

ROV Jason / Medea

De-brief summaries - Dec 2012 - Dec. 2013 - 1 year

Area	Project	Dates	Ports	Ship and cruise name
<i>Hawaii - Lo'ihi Seamount</i>	<i>Iron-oxidizing mats</i>	<i>Mar. - Apr., 2013</i>	<i>No debrief yet</i>	<i>R/V Thompson</i>
Cascadia margin	- Recover OBS units Telepresence - Inner Space Center (URI)	June 25 - July 8, 2013	Astoria <->	R/V Atlantis
East flank of the Juan de Fuca Ridge	Service a series of six borehole observatories	July 13 - 26, 2013	Astoria <->	R/V Atlantis
Washington margin and subduction zone	Heat flow measurements Deployment of 'mosquito' flow sensors	July 31 - Aug. 21, 2013	Astoria <->	R/V Atlantis
Axial Seamount Vents	- Sampling of Vent Fluids - Deployment of vent instruments to extract energy from hydrothermal vents - Study inflation of seafloor at Axial Volcano	Sept. 3- 19, 2013	Seattle <->	R/V Thompson

DESSC Debrief

- 1. Pre-Cruise Planning
- 2. Mobilization
- 3. Operations – vehicle
- 4. Operations –NDSF-provided equipment
- 5. Operations – User-provided equipment
- 6. *NDSF Personnel – Expedition Leader*
- 7. *NDSF Personnel – Team as a whole*
- 8. Data hand-over
- 9. Demobilization
- 10. Recommendations

1. Pre-Cruise Planning:

In general PIs felt that pre-cruise planning went well, except for

- A minor disconnect in communication between those involved in the pre-expedition telecom and the Jason technical team.

It was not mentioned during the pre-expedition planning telecom that the Jason team members might make up connections to the vehicle in advance of the port call - > cables and connectors would have been shipped separately to the Jason team to expedite the process

2. Mobilization/Demobilization:

All went really well

Jason team was very proficient and proactive

Minor remark: There were some Fedex shipments that had to be tracked down aboard ship

3. Operations - Vehicle

In general Jason performed very well, except for:

- R/V Atlantis ship's bow-thruster failed (July cruise) -> lost ~8 h of operation - ship's bow-thruster failed again (Sept. cruise) during the 2nd dive. The team worked around this by minimizing the use of the bow thruster but dives were somewhat less efficient without it – loss of ~ 0.5 day of operations
- Failure of the optical fiber connection in the Jason-Medea tether ~15 minutes before end of the last dive -> dead-boat vehicle recovery for Jason (failure tracked to the termination at the Jason end) -> *no impact on science for that cruise*
- The failure might have resulted from extensive towing of Jason, during transits, and as a result of work that was carried out on the immediately preceding cruise (100 km length of seafloor survey in one dive, vehicle was towed by Medea over large distances between measuring points)

4. Operations NDSF - provided equipment

Navigation (USBL and LBL) worked really well.

Jason / NDSF heat flow probe was used extensively and worked well

4. Operations NDSF - provided equipment *cont.*

Cameras worked beautifully in general - **Lighting** was improved

- Scorpio digital still camera was mounted on the same pan & tilt as the pilot's HDTV camera = not optimal -> PIs on 2 cruises requested to have controls for it on the Science Pan & Tilt
- New DSC is an improvement but exposure settings are very cumbersome to change manually
- Weaknesses in the current Science HDTV video controls:
 - There are two separate controllers required to operate the HDTV cameras optimally – one each for the pan & tilt functions and for zoom & iris
 - The cables for each controller are not long enough for control of the camera to be switched, readily between the Watch Leader and the Event Logger

5. Operations - User-provided equipment

- Equipment was implemented successfully by the Jason team and worked well
- The Jason team showed skill, patience and creativity to work through difficult operations
- There were problems with science provided flow meters and a bore hole instrument string that were not part of Jason's responsibilities

8. Data hand-over:

Data hand-over went well in general.

- The major issue concerning data hand-over was that the PI considers the delivery of video files on DVDs is anachronistic in the 21st Century.
- Jason should be recording routinely to hard drives by now. Also, the conventional DVD files are of a size (4.6 Gb each) and format that makes them difficult to use. It would be better if these files were recorded in smaller chunks (maybe 10-15 minutes each) in a more standard editing/viewing format.
- The PI noted that there is still no effective search capability on the version of the Jason Virtual Van that is handed over in “static” form (burned to DVD) at the end of the cruise, which is disappointing. It would be nice if the “static” Virtual Van were searchable, like the version on-line.

10. User Recommendations

Having access to the **telepresence connection was great, positive and rewarding**

Yet:

It should be recognized that all the advantages of Telepresence come with an associated cost which included:

- giving up one science berth to bring a dedicated engineer tasked with maintaining the telepresence equipment (covered in telepresence costs)
- bringing a 4 person E&O team (funded through a supplement to the PI' s original grant proposal and an additional proposal) (broader impacts) to take full advantage of the system.

Primarily the PIs relied upon graduate and undergraduate students for telepresence activity, including a community college physics instructor and two CC students.

- > It involved a lot of effort for coordinated presentations, which unfortunately did not often align with the Jason dive schedule necessary to achieving science goals.
- The printers on the Atlantis are ancient and need replacing.

Sentry de-brief summaries – 2013

2013 *Sentry* Cruises

Dates	Ports	Ship	Other Assets
March 14 – April 2	Honolulu <->	Thompson	Jason
May 12 – June 21	Barbados – Woods Hole	Knorr	TowCam
July 24 – Aug 13	Galveston <->	Nautilus	
Sept 22 – Oct 19	San Francisco – San Diego	Atlantis	
Dec 4 – Dec 25	Puntarenas, Costa Rica <->	Atlantis	

Report does not cover all 2013 cruises

Sentry de-brief summaries – 2013

Pre-Cruise Planning:

- No problems.
- Noted that none of the PIs had prior *Sentry* experience and relied heavily on advice from experienced colleagues.

Mobilization/Demobilization:

- No problems.

Sentry de-brief summaries – 2013

Operations - Vehicle:

- First 3 dives were lost.
 - One issue was new software that had not been field-tested prior to cruise
- Once operations became routine – all data were acquired.
- Some difficulty in predicting on-deck time between dives and coordinating with other activities

Operations - NDSF Equipment:

- Sensors worked well for objectives
 - Navigation, sidescan, multibeam, subbottom, cameras/lighting
 - Magnetometer -- *Data not processed at time of call. Unclear whether or not electrical noise issues reported on prior cruise were resolved.*

Sentry de-brief summaries – 2013

Operations – User-provided Equipment:

- Not applicable

Data Hand-over

- Confusion associated with versioning of data during/after cruise
 - Difficult to identify “final” data products
 - Multiple versions, date-stamps not consistently applied
- Problems accessing external drive of data provided to PI (NTFS vs EXT4)

Sentry de-brief summaries – 2013

Demobilization

- No problems

Sentry de-brief summaries – 2013

Recommendations:

- Having to stay with 1-2 km of *Sentry* during dives was an unexpected operational limitation. It would be good to find a way for the ship to move further away from *Sentry* to enable other ship-based sampling activities during dives.
- Use a standard data-format for drives delivered to the PI from the *Sentry* cruise and test that the PI can read the drives provided to them before the cruise ends.