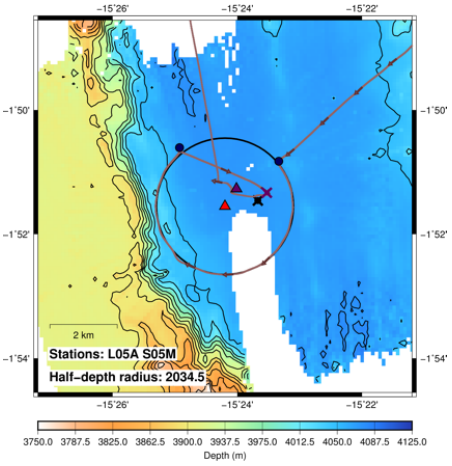
Site	3								
OBMT	S03M	Comm.	Yes						
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Release	2017 03 24	07:02	-17	0.74	-2	23.78	-17.01	-2.40	
Out of water	2017 03 24	10:00	-17	2.32	-2	24.18	-17.04	-2.40	
OBS	S03D	Comm.	Yes				Survey type		Circular 270 degrees
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Point 1 (NE)	2017 03 24	07:15	-17	0.94	-2	23.83	-17.02	-2.40	Circular survey 1/2 water depth radius from OBS, NE to NW clockwise.
Point 2 (NW)	2017 03 24	08:08	-17	2.24	-2	23.16	-17.04	-2.39	
Release	2017 03 24	08:12	-17	2.24	-2	23.16	-17.04	-2.39	
SVP	2017 03 24	08:24	-17	2.24	-2	23.16	-17.04	-2.39	Reached 1000 m depth.
Out of water	2017 03 24	09:46	-17	1.86	-2	24.19	-17.03	-2.40	
Preliminary location estimate			-17	1.89	-2	24.13	-17.03	-2.40	3750 m depth.



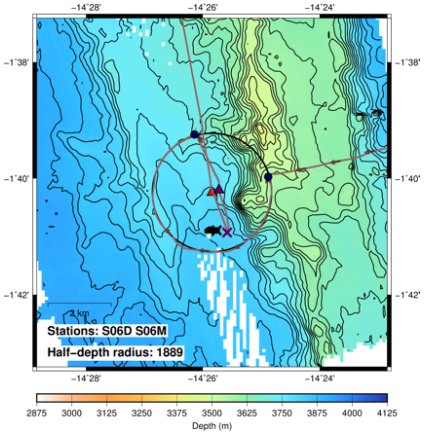
Site	4								
OBMT	S04M	Comm.	Yes						
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Release	2017 03 23	15:15	-16	9.59	-2	6.39	-16.16	-2.11	
Out of water	2017 03 23	18:06	-16	10.64	-2	7.21	-16.18	-2.12	
OBS	I04D	Comm.	Yes				Survey type		Circular 270 degrees
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Point 1 (NE)	2017 03 23	15:35	-16	9.68	-2	6.63	-16.16	-2.11	Circular survey 1/2 water depth radius from OBS, NE to NW clockwise.
Point 2 (NW)	2017 03 23	16:20	-16	11.18	-2	6.61	-16.19	-2.11	
Release	2017 03 23								Several release commands were sent. Dragging was required to release station.
SVP	2017 03 23	17:00	-16	11.15	-2	6.56	-16.19	-2.11	Reached 700 m depth.
Out of water	2017 03 24	01:55	-16	10.19	-2	7.05	-16.17	-2.12	
Preliminary location estimate			-16	10.40	-2	7.43	-16.17	-2.12	3928 m depth.



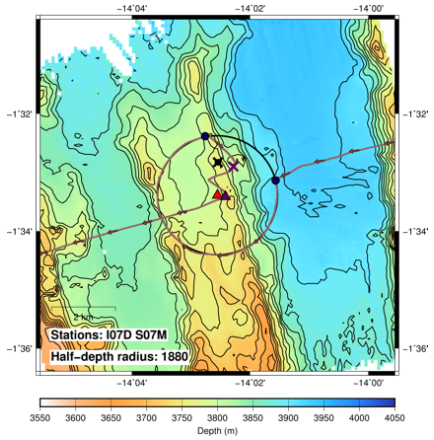
Site	5								
OBMT	S05M	Comm.	Yes						
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Release	2017 03 21	08:44	-15	23.27	-1	50.82	-15.39	-1.85	
Visual	2017 03 21	11:11	-15	23.81	-1	51.14	-15.40	-1.85	
Out of water	2017 03 21	11:23	-15	23.53	-1	51.33	-15.39	-1.86	
OBS	L05A	Comm.	Yes				Survey type		Circular 270 degrees
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Point 1 (NE)	2017 03 21	08:52	-15	23.34	-1	50.83	-15.39	-1.85	Circular survey 1/2 water depth radius from OBS, NE to NW clockwise.
Point 2 (NW)	2017 03 21	09:53	-15	24.93	-1	50.61	-15.42	-1.84	
Release	2017 03 21	10:05	-15	24.93	-1	50.61	-15.42	-1.84	
SVP	2017 03 21	10:27	-15	24.93	-1	50.66	-15.42	-1.84	Reached 1200 m depth.
Visual	2017 03 21	11:39	-15	23.65	-1	51.39	-15.39	-1.86	
Out of water	2017 03 21	11:57	-15	24.01	-1	51.27	-15.40	-1.85	
Preliminary location estimate			-15	24.35	-1	51.46	-15.41	-1.86	4052 m depth.



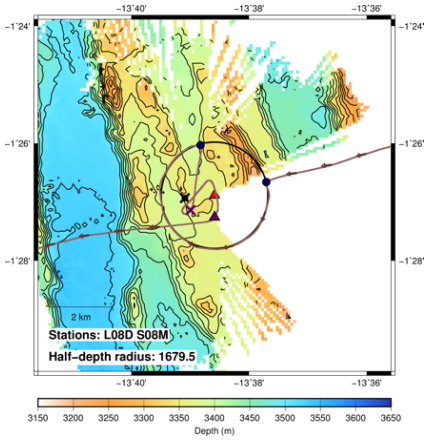
Site	6								
OBMT	S06M	Comm.	Yes						
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Release	2017 03 18	19:01	-14	24.81	-1	39.93	-14.41	-1.67	
Visual	2017 03 18	21:15	-14	25.78	-1	39.94	-14.43	-1.67	
Out of water	2017 03 18	22:02	-14	25.58	-1	40.93	-14.43	-1.68	
OBS	S06D	Comm.	Yes				Survey type		Circular 270 degrees
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Point 1 (E)	2017 03 18	19:09	-14	24.88	-1	39.97	-14.41	-1.67	Circular survey 1/2 water depth radius from OBS, E to N clockwise.
Point 2 (N)	2017 03 18	20:04	-14	26.14	-1	39.24	-14.44	-1.65	
Release	2017 03 18	20:04	-14	26.14	-1	39.24	-14.44	-1.65	
SVP	2017 03 18	20:20	-14	26.14	-1	39.24	-14.44	-1.65	Reached 700 m depth.
Visual	2017 03 18	21:25	-14	25.78	-1	39.94	-14.43	-1.67	
Out of water	2017 03 18	21:43	-14	25.72	-1	40.20	-14.43	-1.67	
Preliminary location estimate			-14	25.79	-1	40.22	-14.43	-1.67	3778 m depth.



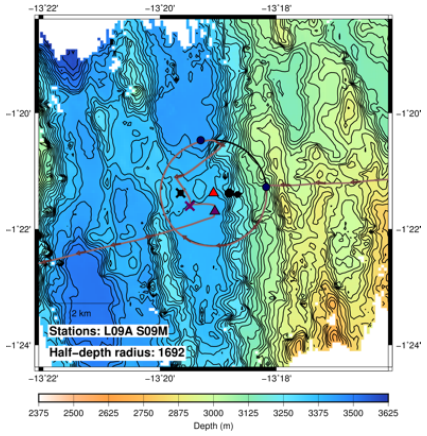
Site	7								
OBMT	S07M	Comm.	Yes						
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Release	2017 03 18	12:55	-14	1.57	-1	33.13	-14.03	-1.55	
Visual	2017 03 18	15:22	-14	2.64	-1	32.37	-14.04	-1.54	
Out of water	2017 03 18	15:36	-14	2.28	-1	32.90	-14.04	-1.55	
OBS	I07D	Comm.	Yes				Survey type		Circular 270 degrees
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Point 1 (E)	2017 03 18	13:02	-14	1.57	-1	33.14	-14.03	-1.55	Circular survey 1/2 water depth radius from OBS, E to N clockwise.
Point 2 (N)	2017 03 18	13:51	-14	2.76	-1	32.38	-14.05	-1.54	
Release	2017 03 18	13:59	-14	2.76	-1	32.38	-14.05	-1.54	
SVP	2017 03 18	14:15	-14	2.64	-1	32.37	-14.04	-1.54	
Visual	2017 03 18	16:00	-14	2.59	-1	33.22	-14.04	-1.55	
Out of water	2017 03 18	16:15	-14	2.42	-1	33.41	-14.04	-1.56	
Preliminary location estimate			-14	2.57	-1	33.39	-14.04	-1.56	3819 m depth.



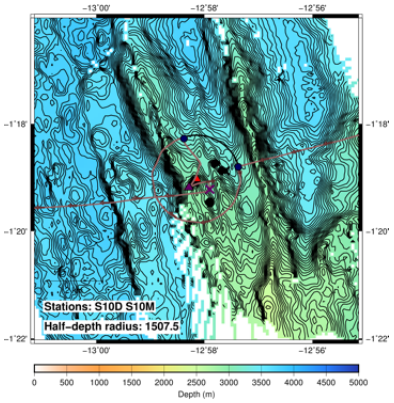
Site	8								
OBMT	S08M	Comm.	Yes						
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Release	2017 03 18	07:00	-13	36.99	-1	26.46	-13.62	-1.44	
Out of water	2017 03 18	09:24	-13	38.99	-1	27.14	-13.65	-1.45	
OBS	L08D	Comm.	Yes				Survey type		Circular 270 degrees
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Point 1	2017 03 18	07:21	-13	37.71	-1	26.66	-13.63	-1.44	Circular survey 1/2 water depth radius from OBS, E to N clockwise.
Point 2	2017 03 18	08:08	-13	38.82	-1	26.03	-13.65	-1.43	
Release	2017 03 18	08:20	-13	38.81	-1	26.05	-13.65	-1.43	
SVP	2017 03 18	08:31	-13	38.81	-1	26.05	-13.65	-1.43	Reached 700 m depth.
Visual	2017 03 18	09:46	-13	38.70	-1	26.64	-13.65	-1.44	
Out of water	2017 03 18	10:02	-13	38.59	-1	27.26	-13.64	-1.45	
Preliminary location estimate			-13	38.45	-1	26.96	-13.64	-1.45	3357 m depth.



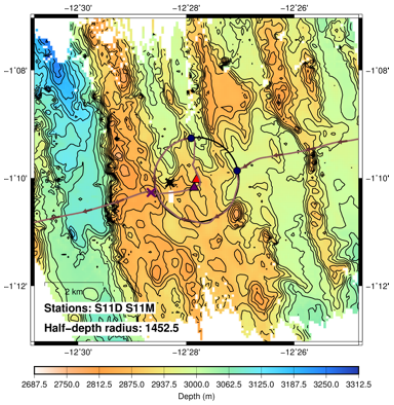
Site	9									
OBMT	S09M	Comm.	Yes							
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Release	2017 03 18	01:51	-13	17.88	-1	21.25	-13.30	-1.35	
Out of water	2017 03 18	04:31	-13	19.49	-1	21.60	-13.32	-1.36	
OBS	L09A	Comm.	Yes				Survey type		Circular 270 degrees
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Point 1 (E)	2017 03 18	02:08	-13	18.18	-1	21.28	-13.30	-1.35	Circular survey 1/2 water depth radius from OBS, E to N clockwise.
Point 2 (N)	2017 03 18	02:53	-13	19.30	-1	20.47	-13.32	-1.34	
Release	2017 03 18	03:05	-13	18.99	-1	20.52	-13.32	-1.34	Second release command sent.
SVP	2017 03 18								SVP cancelled due to shallow depth.
Visual	2017 03 18	04:37	-13	19.96	-1	21.81	-13.33	-1.36	
Out of water	2017 03 18	04:57	-13	19.06	-1	21.70	-13.32	-1.36	
Preliminary location estimate			-13	19.11	-1	21.41	-13.32	-1.36	3378 m depth.



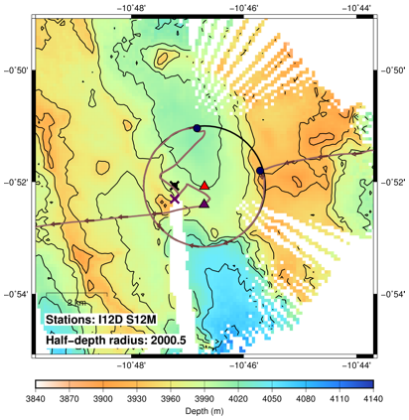
Site	10								
OBMT	S10M	Comm.	Yes						
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Release	2017 03 17	20:30	-12	57.20	-1	18.77	-12.95	-1.31	
Out of water	2017 03 17	23:18	-12	57.90	-1	19.22	-12.97	-1.32	
OBS	S10D	Comm.	Yes				Survey type		Circular 270 degrees
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Point 1 (E)	2017 03 17	20:43	-12	57.37	-1	18.80	-12.96	-1.31	Circular survey 1/2 water depth radius from OBS, E to N clockwise.
Point 2 (N)	2017 03 17	21:30	-12	58.38	-1	18.28	-12.97	-1.30	
Release	2017 03 17	21:45	-12	58.10	-1	18.69	-12.97	-1.31	
SVP	2017 03 17								Cancelled because of shallow water.
Out of water	2017 03 17	22:49	-12	58.29	-1	19.18	-12.97	-1.32	
Preliminary location estimate			-12	58.18	-1	19.08	-12.97	-1.32	3015 m depth.



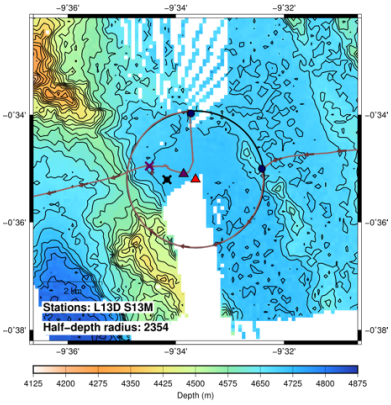
Site	11								
OBMT	S11M	Comm.	Yes						
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Release	2017 03 17	14:45	-12	27.01	-1	9.84	-12.45	-1.16	
Out of water	2017 03 17	17:20	-12	28.65	-1	10.27	-12.48	-1.17	
OBS	S11D	Comm.	Yes				Survey type		Circular 270 degrees
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Point 1 (E)	2017 03 17	15:04	-12	27.06	-1	9.86	-12.45	-1.16	Circular survey 1/2 water depth radius from OBS, E to N clockwise
Point 2 (N)	2017 03 17	15:45	-12	27.91	-1	9.26	-12.47	-1.15	
Release	2017 03 17	15:45	-12	27.91	-1	9.26	-12.47	-1.15	
SVP	2017 03 17								Cancelled because of shallow depth.
Out of water	2017 03 17	17:03	-12	27.85	-1	10.18	-12.46	-1.17	
Preliminary location estimate			-12	27.61	-1	10.15	-12.46	-1.17	2905 m depth.



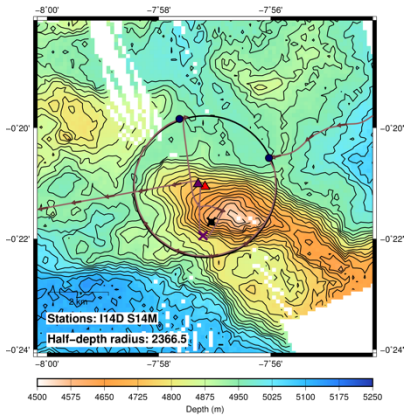
Site	12								
OBMT	S12M	Comm.	Yes						
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Release	2017 03 17	01:42	-10	45.44	0	-51.71	-10.76	-0.86	
Visual	2017 03 17	04:25	-10	47.47	0	-51.88	-10.79	-0.86	
Out of water	2017 03 17	04:45	-10	47.23	0	-52.31	-10.79	-0.87	
OBS	I12D	Comm.	Yes				Survey type		Circular 270 degrees
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Point 1 (E)	2017 03 17	02:02	-10	45.71	0	-51.80	-10.76	-0.86	Circular survey 1/2 water depth radius from OBS, E to N clockwise.
Point 2 (N)	2017 03 17	02:54	-10	46.83	0	-51.04	-10.78	-0.85	
Release	2017 03 17	02:58	-10	46.80	0	-51.10	-10.78	-0.85	
SVP	2017 03 17	03:27	-10	46.79	0	-51.11	-10.78	-0.85	Reached 700 m depth.
Visual	2017 03 17	05:09	-10	46.99	0	-52.42	-10.78	-0.87	
Out of water	2017 03 17	05:26	-10	46.70	0	-52.41	-10.78	-0.87	
Preliminary location estimate			-10	46.59	0	-52.10	-10.78	-0.87	4022 m depth.



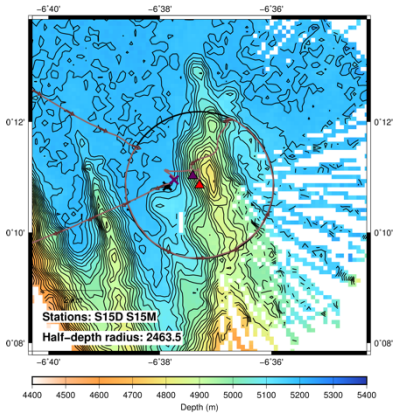
Site	13								
OBMT	S13M	Comm.	Yes						
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Release	2017 03 16	14:55	-9	32.40	0	35.01	-9.54	0.58	
Out of water	2017 03 16	18:52	-9	34.49	0	-34.96	-9.57	-0.58	
OBS	L13D	Comm.	Yes				Survey type		Circular 270 degrees
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Point 1 (E)	2017 03 16	14:49	-9	32.41	0	-35.01	-9.54	-0.58	Circular survey 1/2 water depth radius from OBS, E to N clockwise
Point 2 (N)	2017 03 16	16:00	-9	33.72	0	-33.98	-9.56	-0.57	
Release	2017 03 16	16:05	-9	33.73	0	-34.01	-9.56	-0.57	
SVP	2017 03 16	16:27	-9	33.74	0	-34.00	-9.56	-0.57	
Visual	2017 03 16	17:53	-9	33.68	0	-34.88	-9.56	-0.58	
Out of water	2017 03 16	18:02	-9	33.86	0	-35.10	-9.56	-0.59	
Preliminary location estimate			-9	33.71	0	-35.17	-9.56	-0.59	4659 m depth.



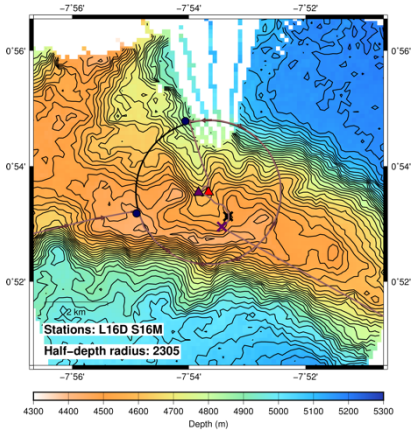
Site	14								
OBMT	S14M	Comm.	Yes						
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Release	2017 03 16	00:57	-7	56.03	0	-20.54	-7.93	-0.34	
Visual	2017 03 16	04:50	-7	56.85	0	-21.51	-7.95	-0.36	
Out of water	2017 03 16	05:08	-7	57.21	0	-21.95	-7.95	-0.37	
OBS	I14D	Comm.	Yes				Survey type		Circular 270 degrees
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Point 1 (E)	2017 03 16	01:02	-7	56.03	0	-20.54	-7.93	-0.34	Circular survey 1/2 water depth radius from OBS, E to N clockwise.
Point 2 (N)	2017 03 16	02:02	-7	57.63	0	-19.84	-7.96	-0.33	
Release	2017 03 16	02:11	-7	57.56	0	-19.83	-7.96	-0.33	Second burn command sent.
SVP	2017 03 16	02:51	-7	57.45	0	-19.83	-7.96	-0.33	Reached 1000 m depth.
Visual	2017 03 16	05:01	-7	57.09	0	-21.93	-7.95	-0.37	
Out of water	2017 03 16	05:32	-7	57.30	0	-21.01	-7.95	-0.35	
Preliminary location estimate			-7	57.14	0	-21.13	-7.95	-0.35	4702 m depth.



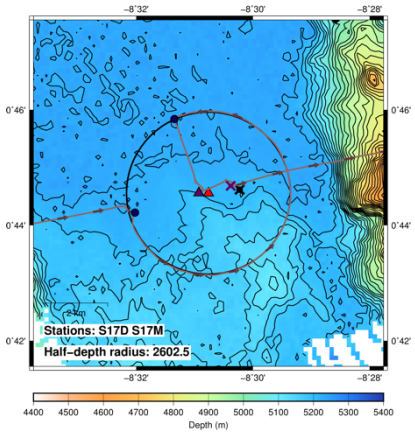
Site	15								
OBMT	S15M	Comm.	Yes						
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Release	2017 03 15	12:16	-6	38.41	0	11.53	-6.64	0.19	
Visual	2017 03 15	15:38	-6	37.90	0	11.11	-6.63	0.19	
Out of water	2017 03 15	15:48	-6	37.75	0	10.95	-6.63	0.18	
OBS	S15D	Comm.	Yes				Survey type		Circular 270 degrees
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Point 1 (NW)	2017 03 15	12:28	-6	38.40	0	11.38	-6.64	0.19	Circular survey 1/2 water depth radius from OBS, NW to NE counter clockwise.
Point 2 (NE)	2017 03 15	13:36	-6	36.00	0	12.00	-6.60	0.20	
Release	2017 03 15	13:36	-6	36.77	0	12.04	0.00	0.00	
SVP	2017 03 15	13:53	-6	36.77	0	12.04	-6.61	0.20	Reached 1200 m depth.
Visual	2017 03 15						0.00	0.00	
Out of water	2017 03 15	15:35	-6	37.41	0	11.02	-6.62	0.18	
Preliminary location estimate			-6	37.37	0	10.88	-6.62	0.18	4927 m depth.



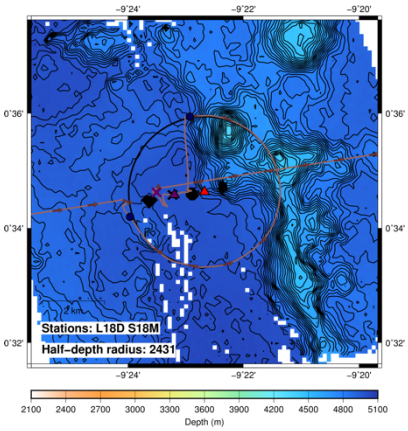
Site	16								
OBMT	S16M	Comm.	Yes						
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Release	2017 03 14	22:30	-7	54.88	0	53.24	-7.91	0.89	
Visual	2017 03 15	02:16	-7	53.86	0	53.06	-7.90	0.88	
Out of water	2017 03 15	02:38	-7	53.44	0	52.95	-7.89	0.88	
OBS	L16D	Comm.	Yes				Survey type		Circular 270 degrees
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Point 1 (W)	2017 03 14	22:48	-7	54.90	0	53.18	-7.91	0.89	Circular survey 1/2 water depth radius from OBS, W to N counter clockwise.
Point 2 (N)	2017 03 14	23:58	-7	54.06	0	54.78	-7.90	0.91	
Release	2017 03 14	23:58	-7	54.06	0	54.78	-7.90	0.91	
SVP	2017 03 15	00:22	-7	54.02	0	54.78	-7.90	0.91	Reached 2000 m depth.
Visual	2017 03 15	01:49	-7	54.02	0	54.78	-7.90	0.91	
Out of water	2017 03 15	02:12	-7	53.83	0	53.54	-7.90	0.89	
Preliminary location estimate			-7	53.72	0	53.60	-7.90	0.89	4581 m depth.



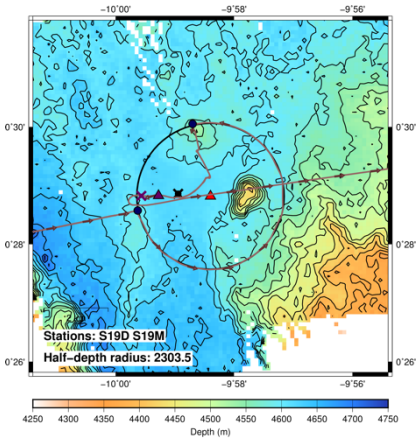
Site	17								
OBMT	S17M	Comm.	Yes						
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Release	2017 03 14	14:05	-8	32.17	0	32.17	-8.54	0.54	
Visual	2017 03 14	18:26	-8	30.45	0	44.78	-8.51	0.75	
Out of water	2017 03 14	18:35	-8	30.38	0	44.68	-8.51	0.74	
OBS	S17D	Comm.	Yes				Survey type		Circular 270 degrees
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Point 1 (W)	2017 03 14	14:22	-8	32.02	0	44.22	-8.53	0.74	Circular survey 1/2 water depth radius from OBS, W to N counter clockwise.
Point 2 (N)	2017 03 14	15:45	-8	31.35	0	45.84	-8.52	0.76	
Release	2017 03 14	15:45	-8	31.35	0	45.84	-8.52	0.76	
SVP	2017 03 14	16:24	-8	31.35	0	45.84	-8.52	0.76	Reached 1200 m depth.
Visual	2017 03 14	17:30	-8	30.97	0	44.74	-8.52	0.75	
Out of water	2017 03 14	17:45	-8	30.93	0	44.56	-8.52	0.74	
Preliminary location estimate			-8	30.73	0	44.53	-8.51	0.74	5205 m depth.



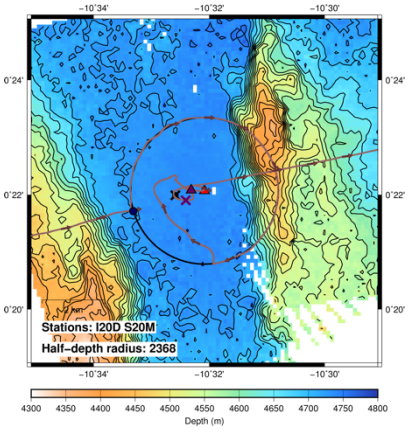
Site	18								
OBMT	S18M	Comm.	Yes						
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Release	2017 03 14	04:01	-9	24.08	0	34.38	-9.40	0.57	
Visual	2017 03 14	08:02	-9	23.31	0	34.38	-9.39	0.57	
Out of water	2017 03 14	08:15	-9	23.50	0	34.62	-9.39	0.58	
OBS	L18D	Comm.	Yes				Survey type		Circular 270 degrees
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Point 1 (W)	2017 03 14	04:13	-9	23.96	0	34.20	-9.40	0.57	Circular survey 1/2 water depth radius from OBS, W to N counter clockwise.
Point 2 (N)	2017 03 14	05:10	-9	22.93	0	35.94	-9.38	0.60	
Release	2017 03 14	05:31	-9	22.93	0	35.94	-9.38	0.60	
SVP	2017 03 14	05:32	-9	22.93	0	35.95	-9.38	0.60	Reached 1500 m depth.
Visual	2017 03 14	07:12	-9	22.96	0	34.66	-9.38	0.58	
Out of water	2017 03 14	07:29	-9	23.20	0	34.58	-9.39	0.58	
Preliminary location estimate			-9	22.59	0	34.61	-9.38	0.58	4890 m depth.



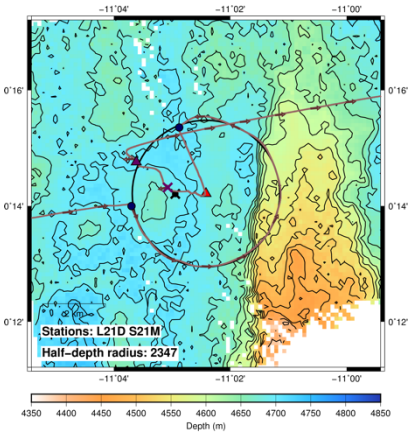
Site	19								
OBMT	S19M	Comm.	Yes						
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Release	2017 03 13	19:33	-10	0.13	0	28.47	-10.00	0.47	
Visual	2017 03 13	23:36	-9	58.46	0	29.12	-9.97	0.49	
Out of water	2017 03 13	23:57	-9	59.57	0	28.82	-9.99	0.48	
OBS	S19D	Comm.	Yes				Survey type		Circular 270 degrees
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Point 1 (W)	2017 03 13	19:58	-9	59.63	0	28.57	-9.99	0.48	Circular survey 1/2 water depth radius from OBS, W to N counter clockwise.
Point 2 (N)	2017 03 13	21:15	-9	58.70	0	30.05	-9.98	0.50	
Release	2017 03 13	21:33	-9	58.61	0	29.59	-9.98	0.49	
SVP	2017 03 13	21:40	-9	58.61	0	29.59	-9.98	0.49	Reached 1500 m depth.
Visual	2017 03 13	23:28	-9	58.46	0	29.12	-9.97	0.49	
Out of water	2017 03 13	23:46	-9	59.28	0	28.83	-9.99	0.48	
Preliminary location estimate			-9	58.52	0	28.85	-9.98	0.48	4607 m depth.



Site	20								
OBMT	S20M	Comm.	Yes						
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Release	2017 03 13	10:44	-10	33.31	0	21.71	-10.56	0.36	
Visual	2017 03 13	15:06	-10	31.92	0	20.80	-10.53	0.35	
Out of water	2017 03 13	15:18	-10	32.41	0	21.90	-10.54	0.37	
OBS	I20D	Comm.	Yes				Survey type		Circular 270 degrees
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Point 1 (W)	2017 03 13	11:10	-10	33.31	0	21.71	-10.56	0.36	Circular survey 1/2 water depth radius from OBS, W to S clockwise.
Point 2 (S)	2017 03 13	12:25	-10	31.40	0	20.70	-10.52	0.35	
Release	2017 03 13	13:02	-10	31.92	0	20.80	-10.53	0.35	
SVP	2017 03 13	14:14	-10	31.92	0	20.80	-10.53	0.35	Reached 2000 m depth.
Out of water	2017 03 13	15:47	-10	32.31	0	22.08	-10.54	0.37	
Preliminary location estimate			-10	32.11	0	22.09	-10.54	0.37	4724 m depth



Site	21								
OBMT	S21M	Comm.	Yes						
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Release	2017 03 13	02:20	-11	3.71	0	14.00	-11.06	0.23	
Visual	2017 03 13	06:13	-11	2.67	0	14.21	-11.04	0.24	
Out of water	2017 03 13	06:28	-11	3.08	0	14.32	-11.05	0.24	
OBS	L21D	Comm.	Yes				Survey type		Circular 270 degrees
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Point 1 (W)	2017 03 13	02:35	-11	3.70	0	14.00	-11.06	0.23	Circular survey 1/2 water depth radius from OBS, W to N counter clockwise.
Point 2 (N)	2017 03 13	03:42	-11	2.88	0	15.36	-11.05	0.26	
Release	2017 03 13	03:48	-11	2.88	0	15.36	-11.05	0.26	
SVP	2017 03 13	04:09	-11	2.88	0	15.36	-11.05	0.26	Reach 700 m depth.
Visual	2017 03 13	06:45	-11	3.19	0	14.57	-11.05	0.24	
Out of water	2017 03 13	06:55	-11	3.62	0	14.76	-11.06	0.25	
Preliminary location estimate			-11	2.28	0	14.18	-11.04	0.24	4625 m depth.



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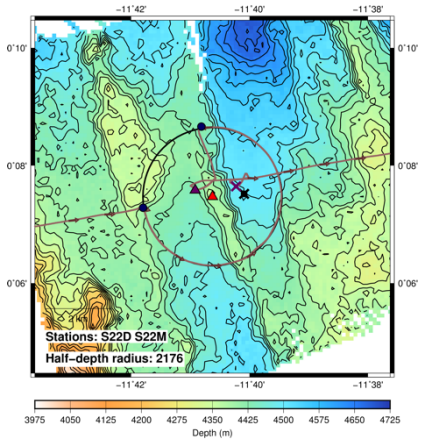
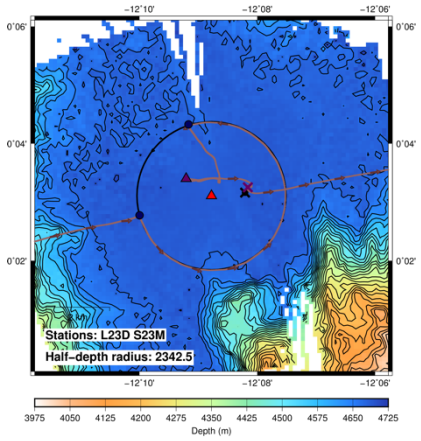
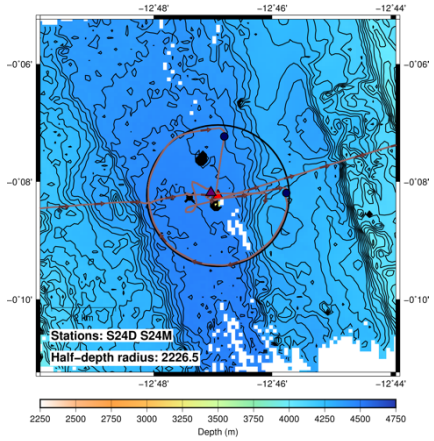
Site	22								
OBMT	S22M	Comm.	Yes						
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Release	2017 03 12	18:07	-11	41.88	0	7.27	-11.70	0.12	
Visual	2017 03 12	22:01	-11	40.07	0	7.85	-11.67	0.13	
Out of water	2017 03 12	22:13	-11	40.23	0	7.65	-11.67	0.13	
OBS	S22D	Comm.	Yes				Survey type		Circular 270 degrees
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Point 1	2017 03 12	18:25	-11	41.80	0	7.28	-11.70	0.12	
Point 2	2017 03 12	19:20	-11	40.81	0	8.66	-11.68	0.14	
Release	2017 03 12	19:20	-11	40.81	0	8.66	-11.68	0.14	
SVP	2017 03 12	19:30	-11	40.84	0	8.66	-11.68	0.14	
Visual	2017 03 12	20:50	-11	40.58	0	7.77	-11.68	0.13	
Out of water	2017 03 12	21:06	-11	40.92	0	7.58	-11.68	0.13	
Preliminary location estimate			-11	40.79	0	7.53	-11.68	0.13	4352 m depth.



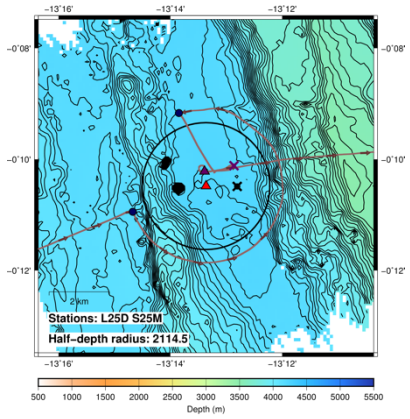
Site	23								
OBMT	S23M	Comm.	Yes						
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Release	2017 03 12	10:23	-12	10.00	0	2.78	-12.17	0.05	
Out of water	2017 03 12	15:00	-12	8.16	0	3.25	-12.14	0.05	
OBS	L23D	Comm.	Yes				Survey type		Circular 270 degrees
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Point 1 (W)	2017 03 12	10:25	-12	10.00	0	2.78	-12.17	0.05	Circular survey 1/2 water depth radius from OBS, W to N counter clockwise.
Point 2 (N)	2017 03 12	11:39	-12	9.17	0	4.33	-12.15	0.07	
Release	2017 03 12	12:07	-12	9.17	0	4.33	-12.15	0.07	
SVP	2017 03 12	12:09	-12	9.17	0	4.33	-12.15	0.07	
Visual	2017 03 12	13:53	-12	8.60	0	3.30	-12.14	0.06	
Out of water	2017 03 12	14:33	-12	9.21	0	3.40	-12.15	0.06	
Preliminary location estimate			-12	8.87	0	3.13	-12.15	0.05	4631m depth.



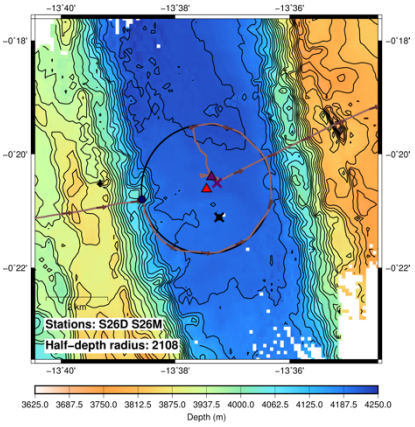
Site	24								
OBMT	S24M	Comm.	No						
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Release									
Visual									
Out of water									
OBS	S24D	Comm.	No				Survey type		Circular 270 degrees
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Point 1 (East)	2017 03 12	01:50	-12	45.76	0	-8.19	-12.76	-0.14	Circular survey 1/2 water depth radius from OBS, E to N clockwise.
Point 2 (North)	2017 03 12	03:00	-12	46.81	0	-7.23	-12.78	-0.12	
Release	2017 03 12	03:00	-12	46.81	0	-7.31	-12.78	-0.12	
SVP	2017 03 12	03:29	-12	46.81	0	-7.31	-12.78	-0.12	
Visual	2017 03 12	04:39	-12	46.84	0	-7.41	-12.78	-0.12	
Out of water	2017 03 12	04:57	-12	47.03	0	-8.18	-12.78	-0.14	
Preliminary location estimate			-12	46.84	0	-8.30	-12.78	-0.14	4453 m depth.



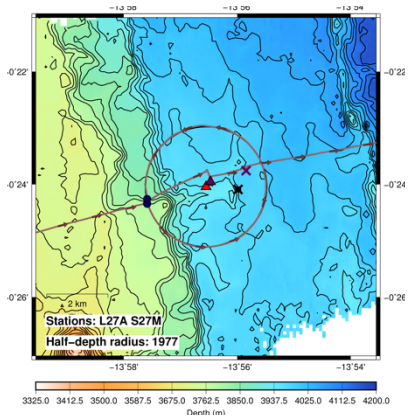
Site	25								
OBMT	S25M	Comm.	Yes						
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Release	2017 03 11	17:58	-13	14.68	0	-10.95	-13.24	-0.18	
Visual	2017 03 11	20:48	-13	13.20	0	-10.25	-13.22	-0.17	
Out of water	2017 03 11	21:05	-13	12.86	0	-10.12	-13.21	-0.17	
OBS	L25D	Comm.	Yes				Survey type		Circular 270 degrees
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Point 1 (W)	2017 03 11	18:15	-13	14.67	0	-10.94	-13.24	-0.18	Circular survey 1/2 water depth radius from OBS, W to N counter clockwise.
Point 2 (N)	2017 03 11	19:25	-13	13.85	0	-9.17	-13.23	-0.15	Bridge error: Radius was 1/2 wd + 350 m
Release	2017 03 11	19:34	-13	13.85	0	-9.17	-13.23	-0.15	
SVP	2017 03 11	19:35	-13	13.85	0	-9.17	-13.23	-0.15	
Visual	2017 03 11	20:57	-13	12.86	0	-10.12	-13.21	-0.17	
Out of water	2017 03 11	21:24	-13	13.39	0	-10.22	-13.22	-0.17	
Preliminary location estimate			-13	13.38	0	-10.47	-13.22	-0.17	4207 m depth.



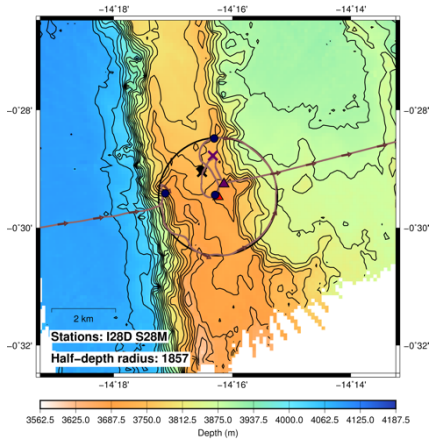
Site	26								
OBMT	S26M	Comm.	Yes						
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Release	2017 03 11	11:41	-13	38.58	0	-20.80	-13.64	-0.35	
Visual	2017 03 11	14:26	-13	37.40	0	-20.36	-13.62	-0.34	
Out of water	2017 03 11	15:14	-13	37.27	0	-20.51	-13.62	-0.34	
OBS	S26D	Comm.	Yes				Survey type		Circular 270 degrees
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Point 1	2017 03 11	11:55	-13	38.58	0	-20.80	-13.64	-0.35	Circular survey 1/2 water depth radius from OBS, W to N counter clockwise.
Release	2017 03 11	13:15	-13	37.66	0	-19.67	-13.63	-0.33	
SVP	2017 03 11	13:20	-13	37.66	0	-19.67	-13.63	-0.33	
Visual	2017 03 11	14:38	-13	37.40	0	-20.36	-13.62	-0.34	
Out of water	2017 03 11	14:51	-13	37.37	0	-20.40	-13.62	-0.34	
Preliminary location estimate			-13	37.56	0	-20.61	-13.63	-0.34	4216 m depth.



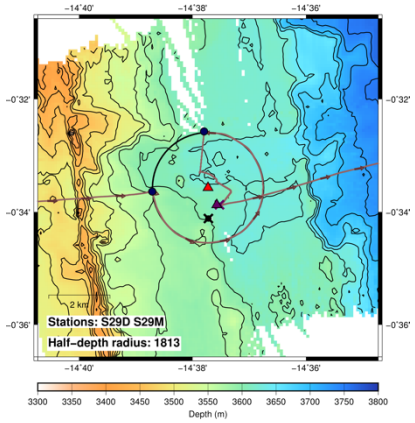
Site	27								
OBMT	S27M	Comm.	Yes						
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Release	2017 03 11	06:01	-13	57.60	0	-24.35	-13.96	-0.41	
Visual	2017 03 11	09:14	-13	56.20	0	-23.81	-13.94	-0.40	
Out of water	2017 03 11	09:31	-13	55.84	0	-23.76	-13.93	-0.40	
OBS	L27A	Comm.	Yes				Survey type		Full circle
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Point 1	2017 03 11	06:13	-13	57.59	0	-24.34	-13.96	-0.41	Full circular survey 1/2 water depth radius from OBS because of poor coverage
Point 2	2017 03 11	07:18	-13	57.59	0	-24.26	-13.96	-0.40	
Release	2017 03 11	07:38	-13	57.58	0	-24.31	-13.96	-0.41	
SVP	2017 03 11	07:40	-13	57.58	0	-24.31	-13.96	-0.41	
Visual	2017 03 11	08:49	-13	56.52	0	-23.77	-13.94	-0.40	
Out of water	2017 03 11	09:00	-13	56.47	0	-23.95	-13.94	-0.40	
Preliminary location estimate			-13	56.55	0	-24.04	-13.94	-0.40	3954 m depth.



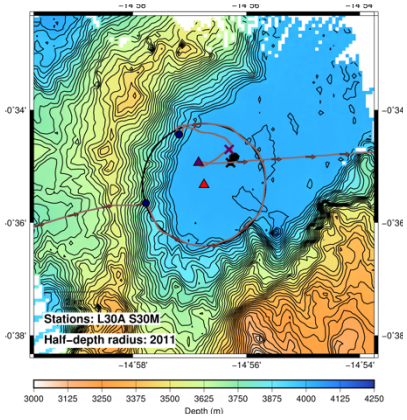
Site	28								
OBMT	S28M	Comm.	Yes						
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Release	2017 03 10	23:25	-14	17.22	0	-29.60	-14.29	-0.49	
Out of water	2017 03 11	02:39	-14	16.33	0	-28.77	-14.27	-0.48	
OBS	I28D	Comm.	Yes				Survey type		Circular 270 degrees
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Point 1 (W)	2017 03 11	00:14	-14	17.13	0	-29.42	-14.29	-0.49	Circular survey 1/2 water depth radius from OBS, W to N counter clockwise.
	2017 03 11	00:23	-14	17.12	0	-29.93	-14.29	-0.50	Moved closer to radius, and back out.
Point 2 (N)	2017 03 11	01:04	-14	16.31	0	-28.48	-14.27	-0.47	Request to move to center.
Point 3 (Centre)	2017 03 11	01:22	-14	16.29	0	-29.44	-14.27	-0.49	
Release	2017 03 11	02:00	-14	16.29	0	-29.44	-14.27	-0.49	2 burn signals sent.
SVP	2017 03 11	01:41	-14	16.29	0	-29.44	-14.27	-0.49	Reached 700m.
Visual	2017 03 11	03:42	-14	16.17	0	-29.20	-14.27	-0.49	
Out of water	2017 03 11	03:54	-14	16.14	0	-29.26	-14.27	-0.49	
Preliminary location estimate			-14	16.11	0	-29.51	-14.27	-0.49	3711 m depth.



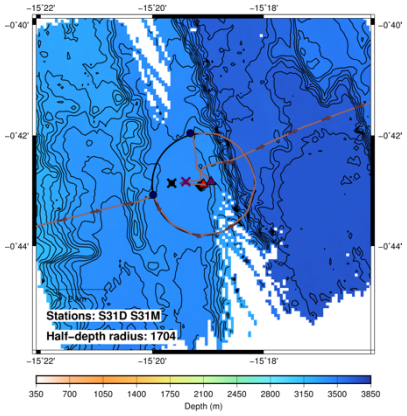
Site	29								
OBMT	S29M	Comm.	Yes						
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Release	2017 03 10	0.762	-14	38.71	0	-33.64	-14.65	-0.56	
Visual	2017 03 10	0.858	-14	37.87	0	-33.47	-14.63	-0.56	
Out of water	2017 03 10	0.884	-14	37.53	0	-33.87	-14.63	-0.56	
OBS	S29D	Comm.	Yes				Survey type		Circular 270 degrees
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Point 1 (W)	2017 03 10	0.767	-14	38.71	0	-33.64	-14.65	-0.56	Circular survey 1/2 water depth radius from OBS, W to N counter clockwise.
Point 2 (N)	2017 03 10	0.800	-14	37.80	0	-32.57	-14.63	-0.54	
Release	2017 03 10	0.811	-14	37.80	0	-32.56	-14.63	-0.54	
SVP	2017 03 10	0.815	-14	37.80	0	-32.57	-14.63	-0.54	Reached 700 m
Visual	2017 03 10	0.858	-14	37.87	0	-33.47	-14.63	-0.56	
Out of water	2017 03 10	0.874	-14	37.57	0	-33.87	-14.63	-0.56	
Preliminary location estimate			-14	37.63	0	-33.58	-14.63	-0.56	3626 m depth.



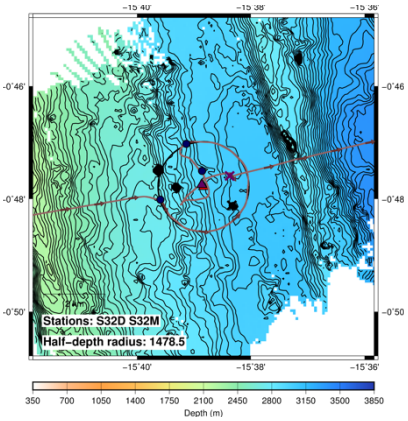
Site	30									
OBMT	S30M	Comm.	Yes							
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Release	2017 03 10	13:05	-14	59.11	0	-35.87	-14.99	-0.60	
Visual	2017 03 10	15:42	-14	56.26	0	-34.66	-14.94	-0.58	
Out of water	2017 03 10	15:55	-14	56.31	0	-34.70	-14.94	-0.58	
OBS	L30A	Comm.	Yes				Survey type		Circular 270 degrees
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Point 1 (W)	2017 03 10	13:19	-14	57.77	0	-35.65	-14.96	-0.59	Circular survey 1/2 water depth radius from OBS, W to N counter clockwise.
Point 2 (N)	2017 03 10	14:15	-14	57.19	0	-34.44	-14.95	-0.57	
Release	2017 03 10	14:32	-14	57.10	0	-34.29	-14.95	-0.57	
SVP	2017 03 10	14:40	-14	57.10	0	-34.27	-14.95	-0.57	Reached 500 m
Visual	2017 03 10	15:55	-14	56.20	0	-34.60	-14.94	-0.58	
Out of water	2017 03 10	16:14	-14	56.84	0	-34.94	-14.95	-0.58	
Preliminary location estimate			-14	56.75	0	-35.33	-14.9	-0.6	4022 m depth.



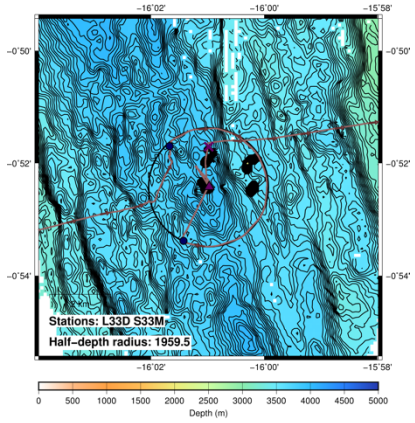
Site	31								
OBMT	S31M	Comm.	Yes						
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Release	2017 03 10	07:36	-15	19.98	0	-43.08	-15.33	-0.72	
Visual	2017 03 10						0.00	0.00	
Out of water	2017 03 10	10:19	-15	19.40	0	-42.84	-15.32	-0.71	
OBS	S31D	Comm.	Yes				Survey type		Circular 270 degrees
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Point 1 (West)	2017 03 10	07:48	-15	19.98	0	-43.08	-15.33	-0.72	Circular survey 1/2 water depth radius from OBS, W to N counter clockwise.
Point 2 (North)	2017 03 10	08:31	-15	19.32	0	-41.96	-15.32	-0.70	
Release	2017 03 10	08:49	-15	19.32	0	-41.96	-15.32	-0.70	
SVP	2017 03 10	08:58	-15	19.32	0	-41.96	-15.32	-0.70	
Visual	2017 03 10	09:49	-15	19.32	0	-41.96	-15.32	-0.70	
Out of water	2017 03 10	10:02	-15	18.95	0	-42.84	-15.32	-0.71	
Preliminary location estimate			-15	19.13	0	-42.84	-15.32	-0.71	3408 m depth.



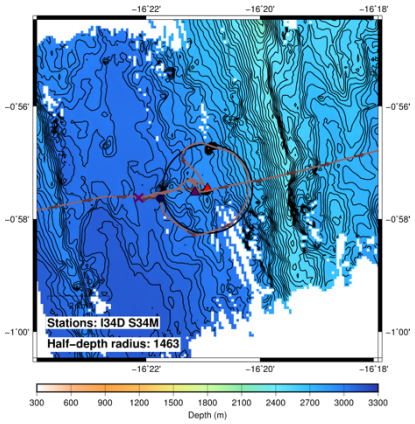
Site	32								
OBMT	S32M	Comm.	Yes						
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Release	2017 03 10	01:41	-15	39.61	0	-48.00	-15.66	-0.80	
Visual	2017 03 10	04:49	-15	39.20	0	-48.08	-15.65	-0.80	
Out of water	2017 03 10	05:32	-15	38.37	0	-47.59	-15.64	-0.79	
OBS	S32D	Comm.	Yes				Survey type		Circular 270 degrees
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Point 1 (W)	2017 03 10	01:55	-15	39.59	0	-48.01	-15.66	-0.80	Circular survey 1/2 water depth radius from OBS, W to N counter clockwise, then down to 500 m north of OBS
Point 2 (N)	2017 03 10	02:35	-15	39.13	0	-47.02	-15.65	-0.78	
Point 3	2017 03 10	02:49	-15	38.86	0	-47.50	-15.65	-0.79	500m North of OBS.
Release	2017 03 10	03:02	-15	38.86	0	-47.50	-15.65	-0.79	
SVP	2017 03 10	03:05	-15	38.86	0	-47.50	-15.65	-0.79	Reached 700 m
Visual	2017 03 10	04:49	-15	39.20	0	-48.08	-15.65	-0.80	
Out of water	2017 03 10	05:09	-15	38.86	0	-47.75	-15.65	-0.80	
Preliminary location estimate			-15	38.82	0	-47.81	-15.65	-0.80	2957 m depth.



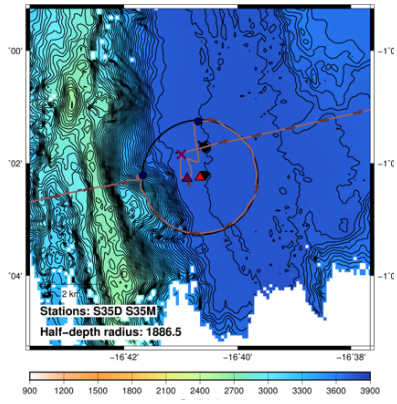
Site	33								
OBMT	S33M	Comm.	Yes						
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Release	2017 03 09	19:23	-16	1.65	0	-51.93	-16.03	-0.87	
Visual	2017 03 09	21:33	-16	1.20	0	-52.07	-16.02	-0.87	
Out of water	2017 03 09	23:10	-16	0.98	0	-51.71	-16.02	-0.86	
OBS	L33D	Comm.	Yes				Survey type		Circular 270 degrees
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Point 1 (NW)	2017 03 09	19:38	-16	1.67	0	-51.70	-16.03	-0.86	Survey at 6kts, 1/2 water depth radius from OBS ,from NW to SW clockwise.
Point 2 (SW)	2017 03 09	20:20	-16	1.43	0	-53.38	-16.02	-0.89	
Release	2017 03 09	20:34	-16	0.43	0	-53.38	-16.01	-0.89	
SVP	2017 03 09	21:42	-16	1.21	0	-52.06	-16.02	-0.87	Reached 1000 m
Visual	2017 03 09	21:56	-16	1.21	0	-52.06	-16.02	-0.87	
Out of water	2017 03 09	22:44	-16	0.97	0	-52.42	-16.02	-0.87	
Preliminary location estimate			-16	0.99	0	-52.43	-16.02	-0.87	3919 m depth.



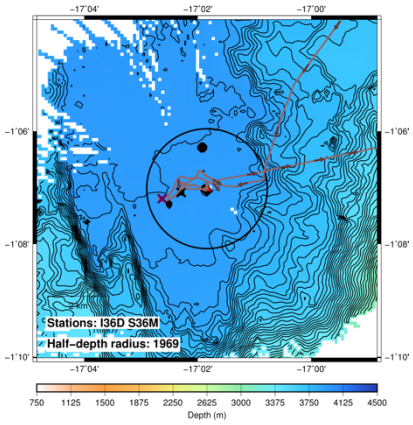
Site	34								
OBMT	S34M	Comm.	Yes						
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Release	2017 03 09	13:03	-16	21.76	0	-57.63	-16.36	-0.96	
Visual	2017 03 09	15:06	-16	21.25	0	-57.32	-16.35	-0.96	
Out of water	2017 03 09	15:51	-16	22.13	0	-57.63	-16.37	-0.96	
OBS	I34D	Comm.	Yes				Survey type		Circular 270 degrees
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Point 1	2017 03 09	13:28	-16	21.76	0	-57.63	-16.36	-0.96	Survey at 4 kts at 1/2 water depth radius from OBS
Point 2	2017 03 09	14:10							
Release	2017 03 09	14:45	-16	21.12	0	-57.40	-16.35	-0.96	
SVP	2017 03 09	15:23	-16	21.25	0	-57.32	-16.35	-0.96	Reached 700 m
Visual	2017 03 09	15:58	-16	21.71	0	-57.52	-16.36	-0.96	
Out of water	2017 03 09	16:24	-16	21.14	0	-57.53	-16.35	-0.96	
Preliminary location estimate			-16	20.91	0	-57.48	-16.35	-0.96	2964 m depth.



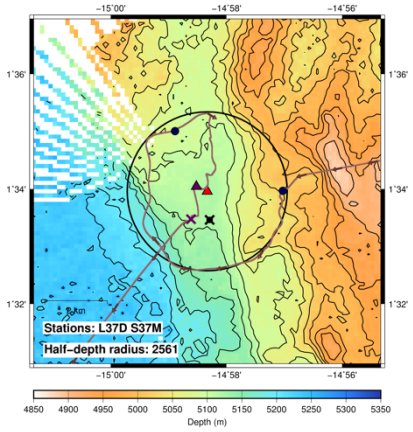
Site	35								
OBMT	S35M	Comm.	Yes						
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Release	2017 03 09	07:14	-16	41.85	-1	2.30	-16.70	-1.04	
Visual	2017 03 09	09:51	-16	0.89	-1	1.92	-16.01	-1.03	
Out of water	2017 03 09	10:43	-16	40.99	-1	1.85	-16.68	-1.03	
OBS	S35D	Comm.	Yes				Survey type		Circular 270 degrees
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Point 1 (W)	2017 03 09	07:37	-16	41.67	-1	2.22	-16.69	-1.04	West to north, counter clockwise, 1/2 water depth radius
Point 2 (N)	2017 03 09	08:25	-16	40.69	-1	1.26	-16.68	-1.02	North point. End of survey.
Release	2017 03 09	08:51	-16	40.70	-1	2.00	-16.68	-1.03	
SVP	2017 03 09	08:52	-16	40.70	-1	2.00	-16.68	-1.03	Reached 700 m
Visual	2017 03 09	10:00							
Out of water	2017 03 09	10:17	-16	40.89	-1	2.27	-16.68	-1.04	
Preliminary location estimate			-16	40.79	-1	2.23	-16.68	-1.04	3773 m depth.



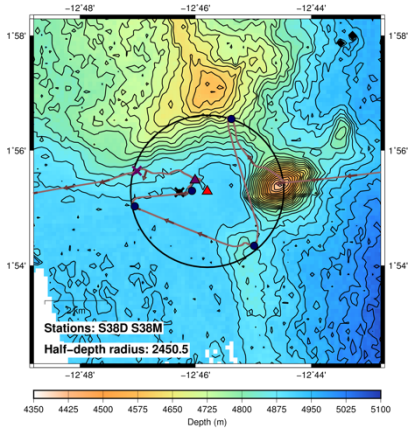
Site	36								
OBMT	S36M	Comm.	Yes						
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Release	2017 03 09	00:22	-17	0.83	-1	6.81	-17.01	-1.11	
Visual	2017 03 09	02:54	-17	2.30	-1	6.83	-17.04	-1.11	
Out of water	2017 03 09	03:16	-17	2.63	-1	7.20	-17.04	-1.12	
OBS	I36D	Comm.	No				Survey type		
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Point 1							0.00	0.00	
Release							0.00	0.00	
SVP							0.00	0.00	
Visual							0.00	0.00	
Out of water							0.00	0.00	
Preliminary location estimate							0.00	0.00	
The OBS site was revisited on 2017 03 24-25 but still no communication.									



Site	37								
OBMT	S37M	Comm.	Yes						
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Release	2017 03 08	00:44	-14	57.03	1	33.97	-14.95	1.57	
Visual	2017 03 08	04:52	-14	58.47	1	34.02	-14.97	1.57	
Out of water	2017 03 08	05:17	-14	58.61	1	33.47	-14.98	1.56	
OBS	L37D	Comm.	Yes				Survey type		Circular 270 degrees
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Point 1 (East)	2017 03 08	00:53	-14	57.02	1	33.97	-14.95	1.57	East to north, clockwise, 4-5 knts, 1/2 water depth radius
Point 2 (North)	2017 03 08	02:11	-14	58.89	1	35.01	-14.98	1.58	North point. End of survey.
Release	2017 03 08	02:41	-14	58.26	1	34.23	-14.97	1.57	
SVP	2017 03 08	02:54	-14	58.84	1	34.23	-14.98	1.57	Reached 700 m
Visual	2017 03 08	04:36	-14	58.34	1	34.23	-14.97	1.57	
Out of water	2017 03 08	04:56	-14	58.52	1	34.04	-14.98	1.57	
Preliminary location estimate			-14	58.31	1	33.94	-14.97	1.57	5053 m depth.



Site	38								
OBMT	S38M	Comm.	Yes						
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Release	2017 03 07	07:17	-12	44.68	1	55.61	-12.74	1.93	
Visual	2017 03 07	11:28	-12	46.03	1	55.52	-12.77	1.93	
Out of water	2017 03 07	12:28	-12	47.01	1	55.65	-12.78	1.93	
OBS	S38D	Comm.	Yes				Survey type		Triangle
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Point 1	2017 03 07	08:16	-12	45.38	1	56.55	-12.76	1.94	Range 5349
Point 2	2017 03 07	08:51	-12	44.99	1	54.34	-12.75	1.91	Range 5304
Point 3	2017 03 07	09:02	-12	47.05	1	55.03	-12.78	1.92	Range 5397
Point 4	2017 03 07	09:44	-12	46.06	1	55.30	-12.77	1.92	Central point. Range 4869
Release	2017 03 07	10:05	-12	46.09	1	55.38	-12.77	1.92	
SVP	2017 03 07	10:09	-12	46.08	1	55.37	-12.77	1.92	Reached 706 m
Visual	2017 03 07	11:36	-12	46.03	1	55.52	-12.77	1.93	
Out of water	2017 03 07	11:52	-12	46.01	1	55.48	-12.77	1.92	
Preliminary location estimate			-12	45.74	1	55.31	-12.76	1.92	4926 m depth.



Site	39								
OBMT	S39M	Comm.	Yes						
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Release	2017 03 06	17:45	-11	30.05	2	3.38	-11.50	2.06	
Visual	2017 03 06	21:42	-11	30.74	2	3.20	-11.51	2.05	
Out of water	2017 03 06	22:28	-11	30.31	2	3.43	-11.51	2.06	
OBS	L39D	Comm.	Yes				Survey type		Diamond
Activity	Date	Time	Lon (Deg)	Lon (Min)	Lat (Deg)	Lat (Min)	Lon (Deg)	Lat (Deg)	Notes
Point 1	2017 03 06	20:03	-11	29.59	2	4.57	-11.49	2.08	
Point 2	2017 03 06	20:38	-11	28.15	2	3.15	-11.47	2.05	
Point 3	2017 03 06	21:00	-11	29.47	2	2.01	-11.49	2.03	
Point 4	2017 03 06	21:25	-11	30.71	2	3.17	-11.51	2.05	
Release	2017 03 06	21:58	-11	30.74	2	3.20	-11.51	2.05	
SVP	2017 03 06	22:47	-11	0.42	2	3.46	-11.01	2.06	Reached 700 m
Visual	2017 03 06	23:34	-11	29.91	2	3.42	-11.50	2.06	
Out of water	2017 03 06	23:55	-11	29.63	2	3.28	-11.49	2.05	
Preliminary location estimate			-11	29.42	2	3.34	-11.49	2.06	4685 m depth.