



Cruise Report

MGLN07MV

Lau Basin

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R/V Melville

Jason II

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Executive Summary

Melville/Jason Cruise to the Lau Basin, 9/5/06 to 10/2/06

All dates and times are local (12 hours off from GMT)

All dates and times in the detailed log and virtual van are in GMT

9/5/06 Departed Suva at 1600 to begin transit to the site. We are heading into the seas, but they are relatively calm and the ride is not too rough.

9/6/06 Arrived on Station at 10 pm and began transponder deployment

9/7/06 First dive #230 launched at 0400. This was a 40 hour dive to Kilo Moana: The ROV is loaded with: The Luther Chemical sniffer, a 5-chamber slurp sampler, JII T probe, two still cameras mounted in down looking configuration with 2 strobes and an HMI light illuminating their field of view, two bioboxes on the swing arms: This will be standard. In addition we loaded 4 scoop nets, one major sampler, 4 mussel pots, 3 Cavanaugh fries, one Osmo sampler, One High T Hobo, and 3 ball markers. A primary goal of this dive was to chemical scan all previously mosaicked sites, and set up one additional mosaic in diffuse flow. All of this was accomplished: the two peripheral sites were surveyed along with the previously mosaicked diffuse flow site and two chimneys (all were also re-mosaicked). An additional diffuse flow mosaic was made during the dive. Geoff Wheat's Osmo sampler was deployed along with a high T Hobo after a major sampler was taken at the chimney (all in same orifice). Only two mussel pots were taken, and they did not go well. The substrate at this site is not good for the pots. 2 large mussel collections were made for Colleen and Stacy (using scoop nets), and extra Alvinichoncha (by suction) and Ifremeria (in a net) were collected for Stacy. Colleen's fries were deployed. An assortment of animals were slurped from different environments and collected as opportunity arose. All in all the dive itself was very productive, however one mussel pot was lost during the launch, and the thermistor array left on the bottom in 2005 was lost at the surface during recovery. One of the two strobes failed during the dive and the team was not able to fix it after the dive, so we may be working with a single strobe for the rest of the dive series. NOTE, that Marker F is part of Kim's mosaic and Markers #1 and #2 are also in this area in the N, NOT in the South as is recorded.

9/8/06 First dive recovered at 2000. Transited down to ABE and deployed transponders.

9/9/06 Second dive, #231 launched at 0900. A 31 hr dive to ABE. Basically the same basket, but without the chemical sensor, and we added a liner to one bio box so stacy can recover her larval traps, and also 2 crab traps and 12 pieces of basalt Stacy is deploying. Another Osmo sampler with Hi T probe was deployed in a chimney at the N end of ABE. The major sampler collection was not perfect as it slipped out of the orifice during collection. Colleen's fries and the two crab traps were deployed at the N end of the site, in the area of the "marker 19 chimney complex". Marker 19 was never found, but what appeared to be a new very active chimney growing from a pile of rubble was found and T-probed.

Both of the diffuse flow mosaics were revisited and images collected for new mosaics. In addition several chimneys of a spire complex were videoed in both the N and S end of the site to make working mosaics for e-chem data collection on the next visit here. At the N end the chimneys were near the small mosaic site and in the S a Marker was deployed on the spire complex.

Stacy collected her 3 larval traps (the business ends), deployed 12 blocks, re-mosaicked her peripheral site and slurped peripheral animals.

4 mussel pot collections were done and all went very well. 2 mussel collections were done for Colleen, both from the central area. The 5-chamber slurp sampler was used quite effectively, and in addition to the peripheral slurps, the new species of shrimp, several crabs, and two fish were collected. The thermistor array was recovered at the end of the dive

A lot of time was spent in the S chimney complex area. There is abundant fauna down here, but it is mostly on chimneys or in inaccessible pits. Beautiful chimney complexes and several smokers.

9/10/06 Second dive recovered at 1600 Transited towards Tu'i Malila. Made a single dredge for Charlie en route.

9/11/06 Third dive, #232, launched at 0600. This was a 42 hr dive to Tu'I Malila. Standard basket, with e-chem, mussel pots, a major, nets, scoops, markers, and a crab trap. Diving without a net for the first time. It took about 15 minutes to find a marker and get started. We did quite well without a net. In fact after finding the first marker it was somewhat less brain damaging to not have offsets, although we must remember that most of the nav data logged is bad as it is all Doppler. This was the first dive with rock collections in the plan and 4 collections were made for Charlie. We re-mosaicked the diffuse flow site at Marker 39 and e-chem surveyed it along with the flange and Stacy's original peripheral mosaic site. Stacy also collected images for a second mosaic, and collected peripheral animals. Several Chimneys in the northern end of the site were mosaicked by video for e-chem survey later. A crab trap was deployed and collected full from the T-array site. The T array was collected. Only the probes in Dara's smoky hole remained in original deployment position. The others had evidently worked out and slid down hill. Two Snail races were set up and monitored. Both also have great data on changes in chem. within the aggregations. these experiments will take serious time to set up and conduct. Three mussel collections were made for Colleen (one from the north and two from the central area), and 3 mussel pot collections were made from the central area (two Alviniconcha and one mussel).

9/12/06 Third dive recovered at midnight, began transit to Tow Cam. No dredges on route as it is a 9 hour transit and we need some time for Jason work at dead slow on a good heading.

9/13/06 Fourth Dive, #233, launched at 1200. This is a 30 hour dive to Tow Cam. . Standard basket, with 2 majors and the flow visualizer. The second strobe was "fixed" and on board as well. As a result, we were at the edge with payload. We may have to lighten up a bit if the strobe gets fixed. Liz redid her mosaic and returned later to e-chem

it. Plan was to e-chem peripheral fauna, but Stacy decided to mosaic instead/aswell so 2 peripheral sites were mosaicked. We attempted to use the flow visualizer, but with little apparent success/. The chimneys are too vigorous. Two majors were deployed, but only one was used because of a loose hose on the other. Erin mosaicked and e-chemed a chimney with diverse by low density fauna. Suction samplers included a *Thermarces* (vent fish), and scale worms from peripheral areas, Several anemones were collected for Kevin and pieces given to Stacy. 3 successful mussel pots were taken: one in mussels, one in dead *Ifremeria* shells, and one in *Ifremeria*. 3 mussel collections were made for Colleen, but high T in bio boxes upon recovery compromised the samples. The baby tubeworms were found, e-chemed, and collected along with additional large tubeworms. They are even smaller this year! Several basalts were collected for Charlie from the various work sites.

9/14/06 Fourth dive recovered at 6pm. A full night of dredging planned for the short transit to ABE. Unfortunately, equipment problems (electronic and with the wire), resulted in no catch during the first dredge and they never hit the bottom during the second. We arrived late to station as a result of the wire problems.

9/15/06 Fifth dive, #234, launched at 8:30 am to ABE. This is a 34 hour dive. Standard basket, with 2 majors, 4 mussel pots, the flow visualizer, and down looking cameras. Stacy made a second peripheral mosaic and then later e-chemed it. A high T probe was deployed in a smoker at the S end of the site and a single major taken here (the other failed). Liz E-chemed both of her mosaics. We started to e-chem the chimney mosaics, but stopped because they were being damaged and had not yet been imaged with Scorpio camera. Four mussel collections for Colleen and mussel pot collections of mussels and *Ifremeria* were made. (This days summary was added later and may need fleshing out from the dive log)

9/16/06 Fifth dive recovered at 1800. A night of dredging planned for the transit to KM. Jason crew requests 2 hours before starting transit for major Jason work, then a emergency beacon 18 miles away pulls us off station for a 4 hour chase of what turned out to be a ghost. Then a 5 hour transit back to KM, so no dredging.

9/17/06 Sixth dive, #235, launched at 0600. This is a 38 hour dive to KM. Standard basket with 12 Kim settlement blocks, a thermistor array with osmo installed, 1 Hobo hi T probe, flow visualizer, 1 major, and the Scorpio moved to the forward looking mode, mounted on the drawer. The flash is mounted on the camera bar, but near the middle. The thermistor array was deployed at Liz's second mosaic site because the first is obviously cooling off. The Hobo was deployed at Geoff's site KM1, Each of the down looking mosaics was revisited and additional T data gathered. The vertical mosaic sites were e-chemed with additional T data, and also re-mosaicked with the forward-looking Scorpio. Stacy's blocks were deployed and Colleen's fries collected. Time was spend imaging and collecting chimney fauna. The original bull's eye site here (Tim's paper site) was slowly dissected by Chuck and George with extensive documentation of chemistry before, during and after snail removal. T-probes were cross-calibrated during recovery

9/18/06 Sixth dive recovered at 2000. Transponders recovered and on deck at 2300. The weather dictated chose of dredge site (by possible headings for dredge). A 3 hour transit to dredge site, followed by a delay caused by winch problems resulted in a single dredge. Few rocks recovered, but they were glassy.

9/19/06 Seventh dive, **#236**, launched at 0800 to ABE. This was planned as a 30+ hour dive, but power failure brought it up short. Standard basket with forward looking Scorpio camera, one major, one thermistor array with osmo and the flow visualizer. The dive began at Liz's original mosaic site where the thermistor array was again deployed. Liz then spent several hours carefully augmenting the E-chem data with additional T data. Moved south to Erins S chimney mosaic for Scorpio mosaic, e-chem survey, and additional T data. The S Hobo was located and a marker deployed. Rocks were collected at both S sites. Some time spent slurping semi-peripheral shrimp, anemones, and scale worms in the S. Transit to N, where Colleen's fries were collected. Jason failed during T-scanning of Liz's N mosaic. Will return to finish vert and horiz. Mosaics, scanning Stacy's blocks, collecting Paralomis, and mussel/snail pots.

9/20/06 Seventh dive recovered early at 0500 due to power failure in Jason. Transponders recovered until 0900. Next few hours spent evaluating the odds that Sea Beam will work and the weather. At 1230 decision made to begin transit to Sea Beam start point. Transit time from here will be about 33 hours.

9/21/06 Passed close to "Minerva reefs" on N side at about 0900. Arrived at the SE corner of Sea Beam track and began Seabeaming at 10 knots at 2130. Established a night watch on sea beam to assure data quality.

9/22/06 Spent all day Sea Beaming Running E-W tracks at 10 knots, and S-N transits between tracks at 11.5.

9/23/06 Finish 24 hours of sea beaming at 2130, about 2/3 of the way along the final, north most track. Since it is in the right direction we will increase speed to 11.5 knots and finish the track to the E, before heading ENE back to Mariner. The track line past the reefs would add 4 hours of transit so we will head straight back with only slight deflection at the end to cover fresh bottom with Sea Beam.

9/24/06 Transit back is very rough taking the seas on the Starboard beam. We are making a bit less than 10 knots. At 1300 the captain informs me that a crew-member had chipped a tooth a week ago and developed an abscess that is not responding to antibiotics, so we are heading to Tonga for a medical evacuation. ETA at the sea buoy in Tonga is 1730 tomorrow.

9/25/06 Arrived at sea buoy at Tongatapu at 1400 for med evac. Left at 14:30 for 5.5 hour transit to ABE.

Launched at ABE at 2000 hours the 8th dive (**237**). This is a 22 hour dive. This was a clean up dive at ABE. We mounted 2 HMI lights pointing down for the Ether cam, and

the Pictures seem fine. We will use this configuration (Ether cam down with HMI's and Scorpio forward with strobe and one HMI) for the rest of the cruise. The T-probe on the e-chem was not working. We finished the T-scanning of the mosaic sites (Liz's small mosaic, and Erin's N chimneys), and photo imaged the N chimneys. Stacy e-chemed her rock deployments. Alviniconcha pots were a priority, and 2 were successfully taken. Phymorhynchus collections and anemone collections were priorities and collected. 2 Majors were taken from the broken chimney that I guessed is marker 19. It had grown since last visit. Assorted rocks were collected For Charlie and assorted fauna slurped for Stephane.

9/26/06 Recovered 8th launch at 1800. Extensive basket change so stayed on station for 2.5 hours for work on deck, then transited to Mariner.

9/27/06 Launched 9th dive (#238) at Mariner at 0600 for a 26 hour dive. No mussel pots on this dive. Three osmo samplers were deployed. The two hot ones in the vicinity of Geoff's 1st choice (exact chimney is hard to determine without markers). The deployment was very time consuming as we put both in the same orifice, and then when polishing up the deployment, broke it open and had to start over. But both are in one, the second major was take hear and a hi-T probe deployed along with the osmo samplers. The other hi t probe was put in a near by smoker. We also made a collection of assorted fauna from the base of that chimney. Two other chimneys were carefully imaged, e-chemed and fauna collected. ALR's molar rock was visited but Stacy said it was not nearly as active as before. We e-chemed it and tried to break off a piece, but it was SOLID. The "dead tubeworms" found by Ken Takai and colleagues was visited and they are dead... We passed an area of the sea floor covered by occasional black rocks ("lava bombs", on a sediment covered substrate), but when we tried to sample them they were extremely friable and no collections were made. Stacy mosaicked a "peripheral chimney" and made e-chem measurements and collections.

9/28/06 Recovered Jason at 0800 for a 10 hour surface interval. Because of short time and necessity to work on deck, we decided to SeaBeam rather than dredge. Seabeaming 4 hours (about 40 minutes) to W, up 5 minutes to N and then seabeaming back. Launched 10th dive (239) at 1800 at Tui'. This was an 18 hour dive to tie up loose ends. Both sides of a very macrobiologically alive chimney was mosaicked with scorpio, and a mosaic previously made from video was used to guide e-chem survey. Both horizontal mosaics of Liz's were Temp surveyed to supplement the previous e-cheming. On major was taken, along with 2 mussel pots (one of mussel and one of Ifremeria), an additional Ifremeria scoop for Stacy, and two mussel collections from the N area of activity for Colleen. Stacy e-chemed her new peripheral mosaic. We spent about 2 hours re-imaging the two snail races and conducting some e-chem surveys and "poking around" to see how the snails had re-sorted themselves after our faunal removal and addition experiments from the last visit. This went very well, and the prospect for success in the proposed work is high. A few rocks were collected for Charlie and the last collection completed 30 seconds before leaving the bottom for an ontime recovery.

9/29/06 Recovered Jason at 1200 and began transit to Tow Cam (105 miles). Arrive at TC about 22:30 for a 2400 launch.

9/30/06 Launched Jason for our last dive (#240) at 0000 hours. This is a 24 hour dive to Tow Cam. A standard basket load was used, with the two camera's as for the last few dives. During the night, Liz picked a spot for a second mosaic, Erin imaged and finished her chimney mosaic, Stephane spent an hour slurping assorted fauna and Stacy finished her peripheral mosaic. In the AM Kevin and I spent 4 hours mussel potting Alviniconcha and then e-cheming, sampling and imaging the tubeworm collection site. Well worth it. Marker 9 and Marker C are at this site. Liz made the new mosaic and e-chemed that site as well as conducting additional T surveys on the original site. We succeeded in finding all of the fauna still on our hit list, and Colleen made her last three requested mussel collections, finishing that in the final minute of the dive.

10/1/06 Recovered Jason at 0000 hours. On time. It took about 50 minutes to get everything secured and all samples off the Jason. We were underway for Suva by 0100. We move a little north and then turned due west to run a new sea beam line out of the area. At 1100 we made the turn to WNW and the straight line to Suva. We are making good time and should hit the sea buoy on schedule, by 8 am on the 2nd

10/2/06 At the sea buoy at 0800.

General Impressions of the Dive Sites

Impressions of KM (Fisher, after one dive)

There are basically 2 sulfide complexes at the northern end of KM, both are very near to the peripheral and diffuse flow mosaics made in 2005. The two mosaics are actually quite close to one another, and all three work sites (the instrumented chimney and both mosaics) are within site of each other. At a first glance, the diffuse flow site seemed to be waning, as the few snails in this mosaic were replaced by mussels. The active area is up on top of a small scarp, with a bit of diffuse flow and scattered animals down the slope, but nothing “pot-able”.

In the middle area, there are a few chimneys, but not very much else and the chimneys are mostly only warm (and covered with diffuse flow communities). The communities on the chimney we mosaicked last year did not seem to have changed much, but the snail race site (of Tim’s paper), seemed much more robust and active. There are a few mounds of mussels here, and scattered patches of snails. NOTE that Marker #C and the “Vrijenhoek marker” are one and the same.

At the southern end there are quite a few chimneys, and we did not get a chance to look at the tops of them yet. We did find and mosaic a very nice and active diffuse flow area. I think this is the area of the MBARI marker #A, where bob sampled mussels last year. However, the area mosaicked seems to be a few meters from that point (according to Robbie and Stephane who recognized the area from last year). Diffuse flow communities amenable to mussel pots are rare or absent on horizontal surfaces, although we will try a mussel patch or two next dive here. This site is RICH with peripheral communities of anemones, with occasional Brisingids and holothurians. Holothurians can also be abundant in mussel patches here.

After 2 dives: During our second dive here we found the rich chimney communities. They are in the S complex, and include numerous multiple-active black smokers, communities of stalked barnacles, a few tubeworms, and lots of areas with shrimp swarms, scale worms and paralvinellids. Chimneys are 10+ m high and as Bob W. says, “its Indian Country.... Lots of stuff here that can hurt you” The mosaic site with the thermistors is quite active diffuse flow on a peninsula. Mostly Ifremeria and mussels, with anemones. At last years snail race site (site of Tim’s paper), the activity had picked up. Two little smokerettes were on the ground right in front of it. We collected quite a few alviniconcha from here, in a mussel pot and scooped for Stacy et al. We again effectively cleared this site of snails, this time with abundant e-chem.

Impressions of ABE (Fisher, after one dive)

The west side of this site is bounded by a scarp that runs N to S. There are 3 general zones of activity at ABE. In the S and N ends are multiple active chimneys, some with smokers. These look quite different from most at KM in that they are white, quite delicate and arranged in complex groups of spires. My impression is that they are generally not as tall as at KM, but more spires in a given complex. We spent quite a long time looking for marker 19 in the N. It was never found, but the most active black

smoker found was only about a meter high and was spewing from the center of a pile of sulfide rubble, with a large orifice. I believe this is likely the #19 Chimney. There are a few other black smokers in this area, and quite a few areas of diffuse flow communities around the bases of the chimneys and close to the chimneys. Lots of areas good for quantitative collections around here. And LOTS of fish swimming everywhere. At the S end there are perhaps more chimneys, but less extensive diffuse flow communities around their bases. We spent a long time in the S end looking for a diffuse flow community to mosaic, but found nothing workable. Chimney complexes down here are beautiful and delicate. I get the impression of fewer vigorous black smokers, although lots of beehives and some smokers were found. I am not confident that we visited all active areas in the S.

The central area is dominated by diffuse flow on a slope in the area of Liz's big Mosaic. There are extensive patches of snails and mussels all around the mosaic area and the mussel pots work well here. There appears to be more extensive patches of snails here than at KM. I get the impression of a substrate that acts as a diffuser releasing diffuse flow over an area rather than at a semi point source such as from between pillows of basalt (a la EPR or KM). Hence the large patches of snails.

Anemones are much rarer in general at ABE than at KM, both in active diffuse flow and in the less active areas. Peripheral areas are often dominated by sponges.

Impressions of Tu'i Malila (Fisher, after one dive)

TM has three general areas of activity. In the central area is a rather extensive area of diffuse flow over generally rough terrain. This includes the area we named Snail Hollow, the mosaic site, and Dara's Smokey Hole. All are in about a 30 m radius. The communities are often mixed, although there are areas of only one foundation species. There are numerous patches of very white Alviniconcha. Mussels and snail in this area are generally smaller than we often find on the chimneys... Very few anemones are present in this diffuse flow area, although they are present. This is a great place to study mixed communities.

To the north are areas of beautiful chimney complex and a bit of diffuse flow around the base. The mussels on the basalt are often in beds with numerous disarticulated shells and seem to be cooling off with very little shimmering water. We did not get to the northern edge of this activity and should explore further north (at least I did not see it, and there are targets further to the N). this area includes St James Spires and the areas we mosaicked chimneys during this dive. When we looked for a thriving mussel patch around marker 22 and environs, we could not find one. However, there are small patches of large snails and mussels on the chimneys. Perhaps these are long lived cool chimneys? To the South, the main activity is on the scarp on the W: Either on top or on the drop off. Very pretty chimneys, with a few smokers, but very few mussels, and not too many snails. Very little in the way of diffuse flow around the bases. Often the only activity is on top of the chimneys. Again, we did not go as far south as last year and will have to venture farther south on our next dive. The alvinellid flange (mosaic flange) is pretty much by itself, with not much around it.

After more dives: The rough terrain of the snail hollow area is a good place for the proposed behavioral experiments as there are numerous sites with mixed aggregations. The challenge will be to find good areas for camera deployments. The alviniconcha are

very active animals, especially when disturbed. Although *Ifremeria* do not seem to move much when watched (compared to *Ah*), they are relatively mobile when moved into good or bad habitat. On the last dive we approached the Alvinellid flange by running down the top of the ridge to the west of it, before dropping down to the flange. There are multiple active chimney complexes on this ridge, with lots of fauna on them. The flange is not as far from the ridge as I originally thought. Many of the small structures at this site in general are covered with mussels and snails.

Impressions of Tow Cam (Fisher, after one dive)

Tow cam has several nice areas to work and very diffuse flow is fairly widespread resulting in abundant fields of anemones on pillow basalt. The communities like Liz's first mosaic here (anemones mixed with snails and mussels) are spectacular in their diversity and I am again struck by the difference between basalt and andesite in this regard. We found a second very nice area that could be mosaicked, which was nicknamed mussel oasis, it is south of the area we did most of our work and the site where Kevin did two of the mussel pots. South of that was another area with very limited communities. The chimneys are in general not heavily populated with fauna, compared to the other sites, although many short and somewhat fat structures seem to be part lava and part sulfide. Mussels are in general not abundant here, although there are plenty of them in small groups, both in diffuse flow and on chimneys. Patchy. The tubeworm site was similar to last year, although it had increased in vigor and a small chimney with alvinellids was growing on the left side of the "tuby cave". A bit to the north of Liz's mosaic is an area with a few chimneys. These chimneys are inhabited with a diversity of animals, but sparsely. All in all not many Alviniconcha at this site compared to the others (but see updated comments below).

After a second dive: A second mosaic site in the N (Not Mussel Oasis), was set up in an area of quite active diffuse flow and many patches of Alvinellids. This site and the tubeworm rock are quite interesting as they look like fairly new vent communities. The "tubeworm rock" was imaged from three sides as it has about 10 distinct patches of Alviniconcha, and a very few small mussels. The Mussel Oasis site is similar to Liz's other mosaic site, but perhaps even older. There are numerous patches of mussels that seem to be dying, as well as others with abundant live mussels and even *Ifremeria*. This site has very abundant anemones and *Phymorhynchus*. We have been looking for these snails for 3 dives, and seen none. At Mussel Oasis they were present in apparent densities of about 5 per m². This would have been another site worth mosaicking for a return visit, but this was the last dive and we simply ran out of time.... Although my original impression was of a paucity of Alviniconcha at this site, after this dive I have changed my mind: There are definite areas with at least as many Alviniconcha as at most other places we visited (the new mosaic site and the tubeworm rock are the "hot" sites here), as well as other large areas of diffuse flow and chimneys virtually devoid of Alviniconcha.

Impressions of Mariner (Fisher, after one dive)

This was my first visit to Mariner. We had Stacy's and Meg's maps and input, as well as Ken Takai's dive report. We landed on a chimney/smoker complex in the SW quadrant of Meg's SM 2000 map. First impression was of a lot of smoke. We were looking for

smokers fairly near to the ground to deploy Geoffs Osmos on, and it took us a while to get figure out where the smokers were and get to the ground. I was impressed by the fact that many of the most active smokers were fairly close to the ground, and not on the tops of chimneys. We had lots to choose from. Later when we went up to the top of the chimneys we were working on, I found they were not as hot (few and small smokers) as the spots on their sides and near the ground. Is this due to a re-invigoration of an old site? Although we did not see any mussels or chemo snails, I was impressed by the numbers of shrimp on the chimneys (many aggregations of 10's to 100's), and a moderate abundance of *Austinogrea* crabs, a relative paucity of *Munidopsis*, and good numbers of large scale worms in cool areas on the base of chimneys along with lots of little (apparently non symbiotic) snails. A few scale worms typical of hotter areas were present on the white areas of the chimneys along with the shrimp. We visited Anna Louise's rock (tooth), and Stacy Kim confirmed it was the same rock. It has cooled off quite a bit as only a bit of the top and a multi-tiered flange on the side were still white. Another rock next to it was similar. A little diffuse flow here, but nothing much. And very little megafauna on this rock, other than a very few shrimp. We then transited up to the top of the hill where Ken had found dead tubeworms. They were still there and still dead. The tubes were rust colored and falling apart. It is a sedimented area with no sign of activity, except some hydrothermal staining among the dead clumps (small curled up little tubes). In transit to the north we passed over what we nicknamed "lava bombs". Black rocks very noticeably out of place, spotted among the generally grey sediment covered landscape. When we tried to sample them we found they were extremely friable and could not be collected even with a resistance setting of 1 on the manipulator (which can pick up an egg without breaking it). Other than that the transit was non-eventful for a vent biologist; sediment lightly covering lava, although we did find and collect some Crinoids. We then returned to the main complex of chimneys, first visiting an old spire covered with peripheral fauna (lollipops, starfish, etc), then into some with smoke. In general the central area here is quite impressive with very different looking chimneys, with multiple fragile spires (most spires are inactive, although there is plenty of activity in general), sometimes with considerable height (10 – 20 m).

Impressions of Mariner (Hourdez, after one dive)

Northern area:

We did find the Japanese marker (92) on top of a mound (1850 m). There is no sign of activity in the Northern area. Only dead tubeworms were found, as reported earlier. The area is heavily sedimented.

Southern and central areas:

We did not find any markers from previous cruises during this dive.

Overall, there is a lot more sediment here than anywhere else we had a dive in the Lau Basin. When there is activity, it is very focused, with no a little diffuse areas. The smokers, when present, are black smokers, with temperatures above 300 °C. The chimneys are very large, sometimes forming complexes. Some of the chimneys reach 25 meters in height. The active chimneys are rust-colored where no diffusion is visible.

Two osmosamplers were deployed in the southern area, in a single opening, along with a Hobo probe. The second Hobo probe was deployed on a very low group of small chimneys, a few meters away. Temperature was 326°C.

In the central area, one osmosampler was deployed in diffuse flow at the base of the Pisa chimney (mosaicked, E-cheded and sampled for fauna). Temperature in the diffuse flow was 16-20°C.

Anna-Louise Reysenbach's chimney looks like a stump with few shelves and round protuberances. Manganese was found in high levels in the fluid. It was not possible to break a piece of that chimney for analysis. Very few animals were found on it.

There is some fauna in this area. The main symbiotic species (the snails *Ifremeria nautilei* and *Alviniconcha hessleri*, and the mussel *Bathymodiolus brevior*) were not found, suggested that either the conditions are not right to support symbiosis or these species are sensitive to a factor found in large amounts here (heavy metals?). However, the typical chimney fauna was found and collected: the scaleworm *Branchinotogluma segonzaci*, the shrimps *Nautilocaris saintlaurentae* and *Chorocaris vandoverae*, and the crab *Austinograea alaysae*. Other fauna is typically associated with very diffuse flow: the scaleworm *Levensteiniella* sp. (reaching very large sizes), the shrimp *Lebbeus* sp., and the snails *Desbruyeresia* spp.

Dive Plans

1st JII lowering, 9/07/06 JII 230

Basket/vehicle loading:

Standard:

Chemical sniffer

5 chamber slurp sampler

JII T probe

Ether cam in down looking mode

Scorpio in down looking mode

Two bioboxes on swing arms

4 scoop nets

One major sampler

4 mussel pots

3 Cavanaugh Fries (small pieces of basalt)

One Osmo Sampler

One high T probe

3 ball markers

Dive plan:

1) Run Georges protocols for Descent, and then bottom transit...

2) Dive on Geoff's 1° KM chimney choice (6917, 10783)

Locate orifices of choice for deployment

Take a major sampler and measure temperature

Deploy the Osmo sampler

Deploy the T probe in same chimney if possible (or close, after T measurement)

3) Move to Liz's mosaic (6922, 10789, depth 2614m)

Start centered over Marker 29 and work at a heading of 123°

Collect imagery from 4 meters and down load for processing.

Repeat with other camera

4) Find area for Colleens Frie deployment (Bob V marker, 6937, 10721)

Scoop one bag of mussels

Deploy Fries with chem. Scanning.

5) Go to last year's bull's eye site and video. (Marker E, 6948, 10730)

Chem Scan

Clear all alvinichoncha again (use slurp for stacy sample)

Chem scan

6) scan Chimney mosaic #2 (6948, 10730, D 2618m) Heading 350°

7) return to Liz's site and do scanning. (6922, 10789)

8) move to Stacy's peripheral site and do scans as appropriate (6969, 10648)

9) Go to Liz's small Chimney Mosaick and video document from same heading then make 10 – 20 scans on it. (6945, 10630, D 2623m) heading 26°

Evaluate time. Leave 4-5 hours for the last four tasks
If time remains, find another central mosaick site, deploy markers, and take images
Then find another peripheral mosaick site, deploy a marker, and take images

Make mussel pot collections
Slurp Ifremeria for stacy
Make Colleens remaining Mussel collections (don't forget the nisks)
X6959, Y10654 and 6954, 10662
Retrieve the T-array (X6930, Y 10793, D 2615m)
Come on home
Pump samplers:
Red and green have 1 cm mesh
Blue and black have 1 mm mesh
Yellow has 300 micron mesh

2nd JII lowering, 9/09/06 JII 231

ABE

Basket/vehicle loading:
Standard:
NO Chemical sniffing on this dive
5 chamber slurp sampler
JII T probe
Ether cam in down looking mode
Scorpio in down looking mode
Two bioboxes on swing arms
2 scoop nets
One scoop (no net)
One major sampler
2 nisks
2 crab traps
4 mussel pots
3 Cavanaugh Fries (small pieces of basalt) in Stbd bio box
12 Kim settlement blocks (if these do not fit, they can go on another dive)
One Osmo Sampler
One high T probe
4 ball markers
2 Kim larval retrieval devices

Dive plan:

- 1) Dive on Geoff's 1° ABE chimney choice (X7894, Y8015, 2140m), marker 19
Suggested heading for work, 238°
Locate orifices of choice for deployment
Take a major sampler and measure temperature

- Deploy the Osmo sampler
- Deploy the T probe in same chimney if possible (or close, after T measurement)
- 3) Move to Liz's small mosaic (X7927, Y 7969, depth 2139m)
 - Markers 32 and 49.
 - Redo Mosaic
- 4) Look around this N end of ABE.
 - This should be a good place to deploy the fries
 - This should be a good place to deploy the crab traps
 - Potentially a good place for mussel potting
- 5) find a chimney to mosaic
- 6) Go to central Mosaic area(X7824, Y 7767, 2143M, markers52, 51, 50, 47)
 - Redo the mosaic
 - Pack up the thermistor array for it's trip home and set it aside
 - Re-mosaic the area where it was
- 7) Go to the south (near marker 20, X7650, Y7460, 2131m)
 - find a diffuse flow area to mosaic (do it)
 - Keep eyes open for areas to mussel pot
- 8) find a chimney to mosaic. (do it)
- 9) By midnight (latest) , Start the Jason back towards the central mosaic area and turn the van over to Stacy**
- 10) redo Stacy peripheral mosaic
- 11) Deploy blocks
- 12) collect larval traps
- 13) slurp peripheral fauna
- 14) Make remaining mussel pot collections
- 15) Make two collections of mussels for Colleen (don't forget the nisks)
- 16) Retrieve the T-array
- Come on home

3rd JII lowering, 9/11/06, 0600 JII 232

Tu'i Malila

Basket/vehicle loading:
 Standard:
 E Chem sniffer
 5 chamber slurp sampler
 JII T probe
 Ether cam in down looking mode
 Scorpio in down looking mode
 Two bioboxes on swing arms
 4 scoop nets
 One scoop (no net)
 One major sampler
 2 nisks
 1 crab trap

4 mussel pots
4 ball markers

Dive plan:

Throughout dive keep your eyes open for:

- i) another site for a diffuse flow mosaic (liz)
- ii) another snail race (Chuck/erin/echem).
- iii) a bed of dead mussels (Kevin if awake)
- iv) potable stuff (drop digital targets)

And, when an opportunity presents to grab a piece of basalt, especially a shiny one, please do so and place in one of the milk crates

1) Dive on Liza's mosaic (X1544, Y3042, 1885m), marker 39

Redo the mosaic and begin processing pics (Liz)

2) Check out the snail race site. If it looks good (Erin/chuck and echem):

Place the marker (move Number 36 after initial look)

Do a careful chemical scan of site

Clear out all the Alviniconcha.

Carefully note heading.

3) Move to Dara's Smokey Hole (chuck and echem)

Deploy the crab trap

chem. Scan each thermistor probe

Pack up the array and set near the crab trap

4a) If Liz is done, do the chem. Scanning of her mosaic (Liz and echem).

4.5) do chemical scan of the flange mosaic and redo mosaic (Liz and echem)

4b) If not then move towards marker 22, 26 (X 1599, Y3181 and X1611, Y3226).

And do the following as opportunity presents

5) find a black smoker for the major sampler (George)

6) pick a spire to mosaic with video (erin)

Deploy marker and gather video

6.5) if it is early, pick another and gather video. (erin)

7) By 2 am (latest) , Start the Jason back towards the central mosaic area and turn the van over to Stacy for:

echem original peripheral site

re-mosaic of old site

mosaic of new site

collect peripheral fauna for isotopes

8) When done, Stacy will wake up Kevin and Robby for collections

9) Make remaining mussel pot collections

10) Make two collections of mussels for Colleen (don't forget the nisks)

11) Retrieve the T-array and the crab trap

Come on home

Pump samplers:

Red and green have 1 cm mesh

Blue and black have 1 mm mesh

Yellow has 300 micron mesh

Niskins:

Large is Green

Small is red

4th JII lowering, 9/13/06, 1200 JII 233

Tow Cam

Basket/vehicle loading:

E Chem sniffer

5 chamber slurp sampler

JII T probe

Ether cam in down looking mode

Scorpio in down looking mode

Two bioboxes on swing arms

3 scoop nets

One scoop (no net)

Two major samplers

2 niskins

4 mussel pots (2 w/o rings)

1 ball, and one float marker

flow visualizer

Dive plan:

Throughout dive keep your eyes open for potable stuff (drop digital targets)

And, when an opportunity presents to grab a piece of basalt, especially a shiny one, do so and place in one of the milk crates or a bio box. Record on rock data sheet

1) Dive on Liza's mosaic (X6673, Y5540, 2706m), marker 31

Redo the mosaic and begin processing pics (Liz)

2) Go to Marker 7 (**X6663, Y 5540, 2703m**), and take two major samplers at this **black smoker (George)**

3) If this is a good chimney to mosaic with video, do it carefully both zoomed in and not

If not then find another and deploy marker and mosaic (erin)

Gather echem on chimney, trying to keep mosaic heading

4) Liz gathers e-chem on her mosaic

5) E-chem on peripheral fauna

6) Begin mussel pot collections with good e-chem scans (Kevin)

7) Additional e-chem scans of Alviniconcha (Chuck or Kevin/George)

Slurp Alviniconcha for Stacy if no good mussel pot

8) Find and video, and collect tubeworms with a good fix (chuck)

Some Slurp tubeworms, grab a rock

9) Make 2-3 mussel collections.

10) Add some fresh tubeworms to bio box

Come on home

Pump samplers:

Red and green have 1 cm mesh
 Blue and black have 1 mm mesh
 Yellow has 300 micron mesh

Niskins:

Big is Green
 Small is Red

5th JII lowering, 9/15/06 JII 234

ABE

Basket/vehicle loading:

E Chem sniffer

5 chamber slurp sampler

JII T probe

Ether cam in down looking mode

Scorpio in down looking mode

Two bioboxes on swing arms

2 scoop nets

One scoop (no net)

Two major samplers

2 niskins

4 mussel pots (2 w/o rings)

3 ball markers

flow visualizer

Dive plan:

- 1) dive on Stacy's 2nd peripheral mosaic target and collect pictures. Collect a rock.
- 2) Take majors and deploy high t probe at smoker in extreme S end of site, X 7650, Y7402.

Try to use flow visualizer here as well.

- 3) transit N slowly, exploring slope and chimneys for collections
- 4) Move to Liz's small mosaic for e-chem
- 5) E-chem chimneys near liz mosaic
- 6) move to Liz's central mosaic for e-chem
- 7) Turn over to Stacy for e-chem of two mosaics, central first, then S
- 8) make two mussel collections in S
- 9) transit to north for 2 mussel collections and possible mussel pots of Alviniconcha
- 10) Finish mussel pots

Come on home

Pump samplers:

Red and green have 1 cm mesh
 Blue and black have 1 mm mesh
 Yellow has 300 micron mesh

Niskins:

Big is Green
 Small is Red

6th JII lowering, 9/17/06 JII 235

Kilo Moana

Basket/vehicle loading:

E Chem sniffer
 5 chamber slurp sampler
 JII T probe
 Scorpio in forward looking mode
 Two bioboxes on swing arms
 2 scoop nets
 One scoop (no net)
 one major sampler
 2 niskins
 3 mussel pots (2 w/o ring)
 1 float marker
 1 Hobo hi-t thermistor
 12 Kim settlement blocks
 one thermistor array (with osmo installed)
 flow visualizer (if space and weight allows)

Dive plan:

- 1) dive on Liz's second mosaic site.
 e-chem, then Deploy and image thermistor array: log detailed notes.
- 2) move to chimney for collection of major sampler and deployment of Hobo
 Geoff site "KM1" "Marker 2" at base of chimney complex
 Geoff gives X6947, Y10638, marker 2 (we have X6961, Y 10643 from 2005)
- 3) re-mosaick and e-chem sm chimney mosaic at marker D (Liz and Erin)
- 4) work on chimneys in this area. Photos of different faunal groups, e-chem.
 (Stephane or chuck). Slurp at will (if find amazing chimney, photo mosaic)
- 5) Move to central area and work on chimneys in this area. Photos of different faunal groups, e-chem. (Stephane or chuck). Slurp at will
- 6) move to Marker E and Spend some time doing careful e-chem of this bull's eye
 Take a vertical mussel pot in the center of the snail races e-chem and clear out
 A.h. (scoop some for stacy), e-chem again in ifremeria, etc (Chuck and george)
- 7) re-mosaic, echem large chimney at marker E (Liz and Erin)
- 8) Wake Stacy to slurp peripheral fauna and set out blocks (block site is near here)
- 9) begin collections. Colleens fries are near marker E. Fries into one bio box.
 One mussel collection here.
- 10) make additional mussel scoop and pot collections.
 Try and get the original pot site with brown fungus (Bob V marker #A, which we think is the loose rope Stephane saw??)

Pump samplers:

Red and green have 1 cm mesh
 Blue and black have 1 mm mesh
 Yellow has 300 micron mesh

7th JII lowering, 9/19/06 (Talk like a pirate day) JII 236

ABE

Basket/vehicle loading:

E Chem sniffer
5 chamber slurp sampler
JII T probe
Scorpio in forward looking mode
Two bioboxes on swing arms
1 scoop net
One scoop (no net)
one major sampler
2 niskins
3 mussel pots (1 w/o ring)
2 float markers
1 ball marker
one thermistor array (with osmo installed)
flow visualizer (if space and weight allows)

Dive plan:**When the opportunity arises:**

Collect paralomis, anemones, and pink peripheral scale worms

Shoot scorpio pix of vert surfaces

Scan chimney fauna

Use flow visualizer. Place near oriface of chimney, tilted away from Jason so flow escapes out the back, not the front.

Keep the Starboard biobox free for the Fries.

1) dive on Liz's mosaic site at marker 52: X7824, Y 7767

Deploy and image thermistor array: log detailed notes. **(Chuck)**

T probe this site **(Liz)**

2) Move south and deploy a float marker at the hobo chimney (original target X 7650, Y7402)

3) Collect a rock (lava) here (place in one of the milk crates or the port bio box)

4) move to the North a bit to Erin's photo mosaic chimney. Trade markers (a float for the ball that is there) **(Erin)**

e-chem and t-probe till you are done.

5) Collect a rock (lava) here (place in one of the milk crates or the port bio box)

(Stephane)

6) head north, but stop on a lava flow around Y 7600 and Collect a rock (lava) (place in one of the milk crates or the port bio box) **(Stephane)**

7) move north to Colleens Fries and collect into the starboard bio box (XYs on map in van, they are in the S cluster) **(Colleen/Robby)**

8) move to Liz's small mosaic (marker 32 and 49, X7927, Y 7969 in 2005). T probe mosaic **(liz)**

9) T-probe and e-chem the chimneys here, and deploy two ball markers directly in front of two **(Erin)**

9) Grab a rock here **(Stephane)**

- 10) move North to the top of this site and look around for mussel pots (**Kevin/stephane**)
 Keep eyes open for several paralomis: first for Stacy and then some for Stephane. Work the chimneys here for scorpio pix (**Stephane/chuck**)
- 11) Collect a rock here (**Kevin/stephane**)
- 12) move back to central area of if necessary to finish mussel pots. And collections (**Kevin**)
- 13) **check list on top to make sure you have everything done.**
- 14) get **Stacy** for scanning of rock deployments (7851 7757). “It should take no more than an hour (more likely only 30 minutes).”
 come on home

Pump samplers:
 Red and green have 1 cm mesh
 Blue and black have 1 mm mesh
 Yellow has 300 micron mesh

8th JII lowering, 9/25/06 JII 237

ABE

Basket/vehicle loading:

E Chem sniffer
 5 chamber slurp sampler
 JII T probe
 Scorpio in forward looking mode, Ethercam downlooking with 2 HMI lights
 Two bioboxes on swing arms
 2 scoop nets
 One scoop (no net)
 two major sampler
 2 nisks
 3 mussel pots (1 w/o ring)
 1 float marker, 2 ball markers
 flow visualizer (if space and weight allows)

Dive plan:

When the opportunity arises:

Collect paralomis, phymorhynchus, special anemones, rocks, and pink peripheral scale worms

Shoot scorpio pix of vert surfaces

Scan chimney fauna

Use flow visualizer. Place near oriface of chimney, tilted away from Jason so flow escapes out the back, not the front.

- 1) dive on Liz's small markers 32 and 49 (X7927, Y 7969 in 2005) t-probe approx.1 hr
- 2) Image the chimneys here with Scorpio. T-probe and e-chem the chimneys here, and deploy two ball markers directly in front of two (**Erin**)
- 3) Grab a rock here (**Stephane**)

- 4) move North to the N edge of this site and look around for Alviniconcha pots
(Kevin/stephane) Keep eyes open for several paralomis: first for Stacy and then some for Stephane. Work the chimneys here for scorpio pix (Stephane/Kevin) **Take your time and look around.**
- 5) Collect a rock here (Kevin/stephane)
- 6) **work south to the big broken smoker that was near where marker 19 was supposed to be** (X7894, Y8015, 2140m in 2005). Take 2 majors **Chuck or George flow visualizer**
- 7) move central area of if necessary to finish mussel pots and non-peripheral collections you can take one pot from mosaic if necessary. collect a rock here. **Kevin/stephane**
- 8) Scan **Stacy's** rock deployments (X7851 7757). Collect a rock here
- 9) Look for peripheral scale worms, phymorhynchus and Anemones (Stephane/Kevin)

Pump samplers:

Red and green have 1 cm mesh

Blue and black have 1 mm mesh

Yellow has 300 micron mesh

9th JII lowering, 9/27/06, JII 238 Mariner

Basket/vehicle loading:

E Chem sniffer

5 chamber slurp sampler

JII T probe

Ether cam in down looking mode

Scorpio forward

Two bioboxes on swing arms

2 scoop nets

One scoop (no net)

2 major samplers

2 nisks

0 mussel pots

2 float markers, 4 ball markers

3 osmo samplers

2 Hi T hobo probes.

Dive plan (for 6 am launch):

Watch for mussels, snails, or any signs of abundant metazoan life. Collect mussels if you see them into a scoop net

1) dive on Geoff's first choice chimney complex: x4945, y5745, z1919 hdg 244

Take temps, majors and deploy osmo samplers with a high t probe in each of two orifices here

If chimneys have fauna, consider a mosaic

Collect a rock

2) transit N slowly to main field and look around for chimneys to mosaic. If find one, do it with 3 chip and scorpio. Deploy a float for return shortly. Try a little E-chem to see

how it is working. Slurp some chimney fauna off of non mosaic chimneys. Also fire niskins and suck for 15 minutes on colleen's filter
 3) look for Anna Louise's table top of diffuse flow. (x5063, y5879, z1918) Mosaic this perhaps. Deploy osmo sampler here and e-chem. collect a rock
 4) Transit to extreme N, to the top of the hill (Japanese lat and long coordinates for dead tubeworm clump, off the map). Check it out for diffuse flow life. Collect a rock
 5) Transfer to Stacy by 0100 for peripheral mosaic/block deployment. (X 5001 – 5016, Y 5843) Scan blocks when deployed. Collect a rock.
 6) Slurp peripheral fauna

Come on home

Pump samplers:

Red and green have 1 cm mesh
 Blue and black have 1 mm mesh
 Yellow has 300 micron mesh

Niskins:

Big is Green
 Small is Red

10th JII lowering, 9/28/06 JII 239

Tu'i Malila

Basket/vehicle loading:

E Chem sniffer
 5 chamber slurp sampler
 JII T probe
 Ether cam in down looking mode, scorio forward
 Two bioboxes on swing arms
 2 scoop nets
 One scoop (no net)
 One major sampler
 2 niskins
 3 mussel pots
 1 ball marker, 1 float
 flow visualizer

Dive plan: Dive at 6 pm, after dinner

This dive can last 24 hours, but shorter would be better for last dive

Grab rocks (Lava) when opportunity presents in different areas.

Leave Starboard biobox open for mussel collections

Keep eyes open for pink scaleworms and phymorhynchus: slurp 'em

Do not under any circumstances slurp up Alvinocaris for Kevin.

1) Erin Chimney mosaic.

Marker 62 (front: hdg 79 and back: hdg 303 of chimney) x,y: 1603, 3176 (grab a rock)

2) Liz: Temp scans at Marker 43 mosaic (1511, 2997)

Liz: Temp scans at Marker 35 flange mosaic (1533, 2985) (grab a rock)

3) Kevin: mussel pot (Ifremeria (2), Mussels (1))

Collect large anemones with white tentacles (slurp or collect with rock)

Slurp or grab phymorhynchus as you see 'em

- 4) Stacy Echem mosaic 61 x1566 y3022 heading 141 (grab a rock)
- 5) George or designated driver: major sampler and flow visualizer at Chimney of choice.
- 6) Erin and chuck: Revisit snail races – photos/video
 - Snail race #1 mkr 58 (1560, 3045), near mkr 43
 - Snail race #2 mkr CC (1570, 3044)
- 7) Colleen and Robbie (start no later than 1pm) for 2 mussel collections of their choice
 “relatively close together - near Markers M26, M27 (North)”
 Niskins and filter sample (15 min) fire AWAY from mussels/vent if not done already (Grab a rock)
- 8) Leave bottom by 4:45 for 6 pm recovery

Pump samplers:

Red and green have 1 cm mesh

Blue and black have 1 mm mesh

Yellow has 300 micron mesh

Niskins:

Large is Green

Small is red

11th JII lowering, 9/30/06 (at 0000 hours) JII 240 Tow Cam

Basket/vehicle loading:

E Chem sniffer

5 chamber slurp sampler

JII T probe

Ether cam in down looking mode, scorpio forward

Two bioboxes on swing arms

2 scoop nets

One scoop (no net)

One major sampler

2 niskins, pelagic pump

3 mussel pots

2 ball markers, 1 float

Dive plan: Dive at Midnight

This dive will last either 18 or 24 hours, depending on the weather. The call will be made during the dive.

Grab rocks (Lava) and drop targets for mussel pots when opportunity presents in different areas.

We will make some Mussel collections, so avoid BIG rock in the bio boxes

Keep eyes open for pink scaleworms, phymorhynchus, and anemones other than white with pink tentacles

- 1) Liz (~0130): Dive on new mosaic site, deploy markers and collect ether cam images. (1.5-2 hours) (Make mosaic and prepare for e-chem, then go to sleep)

- 2) Stephane (~0330): Grab a rock and look for pink scaleworms, phymorhynchus, and “unusual” anemones around here (1 hour now) Drop targets for alviniconcha pots etc.
- 3) Erin (~0430): Chimney mosaic: the "French Chimney" at marker JJ. The x,y from the Virtual Van are 6629, 5587. Image with Scorpio and fill in needed holes with t-probe (1.5 hour)
- 4) George or designated driver (~0600) : major sampler at Chimney of choice. (0.5 – 1 hour) Send Jason towards Stacy’s nearest peripheral mosaic site.
- 5) Stacy (~06300) : Slurp peripheral fauna (which ones do you still need). Watch for fauna hit list above. Grab a rock (1.5 hours)
- 6) Kevin (~0800): mussel pot (Alviniconcha (2 if possible), and mussel or Ifremeria (1)) while looking for the hit list of fauna (2-4 hours) If pots fail scoop for stacy
- 7) Liz (~1200): Temp scans at old mosaic, X6673, Y5540, 2706m (1 hour)
- 8) Liz: E-chem new mosaic (3 hours +/-)
- 9) Stacy: scoop Alviniconcha and Ifremeria IF NOT POTTED OR SCOOPED YET
- 10) Colleen and Robbie (~1600) 3 mussel collections, one each from N, S, and middle of site OR come home for daylight recovery...
Niskins? Pelagic pump? (1.5 to 6 hours)

Pump samplers:

Red and green have 1 cm mesh
 Blue and black have 1 mm mesh
 Yellow has 300 micron mesh

Dive Logs

J2-230 Kilo Moanna

-20 -09.00; -176 -12.01

09/06/2006 GMT

GMT	Mustafa Yucel
	Event
17 33	Bottom
17 37	Looking for osmo sampling site
17 41	Drooping weights
17 49	Thermistor array is seen
17 52	Chimney complex close to marker F
17 56	Black smoker with temperature = 309 C
18 08	Vent water sampling with major
18 10	Major is back in basket: J2-230-001
18 19	Scaleworms, DOP X 6913, Y 10778 heading 110
18 34	Scaleworms sampling continue
18 38	Worms are in red bottle: J2-230-002
18 43	HiT probe
18 54	Using regular T probe to determine where to use HiT probe
19 08	HiT Logger #1, DOP X:6921, Y:10769
19 11	Osmo sampler at above location
19 38	Smokers at the base if chimney
	Erin Becker
20:22	Begin mosaic at marker 29
21:20	End mosaic
21:30	Offset 21 meters, heading 058 from this year to last year
21:36	Looking for Colleen's mussel marker
21:47	Found a marker (round, white)
21:50	Found a second marker
22:03	Located some mussels
22:08	Not sure which is 5-Liter Niskin, tripped the red-handled one
22:10	Starting E-Chem, scan 0
22:12	Heading 035, 13 meters offset from this year to last year (changed offset)
22:13	Temp meas. 6°C
22:15	Temp meas. 2°C
22:17	Temp meas. 2°C
22:25	Temp meas. 4.5°C (last 4 trying to locate hotspot)
22:31	Temp meas. 2°C
22:35	Begin fry deployment

22:40 Having trouble with starboard arm where biobox containing fries is located
 22:49 Problem solved. Lid to biobox wasn't closed. Upthrust to close it and arm swung out
 22:58 Deployed fry #2 in mussel bed
 23:13 Continuing E-chem
 23:21 Deployed fry #3 ~4m away from mussels
 23:55 Fry C deployed

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Jeanne DeMazieres

00:02 water sample, small, green niskin
 00:38 found marker E
 00:58 start Liz's mosaic around marker E
 01:10 Echem temperature measurements

01:11	Pt. 1	mussels	T= 1.5
01:12	Pt. 2	mussels	T= 2
01:14	Pt. 3	barnacles	T= 1.5
01:22	Pt. 4		T= 9.5
01:26	Pt. 5	mussels	T= 2
01:29	Pt. 6	ifremeria	T= 10.5
01:31	Pt. 7	ifremeria	T= 8
01:38	Pt. 8	mussels	T= 2.5
01:42	Pt. 9	Barnacles	
01:52	Pt. 10	mussels	T= 5.5
02:07	Pt. 11	rock	T= 2
02:11	Pt. 12	mussels	
02:15	Pt. 13	rock	T= 2.5
02:25	Pt. 14	barnacles	T= 1.5
02:28	Pt. 15	rock	T= 3
02:31	Pt. 16	Grey spot	T=1.5
02:37	Pt. 17	mussels	T=1.5
02:44	Pt. 18	Mussels	T=9.5
02:47	Pt. 19	barnacles	T=1.5
02:50	Pt. 20	anemones	T=1.5
02:59	Pt. 21	flange	T=2
03:03	Pt. 22	mussels	T=1.5
03:09	Pt. 23	mussels	T=2.5
03:13	Pt. 24	Flange	T=5
03:21	Pt. 25	mussels	T=2.5
03:24	Pt. 26	mussels	T=2
03:27	Pt. 27	mussels	T=4.5
03:29	Pt. 28	alvinaconcha	T=12
03:33	Pt. 29	alvinaconcha	T=6

03:36 Pt. 30 mussels T=4.5

Shufen Ma

04 08 arrive at smoker
04 14 point 32, O2
04 16 point 33, mussels, O2
04 27 point 35
point 36, white-brown-black something, O2
04 38 point 37, brown black rock, three crabs
04 41 point 38
04 46 point 39, rock, barnacles, O2+H2S
04 51 point 40, mussels, shrimp, O2+H2S
06 39 white snails, O2+H2S
06 48 black snails, O2+H2S

Kate Mullaugh

08:04 Start E-chem
08:06 Mosaic point 2, snails
08:09 Mosaic point 3, white snails
08:19 Mosaic point 5, mussels
08:26 Mosaic point 6, snails
08:32 Mosaic point 7, snails
08:50 Mosaic point 11
09:23 Mosaic point 17
09:25 Waiting for ship to reposition
10:30 Arrive at Marker 29
11:36 Mosaic point 1

Kristina Fontanez

13:33 Marker D – Chimney mosaic
13:53 Start E.chem – temp 5° C – in between mussels (scan 1)
13:56 Scan 2 – temp 2.5° C – chimney
14:03 Scan 3 – temp 2.5° C – chimney
14:06 Scan 4 – temp 9° C – chimney, beneath small flange
14:07 Scan 5 – temp 4° C – chimney
14:10 Scan 6 – temp 3.5° C – red patch chimney
14:12 Scan 7 - temp 3° C – chimney
14:16 Scan 8 – temp 2° C – on alvinella tubes
14:18 Scan 9 – temp 2.5° C – on chimney
14:20 Scan 10 – temp 3° C – on chimney
14:25 Scan 11 – temp 2.5° C – on white deposit next to scale worm

Mustafa Yucel

15 57 marker 28, large anemones, temperature and chem. Mapping
16 01 X:6959, Y:10636 heading 251

17 08 Mosaicking, reimaging area around marker 28 due to changes in
community structure
17 20 Taking pictures, 6955,10636
17 33 Going to marker F
17 53 On the way to marker F using yesterday's coordinates
18 10 Arrived at marker F
18 13 Osmo sampler and hiT probe are seen
18 20 Mosaic of peripheral fauna around marker F
18 31 chemical scans on the mussel group just next to marker F
18 33 echem around F continue
18 44 echem continue
19 01 echem on little anemones
19 16 echem at point 16 of this mosaic
19 25 echem around anemones and mussels
19 35 echem on little anemones
19 50 echem on bare rock

Erin Becker

19:53 Close up of polynoid on science cam
20:02 sample J2-230-008 Marker F, slurp sample, polynoid (scale worm), blue
canister, - 2 polynoids, several rocks (unintentional), anemones
20:13 Another anemone slurped, same canister
20:18 Failed attempt
20:28 sample J2-230-009 slurped some animal – black canister
20:43 Disposed of sample 009, black canister empty
20:50 Collected bamboo coral in port biobox; sample J2-203-009
20:58 Nudobranche egg cases on science cam, port biobox contains coral with
nudobranche egg cases
21:01 Broke off piece of flange that coral was anchored to; rock piece in port bio
box – J2-230-010
21:13 Collected another rock piece – in empty mussel pot bucket, forward port –
3 rocks with tiny anemones, all part of sample 010
21:17 Chuck wants to grab some red starfish (brisingids)
21:24 Attempt to pick up first brisingid – broke off three arms; they floated away
21:26 Collected remainder of animal on starboard bio box – sample J2-230-011
– missing arms but oral disk seems to be in good shape
21:32 Attempting to collect second brisingid with more delicate manip.
21:33 Picked up second brisingid all in one piece, placed in port bio box
21:51 Last several minutes... lost bow thrusters, got bow thrusters back, heading
back to where last samples were collected
21:59 Something square in camera view, fry or old thermistor array
22:08 Looking for spot to mosaic
22:22 East of Marker 29/ Chimney – slurp Alviniconcha – J2-230-012
22:34 Snails stuck on the hose
22:45 Still slurping snails
23:02 Continuing to search for mosaic spot

23:22 Lots of small anemones on rock
23:31 Pillow flow
23:32 Deep-looking crevasse
23:28 Heading toward mussel bed/marker A (bucket lid)

Jeanne DeMazieres

23:57 found soft coral on the way to marker A

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00:11 found marker 28
00:23 looking for mussel and snail for mosaic
01:00 deployed marker 54
01:05 deployed marker 56
01:11 deployed ball marker 55
01:24 start Liz's mosaic
02:15 Liz's mosaic finished
02:30 temperature measurements on mussels, scoop site 'Shrimp Sauna'
02:33 mussels T=2
02:39 seen sea cucumber
02:40 mussels T=2.5
02:43 mussels T=2
02:48 scoop sample from 'Shrimp Sauna', marker A, mussels in the red scoop, J2-230-013
03:01 red scoop full, scoop finished, bag stored in the starboard biobox
03:32 looking for mussel patch around marker D for mussel pot

Shufen Ma

04 17 red organism
04 22 stars
04 24 a big red star
04 29 snails
04 40 mussel clusters at the top of chimney
04 48 above chimney
04 56 two big worms and white asses and mussels
05 00 echem scans at mussels, more H2S
05 12 collect mussel samples
05 20 put mussels into box
05 45 heading north

J2-231 ABE

-20 -45.6531; -176 -11.4575

09/08/2006 GMT

Erin Becker

22:37 Depth 2141m started DVD's, on bottom
 22:43 Objective; housekeeping – cleaning up the science basket
 22:53 finished housekeeping
 22:53 looking for chimney/ Marker 19
 22:55 Crabs/scattered mussels, close-up on science cam
 22:58 same as above, some snails too
 23:05 Ifremeria, Alviniconcha, Bathymodiolus
 23:06 Target 3
 23:09 Active chimney/black smoker
 23:19 Still searching for marker
 23:24 Fish floats by science cam
 23:31 Smoker on science cam
 23:32 Stéphane says Alviniconcha, water very shimmery
 23:36 Pillow flow Pilot/Brow cams
 23:36 Mussels science cam
 23:41 Dara sees Marker 15
 23:43 Lots of mussels around

Jeanne DeMazieres

23:51 looking for marker 19
 23:55 seen lot of fish around black smoker

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00:04 start Liz's small mosaic
 00:38 jason's temperature probe inside black smoker, x= 7910 y=7986, T=283
 00:45 water sample, major, ID J2-231-001but during sample the measure sampled came out the chimney
 00:52 deployment HiT logger, hobo probe #2
 00:55 chimney collapsed while deploying hobo
 01:05 redeployment HiT logger
 01:10 deployment osmosample finished
 01:23 sample, mussel pot B on ifremeria patch, no successful
 01:30 second try for mussel pot, success but partially closed because of rock, ID J2-231-002
 01:37 mussel pot ring with mussels and snails left
 01:43 looking for a place to deploy Collen's fries
 01:57 found marker 15, x=7884 y=8025
 02:04 deployment fries #5 on mussels
 02:15 deployment fries #4 on rock
 02:27 deployment fries #6 on rock, x=7883 y=8046 H=11
 02:31 deployment marker 27 'Wild Symbiont', x=7881 y=8039
 02:46 deployment crabs trap #1
 02:55 deployment crabs trap #2
 03:03 jason's temperature probe inside black smoker, T=306
 03:05 start transit to Liz's mosaic, marker 32

03:23 deployment ball marker #60, mosaic area

Shufen Ma

03 55 active white smoker
04 34 black rock
04 40 white chimney
04 43 found marker 32
05 13 white chimney, video mosaic
05 17 snails and smoke
05 25 mosaic of chimneys, LBL 7945, 7973
05 29 moving to another chimney for mosaic
05 32 white smoker
05 47 move around chimney
05 51 end of chimney mosaic marker 32
05 55 big white crab
05 57 chimney mosaic #3, snails
06 06 chimney mosaic #4, snails
06 09 going down on mosaic #4,
06 15 another chimney, clusters of snails
06 21 transit to marker 52
06 51 two fish
06 52 come to marker A?
06 55 arrived at marker 52
06 56 marker 51
06 56 marker 21
06 58 snail pot, shrimp, crabs
07 07 start mosaic
07 08 black snails and mussels
07 14 start line 2
07 18 white and black snails
07 28 white snails, finish line 4

Kate Mullaugh

07:44 Mosaic continued: ABE, Marker 52
07:46 Moving 1 m forward
07:48 Look right, then move right 1 m
07:51 Move back ½ m
07:52 Move back 1 m
07:56 View of Fisher group thermistor array
07:57 Shimmery water and barnacles
07:58 Move up 2.5 m in altitude and 1 m forward
08:00 White shells (dead mussels)
08:08 Mosaic complete; moving to start mosaic at 2 m
08:12 In middle of mussel patch, a marker spotted (either 51 or 52, can't see the number)
08:14 First line of 2 m mosaic

08:17 Screen brightness of science cam screen changed from 50 to 70 to correct
for overexposure
 08:22 Patch of Alviniconcha, shimmery water
 08:30 About half-way through second mosaic
 08:33 Mussels, rust color
 08:35 Start mosaic line 3
 08:40 Close-up of shrimp in mussel bed in science cam
 08:47 Start mosaic line 4
 08:54 End mosaic line 4, moving over 0.6 m
 08:58 Start mosaic line 5
 09:08 End of mosaic line 5
 09:10 Break: no Jason activity
 09:21 Start mosaic line 6
 09:25 Shrimp on camera lens, waiting for it to move
 09:27 Close-up of snails and crabs: best of pic taken
 09:29 End mosaic line 6, moving over 0.6 m
 09:30 Start mosaic line 7
 09:37 Best of pic taken of fish
 09:42 End mosaic line 7, moving right 0.6 m
 09:43 Start mosaic line 8
 09:46 End mosaic line 8
 09:47 Start mosaic line 9
 09:52 End mosaic line 9, moving right 0.6 m
 09:53 Start mosaic line 10
 09:57 End mosaic line 10
 09:59 Start mosaic line 11
 10:04 End of mosaic
 10:05 Photo-documenting thermistor probes
 10:23 Starting check of thermistor cables, adjacent to marker 50
 Figuring out how to orient Jason to pick up without dragging cables
 10:34 Found handle
 10:40 Pick up thermistor probe
 10:44 Return probe to crate
 10:46 Gathering cables into crate
 10:48 Looking for next probe's handle
 10:56 Grab cables to try to see color
 10:59 Grab cables of other probe (covered in Alviniconcha.)
 11:02 Zoom in on two probes (both in hand) to try to see labels
 11:03 Return them to crate
 11:05 Moving thermistor to marker A
 11:19 Back to Alviniconcha. patch to see how it looks after thermistor removal
 11:25 Photos of snail patch complete
 11:30 Moving to slurp away from mosaic site at Marker A
 11:36 Prepare to slurp paramosis (large mesh container) and solitary snail
 11:40 Begin slurping paramosis, fish and shrimp

Kristina Fontanez

11:53 Continued slurp collection of crab
12:03 Many unsuccessful slurping attempts
12:05 Slurping ended
12:10 Slurped fish escaped to freedom
12:14 Slurp stored away in prep for location shift
12:17 Stopped DVDs and started to record next batch (12:15)
12:25 Passed marker 30
12:26 Found marker 53 and 48
12:30 Found marker 46 behind a rock
12:38 Starting a mow-the-lawn pattern mosaic
12:43 Trying to optimized strobe lighting conditions
12:56 Subtle course adjustments every few minutes for mosaic
13:42 Still mosaic0ing, adjust course toward barnacles
13:44 Looking for site to drop Stacy's rocks
13:55 Embarked on journey to find larval traps (deployed last year)
13:57 Removed slurp from storage to catch passing fish while in transit
14:06 Stowing slurp
14:10 Located larval traps
14:13 Started DVDs
14:15 Stopped DVDs, DVD 028-SC-A will not finalize – error
14:29 Trying to position net over larval trap
14:38 Net successfully atop larval trap
14:47 First trap freed is larval trap #2 and stored
15:04 Second trap freed is larval trap #1 and stored
15:26 Final trap freed
15:34 Picking up old deployments (trash)
15:36 Placed freed traps in biobox on port side
15:40 Both of Jason's arms work together to load rest of traps into biobox
15:43 Having trouble closing biobox with traps inside
15:44 Biobox sealed

Mustafa Yucel

15 48 Watch change
15 49 Looking for a location to deploy recruitment rocks
15 59 Still looking for a location to deploy rocks
16 01 Getting ready to deploy rocks (7853,7771)
16 03 Not this site.
16 12 Looking for another spot
16 15 Broken mussel shells are seen while in transit
16 19 Deployment of rocks starts: 7850, 7755 heading 256
16 34 Finished deployment of first four rocks
16 35 Looking for a spot to deploy next set of rocks
16 49 Deploying these rocks: 7848, 7781 heading 290
17 00 deployment complete
17 09 Looking for a spot for the third set of rocks

17 20 In transit
 17 30 Starting deployment of third set of rocks: 7854, 7757, heading 133
 17 42 One rock fell down into a crevice. Trying to retrieve
 17 46 Rock is redeployed
 17 54 Deployment of third set is complete
 18 10 Slurp samples (isopods)
 18 19 Slurp continue
 18 20 End of slurping into black chamber: J2-231-008
 18 32 Fish and crab slurp
 18 37 Slurp complete, heading to marker 20
 18 53 In transit to marker 20
 18 58 basalt wall/slope, still in transit
 19 11 In transit
 19 12 An extinct chimney
 19 15 other extinct chimneys, broken mussel shells around
 19 25 Chimneys with ifremeria
 19 39 Extinct chimney area
 19 43 We are around marker 20. Looking for exact location of it.

Erin Becker

19:56 Grabbing fuzzy rocks, maybe sulfide with colonial ciliates
 19:58 Collected a few small pieces, in grey milk crate, sample J2-231-010
 20:06 Active smoker
 20:10 More Chimneys (not sure if they are still active, probably not, not many visible organisms)
 20:27 Looking for smokers. High points on topographical map
 20:43 Auto altitude doesn't work so well, crashed into some base rocks
 20:45 Nothing on top of the wall
 20:49 Chimneys – some are white on the outside
 20:51 Snails, mussels* x7655, y7480
 20:58 Mussels, snails, chimneys – abundant life
 21:03 Barnacles on chimney, snails, mussels – possible mosaic
 21:20 Start video mosaic – line 1
 21:22 Line 2 – panned down and back up at bottom
 21:25 Lateral right, Line 3 – panned down and up at bottom
 21:30 End third line of chimney mosaic
 21:36 Deploying softball marker by mosaic site
 21:40 Marker 57 deployed (same as above); Heading 095; x7658, y7477
 21:46 Located Marker 20
 21:51 Marker 20 renav. Start
 21:57 End Marker 20 renav.
 22:02 Disarticulated mussels
 22:07 White chimneys
 22:18 Snails – science cam
 22:18 Black smoker – science cam
 22:20 More smokers

22:29 Smoker/shimmery water
 22:35 Active smokers
 22:38 Digital Marker – HOBO Marker
 Name: Pot (potential) HOBO Chimney
 22:48 Looking for mosaic site
 22:53 Transit to northern site
 23:30 Pillow flow
 23:38 Dead mussels
 23:41 Chimney structures – looks like no activity
 23:45 Mussels

09/10/2006 GMT

Jeanne DeMazieres

00:03 sample scoop mussel close to marker 52, ID J2-231-011
 00:06 scoop in the biobox
 00:12 looking for a mussel pot place
 00:18 found marker 21 and ball marker 51
 00:34 still looking for mussel pot place outside from Liz's mosaic
 00:37 sample mussel pot A, ID J2-231-012, x=7843 y=7760
 00:46 left inside the ring: 10 ifremeria, 2 alvinacocha, 2 mussels
 00:57 looking for another place for mussel pot around marker 21
 01:03 sample mussel pot D, ID J2-231-013
 01:21 left inside the ring: 12 snails, 3 mussels
 01:25 slurp inside the mussel pot D ring, into the blue chamber, ID J2-231-014
 01:55 sample mussel pot F, ID J2-231-015
 02:03 left inside the ring: snails, mussels
 02:11 sample scoop on a wall, mussels (Colleen), ID J2-231-016, inside biobox
 02:18 sample slurp, shrimp, ID J2-231-017, inside yellow chamber
 02:35 recovery thermistor array
 02:38 start to leave bottom, end of J2-231 dive

J2-232 Tu'i Malila

-21 -59.3459; -176 -34.0861

09/10/2006 GMT

Mustafa Yucel

18 04 Jason is in the water
 19 10 Jason is at bottom
 19 16 We do not know where we are. Bare rocks
 19 18 Looking for a marker
 19 26 Marker 45: 5547,3043
 19 31 Charlie rocks sampling around marker 45
 19 33 Rock grab event number: 3305
 19 34 Dropped first rock, grabbing another one

19 35 Rock is put in forward milk crate. : J2-232-001, 3308 for this rock
 19 40 Markers 44 and then 42 are seen

Erin Becker

20:00 Begin photomosaic Scorpio/PixelFly
 20:09 Begin 2m mosaic
 20:36 End 2m photomosaic
 20:36 Heading to Marker 36, check out site for snail race
 21:03 EVT 3332 Snail Race
 22:29 Have cleared Alviniconcha
 Alviniconcha under Ifremeria
 Cleared some Ifremeria with Alviniconcha under
 Temp probe malfunctioning – rotating, winding cable
 22:30 Slowly winding other direction
 22:34 Clearing snails that have been knocked off of rock
 23:15 Ended E-chem
 23:15 Deploy marker 58 – softball x1558.4, y3047.3
 23:26 Looking for some Ifremeria to scoop and pour on removal site
 23:32 Scooping Ifremeria
 23:45 Dumped snails to the right of Marker 58

09/11/2006 GMT

Jeanne DeMazieres

00:00 transit to Dara' smoking hole, marker T1
 00:03 seen white stick on the ground
 00:05 seen sediment slope
 00:16 still looking for marker T1
 00:20 seen gorgonian
 00:29 found marker T1, white smoker, x=1568 y=3029 H=206 D=1880m
 00:35 imaging thermister array, H=205
 00:45 start echem around thermister array
 00:49 Pt. 1 Near and white probe T=1.5
 00:51 Pt. 2 Far end white probe T=2
 00:55 Pt. 3 Near end gray probe T=2.5
 00:57 Pt. 4 Far end gray probe T=2.5
 00:59 Pt. 5 Mussels inside hole T=8
 01:03 Pt. 6 Far end T2 T=2.5
 01:06 Pt. 7 Near end T2 T=2
 01:08 Pt. 8 Ifremeria T=33
 01:14 Pt. 9 On top of ifremeria T=26
 01:19 Pt. 10 Top of mussels T= 2
 01:30 Pt. 11 Into mussels T=2.5
 01:35 Pt. 12 Base of mussels T=11
 01:38 Pt. 13 Alviniconcha and ifremeria T=33
 01:41 Pt. 14 Alviniconcha T=34

01:45	Pt.15	Inside hole	T=37.5
01:49	Pt. 16	Right edge of hole	T=46
01:52	Pt. 17	Ambient water on rock	T=2.5
01:54	echem finished		
01:56	put thermister array cables into the thermister array basket		
02:02	move to the top of the hill		
02:06	deployment crab trap near Dara's hole on ifremeria patch		
02:10	transit to marker 22-26		
02:15	seen 1 crab into the crab trap		
02:41	arrived, looking for marker 26		
02:52	found marker 27		
03:07	seen sediment slope		
03:20	stop to look for marker 26, cannot find it		
03:21	transit to marker 22		
03:31	found marker 22		

Shufen Ma

03 48	smoker, lot of chimney, measuring temp.
03 53	Yellow major 2
04 16	video mosaic
04 20	done with video mosaic-marker 62
04 21	heading to 79 degree
04 26	video mosaic
04 32	heading to 340, back side of the same zone
04 43	starting mosaic
05 11	end of mosaic
05 14	looking for alviniconca by chimneys
05 22	moving to marker 43(Liz's main mosaic)
05 44	mosaic marker 43, echem
05 51	alvinoconcha scan 0-18, white snails, T- 12°C, H2S and O2
05 56	scan inside, point 2, scan 19-36, T=26°C
06 03	point 3, right beside white snails, T=4°C, scan 37-44
06 05	point 4, above white snails, T=20°C, scan 45-55
06 09	into, point 5, T=32°C, scan 56-71
06 15	point 6, scan 72-80, T= 4°C
06 18	point 7, under, T=16°C, scan 81-90
06 21	point 8, mussel bed, T=2°C, scan 91-101
06 25	point 9, into mussel bed , T=22°C, scan 102-110
06 29	pull out, 0.5m above for ambient T, T=4°C, scan 111-130
06 45	point 10, scan 131, on top of ifrem, T=4°C
06 59	point 14, into
07 02	point 15, 22°C

Kate Mullaugh

07:51	E-chem at mosaic point 25, Alviniconcha.
08:00	E-chem at mosaic point 26

08:04 E-chem at mosaic point 28
 08:08 E-chem at mosaic point 29
 08:10 E-chem at mosaic point 30, mussels/Ifremeria
 08:13 E-chem at mosaic point 31, rocks
 08:17 E-chem at mosaic point 32, edge of Alviniconcha.
 08:25 E-chem at mosaic point 33, on Ifremeria between Alviniconcha.
 08:29 E-chem at mosaic point 34 (underneath) on bare rock
 08:33 E-chem at mosaic point 35, Ifremeria, surrounded by Alviniconcha.
 08:36 E-chem at mosaic point 36, on top of Alviniconcha.
 08:38 E-chem at mosaic point 37, deeper into Alviniconcha.
 08:58 Stop e-chem mosaic, moving onto snail race
 09:06 Start taking downward looking pictures of snail race (Erin)
 09:19 Trying to get same observation point for snail race
 09:22 Waiting to for ship to reposition (problems with GPS system)
 11:24 Looking for marker
 11:28 Marker T1, crab trap
 11:32 At snail race location
 11:38 Brow cam has best view of snail race site
 11:44 Taking downward facing pictures of snail race site

Kristina Fontanez

12:02 Looking for marker 45 – brittle broken rock bottom
 12:11 Located marker 45 – come in on a heading of 247 for mosaic
 12:14 No animals visible at site except stalked sponges
 12:20 Move Jason forward 0.8 m, 4m above bottom
 12:26 Step right, 0.07 m for mosaic
 12:52 Still mosaic at marker 45 – DVD change problems
 12:53 Bottom still strewn with broken bits of rock, no structures
 12:57 Mosaic completed
 12:59 Begin E chem. for marker 45 site
 13:04 Temp probe deployed near a sponge $T = 1.5^{\circ}\text{C}$ – position 1 – scan 0
 13:07 Temp probe shifted to stick-like sponge – scan 7 $T = 2^{\circ}\text{C}$ – position 2
 13:11 Temp probe shifted to anemone – scan 14 $T = 2^{\circ}\text{C}$ – position 3
 13:13 Temp probe shifted to tiny anemone – scan 21 $T = 2^{\circ}\text{C}$ – position 4
 13:16 Position 5, near marker 41 – scan 28 $T = 1.5^{\circ}\text{C}$
 13:19 Cool pyggonad – best of
 13:25 Position 6, scan 35 $T = 1.5^{\circ}\text{C}$
 13:29 Position 7, scan 42 $T = 1.5^{\circ}\text{C}$ (on top of Ifremeria)
 13:32 Position 8, scan 49 $T = 1.5^{\circ}\text{C}$ (next to sponge with amphipod attached)
 13:34 Position 9, scan 56 $T = 1.5^{\circ}\text{C}$ (among rocks)
 13:39 Position 10, scan 63 $T = 2^{\circ}\text{C}$ (next to marker 39)
 13:41 Position 11, scan 70 $T = 2^{\circ}\text{C}$ (rocks near marker 39)
 13:49 Position 12, scan 77 $T = 5^{\circ}\text{C}$ (rocks near anemone)
 13:52 Position 13, scan 84 $T = 5^{\circ}\text{C}$ (near some snails, marker 38)
 14:01 Position 14, scan 94 $T = 1.5^{\circ}\text{C}$ (on top of hydroid)
 14:04 Position 15, scan 101 $T = 4.4^{\circ}\text{C}$ (near shrimp)

14:07 Position 16, scan 108 T = 2.5° C
 14:08 Pregnant shrimp! Really huge
 14:11 Position 17, scan 115 T = 2.5° C – near pregnant shrimp
 14:14 Position 18, scan 122 T = 2° C
 14:21 Position 19, scan 129 T = 3° C On a sponge
 14:24 Position 20, scan 137 T = 13° C
 14:29 Position 21, scan 144 T = 2° C
 14:30 Position 22, scan 151 T = 3° C Bare rock
 14:34 Position 23, scan 158 T = 4° C Hot fish crevice
 14:50 Trying to slurp the pregnant or tumor shrimp, not sure which into green chamber
 14:58 Successfully slurped 1 shrimp into green chamber
 15:06 Still attempting to slurp tumor shrimp
 15:09 Successfully slurped a second tumor shrimp
 15:10 Successfully slurped 2 more tumor shrimp (4 total) green chamber
 15:21 Another shrimp successfully slurped – green chamber
 15:23 Stowed slurp
 15:27 Collected rock with anemone and place in basket
 15:35 Still trying to collect another rock with anemone
 15:42 Dropped small anemone on rock in E chem. sampling holster

Mustafa Yucel

15 53 Watch change
 16 01 In transit to a new mosaic site
 16 15 Abrupt sediment flow observed
 16 15 Still in transit to mosaic site
 16 34 Still looking for site
 17 04 Still looking for mosaic site
 17 17 Transiting to north
 17 38 Transit due north continue
 17 42 Heading west
 18 06 Mosaic marker 61 deployed. 1566,3022 depth 1880
 18 10 Mosaic marker 59, 1566,3024
 18 28 Making peripheral mosaic
 18 46 Still mosaicking
 18 58 Still peripheral mosaic
 19 02 End of mosaic
 19 11 Looking for anemones and rocks to collect
 19 39 Still looking for rocks

Erin Becker

19:43 Collected rock in aft milk crate
 19:52 Heading to snail races, Markers 36, 43, 58
 20:15 Took some downlooking pics of Snail Race
 21:15 E-chem and start Snail Race #2 at Snail Hollow
 21:34 Mussel Pot F – some snails left in ring

Using slurp to retrieve remaining snails
 Black chamber with 1mm mesh
 21:52 Not able to slurp a lot; changing mesh size
 Using red chamber – 1 cm mesh
 21:54 Slurped fish – red chamber
 21:08 Rock knocked into center of Alviniconcha patch
 22:20 Black chamber, filling the hose, working pretty well to remove snails
 22:26 Deployed Marker CC
 23:00 Have taken downlooking pics
 23:01 Looking for Ifremeria to dump in Snail Race #2 area
 23:06 Snails scooped from nearby
 23:12 Snails dumped – 3 scoops (maybe 1.5 full ones)
 23:31 Downlooking photos – Scorpio
 Some at 30s intervals

09/12/2006 GMT

Jeanne DeMazieres

00:08	echem on Liz's mosaic marker 43-44		
	Point #		Scan # T°C
0:10	39	Sediments	429 1.5
0:13	40	Mussels, ifremeria	437 14
0:15	41	Rock	444 5
0:18	42	Ifremeria, mussels	450 11
0:20	43	Under mussels	459 12
0:23	44	Ifremeria, mussels	466 3
0:26	45	Ifremeria, mussels	470 4
0:28	46	Rock	481 3.5
0:30	47	over mussels	489 3
0:33	48	over ifremeria, mussels	497 3
0:35	49	Under mussels	504 3.5
0:39	50	Ifremeria	512 8
0:43	51	ifremeria	520 3
0:46	52	ifremeria	527 3
0:49	53	anemone	537 4.5
0:57	54	Sediments	548 15
1:00	55	ifremeria	556 3.5
1:03	56	under ifremeria	565 5.5
1:06	57	Mussels	573 3.5
1:08	58	barnacles	582 3
1:12	59	alviniconcha, ifremeria	592 3
1:17	60	over alviniconcha	601 11.5
1:20	61	Mussels, ifremeria	609 5

1:23	62	Rock	617	3
1:25	63	alviniconcha, mussels	625	15
1:28	64	alviniconcha, ifremeria	633	5
1:35	65	mussels	641	2.5
1:38	66	barnacles	649	2.5
1:45	67	ifremeria	657	12
1:48	68	mussels	666	20
1:52	69	Rock	678	2.5
1:56	70	over alviniconcha	686	3
2:17	71	ifremeria	694	12
2:20	72	Rock	704	4.5
2:23	73	Mussels, ifremeria	712	5
2:29	74	top of alviniconcha	720	6
2:32	75	under alviniconcha	729	28
2:41	76	alviniconcha, ifremeria	738	4.5
2:44	77	under alviniconcha, ifremeria	746	14
2:48	78	Mussels, ifremeria	754	5
2:50	79	under mussels, ifremeria	764	16
2:53	80	ifremeria	771	6
2:55	81	under ifremeria	780	5.5
02:57	echem mosaic finished			
03:03	start Liz's mosaic			
03:22	end Liz's mosaic			
03:23	looking for rock outside mosaic marker 43			
03:30	sample, rock for Charlie, inside biobox, J2-232-008			
03:33	found marker 36			
03:34	imaging snail race			
03:38	transit to marker 35			

Shufen Ma

03 47	moving marker 35
04 13	mosaic, marker 35, echem, point 1
04 19	point 2, yellow rock
04 21	point 3
04 23	point 4, black rock
04 25	point 5
04 29	point 7 , yellow rock
04 49	point 15, on white rock
04 52	point 16, black rock beside point 15
04 55	point 17, one black snail
05 03	point 20, rock
05 09	point 21, rock
05 11	point 22, above rock
05 14	point 23, white rock

05 18 point 24, white crab
 05 20 point 25, small rock
 05 23 point 26, edge of rock
 05 27 point 27, down
 05 29 point 28, edge of white rock
 05 35 point 29, scan 222-228, t= 2.5
 05 55 marker 40
 06 51 dead mussels
 07 03 black smoker
 07 06 active chimney
 07 19 collecting mussels on chimney

Kate Mullaugh

07:50 Looking for site to collect mussels for Rob
 08:22 Science cam: straight ahead mussels
 08:31 Scooping mussels for Kevin
 08:52 Move bag to left arm
 08:56 Bag of mussels set in starboard biobox
 08:59 Transit back to snail race site 2 (“snail hollow”)
 09:04 Fire two Niskin bottles (large and small)
 09:08 Marker CC appears to have moved from original location (moved to the right by Alviniconcha., “hot spot”)
 09:12 Taking downward looking photos of site
 09:16 Looking for mussels to scoop
 09:20 Mussel collection
 09:25 Mussels in starboard bio box
 09:29 Looking for site to mussel pot mussels and Alviniconcha.
 09:36 Try mussel pot of Alviniconcha.—not going down
 09:40 Mussel pot by scrapping across Alviniconcha. community
 09:45 Transit to snail race #1 site
 09:50 Taking downward looking pictures of snail race #1 site
 10:06 Picking up crab trap
 10:15 Mussel pot for mussels
 10:23 Thermistor array recovery
 10:35 End of dive—preparing for Jason ascent

J2-233 Tow Cam

-20 -3.1839; -176 -7.9799

09/13/2006 GMT

Jeanne DeMazieres

02:23 Jason on the bottom, start dive J2-233
 02:40 looking for marker 31
 03:05 marker 31 not found

03:08 looking for marker 9
 03:13 seen lot of anemones, H=196 D=2718
 03:19 found marker 31, x=6673 y=5542 H=192 D=2709
 03:23 start Liz's mosaic marker 31
 03:27 adjusting camera for mosaicking
 03:38 still mosaicking

Shufen Ma

04 00 mosaic
 04 41 move to marker 7
 04 53 smoker
 04 58 measure T at smoker
 05 12 T=151
 05 15 T=313 at smoker
 05 16 T=318
 05 20 measure flow rate
 05 25 get major
 05 30 major sampling form smoker
 05 36 try to measure flow rate
 05 44 finish this vent
 05 55 to another smoker to try to measure flow rate
 06 11 measure T
 06 15 T=316 8
 06 22 another chimney
 06 29 scale worm
 07 02 small chimney, sponges
 07 18 sea stars
 07 29 top of chimney, snails, barnacles, shrimp

Kate Mullaugh

07:49 Getting ready to mosaic at chimney
 07:52 Logged as "Evil Chimney"
 07:56 Start video mosaic, heading = 234
 08:02 Panning up chimney at closer distance
 08:09 Stepping to right
 08:13 Reset doppler (x = 6626, y = 5582) for mosaic location
 08:20 Problems with Jason navigation (lost Doppler)
 08:30 Regain position
 08:35 Setting science cam to desired zoom
 08:37 Start video mosaic
 08:40 Stopping to get close-ups of biology
 08:45 Panning up, zooming in
 08:52 Left about 15 cm, trying to get a lot of overlap for mosaic
 08:53 Panning down chimney
 08:56 Move left a little, panning up
 08:58 Move left, panning down

09:01 Move left, panning up
 09:02 Have to back up—Jason scraping front of chimney
 09:08 Panning up
 09:13 Panning up
 09:16 Panning down
 09:19 Done with video mosaic, named “French chimney”
 Start e-chem
 09:23 Coordinates: x = 6626, y = 5582
 09:29 E-chem under lower flange
 09:34 E-chem between flanges
 09:37 E-chem over “lone mussel”
 09:40 E-chem over top flange, close to barnacles
 09:43 E-chem over lone Ifremeria to the left of flange
 09:49 E-chem right of flange on bare rock (orange color)
 09:56 E-chem over scale worm
 10:11 E-chem over white patch with shrimp
 10:13 E-chem over yellow barnacles
 10:21 E-chem over stalked barnacles
 10:27 E-chem over mussels next to barnacles, just behind shimmery water
 10:30 E-chem over white patch by shimmery water source
 10:35 E-chem close to worm
 10:38 E-chem over barnacles
 10:41 E-chem in “cave”—a lot of shrimp
 10:46 E-chem outside of cave
 10:48 E-chem over white crack
 10:51 E-chem near cave and to the left, shrimp
 10:57 E-chem at cave close to vent
 11:00 E-chem over white patch, between two vents
 11:04 E-chem over mussels on left edge of chimney
 11:10 E-chem over mussels close to smoker
 11:22 E-chem computer crashed
 11:28 E-chem over Alviniconcha. at top of chimney
 11:32 E-chem over Ifremeria at top of chimney
 11:37 E-chem over mussels at top of chimney
 11:39 End of e-chem, changing sites
 11:44 Leaving marker JJ at chimney’s base

Kristina Fontanez

11:54 Looking for scoopable mussels
 12:08 Found marker C
 12:25 Founder marker 31
 12:27 Site contains mussels, anemones, snails
 12:39 Mosaic point 1 scan 0 near anemone T = 1.5° C
 12:43 Mosaic point 2 scan 7 T = 3° C on top of mussel
 12:43 Mosaic point 3 scan 14 T = 10° C
 12:49 Mosaic point 4 scan 21 T = 3° C Large anemone

12:52 Mosaic point 5 scan 28 T = 6.5° C Mussels and algae
 12:55 Mosaic point 6 scan 35 T = 2.5° C On basalt
 12:58 Mosaic point 7 scan 42 T = 2 On barnacles
 13:00 Mosaic point 8 scan 49 T = 2 On small anemones
 13:03 Mosaic point 9 scan 57 T = 2 On large anemones
 13:05 Mosaic point 10 scan 63 T = 9.5 On mussels/Ifremeria
 13:09 Mosaic point 11 scan 77 T = 2 Small anemone
 13:16 Mosaic point 12 scan 84 T = 3 Mussel and anemone
 13:22 Mosaic point 13 scan 91 T = 2.5 Anemone and mussle
 13:24 Mosaic point 14 scan 98 T = 4 In mussels
 13:30 Mosaic point 15 scan 105 T = 2 In mussels
 13:33 Mosaic point 16 scan 112 T = 2 Ifremeria
 13:35 Mosaic point 17 scan 119 T = 2 In mussels
 13:39 Mosaic point 18 scan 126 T = 2 small anemone/ barnacles
 13:52 Calibration scan 133 T = 1.5 water column
 13:54 Mosaic point 19 scan 140 T = 2.5
 13:57 Mosaic point 20 scan 147 T = 6 between mussels
 13:59 Mosaic point 21 scan 154 T = 2.5
 14:01 Mosaic point 22 scan 161 T = 4
 14:03 Mosaic point 23 scan 168 T = 3.5 mussels
 14:06 Mosaic point 24 scan 175 T = 4 white Ifremeria
 14:10 Mosaic point 25 scan 189 T = 28 Under rocks at point 24
 14:14 Mosaic point 26 scan 196 T = 8 On mussels
 14:16 Mosaic point 27 scan 203 T = 9 Under point 26
 14:19 Mosaic point 28 scan 210 T = 3.5 On rocks
 14:23 Mosaic point 29 scan 217 T = 11 Ifremeria/Alviniconcha
 14:26 Mosaic point 30 scan 224 T = 15 Alviniconcha
 14:29 Mosaic point 31 scan 231 T = 18 Underneath point 30
 14:32 Mosaic point 32 scan 238 T = 6 Interface of Ifremeria and mussels
 14:34 Mosaic point 33 scan 245 T = 15 Under point 32
 14:36 Mosaic point 34 scan 252 T = 5 Mussels, Ifremeria
 14:38 Mosaic point 35 scan 259 T = 2.5 On mussels
 14:40 Mosaic point 36 scan 266 T = 2.5 On rock
 14:46 Mosaic point 37 scan 273 T = 3 On small anemone
 14:49 Mosaic point 38 scan 280 T = 4.5 On mussels
 14:51 Mosaic point 39 scan 287 T = 3 Over anemones
 14:54 Mosaic point 40 scan 294 T = 10 On Ifremeria
 14:56 Mosaic point 41 scan 301 T = 2.5 On barnacles
 14:58 Mosaic point 42 scan 308 T = 3 On large anemones
 15:07 Mosaic point 43 scan 315 T = 2.5 On mussels
 15:10 Mosaic point 44 scan 322 T = 4 Under point 43
 15:12 Mosaic point 45 scan 329 T = 3 Large anemones
 15:14 Mosaic point 46 scan 336 T = 3 On barnacles next to anemone
 15:17 Mosaic point 47 scan 343 T = 3 Mussels
 15:25 Mosaic point 48 scan 350 T = 8.5 Over anemones
 15:27 Mosaic point 49 scan 357 T = 5 On rock

15:29 Mosaic point 50 scan 364 T = 5 Over white Ifremeria
 15:32 Mosaic point 51 scan 371 T = 18 On white Ifremeria
 15:36 Mosaic point 52 scan 378 T = 31 In hole
 15:39 Mosaic point 53 scan 385 T = 2.5 On mussels
 15:41 Mosaic point 54 scan 392 T = 4 Anemones

Mustafa Yucel

15 51 Mosaic point 58
 16 02 Mosaic point 59, anemones
 16 02 Mosaic point 61
 16 09 Mosaic point 62, ifremeria
 16 11 Mosaic point 63, anemones, mussels
 16 15 Mosaic point 64
 16 20 Mosaic point 66, anemone
 16 27 Mosaic point 69, ifremeria
 16 35 Liz is done with hier mosaic
 16 36 Waiting for Stacy
 16 50 Starting echem on peripheral area of this mosaic
 16 54 Echem on a seastar
 17 04 echem on various parts of this peripheral mosaic site
 17 17 Echem on a sponge
 17 33 Echem is finished
 17 35 Mosaicking this area
 17 52 Mosaicking continue
 17 59 Finished. Moving to south
 18 13 Still in transit
 18 19 Started echem on middle peripheral mosaic
 18 22 Mosaic point 14
 18 24 Mosaic point 15
 18 41 continue echem on middle peripheral mosaic
 18 50 echem over. Moving north
 19 00 In transit
 19 13 Looking for next peripheral site
 19 24 Arrived at site. Echem here
 19 39 Echem continue

Erin Becker

19:54 E-chem

<u>Mosaic point</u>	<u>scan</u>	<u>temp(°C)</u>	<u>description</u>
32			stick sponges
33	46-51	1.5	
34		1.5	Cerianthid anemones
35	58-66	1.5	Holothurian

20:06 E-chem finished
 20:12 Begin mosaicking – setting up
 20:15 Actually starting mosaic

20:33 Headed to x,y for mussel scoop
 20:45 At mussels looking for mussel scoopable/potable mussels/snails
 20:52 Collecting mussel pot A, without ring
 Collecting mussels
 20:56 Nice diffuse flow community, relatively flat, pillow flow, Ifremeria, mussels, anemones
 20:57 Aborting mussel pot (too disturbed), going for mussel scoop. Going in starboard biobox
 Using mesh scoop
 "Mussel Oasis" (Name of area)
 21:11 Rock in with Colleen's mussel collection
 21:22 Attempting to pot Ifremeria with mussel pot A (no ring)
 21:25 Mussel pot complete – sample J2-233-004
 21:30 Not slurping Phymorranthus because might be too large and clog the hose
 21:39 Picked up with sub arm, in starboard bio box
 21:46 Rock grab – in starboard – 006
 21:53 Mussel pot sample – 007, small mound of mussels with anemones (large) – mussel pot D
 22:10 Tripped both Niskins, red then green
 22:20 Leaving Mussel Oasis KMP05 (Kevin's Mussel Pot 05)
 22:37 Old chimney. Barnacles, dead mussels. Mussel pot location from last year
 22:41 Chiridota (Holothurian)
 22:46 Ifremeria on chimney and Alviniconcha
 22:50 Lots of brisingids on a chimney (old); also, Munidopsis and a holothurian
 22:54 Ifremeria, Alviniconcha
 22:57 Shell hash
 22:58 Looking for places to scoop/pot
 23:03 E-chem on "Snail Graveyard" aka some long name Robbie came up with. Many dead snails and mussels, heavily sedimented (relatively)
 23:07 Temp. 1-1.5°C; Scan #SNGRVYD 01 – 06; EVT 4609
 23:09 Temp. 1.5°C
 23:16 "Crab convention" to right of snail graveyard in a crack. Abundant Austinograea
 23:23 E-chem #'s 14-20. Temp. 1-1.5°C
 23:29 Mussel Pot B. Sample 009
 Ifremeria, maybe mussels EVT 4622
 None of the ring releases tripped
 23:35 Pot F. Lots of sediment came up with the snails. No ring on this one but hole looks pretty clean. There's some stuff buried in the mud.

Jeanne DeMazieres

23:58 sample scoop mussels on chimney, in the port biobox, ID J2-233-011

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00:13 seen sea cucumber on chimney
 00:25 looking for marker 9
 00:50 start slurp south west of marker 9, 4 scale worms, orange anemone, in the yellow chamber, ID J2-233-012
 01:29 sample grab rock with anemone on it, in the port biobox, ID J2-233-013
 01:34 transit to marker 9
 01:43 found marker 9 and C
 01:58 start echem around rock with tubeworms, close to marker 9

	Point #		Scan #	T°C
02:03	1	On tubeworms	0	2.5
02:06	2	Inside hole	9	4.5
02:10	3	Rock	20	16
02:15	4	Rock	37	6
02:21	5	Small tubeworms	54	3.5
02:23	6	Slightly higher	63	8
02:32	7	Alviniconcha	80	13
02:35	8	Small tubeworms	91	12
02:40	9	Deep inside the hole	111	8

02:44 echem finished
 02:52 sample grab tubeworms, in port biobox, ID J2-233-014
 03:06 sample grab rock with small tubeworms on it, in the starboard biobox, ID J2-233-015
 03:33 sample slurp fish and tubeworms, in red chamber, ID J2-233-016

J2-234 ABE

09/14/2006 GMT

Erin Becker

22:06 Octocoral
 22:09 Looking for stick sponge
 22:15 Found mosaic site with stick sponges
 22:20 Deployed Marker 63
 22:27 Deployed Marker 65
 22:44 Started mosaic
 23:21 Finished mosaicking
 23:22 Heading toward target 29; going to deploy HOBOT

09/15/2006 GMT

Jeanne DeMazieres

00:01 Jason's temperature probe inside black smoker, site #8, T=283.7
 00:04 chimney collapsed, temperature at the base, T=288.7

00:07 higher chimney, T=283.9
 00:14 flow visualizer on top of the 2nd chimney, 2' on video
 00:19 move the flow visualizer to avoid the flow from underneath chimney
 00:30 test different methods for flow visualizer
 00:40 waiting for the ship to come back on position
 01:13 break off a chimney, jason's temperature probe inside, T=274
 01:17 seen ifremeria and community of scale worms around the chimney
 01:24 break off again the chimney, temperature at the entrance of hole, T=283.1
 01:32 sample water, red major, in the hole, ID J2-234-001
 01:45 sample water, yellow major, same hole as before, ID J2-234-002
 01:56 deployment hobo probe on east side of the chimney, x=7662 y=7419 H=308
 D=2128m
 02:03 looking for marker 32 for Liz's mosaic
 03:03 arrived to marker 32
 03:10 start Liz's mosaic from about 3m altitude, echem

	Point #		Scan #	T°C
03:22	1	Mussels	15	3
03:25	2	Mussels, Ifremeria	24	2.5
03:28	3	Ifremeria	32	15
03:31	4	Under Ifremeria	41	10
03:34	5	Mussels	49	4
03:36	6	Rock	57	4.5
03:38	7	Rock	65	2.5
03:42	8	Anemone, rock	73	3.5
03:44	9	Over mussels	81	3.5
03:47	10	Under mussels, pt. 9	89	5
03:52	11	Ifremeria	98	2.5

Shufen Ma

03 55 point 12, snails
 point 13
 04 00 point 14, under 13
 04 02 point 15, rock
 04 04 point 16, mussels
 04 06 point 17, mussels, snails
 04 10 marker 32
 04 14 point 21, rock
 04 21 point 24, more anemones
 04 24 point 26, snails
 04 27 point 27, over mussels
 04 34 point 32, mussels, snails
 04 36 point 32, under 31
 04 39 point 33, mussels, snails
 04 40 point 34, snails
 04 43 point 35, right beside marker 32, rock

04 47 Erin's chimney mosaic
 04 49 point 1, yellow deposit
 04 52 point 2, top of mussels
 04 55 point 3, snails
 04 56 point 4, bare rock
 04 59 point 5, mussels
 -5 00 point 6, anemones
 05 04 point 7, above anemones
 05 07 point 8, above rock
 05 12 point 9, snails
 05 24 mosaic point 10, below Alvin
 05 27 mosaic point 11, paralvinella, too hot for echem
 05 45 point 12, rock
 05 48 point 13, rock
 point 14, rock
 05 59 point 16, above rock
 point 17, above mussels and snails
 06 18 new chimney, potato chimney, point 1
 06 21 point 2, anemones
 06 23 point 3, rock next to point 2
 06 26 point 4, above white rock
 06 28 point 5, mussels
 06 32 point 6, rock
 06 35 point 8, rock
 06 38 point 9, mussels
 06 41 point 10, crab and snails
 06 43 point 11, yellow rock
 06 45 point 12, barnacles
 06 47 point 13, rock
 06 49 scale worm
 06 53 point 15, mussels
 06 56 point 16, white rock
 06 59 point 17, above rock
 07 04 point 18, white rock, crab
 07 14 yellow chimney
 07 16 point 1, bottom of chimney, black snails
 07 18 point 2, small hole
 07 20 point 3, rock
 07 23 point 4, snails
 07 26 point 5, rock
 07 31 point 7, rock
 07 35 point 8, snails

Kate Mullaugh

07:49 End e-chem—will go back to it later
 08:02 Looking for worms and shrimp to slurp

08:28 Slurping paralalvinela into red container
 08:30 Slurping shrimp
 08:33 Finished slurping
 08:39 Moving to Liz's mosaic site at marker 52
 09:16 Arrive at mosaic site, positioning to start
 09:19 Marker 52 found
 09:22 Start e-chem at mosaic point 1 in Ifremeria (white)
 09:27 E-chem at mosaic point 2 over mussels
 09:29 E-chem at mosaic point 3 over Ifremeria (regular color)
 09:32 E-chem at mosaic point 4 over Ifremeria
 09:34 E-chem at mosaic point 5 over Alviniconcha. and mussels (some dead)
 09:37 E-chem at mosaic point 6 over barnacles
 09:39 E-chem at mosaic point 7 over mussels
 09:41 E-chem at mosaic point 8 over bare rock
 09:43 E-chem at mosaic point 9 over Ifremeria (white)
 09:45 E-chem at mosaic point 10, nestled into point 9 up to first orange band
 09:50 E-chem at mosaic point 11, over Ifremeria close to marker 52
 09:53 E-chem at mosaic point 12, nestled into point 11
 09:57 E-chem at mosaic point 13, close to Ifremeria
 09:59 E-chem at mosaic point 14
 10:02 E-chem at mosaic point 15, over small rocks
 10:25 E-chem at mosaic point 19
 10:30 E-chem at mosaic point 20, over eosipha
 10:34 E-chem at mosaic point 21, barnacles
 10:38 E-chem at mosaic point 23, nestled into point 22
 10:41 E-chem at mosaic point 24, over white mat
 10:45 E-chem at mosaic point 25, mixed Alviniconcha. and Ifremeria
 10:48 E-chem at mosaic point 26, Ifremeria
 10:50 E-chem at mosaic point 27, deeper into Ifremeria
 10:55 E-chem at mosaic point 28, small Alviniconcha. patch
 10:58 E-chem at mosaic point 29, rock and eosipha
 11:00 E-chem at mosaic point 30, mussels
 11:03 E-chem at mosaic point 31, big patch of Alviniconcha.
 11:05 Waiting for ship to reposition

Kristina Fontanez

12:03 Mosaic point 32 scan 271 T = 2.5 On Alviniconcha/Ifremeria
 12:05 Mosaic point 33 scan 278 T = 10.5 Under snails
 12:08 Mosaic point 34 scan 285 T = 9.5 On Ifremeria
 12:10 Mosaic point 35 scan 292 T = 4 On Ifremeria
 12:13 Mosaic point 36 scan 299 T = 25 On Alviniconcha
 12:15 Mosaic point 37 scan 306 T = 24 Among Alviniconcha
 12:18 Mosaic point 38 scan 313 T = 4 Ifremeria/Alviniconcha
 12:21 Mosaic point 39 scan 320 T = 4.5 Over Alviniconcha
 12:23 Mosaic point 40 scan 327 T = 33 Under point 39
 12:25 Mosaic point 41 scan 334 T = 6 On rock

12:28 Mosaic point 42 scan 341 T = 3.5 On mussel
 12:30 Mosaic point 43 scan 348 T = 4.5 On Ifremeria
 12:32 Mosaic point 44 scan 355 T = 4 Under 43
 12:34 New Mosaic point 44 Scan 355 T = 7.5 Under 43 (Redone due to stretched cable)
 12:37 Mosaic point 45 scan 362 T = 4 Mussels/Ifremeria
 12:40 Mosaic point 46 scan 369 T = 4 Over Alviniconcha
 12:42 Mosaic point 47 Scan 376 T = 4 On white colored substrate
 12:44 Mosaic point 48 scan 383 T = 3 On Ifremeria
 12:46 Mosaic point 49 scan 390 T = 4.5 On rock
 12:52 Mosaic point 50 scan 397 T = 4 On Ifremeria
 12:56 Mosaic point 51 scan 404 T = 4 On white substrate
 13:00 Mosaic point 52 scan 411 T = 2.5 On rock
 13:03 Mosaic point 53 scan 418 T = 2.5 On mussels
 13:05 Mosaic point 54 scan 425 T = 3 Mussels/Ifremeria
 13:07 Mosaic point 55 scan 432 T = 4 Under point 54
 13:10 Mosaic point 56 scan 439 T = 22 Interface Alviniconcha/Ifremeria
 13:12 Mosaic point 56 scan 439 T = 8 Repeat above
 13:15 Mosaic point 57 scan 446 T = 4 Under point 56
 13:18 Mosaic point 58 scan 453 T = 4 Over Alviniconcha
 13:20 Mosaic point 59 scan 460 T = 10.5 Below point 58
 13:22 Mosaic point 60 scan 467 T = 4 Over mussels
 13:25 Mosaic point 61 scan 474 T = 5 Over Ifremeria
 13:28 Mosaic point 62 scan 481 T = 4 Ifremeria/Mussels
 13:30 Mosaic point 63 scan 488 T = 4.5 Mussels
 13:32 Mosaic point 64 scan 495 T = 3 On rock
 13:33 Mosaic point 65 scan 502 T = 3 Ifremeria
 13:35 Mosaic point 66 scan 509 T = 2.5 On rock
 13:43 Mosaic point 67 scan 516 T = 7 Alviniconcha
 13:46 Mosaic point 68 scan 523 T = 3 Mussels/Ifremeria
 13:48 Mosaic point 69 scan 530 T = 3
 13:51 Mosaic point 70 scan 537 T = 4 On Ifremeria
 13:52 Mosaic point 71 scan 544 T = 11 Under point 70
 13:55 Mosaic point 72 scan 551 T = 2.5
 13:59 Mosaic point 73 scan 558 T = 28 Over Alviniconcha
 14:05 Mosaic point 74 scan 565 T = 5 Ifremeria/Mussels
 14:07 Mosaic point 75 scan 572 T = 5 Ifremeria
 14:09 Mosaic point 76 scan 579 T = 3 Mussels
 14:12 Mosaic point 77 scan 586 T = 4 On rock
 14:14 Mosaic point 78 scan 593 T = 3 Mussels
 14:23 Mosaic point 79 scan 600 T = 2 Ifremeria
 14:25 Mosaic point 80 scan 607 T = 3 Ifremeria
 14:28 Mosaic point 81 scan 614 T = 2.5 Mussels
 14:31 Mosaic point 82 scan 621 T = 5 Ifremeria
 14:33 Mosaic point 83 scan 628 T = 4
 14:36 Mosaic point 84 scan 635 T = 9 On mussels

14:42 Mosaic point 85 scan 642 T = 2.5 On rock
 14:44 Mosaic point 86 scan 649 T = 4.5 Mussels
 14:46 Mosaic point 87 scan 656 T = 4.5 Mussels/Ifremeria
 14:48 Mosaic point 88 scan 663 T = 14 Ifremeria
 14:52 Mosaic point 89 scan 670 T = 9 Ifremeria
 14:55 Mosaic point 90 scan 677 T = 3.5
 14:57 Mosaic point 91 scan 684 T = 3.5 Ifremeria
 14:58 Mosaic point 92 scan 691 T = 2 Rock
 15:01 Mosaic point 93 scan 698 T = 10.5 On Ifremeria
 15:05 Mosaic point 94 scan 705 T = 2.5 Mussels
 15:07 Mosaic point 95 scan 712 T = 4 Ifremeria
 15:11 Mosaic point 96 scan 719 T = 16 In Ifremeria
 15:13 Mosaic point 97 scan 726 T = 3.5
 15:15 Mosaic point 98 scan 733 T = 3
 15:18 Mosaic point 99 scan 740 T = 6.5 On mussels
 15:21 Mosaic point 100 scan 747 T = 6 On rock
 15:23 Mosaic point 101 scan 754 T = 4
 15:29 Mosaic point 102 Temp = 77° C with Jason probe
 15:38 Starting new mosaic near marker 52

Mustafa Yucel

15 54 Watch change
 16 08 Liz mosaic
 16 21 Liz is done
 16 21 Moving to marker 48 for Stacy's mosaic area
 16 32 In transit to marker 48
 16 42 Starting echem on marker 48 peripheral mosaic
 17 27 Echem continue
 17 52 Echem continue
 17 58 Echem over. Moving to marker 63.
 18 16 In transit
 18 36 Still in transit
 18 47 Arrived at marker 63. echem
 19 05 Echem continue at marker 63
 19 34 Still echem
 19 45 Echem continue

Erin Becker

20:21 E-chem. Mosaic point 17 (Continued from prev. page) EVT 5074
 20:32 Virtual Van having issues. Then logger keeps switching from Fisher 2006 to default
 20:38 Ship took a big role. Probe in sediment. Probe is okay. Put probe away
 20:47 Exploring chimneys for samples
 20:57 At chimney N/NW from mosaic site
 There are some scoopable mussels
 Looking also for potable mussels/snails

21:11 Begin mussel scoop. Starboard bio box. Sample # J2-234-001.
 Nearest to Markers 63 and 65
 21:23 Got some black Alviniconcha with mussel scoop – scooped mussels and
 Alviniconcha from side of chimney
 21:34 Going to pick up mussels at base of chimney with manipulator
 21:43 Did not get mussels with manip. Too far to reach
 21:45 Heading toward western set of chimneys
 22:00 At chimney complex – looking around
 22:29 So far nothing potable
 22:30 Scooping mussels –starboard bio box
 22:46 Mussel scoop J2-234-002 port bio box. Large mussels
 23:41 Pillow flow

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Jeanne DeMazieres

00:00 transiting to north of ABE
 00:22 seen jellyfish like “hamburger with legs”
 00:30 seen big chimney complex with dead mussels on the ground and alive mussels on
 chimney x=7937 y=7966 H=303 D=2144m
 00:36 sample mussel pot F, on small spire with mussels around, ID J2-234-005
 00:43 left inside the mussel pot ring: 3 mussels
 00:55 sample mussel pot A (without ring), mussels on wall, ID J2-234-006
 01:01 mussel pot done but did not close properly
 01:15 sample scoop mussels for Colleen, on wall in the same area as before, in the
 starboard biobox H=300 D=2145m, ID J2-234-007
 01:28 seen marker 32
 01:34 sample slurp for Stacy, alvinicincha, in the blue chamber, ID J2-234-008
 02:09 seen black smoker with big plume, x=7919 y=8016 H=283 D=2136
 02:14 found Stephane’s 2 crabs traps
 02:19 test temperature with Jason’s temperature probe for possible mussel pot on snail
 community, T=over 250, too hot for mussel pot
 02:23 sample recovery Stephane’s crab trap, grab the full one and leave the one with
 only 1 crab inside
 02:33 seen soft coral, H=309
 02:42 found marker 15
 02:45 sample niskin green and red, x=7893 y=8026 H=274, ID J2-234-009
 02:50 sample scoop mussels for Colleen, close to the place where the fries were
 deployed during the last dive, in the port biobox, ID J2-234-010
 02:56 try to grab a “hair crab” with scoop but not enough time
 03:03 sample mussel pot D, mussels, close to marker 15, x=7894 y=8024, ID J2-234-
 011. Left inside the ring: about 10 mussels
 03:31 grab “pink hair grab”, in the port biobox
 03:38 leave bottom, end of dive J2-234

J2-235 Kilo Moanna

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Mustafa Yucel

19:05 Jason in water
19:26 Bottom
19:36 Looking for Liz's mosaic site. Chimneys

Erin Becker

20:03 Thermistor array/osmosampler on fairly flat/empty terrain to get it out of the way. Pillow basalt.

20:06 Thermistor x.y – x6934, y10651

20:09 At markers 54, 55

20:12 E-chem on mosaic site (Liz). Marker 56 mosaic

<u>Mosaic point</u>	<u>Scan</u>	<u>Temp.</u>	<u>Description</u>
1	1-8		Rock with sm. Anemones
2	9-16	1.5	Large anemones
	17-24	1.5	Scan 17-24
	25-33	3	Mussels and shrimp
			On mussels
		4.5	
7	55-63		
8	end 72	2.0	
9			
10	82-90	3.0	On mussels
11	91-99	4.5	Under point 10
12	100-110	2.0	On basalt btw. Anemones
13	111-119	4.5	On mussels
14	120-128	4.0	Under point 13
15	129-137	1.5	On mussels
16	138-146	7.5	Under point 15
17	147-155	3.0	Bare rock
18	156-166	2.0	White deposit on rock
19	167-180	8.0	On mussels
20	181-190	11.0	Under point 19
21	191-199	2.0	On basalt between mussels
22	200-207	2.0	On mussels
23	208-215	6.5	Under 22
24	216-224	2.5	Bare rock
25	225-230	2.5	On barnacles
26	231-237	2.0	On mussels
27	238-244	1.5	Over anemones (lg)
28	245-254	2.0	Bare rock
29	255-258	3.0	Over anemones (lg.)
30	259-265	2.5	Edge of mussel clump

	31	266-272	3.0	Over mussels, next to Ifremeria
	32	273-279	7.5	Under 31
	33	280-286	8.0	On Ifremeria
	34	287-293	8.0	Under point 33
22:01	Can see shimmering water on brow cam around mussels and Ifremeria			
	35	294-306	14-16.0	On Ifremeria
22:05	Ifremeria in this area are white/covered with bacteria			
	36	307-320	15.0	Under point 35, down to rock
	37	321-327	5.5	On mussels
	38	328-334	5.0	Under pont 37
	39	335-341	2.5	Over anemones (lg)
	40	342-348	2.5	On mussels
	41	349-360	14.0	Under point 40
	42	361-367	3.0	On mussels
	43	368-376	5.5	Under point 42
	44	377-383	5-8.0	On rock by mussels and Ifremeria
	45	384-390	4	Bare rock next to mussels
22:46	E-chem finished			
22:54	Back at thermistor			
22:58	Picked up thermistor array; put back in basket			
23:08	Deployed thermistor array EVT 5327			
23:41	Thermistor tube knotted. Going to try to unknot with schilling arm.			
	Successful.			

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Jeanne DeMazieres

00:00 deployment thermister array. Probe #5 and #6 in Ifremeria, #4 under mussels right edge of mussel patch, #8 under mussels, x=6940 y=10638 H=114 D=2621

00:12 jason's temperature probe measurements. Close to probe #5, in Ifremeria, T=5.6

00:14 temp. probe by probe #6, T=12.8

00:16 temp. probe by probe #4, T=3.5

00:18 temp.probe by probe #8, T=2.7

00:20 temp.probe close to probe #5 qnd #6, in Ifremeria, T=16.8=the highest temperature

00:25 redeployment of probe #5 and #6, #5 qt the highest temperature point into Ifremeria

00:30 imaging thermister array deployed (DVD #089)

00:33 deployment thermister array finished

00:42 start echem mosaic around marker 56

	Point #		T°C	Scan #
00:50	46	Rock, barnacles	3	392
00:53	47	Mussels	4	400
00:55	48	Anemone	2	408
00:58	49	Rock	1.5	420
01:02	50	Barnacles	1.5	428

01:04	51	Mussels	7	436
01:06	52	Under pt.51	9	444
01:10	53	Rock	1.5	460
01:19	54	Anemones	2.5	469
01:22	55	Mussels	4.5	477
01:23	56	Under pt.55	6.5	485
01:32	57	Above light brown mussel	1.5	493
01:35	58	Under pt.57	2.5	501
01:40	59	Rock	2	523
01:47	60	Mussels	2.5	531
01:49	61	Under pt.60	7.5	541
01:52	62	Over anemone	2	549
01:54	63	Mussels close to anemone	7	557
01:56	64	Under pt.63	7.5	565
01:59	65	Under mussels	8	573
02:02	66	20cm under mussels	8.5	581
02:04	67	Bare rock	3	589
02:07	68	Mussels	2.5	597
02:09	69	Bare rock	2.5	605
02:12	echem mosaic marker 56 finished			
02:15	imaging echem probe with 3-Chip camera			
02:20	sample slurp for Stephane, shrimps and 4 crabs, in the red chamber, around marker 56, ID J2-235-001			
02:25	transit to marker 2 (90m)			
02:36	arrived, looking for marker 2, seen 10m chimney with big black smoker			
02:44	jason's temperature probe inside hole, T=338.2, x=6960 y=10650 H=125 D=2615			
02:53	sample water from the hole, major #4 red, ID J2-235-002			
03:01	flow visualizer on the same plume but too big for the visualizer			
03:09	deployment hobo #4 in the same hole, alt=9.4m D=2615m H=125			
03:15	imaging hobo with scorpio camera			
03:20	survey around chimney and its bottom			
03:23	seen white deposit on chimney, imaging it with scorpio, alt=9.1m			
03:38	survey finished, decide to scan the chimney			
03:46	start echem on chimney			
	Point #		T°C	Scan #
03:47	1		3	
03:49	2		2.5	
Shufen Ma				
03 52	point 4, white rock			
03 55	point 5, orange spot			
04 04	point 6, crab, water flow, scale worm			
04 09	sample rock, potential worm rock			

04 58 save electrode wand
 05 21 picking up chimney piece
 05 25 chimney piece in part biobox
 06 00 looking for barnacles on new chimney
 06 10 echem on barnacles
 06 12 echem on another spot of barnacles
 06 15 scan on barnacles among mussels
 06 16 scan on shrimp
 06 20 scan on Eohtai
 06 31 scan above yellow rock with barnacles and mussels
 06 39 scan on shrimps
 06 40 marker 5
 06 42 scan on shrimp and worm
 06 52 chimney marker 5, barnacles and tube worms
 07 01 stalked barnacles
 07 05 stalked barnacles, close look
 07 20 scan on stalked barnacles
 07 22 scan on stalked barnacles on rock
 07 23 scan another spot
 07 28 scan yellow spot (rock), between staked barnacles
 07 30 scan on rock under a mussel
 07 34 scan on stalked barnacles
 07 36 scan on short barnacles
 07 38 scan on stalked barnacles

Kate Mullaugh

07:52 Sampling stalked barnacles from chimney
 07:56 Jason moving to place where bio box can be opened
 08:18 Stalked barnacles dropped into starboard bio box
 08:23 Moving to marker D
 08:39 Arrive at marker D
 08:45 Starting Erin's forward looking mosaic at marker D
 09:20 End of mosaic
 09:45 Temperature measurements on mosaic
 09:56 Mosaic point 1, $T = 51^{\circ}\text{C}$
 09:57 Mosaic point 2, $T = 3^{\circ}\text{C}$
 09:58 Mosaic point 3, $T = 3.1^{\circ}\text{C}$ (all temperature points after 3 logged in virtual van)
 10:55 End temperature probing of chimney mosaic site
 11:00 Looking for anemone for Kevin to slurp
 11:28 Slurped anemone into black chamber
 11:34 Another anemone (plus a shrimp and two crabs) slurped
 11:36 Another anemone on a rock slurped
 11:39 Slurped a small anemone

Kristina Fontanez

11:52 Heading for marker 56
 12:10 Problem with sci cam/3-chip
 12:11 Slurp a white anemone off rock – only got it partially
 12:18 Trying to slurp bright orange anemone instead – success!
 12:20 Slurp another orange anemone and white anemone
 12:23 Slurp another white anemone
 12:33 Slurp white anemone
 12:43 Mosaic pt 1 – on top mussels T = 2
 12:45 Mosaic pt 2 – into mussels T = 4.8
 12:46 Mosaic pt 3 – T = 2
 12:47 Mosaic pt 4 – T = 3.6 – on mussels
 12:47 Mosaic pt 5 – under pt. 4 T = 6.7
 12:49 Mosaic pt 6 – on rock T = 1.7
 12:50 Mosaic pt 7 = 1.9° C on rock
 12:53 Mosaic pt 8 – 1.8 ° C on rock
 12:54 Mosaic pt 9 on mussels T = 2.4
 12:54 Mosaic pt 10 on basalt, at base of chimney T = 2.3
 12:55 Mosaic pt 11 – on top of mussels T = 5.4
 12:56 Mosaic pt 12 – into mussels T = 5.1
 13:00 Mosaic pt 13 – on basalt T = 2.1
 13:02 Mosaic pt 14 – on mussels T = 4.4
 13:03 Mosaic pt 15 – under pt 14 T = 5
 13:05 Mosaic pt 16 T = 4.7
 13:06 Mosaic pt 17 T = 4.7
 13:07 Mosaic pt 18 – In mussels T = 9.2
 13:09 Mosaic pt 19 – on basalt T = 1.9
 13:13 Mosaic pt 20 – basalt between mussel clumps T = 1.8
 13:14 Mosaic pt 21 – Edge of mussels T = 1.7
 13:15 Mosaic pt 22 – On top of mussels T = 2.6
 13:16 Mosaic pt 23 – Under pt. 22 T = 5.3
 13:17 Mosaic pt 24 – On mussels T = 3.6
 13:19 Mosaic pt 25 – On basalt T = 2.7
 13:20 Mosaic pt 26 – on mussels T = 2.9
 13:21 Mosaic pt 27 – On basalt T = 2.6
 13:22 Mosaic pt 28 – On basalt T = 2.8
 13:23 Mosaic pt 29 – On basalt T = 2.1
 13:24 Mosaic pt 30 – On mussels T = 2.2
 13:25 Mosaic pt 31 – Mussels T = 2.4
 13:27 Mosaic pt 32 – Edge of mussels/Ifremeria T = 11.3-14
 13:35 Mosaic pt 33 – On basalt T = 3.6
 13:36 Mosaic pt 34 – On mussels T 4.9-5.3
 13:37 Mosaic pt 35 – White Ifremeria T = 14.5-16.7
 13:41 Mosaic pt 36 – Mussels T = 4.6
 13:42 Mosaic pt 37 Mussels T = 4.8-5.4
 13:42 Mosaic pt 38 White Ifremeria T = 7.7-8.5
 13:44 Mosaic pt 39 Basalt T = 1.7

13:47 Mosaic pt 40 In mussels T = 4.9
 13:48 Mosaic pt 41 On mussels T = 9.3
 13:50 Mosaic pt 42 On mussels T = 4
 13:56 Mosaic pt 43 On basalt T = 1.5
 13:57 Mosaic pt 44 On red-ish basalt T = 1.6
 13:58 Mosaic pt 45 Mussels T = 2.4
 14:00 Mosaic pt 46 Mussels T = 2
 14:03 Mosaic pt 47 On basalt T = 2
 14:06 Mosaic pt 48 In mussels T = 3.1
 14:08 Mosaic pt 49 On mussels T = 1.9
 14:09 Mosaic pt 50 On basalt T = 1.7
 14:11 Mosaic pt 51 On rock T = 1.6
 14:12 Mosaic pt 52 On rock T = 1.8
 14:15 Mosaic pt 53 On basalt, next to mussels T = 2.3
 14:17 Mosaic pt 54 Mussels, Ifremeria T = 7.3
 14:20 Mosaic pt 55 Under mussels T = 3.9
 14:21 Mosaic pt 56 On basalt T = 1.8
 14:22 Mosaic pt 57 On mussels T = 5.7
 14:24 Mosaic pt 58 On basalt T = 2.5
 14:26 Mosaic pt 59 Edge of mussels/basalt T = 2.2
 14:28 Leaving mosaic site to go pick up FRIES
 14:36 Waiting for Medea to catch up
 14:46 Found marker C on way to FRIES
 15:05 Located FRIE # 3 away from mussels
 15:14 Located FRIE # 2 in mussels
 15:19 Putting FRIE # 3 into starboard biobox
 15:26 Trip Niskins (both) at FRIE 2 (in mussels)
 15:29 Loading FRIE 2 (in mussels) into starboard biobox
 15:34 Going off-site to look for FRIE 1
 15:47 Located FRIE 1
 16:09 Finally put FRIE 1 in starboard biobox

Mustafa Yucel

16 25 Transiting to mosaic area (due west)
 16 46 Erin's mosaic site at marker E
 17 10 Finished with the mosaic. Taking close up pictures
 17 31 Stacy came to the van
 17 37 In transit to rock deployment site
 17 57 Rock deployment, X 6934, Y 10725. Deployed four rocks
 18 04 Echem around deployed rocks. All are 1.5 C with ambient seawater chem.
 18 20 Second rock deployment
 18 41 Echem around second set of deployed rocks. All 1.5 C with ambient seawater chemistry
 19 25 Rock deployment is finished
 19 27 Looking for peripheral organisms for collection
 19 38 Slurping sponges to the green chamber

19 46 Slurping small anemones

Erin Becker

20:02 Passed one of the rocks Stacy deployed

20:04 Slurping anemone

20:20 E-chem on lone mussel found with anemones; scan 0-19. No sulfur compounds detected

20:28 Slurped lone mussel, green chamber, sample 010

20:33 Rock sample

Notes on bullseye chimney echem and Alviniconcha removal in my notebook

23:26 Going to try to pot Alviniconcha on the side of this chimney, sample 012 – Mussel Pot B

Near Marker E

23:44 Mussel Pot A J2-235-13 is without ring

Jeanne DeMazieres

23:54 sample scoop, Alviniconcha, from wall of chimney, x=6929 y=10717 H=55 D=2618m, ID J2-235-014. Use the temperature probe to clear the Alviniconcha from the wall

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00:16 jason's temperature probe in small source on the wall, T=231.4

00:19 temp. probe outside the source, T<50

00:20 temp. probe in 2nd small source, T=25

00:22 imaging chimney with scorpio camera after clearing the Alviniconcha

	Point #		T°C	Scan #
00:36	32	Mussels	5	415
00:40	33	Mussels	4	429
00:42	34	Mussels	4.5	430
00:45	35	Mussels	5	446
00:47	36	Mussels	4	454
00:50	37	Edge mussels patch	6	462
00:54	38	Edge mussels patch	5	476
01:01	39	Mussels	8	494
01:06	40	Edge mussels patch	4.5	508
01:10	41	Rock	8	522
01:13	42	Rock	5	536
01:18	43	Ifremeria	8	550
01:21	44	Rock clear from Alviniconcha	11	564
01:25	45	Rock clear from Alviniconcha	18	578
01:29	46	Ifremeria	5.5	592
01:33	47	Inside Ifremeria	7	606

01:37	48	Rock at the source	41	618
01:41	49	Rock	9	626
01:49	50	Rock	1.5	662
01:55	51	Rock	9.5	678
02:00	52	Mussels, ifremeria	6.5	696
02:03	53	Mussels, Ifremeria	9	710
02:08	54	Ifremeria	6	724
02:12	55	Middle of Ifremeria	11	738
02:17	56	Mussels	7	752
02:22	57	Alviniconcha	20	769
02:31	58	Alviniconcha, ifremeria	17.5	781
02:35	echem finished			
02:40	start photo mosaic of chimney close to marker E with scorpio cam			
03:37	start measure temperature on chimney with jason's temperature probe			
	Point #		T°C	
03:46	41	Mussels	2.3	
03:49	42	Bare rock with shrimp	2.2	
03:50	43	Bare rock	1.7	

Shufen Ma

03 53	point 44
03 55	point 45 on rock, T=2 °C
04 00	point 46, on rock , T=1.8 °C
04 00	point 47, mussels
04 01	point 48, rock, T=1.7 °C
04 09	point 49, rock, T=2.2 °C
04 11	point 50, rock, T=2.2 °C
04.12	point 51, barnacles
	marker 9
04 30	point 55, barnacles on rock, T=2.3 °C
	point 56, rock, microbial?, T=6 °C
04 38	point 57, mussels, T=2.4 °C
04 40	point 58, stalked barnacles, T=2.1 °C
04 43	point 59, barnacles rock, T=2.1 °C
04 45	point 61, rock, T=2.2 °C
04 52	point 64, below mussels
04 57	point 65, rock, T=2.5°C

Relief Mustafa

05 00	point 66, on anemone, 2.5 °C
05 01	Erin is finished with her temp. mapping
05 03	Robby took control
05 06	heading north to GWKM5
05 51	collect mussels
05 54	sample mussels in biobox

05 57 second scoop
06 09 MPF J2-235-015

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Erin Becker

21:50 On bottom
22:03 Begin thermistor array deployment at Marker 52
22:41 3 in Ifremeria close to mussels, 1 on edge of Alviniconcha bed
23:19 Finished placing thermistor probes
23:22 Liz beginning temp. measurements on Marker 52 mosaic. Using Jason temp. probe.

Jeanne DeMazieres

23:44 temperature measurements on Liz's mosaic with jason's temperature probe

	Point #		T°C
23:45	6	End probe 7	39.9
23:55	7	End of probe 5, Ifremeria	21.9
23:58	8	Ifremeria	3.2

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	Point #		T°
00:00	9	Between Ifremeria and Alviniconcha	7
00:11	10	Substrate	40.1
00:12	11	Rock	2.9
00:13	12	Mussels, Ifremeria	3.6
00:14	13	Alviniconcha	3.5
00:16	14	Substrate edge of Alviniconcha patch	4.8
00:18	15	Alviniconcha	6.6
00:19	16	Substrate in middle of Alviniconcha patch	16.1
00:22	17	Substrate Alviniconcha Ifremeria	7
00:25	18	Alviniconcha	22
00:26	19	Between Alviniconcha and Ifremeria	6.9
00:28	20	Ifremeria	5.1
00:29	21	Substrate	3.6
00:30	22	Ifremeria	3.5
00:32	23	Rock	3.9
00:34	24	Edge of Alviniconcha and Ifremeria	2.6
00:35	25	Ifremeria	2.5
00:38	26	Alviniconcha	33.6-20.7
00:42	27	Edge of Alviniconcha and Ifremeria	2.6
00:45	28	Substrate, edge of Alviniconcha patch	34.9-39.3

00:47	29	Alviniconcha	2.8-3.4
00:49	30	Ifremeria	3.4
00:53	31	Alviniconcha and Ifremeria	7.7
00:54	32	Ifremeria	3.1
00:56	33	Rock	5.3
00:58	34	Alviniconcha	5.3-6.6
01:02	35	Alviniconcha	12.6-13.6
01:03	36	Alviniconcha, mussels	10.6-14.6
01:05	37	Mussels	6.3
01:06	38	Ifremeria	9.7-10.6
01:09	39	Mussels	4.5-7.2
01:12	40	Ifremeria	9.7
01:13	41	Alviniconcha	6.9-12.4
01:15	42	Ifremeria, Alviniconcha	8.9-9.3
01:17	43	Rock	2.9
01:19	44	Mussels	4.7-5.2
01:24	45	Ifremeria	4.2-14.9
01:26	46	Rock	2.5
01:27	47	Mussels	3.3
01:29	48	Ifremeria	5.5-6.6
01:30	49	Ifremeria	7.5-8.0
01:32	50	Mussels	7-13.2
01:34	51	Rock with barnacles	2.9
01:42	52	Substrate	43.5
01:44	53	Edge of Ifremeria	10.7
01:46	54	Ifremeria	5.1
01:48	55	Ifremeria	4.7-5.5
01:52	56	Ifremeria	17.6-20.1
01:53	57	Ifremeria	11.6
01:54	58	Alviniconcha	9.9
01:56	59	Rock	3.0
01:57	60	Mussels	3.1-5.4
01:59	61	Ifremeria	4.1-11.9
02:01	62	Ifremeria	3.6
02:02	63	Mussels	3.9
02:03	64	Rock	4.9
02:04	65	Ifremeria	3.3
02:07	66	Rock	14.5-18.3
02:10	67	Ifremeria	5.4
02:12	68	Substrate	5.7
02:14	69	Ifremeria	6.2
02:15	70	Rock	5.1
02:16	71	Ifremeria	4.9
02:18	72	Rock	4.5-6.6
02:24	73	Substrate	6.6-7.9

02:27	74	Rock	2.1
02:31	75	Ifremeria	7.7-8.3
02:33	76	Edge of Ifremeria	2.4
02:34	77	Ifremeria	8.8
02:39	78	Substrate	3.1
02:42	79	Rock	2.1
02:43	80	Mussels, Ifremeria	5.5
02:45	81	Mussels, Ifremeria	2.8
02:46	82	Mussels	2.6
02:48	83	Mussels, Ifremeria	4.5
02:49	84	Substrate	2.5
02:53	85	Rock	1.9
02:54	86	Mussels	2.1
02:55	87	Ifremeria	2.5
02:56	88	Alviniconcha	9.8
02:58	89	Bare rock	1.9
03:00	90	Ifremeria	5.5
03:02	91	Mussels	8.5-6.3
03:03	92	Mussels	4.2
03:05	93	Barnacles	2.5

03:06 temperature Liz's mosaic finished

03:10 transit to hobo chimney

Shufen Ma

04 21 Erin's south ABE cluster chimney
04 21 deploying marker AA, replacing marker 57
04 26 scorio mosaic
04 56 mosaic finished
05 04 temp. mosaic at Erin's south ABE site
05 06 point 1, 239°C
05 08 point 2, 239°C
05 10 point 3, 232°C
05 18 same point , low T=119°C
05 21 point 4, 137.3°C
05 24 point 5, 43.4°C
05 31 point 6, 33.4°C
05 34 start e-chem at point 7
05 37 e-chem point 8
05 41 e-chem point 9
05 45 point 10 e-chem
05 47 e-chem point 11
05 52 e-chem point 12, on rock
05 59 e-chem point 13
06 08 e-chem point 14, rock, snails
06 12 e-chem point 15, orange rock
06 15 e-chem point 16, on mussels

06 18 e-chem point 17, below snails
 06 21 e-chem point 18, rock
 06 24 e-chem point 19, snails
 06 27 e-chem point 20, rock
 06 31 e-chem point 21, rock
 06 40 e-chem point 22, rock
 06 45 e-chem point 23, rock
 06 47 e-chem point 24, base of anemone
 06 50 e-chem point 25, mussels
 06 54 e-chem point 26, on rock
 06 55 e-chem point 27, on rock
 07 03 e-chem point 28, on rock
 07 06 e-chem point 29, below snails
 07 11 e-chem point 30, yellow rock and anemone
 07 15 e-chem point 31, on edge of yellow rock
 07 18 e-chem point 32, snails
 07 23 e-chem point 33, mussels
 07 26 e-chem point 34, rock
 07 30 e-chem point 35, white rock
 07 39 e-chem point 36, rock
 07 40 e-chem point 37, mussels

Kate Mullaugh

07:47 E-chem at point 38
 07:56 E-chem at point 39
 07:58 E-chem at point 40
 08:00 E-chem at point 41
 08:03 E-chem at point 42
 08:05 E-chem at point 43
 08:07 End of e-chem
 08:20 Pictures of chimney at Erin's southern site
 08:57 Mosaic site officially named "Hogsworth"
 09:03 Rock sample collected and put behind milk crate in Jason's basket
 09:10 Looking for paralomis to slurp
 09:33 Slurping shrimp into black chamber
 09:44 New species of amphipod (?) slurped
 10:00 Still slurping mainly shrimp and some anemone
 10:14 Dropped slurp
 10:20 Going after large scale worm
 10:33 Giving up on worm because it wouldn't get slurped off rock—end slurping
 11:00 Transit to HOB0 chimney
 11:06 HOB0 vent coordinates: $x = 7652$, $y = 7420$, $d = 2126$
 11:12 Marker ϕ deployed at chimney base, coordinates: $x = 7656.8$, $y = 7419.7$
 11:23 Picked up rock and examined for sampling—dropped because it was a piece of chimney, not basalt

11:30 Looking for a piece of basalt, away from chimney
11:42 Close-up of rock—sulfides, not basalt

Kristina Fontanez

11:53 Took rock sample and put in milk crate
12:00 Look for lava rock on way to pick up FRIES
12:13 Still in transit
12:24 Sighted a glass sponge
12:29 Picking up lava rock in forward milk crate – chose a new rock
12:31 Put new rock in forward milk crate instead (rear behind flow visualizer)
12:46 Transit to pick up FRIES
13:34 Found FRIE 4 (near mussels)
13:36 Found FRIE 5 (in mussels)
13:42 Put FRIE 5 in starboard biobox
13:45 Put FRIE 4 in starboard biobox
13:49 Trip Niskins over mussels
13:53 Located FRIE 6
14:19 Put FRIE 6 in starboard biobox
14:42 Arrived at mosaic site – marker 32
14:46 Mosaic position 36 T = 1.6 On rock
14:48 Mosaic pt 37 T = 3.5 Ifremeria and mussels
14:51 Mosaic pt 38 T = 6.9-7.9 Between mussels and Ifremeria
14:52 Mosaic pt 39 T = 3.9 Mussels
14:54 Mosaic pt 40 T = 19.2-19.4 On Ifremeria
14:57 Mosaic pt 41 T = 2.2 Mussels and Ifremeria
14:59 Mosaic pt 42 T = 2.1 On rock
15:03 Reboot Jason – error – lost thrusters
15:13 Pulling Jason up – dead vehicle recovery

J2-237 ABE

09/25/2006 GMT

Kate Mullaugh

9:54 Start DVD recording – Jason depth = 2060 m
10:25 Mosaic point 46 at Marker 32, T = 2.5°C
Continue temperature probing of mosaic site—for details see Virtual Van
10:58 End temperature probing mosaic
11:00 Looking for crabs to collect
11:05 Open port bio box to drop crabs into
11:08 Grab a paralomis and put into port bio box
11:12 Looking for smaller paralomis to slurp
11:29 Crab stuck in mouth of slurp
11:33 Released it into port bio box
11:38 Cycle slurp pump
11:42 Start transit to Erin's mosaic

Kristina Fontanez

12:26 Start mosaic point 19
12:31 Taking temp scans at different points on chimney
12:32 Lots of mussels nestled in chimney cracks
12:36 Took more temp scans along chimney
12:41 Mosaic point 23 T = 75 degrees C
12:44 Whole area covered with chimney spires
12:51 Take out chemistry probe for E. chem.
12:54 E. chem. Probe scan 0-6 on chimney
13:04 E. chem. Probe scan 7-14 on chimney
13:08 E. chem. Probe scan 15-21 on chimney
13:13 Mosaic completed, moving to new chimney
13:21 Moved to Bugs Bunny chimney to mosaic
13:38 Photographing chimney in step-wise fashion
13:57 Deploy Jason temperature probe to take readings
14:03 Mosaic point 19
14:28 E. chem. measurements of chimney – start mosaic point 23 scan 0
14:41 E. chem. Measurements of chimney – scan 14
14:55 Continue E. chem. Scans of chimney – scan 35
15:03 Deploy ball marker G at base of chimney
15:08 Transit to new chimney
15:13 Mosaic of chimney – “The spire”
15:36 Taking photographs of chimney

Mustafal Yucel

16 00 Temperature mapping of chimney
16 22 Temperature probing continue
16 25 Upper part of chimney collapsed
16 35 Echem on chimney
16 42 Finished with chimney
16 45 Looking for rocks
16 48 Rock sample, in back milk crate
16 51 Dropped weight
16 54 Fired niskin bottles
16 56 Looking for alviniconcha for mussel pot
16 56 Pelagic pump
16 59 Heading north for potable alviniconcha
17 23 In transit due north
17 41 Rock sample in rear starboard basket
18 10 Musse pot on ifremeria
18 23 Echem around snails
18 45 Echem continue
18 49 Echemfinished. Temperature probing previous echem points
19 07 Temperature mapping continue
19 16 Finished with temperature probing

19 28 Temperature of vent fluid: 304 C
 19 35 Yellow major sampler
 19 41 Red major, same orifice

Erin Becker

20:05 Looking for potable Alviniconcha
 20:17 Grabbing mussel with anemone on it
 20:21 Starboard bio box J2-237-011
 20:44 Passing "Stacy sticks" i.e. stick sponges
 21:01 Collected rock – forward milk crate J2-237-012
 x7817, y7940
 21:03 Small whitish thing on rock. Going to slurp it
 21:10 Taking some scorio photos of the unknown creature
 21:15 Finished slurp; yellow chamber. Can't see it when in there because it's
 so small. J2-237-013
 21:58 Looking for chimneys and potable Alviniconcha
 22:10 Can see Marker 18 (flange mosaic site)
 22:27 Octocoral mat
 22:50 Heading west (for a while already). Saw a marker. Didn't see number.
 22:52 Disarticulated mussel shells
 22:52 Stacy's rock
 23:01 Stacy doing Echem on her rocks
 Using Echem probe and Jason temp probe simultaneously because
 Echem temp is not working

23:15	<u>Rock</u>	<u>Scan</u>	<u>Temp (°C)</u>
	MA2A	16-24	2.1-3.7
	LB3A	25-32	6.9
	HB2A	33-40	6.2
	AA1A	41-48	3.5-3.6
	AA2A	49-56	1.5

Jeanne DeMazieres

23:43 (Stacy's rocks scanning) HB3A, scan 57-64, T=1.5
 23:51 LB1A, scan 68-75, T=1.7
 23:59 MA3A, scan 76-85, T=1.5

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00:05 imaging Stacy's rocks area
 00:08 transit to second Stacy's rocks place
 00:29 created virtual marker for possible mussel pot on Alviniconcha
 00:32 found Stacy's rocks, x=7842 y=7793 H=290
 00:36 AA3A, scan 0-15, T=2.0
 00:42 HB1A, scan 16-23, T=2.3
 00:48 LB2A, scan 24-30, T=2.1
 00:51 MA1A, scan 31-55, T=2.2

00:55 looking for mussel pot place
 01:08 sample mussel pot F (with ring) on alviniconcha, x=7842 y=7791 H=359
 D=2154, ID J2-237-014
 01:23 mussel pot F done. Left within the ring=Alviniconcha, Ifremeria and 1 crab (frame
 grab in virtual van)
 01:27 looking for another place for mussel pot
 01:50 found larval traps, marker 52
 01:57 found marker 16
 02:11 sample mussel pot D (without ring) on a wall of chimney close to marker 16, ID
 J2-237-015 but failed and cancelled
 02:29 sample scoop Ifremeria for Stacy, around marker 16, stored in starboard biobox,
 ID J2-237-016
 03:14 sample slurp crabs and shrimps for Stephane and Stacy, around marker 21, stored
 in green chamber, ID J2-237-017
 03:31 sample slurp scale worms, stored in black chamber, ID J2-237-018

Shufen Ma

03 55 sample a fish
 04 15 sample a rock with anemone to biobox
 04 21 sample a rock
 04 26 sample a rock
 04 29 sample a rock
 04 31 drop weight

J2-238 Mariner

09/26/2006 GMT

Mustafa Yucel

17 56 Jason is in water
 18 56 Bottom
 19 05 Black smoker complex
 19 18 Hi T probing: 311.8 C
 19 22 Excavating the chimney
 19 32 Hi T probing the orifice: 311.8 C (first orifice)
 19 36 Hi T probing second orifice: 314.8 C. DOP 4950, 5740 depth: 1922 m
 19 50 Red major at above location

Erin Becker

19:58 Tried excavating bottom chimney to put in major. Not working well.
 Orifice takes a turn to the left and rock around it is rather hard (not the
 brittle ash-like stuff found at other chimneys).
 20:04 Tried chipping away with osmosampler probe
 20:15 Galatheid crabs, stained orange-brown
 20:19 The smoking holes are just too narrow for the osmo probe.
 Looking for other smokers

20:29 Spotted 4 smokers low to the ground
 20:36 While turning to reach aforementioned smokers, we saw another one.
 Going to try excavating it a little.
 20:40 x4964, y5755; EVT 6526, 322°C
 Temp. and major at first chimney (earlier in the dive) had no sampler or
 HOBO
 20:54 Deployment of Osmosampler complete.
 H=46 D=1918. Red-taped hose.
 21:06 Deploying HOBO #5 in same smoker as osmosampler
 21:23 Now planning to take a major at this chimney
 21:32 Major in chimney orifice. Sample J2-238-002
 21:42 Placing second Osmosampler in this same chimney. Second handle (top)
 leaning out a bit more than the other away from the flow. Blue-taped
 hose.
 22:02 Getting ready to slurp scale worms. Black chamber. J2-238-003
 22:17 Slurp sample J2-238-004. Red chamber. Scale worms.
 22:42 Slurped galatheid. Black chamber.
 22:43 Small snails on rock
 22:58 Collecting rock sample with snails on it. In port bio box. J2-238-005
 23:07 Green chimney rock collected. J2-238-006
 23:27 Began messing around with probes in smoker. Removed HOBO from
 chimney. Placed on basket.
 23:39 Attempt to replace HOBO
 23:41 The red Osmosampler probe has punched through the bottom of the hole.

09/27/2006 GMT

Jeanne DeMazieres

00:00 still deploying the hobo probe #5
 00:21 hobo #5 deployed inside black smoker hole
 00:23 surveying the top of the chimney for another hobo probe deployment
 00:33 broke off a small white chimney, stored one part on the deck, ID J2-238-007,
 x=4961 y=5758 H=137 D=1912
 00:42 jason's temperature probe at the entrance of the hole, T=266
 00:44 enlarge the hole before to deploy the hobo probe
 00:46 hole too small, decided to find another chimney
 01:12 broke off one part of the top of the chimney. No smoke. Still looking for a place
 for hobo
 01:20 found black smokers (at least 4) on the ground, possible place for hobo
 01:26 jason's temperature probe inside one of the hole (x=4955 y=5762 H=307
 D=1919) T=322.6
 01:34 deployment HiT hobo probe #6
 01:40 grab piece of chimney for jason's ballast, stored on the deck, ID J2-238-008
 01:55 start transit to north
 02:25 arrived on site x=5054 y=5882 H270 D1914
 02:30 looking for diffuse flow area

02:40 look at spires with Stacy but nothing really interesting
 02:45 start echem Anne Louise flow
 02:48 pt1, anemone, scan 0-14, T=7.5
 02:52 pt2, ambient, scan15-28, T=2
 02:57 pt3, rock, temperature varies too much with echem probe so couldn't be logged
 03:10 echem finished
 03:15 sample grab piece of chimney
 03:30 sample failed because rock of the chimney too hard
 03:50 start mosaicking chimney

Shufen Ma

04 06 e-chem on brown chimney, point 1
 04 21 point 2, brown chimney
 04 23 point 3, white chimney, shrimp
 04 41 point 6, chimney
 04 45 point 7, chimney, close to smoker
 05 40 moving north
 06 07 fresh lava grab
 06 47 marker 92
 06 50 dead tubeworm
 06 55 collect dead tubeworm to biobox
 07 23 pick up a yellow rock

Kate Mullaugh

7:45 Transit back – nav is off
 8:13 Found “lava bombs”
 8:35 -very powdery & hard to sample – give up
 8:50 Slurping crinoid/crustacean into yellow container
 9:00 Doesn't look like things are making it into chamber – something stuck in hose?
 9:05 Slurp crab – made it into yellow chamber
 9:05 Crinoid that was slurped fell out of hose – attached to rock – cannot slurp
 9:17 Transiting to explore 98m southwest, looking for diffuse flow & do Erin's chimney mosaic
 9:45 Bacterial mat (bluish in color) on chimney
 9:50 24-meter tall chimney
 10:25 Found good diffuse flow site?
 10:41 Taking temp. readings to evaluate diffuse flow site
 10:45 T=16.0 – 2.0°C
 10:58 Decided this spot is not reachable for osmosampler
 11:02 Will do mosaic at this site instead
 -named the chimney “Pisa”
 11:04 Start mosaic of “Pisa”
 11:10 Mosaic at top of chimney
 11:13 Start mosaic over because pictures were too dark
 11:23 Done with chimney mosaic

11:23 Checking out the top of the chimney
11:37 Start E-Chem on mosaic

Kristina Fontanez

11:48 E. chem – mosaic on spire Pisa
12:05 E. chem. – mosaic on spire Pisa – spire at 45 degree angle
12:25 Stowing E. chem. Probe – prepare to slurp
12:30 Slurp scaleworm into blue bin
12:31 Slurp crab also into blue bin
12:33 Slurp shrimp into blue bin
12:35 Slurp various shrimp
12:37 Slurp scaleworm
12:39 Slurp another scaleworm
12:41 Slurp limpet into blue bin
12:44 Slurp another limpet into blue bin
12:46 Slurp white shrimp into blue bin
12:52 Slurp crab into blue bin
12:55 Stowing slurp
13:01 Removing Osmo-sampler from basket
13:10 Osmo-sampler deployed on crevice on Pisa
13:20 Deployment of Osmo-sampler complete
13:26 Leaving Pisa spire
13:32 Transit to locate basalt area for Stacy's recruitment rocks
14:07 Arrived on site – rock deployment 1
14:17 Deploy Stacy's rock HB1M
14:18 Deploy Stacy's rock LB1M
14:18 Deploy Stacy's rock MA3M
14:20 Deploy Stacy's rock AA2M
14:25 Taking E. chem. Measurements around HB1M rock
14:27 Taking E. chem. Measurement around MA3M
14:29 Taking E. chem. Measurement around AA2M
14:31 Taking E. chem. Measurement around LB1M
14:35 Stowing E. chem. Probe
14:36 Heading east to find lollipop sponges
14:46 Deploy rock HB2M near lollipop sponges
14:49 Deploy rock LB2M near lollipop sponges
14:50 Deploy rock AA3M near lollipop sponges
14:54 Taking E. chem. Measurements near rocks – AA3M
14:56 Taking E. chem. Measurements near rocks – HB2M
14:58 Taking E. chem. Measurements near rocks – LB2M
15:00 Taking E. chem. Measurements near rock – MA1M
15:03 E. chem. on lollipop sponges
15:06 E. chem. on rock
15:10 Leaving site for new rock deployment location
15:23 Arrived at rock deployment 3 site
15:28 Deploy rock LB3M near lollipop sponges

15:29	Deploy rock AA1M near lollipop sponges
15:31	Deploy rock MA2M near lollipop sponges
15:33	E. chem. probe removed from basket
15:34	E. chem. measurement on rock AA1M
15:36	E. chem. measurement on rock MA2M
15:38	E. chem. measurement on rock LB3M
15:40	E. chem. measurements near rock deployment
15:42	E. chem. measurements near rock deployment

Mustafa Yucel

15 49	Picking up a rock
15 58	Slurping peripheral fauna on chimney
16 30	In transit to peripheral mosaic site
16 46	Lollipop sponges
17 05	Echem on chimney start
17 39	Echem continue
18 06	Echem on top of chimney
18 14	Slurping
18 50	Taking pictures
18 55	Dropping marker
18 57	Coming up

J2-239 Tu'i Malila

09/28/2006 GMT

Kate Mullaugh

7:52	E-chem at Erin's mosaic, marker 62
8:01	Mosaic Point 4
8:04	Mosaic Point 5
8:07	Mosaic Point 6—barnacles on rock
8:10	Mosaic Point 7—mussels/Ifremeria
8:12	Mosaic Point 8—Ifremeria
8:21	Mosaic Point 11
8:24	Mosaic Point 12
8:28	Mosaic Point 14—on Ifremeria substrate
8:31	Mosaic Point 15—barnacles/rock
8:37	Mosaic Point 17—rock with shrimp on top of chimney
8:40	Mosaic Point 18—Ifremeria
8:43	Mosaic Point 19—top of chimney
8:47	Mosaic Point 21—Ifremeria
8:49	Mosaic Point 22—nestled into point 21
8:52	Mosaic Point 23—in a “shrimp cave”
8:54	End of e-chem on this side of the chimney
9:00	Move to opposites side of chimney for mosaic (heading = 303)
9:05	Start mosaic on second side

9:23 Start e-chem on this side
 9:31 E-chem point 4—by shrimp on rock
 9:40 Spot too warm for e-chem probe (still called point 6)
 9:41 Mosaic point 7
 9:48 Mosaic point 10—on rock
 9:51 Mosaic Point 11—Ifremeria
 9:54 Mosaic Point 12—Ifremeria
 9:57 Mosaic Point 13—nestled into point 12
 10:01 Mosaic Point 15—rock
 10:04 Mosaic Point 16—bare rock
 10:07 Mosaic Point 17—rock close to Ifremeria
 10:11 Mosaic Point 18—Ifremeria
 10:21 Mosaic Point 22
 10:23 Mosaic Point 23—over Ifremeria
 10:26 Mosaic Point 24—nestled into point 23
 10:33 Putting e-chem probe away to take high temperature measurements
 10:37 Mosaic Point 27—near Alviniconcha and shimmery water ($T = 39.4^{\circ}\text{C}$)
 10:42 Mosaic Point 28— $T=219.1^{\circ}\text{C}$
 10:54 Mosaic Point 31—e-chem
 10:56 Mosaic Point 32—warm diffuse flow and variable sulfide
 11:00 End e-chem of mosaic
 11:15 Looking for chimney to major—nothing smoky enough
 11:37 Transiting to Liz's mosaic site

Kristina Fontanez

11:55 Temperature scans on mosaic near marker 43
 12:22 Still doing temp scans on Ifremeria/Alviniconcha patch
 12:35 Shifting position to continue mosaic
 12:53 Temp scans continued
 13:26 Still temp scans at mosaic site
 13:50 More temp scans at Alviniconcha/Ifremeria patch
 13:53 Mosaic completed
 13:54 Looking for Ifremeria and mussels to sample with mussel pot
 14:11 Remove mussel pot from basket
 14:21 Mussel pot A collected, bag failed to cinch on snails
 14:25 Looking for location for next mussel pot
 14:31 Mussel pot F removed from basket
 14:39 Mussel pot F of mussels successfully collected
 14:40 Mussel pot F put back in basket
 15:04 Looking for spot for mussel pot b
 15:17 Mussel pot B with mussels put on basket
 15:24 Moving to Erin's snail race site
 15:25 Heading 150-toward marker CC
 15:36 Adjusting position for snail race
 15:39 Setting up PixelFly camera

Mustafa Yucel

15 50 Pictures of the snail race site
 16 04 echem on alviniconcha point 1: 23.5 C
 16 08 point 2: 15.5 – 20.5 C
 16 13 point 3: 20.5 C
 16 15 point 4: 2.5 C
 16 18 point 5: 12 C
 16 25 Removing alviniconcha, point 7: 18 C
 16 36 point 9: 29.5 C
 16 52 taking pictures of snailrace area
 17 08 temperature probing over snails
 17 14 echem on snails
 17 29 echem continue
 17 33 removing more alviniconcha
 17 44 scooping ifremeria
 18 04 Liz's flange site
 18 28 temperature measurements at marker 35 flange mosaic
 18 52 T probing of flange mosaic continue
 19 03 Liz us finished with temperature mapping. Stacy's turn
 19 08 In transit to peripheral mosaic site
 19 28 In transit
 19 40 Still in transit
 19 42 Marker 61 is seen
 19 45 pelagic pump is turned on
 19 50 Niskins are fired
 19 51 Chem sniffing starts on peripheral site

Erin Becker

20:30 Continuing E-Chem

<u>Scan</u>	<u>Temp (°C)</u>	<u>Description</u>
65-72	2.5	On anemones
73-82	1.5	Large anemone
83-90	1.5	Small anemones
91-99	1.5	Stick sponges
100-106	1.5	Branched hydroid
107-113	2.0	Stick sponges
144-150	1.5	Small anemones
151-157	7.0	Large anemone

21:14 Looking for basalt rock sample. Basalt sample J2-239-008
 21:49 Looking for smoker to major
 21:51 Went back to site near marker 62 Chimney mosaic
 22:13 Looking for spot to scoop
 22:18 Found scoopable mussels
 J2-239-009; starboard bio box; using bag scoop; EVT 7778
 22:27 EVT 7788, done scooping mussels
 22:34 J2-239-010; mussel scoop; starboard bio box; using wire basket to dump

22:40 mussels in on top of the bag of mussels
 ~22 mussels. All attached to one another. Start with EVT 7795 to 7806
 22:46 Leaving bottom

J2-240 Tow Cam

09/29/2006 GMT

Kristina Fontanez

13:18 We hit bottom
 13:40 Found marker C
 14:20 Dropping black smoker target - navigational
 14:38 Located marker 8
 14:41 Still looking for Liz's mosaic site
 15:02 Found mosaic site
 15:08 Deploy ball marker 64 near Alviniconcha
 15:17 Setting altitude for 3.5 meters for mosaic
 15:18 Starting mosaic of area with anemones

Mustafa Yucel

15 54 slurping anemone
 15 59 slurp crab
 16 13 slurp scaleworm and snail
 16 23 niskins are fired
 16 27 moving to French chimney
 16 44 looking for French chimney
 16 50 Marker JJ and French chim is seen
 17 10 temperature measurements
 17 30 echem on chimney
 18 08 looking for orifice to major. Found: T=314.7 C
 18 11 Major #4 red. Near marker JJ. X 6613 Y 5574, depth 2718 m
 18 35 Moving to peripheral area
 18 42 Exotic sea cucumber is seen
 18 53 slurping peripheral fauna
 19 10 slurp hose got stuck with rock
 19 20 still stuck
 19 36 cannot get rock out
 19 47 rock is still in hose but sponges could be slurped

Erin Becker

19:58 Rock sample J2-240-006; forward milk crate
 20:19 Found Alviniconcha patch, maybe mussel pot
 Mussel pot B Alviniconcha, near Marker 9; J2-240-007
 Abundant Alviniconcha. No Ifremeria. Maybe early successional stage
 H=248 D=2707. We are looking at the side of a rock.
 20:33 Mussel pot complete. Closed as far as it would go but didn't see black

string. Maybe closed on a rock. Sampling scar pretty clean. Down to rock. This location is to the right of a Jason weight.

20:40 Square marker in view. Probably marker 9 but can't see.

20:47 Looking at second potential mussel pot clump.

21:01 Begin mussel pot A. Very good mussel pot. Mussels are on a nice flat rock (same rock as previous, but other side). Not horizontal, but not uneven. J2-240-008
H=217 D=2704
Rock covered with Eochinilasmus (barnacle). Lots of diffuse flow coming out of cracks in the rock. Some small mussels. Some Alvinellids. Kevin claims baby Ifremeria (one).

21:13 Trying to unclog hose. Has a rock in it.

21:20 Rock slid out

21:32 Slurping baby mussel J2-240-009, Green

21:46 Slurping stuff on side of rock. Barnacles, Harmothoe, Branchinotogluma, shrimp, snails, etc.

21:49 Scorpio pics taken as we've been slurping and potting.

21:51 One adult Ifremeria on the other side of rock. H=94

21:51 Tubeworm, stalked barnacle

22:09 Slurping Branchinotogluma

22:10 Slurping Alvinocaris, Austinograea

22:15 Done slurping

22:20 ALVROCK = Echem filename

22:21 First Echem point

<u>Scan</u>	<u>Temp (°C)</u>	<u>Description</u>
0-10	3-10	Tiny tube worm rock
11-26	18	Substrate under Alviniconcha
22:28		Limpet-covered crab on science cam
27-42	18	On top of Alviniconcha
43-56	21.5	On Alviniconcha in crevasse, closer to source
57-70	12.5	On tiny tubeworms
22:42		Larger tubeworm tubes – pilot's cam
71-84	8.5	At plume of Archovesta
85-91	2.0	Tiny tubeworms
92-98	2.0	On barnacles
22:52		Scorpio pictures H=95, D=2704, more at H=199, H = 205 (started at 23:21:21)
23:27		More pictures at H = 237
23:36		Heading to Liz's mosaic site. Marker 64. Close to Marker 8

09/30/2006 GMT

Jeanne DeMazieres

00:05 found marker JJ

00:20 still looking for Liz's mosaic site marker 8

00:28 deployed marker J (ball and square), x=6633 y=5579 H306 D=2722

00:40 start echem Liz's mosaic marker J

	Point #		T°C	Scan #
00:42	1	Alviniconcha	16.5	0-13
00:45	2	Rock with barnacles	3.5	14-23
00:48	3	alviniconcha	6.5	24-33
00:51	4	alviniconcha	2.5	34-42
00:55	5	rock	3	43-50
00:58	jason's manipulator calibration			
	Point #		T°C	Scan #
01:23	6	Edge of Alviniconcha	3	51-59
01:25	7	Rock	2	60-67
01:28	8	Barnacles on rock	2	68-75
01:30	9	Alviniconcha	2	76-83
01:32	10	Edge of alviniconcha	1.5	84-92
01:34	11	Rock	2	93-100
01:36	12	Alviniconcha	9	101-115
01:40	13	Rock with barnacles	4.5	116-123
01:42	14	Rock with barnacles	3	124-131
01:45	15	Alviniconcha	4	132-141
01:49	16	Rock and alviniconcha	3	142-155
01:52	jason's manipulator calibration			
	Point #		T°C	Scan #
02:10	17	Rock	4.5	156-176
02:14	18	Alviniconcha	3.5	177-180
02:17	19	Rock	4	181-190
02:20	20	Rock	3	191-198
02:22	21	Rock	6	199-208
02:25	22	Alviniconcha	3	209-217
02:27	23	Rock	4	218-224
02:29	24	Barnacles	1.5	225-232
02:31	25	Rock	2.5	233-244
02:34	26	Alviniconcha	7	245-253
02:37	27	Rock	2.5	254-261
02:39	28	Rock	11	262-273
02:42	29	Alviniconcha	8	274-282
02:45	30	Rock	2.5	283-290
02:47	31	Rock	5.5	291-301
02:54	32	Rock with barnacles	1.5	302-310
02:57	33	Alviniconcha	3.5	311-320
03:00	34	Alviniconcha	10	321-329

03:02	35	Rock	5	330-337
03:05	36	rock	1.5	338-346
03:07	37	Alviniconcha	5	347-357
03:10	38	Rock	2.5	358-365
03:12	39	Alviniconcha	3	366-373
03:15	40	Rock with barnacles	4.5	374-383
03:19	41	Rock	3.5	384-392
03:22	42	Rock	4.5	393-407
03:26	43	Rock	1.5	408-415
03:35	44	Anemone	1.5	416-427
03:39	45	Rock	3.5	428-434
03:41	46	Alviniconcha	16.5	435-446
03:44	47	Rock edge of Alviniconcha	5	447-454
03:47	48	Rock	4.5	455
03:49	transit to marker 31			

Shufen Ma

04 11	slurp yellow anemone
04 15	slurp white anemone
04 33	marker 33
04 43	marker 31 mosaic, point 73 on small anemone
04 46	point 74, mussels and snails
04 48	point 75, anemone
04 50	point 76, small anemone
05 27	point 91, barnacles
05 50	slurping scaleworm
05 50	continue temp scans
06 14	on Alvin, point 103
06 21	point 104, 3.4oC, on rock
06 23	point 105, on stalked barnacle head, 3.7oC
06 37	point 106, on white ifremera, 7.8-14.2oC
06 39	point 107, on anemones, 3.2oC
06 42	pint 108, ifremera, 12.8-15.6oC
06 44	point 109, mussels, 1.9oC
06 45	temp probing over
07 27	slurping anemone
07 40	rock with yellow anemones

Kate Mullaugh

8:00	Trying to grab rock with yellow anemone
8:07	Rock with anemones put in front milk crate
8:11	Looking for Phymorhynchus
8:17	Found several in this area (6612, 5438)
8:26	Phymorhynchus dropped in starboard bio box (shell broke some)

8:30 Phymorhynchus dropped in starboard bio box
 8:35 Trying to use scoop to collect Phymorhynchus
 8:40 Now trying to get Phymorhynchus with slurp (currently clogged)
 8:46 Slurped one Phymorhynchus—everything else in slurp hose got unclogged
 and went into red chamber
 8:50 Sea cucumber and Phymorhynchus slurped into red chamber
 8:56 Large Phymorhynchus slurped into red chamber
 9:00 Looking for good place for mussel collection
 9:12 Mussel pot F to collect mix of mussels and Ifremeria
 9:24 Scooping mussels for Robby
 9:46 End mussel collection at this site—bag of mussels put in starboard bio box
 9:49 Begin transit south to Robby's other site (6550, 5388)
 10:00 Arrive at mussel collection site
 10:14 Using scoop to collect mussels off chimney
 10:15 Dumped about 6 mussels into starboard bio box
 10:19 Dumped second scoop of about 10 mussels into starboard bio box
 10:22 Dumped third scoop of about 6 mussels into starboard bio box
 10:24 Preparing for Jason ascent
 10:32 Release weight
 10:34 Begin Jason ascent