Draft

Research Vessel Technical Enhancement Committee (RVTEC) Meeting
February 11-15, 2013

Lamont-Doherty Earth Observatory (L-DEO), Palisades, New York

Meeting Presentations and Minutes

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Maffei, Chandler, Stolp, Lerner, Avery, Thiel	Rolling Deck to Repository (R2R): R2R Eventlogger: Community-wide Recording of Oceanographic Cruise Science
Nobre, Chandler, Maffei, and Arko	Rolling Deck to Repository (R2R): Quality Assessment of CTD Profile Data
Fornari, Bernhard, and Edgcomb	MC-800 Multicorer with Real-Time Camera, CTD and Water Sampling Capability for the UNOLS Community
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Monday, February 11, 2013

8:30am **Meeting Check-in and Informal Discussion - Monell Building Upper Lobby, L-DEO)**

9:00am **Meeting Called to Order (**Monell Building Auditorium, L-DEO)

Introductory Remarks – RVTEC Chair-Elect, Daryl Swenson, called the meeting to order. Due to the winter blizzard that hit the Northeast, many meeting participants are still in route to the meeting, including RVTEC Chair, David Fisichella. Until David's arrival, Daryl agreed to Chair the meeting. The meeting agenda is included as ***Appendix I*** <Meeting Agenda>.

Welcome and Science Talk by L-DEO – Art Lerner-Lam welcomed RVTEC to L-DEO. He provided interesting information about L-DEO.

Icebreaker Session – A representative from each research vessel reported on a technical/operational crisis and how it was resolved this past year. Each report was typically accompanied by a slide. The slides are compiled and included as ***Appendix III*** <Icebreaker Session Slides>. The following ship technical reports were provided:

- University of Miami – *Walton Smith* – Rich Findley provided the report. One challenge that they faced was with ship schedule changes throughout the year.
- University of Washington:
    - *Clifford A. Barnes* – Patrick A'Hearn
    - *Thomas G. Thompson* – Patrick A'Hearn reported that their biggest problem was with the failure of the starboard z-drive.
- BIOS – *Atlantic Explorer* – Emily Dougan provided the report. She is new to the operation and they had a good year overall.
- Woods Hole Oceanographic Institution
    - *Atlantis* – Allison Heater – The vessel has a schedule of 223 days. Their biggest challenge was operating their new Multibeam system.
    - *Knorr* – Allison reported that there were no major problems with *Knorr*.
- University of Minnesota – *Blue Heron* – Jason Agnich reported that the year went well. The vessel just got a Fleet Broadband (FBB) system. They are still working to the glitches.
- Duke University – *Cape Hatteras* – Tina Thomas reported their biggest challenge on a cruise where the science party requested a MOCNess one month before the cruise.
- University of Rhode Island – *Endeavor* – Erich Gruebel reported that 2 days before Thanksgiving, a PI showed up at the ship with their gear – a custom profiler. It resulted in a long weekend. WHOI winch pool came over to URI and supplied a pooled winch.
- University of Delaware – *Hugh R. Sharp* – Ted Cummiskey reported that staffing was a challenge. Wynn was out on maternity leave. They took advantage of the UNOLS Tech pool. He thanked Alice Doyle and Tami Lansford for their efforts in providing tech support.
- University of Hawaii – *Kilo Moana* – Scott Ferguson reported that on his third day of the job, the ship got a hole in its hull.
- Scripps Institution of Oceanography:
    - *New Horizon* – Mary Huey reported that their challenge was dealing with generator problems and regulator issues. A port stop in Newport, OR was needed to correct the problem.

- *Melville* – Mary Huey reported that they had 289 days at sea. A highlight was using the ROV trident. They have been learning a lot about their new ROV. Their biggest challenge was the Ocean Surveyor ADCP failed. The main cause was biofouling. In the mean time they are using a workhorse 300. They will investigate using a non-toxic rubbery coat.
- *Robert Gordon Sproul* –Brent De Vries reported that their biggest challenge was the A-frame removal.
- *Roger Revelle* - Brent De Vries reported that a highlight was hosting a diplomatic venue in Vietnam. The biggest challenge was relocation of the HiSeasNet.

- LUMCON – *Pelican* – John A'Hearn reported that their biggest challenge was losing personnel. The ADCP deck box failed and it had to be sent to Phoenix for repair. There was a cruise to Orca Basin where the salinity level is very high. This presents challenges to a normal SeaBird system.
- Moss Landing Marine Lab – *Point Sur* – No report.
- Skidaway Institute of Oceanography – *Savannah* – No report.
- Oregon State University – *Oceanus* – Erik Arneson reported that it was an interesting year with bringing Oceanus from WHOI to OSU. The highlight is having a new ship. The challenge is having a new ship! An emergency shipyard period was needed to repair prop seals that were leaking. They were in the yard for 8 days and got the hull painted black. The primary DAS hard drive failed. They didn't have a back-up system, but were able to get another box up and running.
- L-DEO – *Marcus G. Langseth* – Lisa Hawkins reported that this year they added ROV Jason and coring to the ship operations. They needed to transfer spaces into labs and refrigerator vans were needed. Additional storage was added. OSU came aboard with their coring gear.
- NOAA Vessels – Douglas Perry gave the report.
- USCG – *Healy* – Sarah Kaye reported that a mandatory upgrade for their equipment was a challenge. If any one else is using iridium, she would be interested in hearing solutions. They are in the process of doing a marine lab rework.
- USAP Vessels: *Nathaniel B. Palmer and Laurence M. Gould* – Ross Hein reported that their big challenge was changing contractors from Raytheon. NSF is funding a lot of diverse fisheries work. They are doing Pot fishing. Both ships have supported a lot of ROV work. The USAP vessels are working in concert with Point Sur.
- Schmidt Ocean Institute – R/V *Falkor* – Colleen Peters reported that the Falkor was undergoing a refit process and experienced 900+ failures this year. One of the biggest challenges is working with an international crew. Most of the crew come from outside the research vessel world, so they are not familiar with marine science support. She had to become better at communicating. No slang! Techy and science lingo was a real challenge.

RVTEC Participant Introduction – Meeting participants introduced themselves. The attendance list is included as ***Appendix II*** <Participant List>***.***

Break

Accept minutes of 2011 RVTEC Meeting: A motion was made and passed to accept the 2011 meeting minutes: http://www.unols.org/meetings/2011/201111rvt/201111rvtmi.html .

The meeting agenda was adjusted to accommodate the arrival of participants.

Technician Pool – Jim Holik reported that as ships are retired, the technicians are being assigned for work on other vessels throughout the fleet. They are still supported by their home inst. Rob Hagg and Tina Thomas are the two technicians in the pool. They are keeping busy.

SUNY – Stonybrook – R/V *Seawolf* - Tom Wilson reported on the impacts of Hurricane Sandy. High tide was about 10 feet higher than normal. Photos of the destruction are included in Tom's slides. SUNY had lost Internet for 24 hours and lost the tide data

ADCPs and RDI Maintenance Agreement (Phoenix) – Jim Postel reported that Bill Martin started the maintenance agreement program in 2008. They have three deck boxes. An email was sent out in 2011 asking for feedback regarding which frequency to use. There wasn't much feedback, so Jim went through the equipment list and picked a frequency. If you have a problem with your system, a spare will be sent to you. Your broken unit will be shipped back to RDI and then become the spare after it is repaired.

- John A'Hearn – On the *Pelican*, they ended up doing one cruise without the unit cause of short timeline with the cruise. Then they swapped out their system and got it back before the next cruise.
- Jim Postel explained that the current contract with Phoenix will run through September 2014. If you have a problem with a system, contact Jim and he will contact RDI regarding the problem.

UNOLS Equipment Inventory Online – Alice Doyle showed the on-line link to the Equipment Inventory in the UNOLS STRS system: <http://strs.unols.org/Public/Search/diu_equipment.aspx>. The inventory will give everyone a better idea of what equipment is available in the fleet. The inventory is part of the STRS database system. It is populated from various sources, but should be updated by each technical support group a couple times of the year. There is a tool within STRS for editing the inventory. Alice volunteered to help with the edits. In order to access the inventory to edit it, you must be a member of STRS. Once you are a member, you can contact the UNOLS Office and request permission/access for editing the inventory for your vessel(s).

- Jim Holik – In the future, you wont have to include the inventory list in your tech support proposal, but you have to indicate that you have updated the inventory.
- Alice – In developing the inventory, they work for with the ship inspection program and R2R to make sure that everyone is in-line.
- Rich Findley - if you put a piece of equipment in the inventory, but you don't have it calibrated because you don't plan to use it, will the inspectors mark you deficient? Jim Holik - Explain the situation to the inspectors.
- Tom Wilson - Perhaps there should be a box to indicate "not currently mobilized."
- Alice - Jim could discuss this with Ted Colburn and Matt Hawkins.
- Lynn Butler - Is there any discussion about pooled equipment? Alice – It was decided to first start with the ship equipment, but there is some talk about expanding. Jim Holik - This is the type of thinking that we want to do.

Lightsquared Corp - Richard Perry reported that Lightsquared was looking to use the frequencies that the GPS uses. In the spring, Lightsquared declared bankruptcy. You would think that this would be the end of the story; but as of October 2012, they reinvested themselves. We will need to keep monitoring their activities to determine what part of the spectrum that they plan to utilize.

UHDAS/ADCP - Jules Humman provided the UHDAS/ADCP report. Her slides are included as ***Appendix IV*** <ADCP and UHDAS in the Fleet>. She reviewed the goals, installations, and

improvements. All ships are now running with Python and have been updated to XYBuntu. Jules reviewed the system problems. Bad attitude contributed to many issues. The Ashtech (often) needs to be reset. The Phins is sometimes uncalibrated or failed. Jules slides list the expectations for 2013. Jules recommended that you always run "end cruise" before archiving. If rsync (regular back up), always use the complete ship name. As a final request - as always: "send your needy scientists to Jules."

Jules held two workshops. If you have suggestions for a workshop, let her know. Jules will work with anyone who wants to introduce something new.

Introduction of Afternoon Sessions – Moderators for the afternoon sessions provided brief descriptions of their respective technical session:

- Shipboard Satellite Communications Basics - Steve Foley suggested that everyone bring their questions to the session.
- Multibeam Discussion and MAC Tools - Vicki Ferrini reported that this session would provide an update on the Multibeam Advisory Committee activities. There will be an open discussion on everything "Multibeam."
- Sensor Calibration and Management – This session was moved to Thursday because key people had not arrived yet.

Lunch Break

Two concurrent sessions were held in the afternoon.

Session:	**Room**	**Facilitator**
Shipboard Satellite Communications Basics - This session discussed the core concepts of satellite communications, stabilized antennas, RF equipment and pathways, and how they all apply to shipboard data networks. Discussion dipped into different satellite technologies as they are now and what might be coming in the future. Slides for this presentation are available at: http://www.unols.org/meetings/2013/201302rvt/TechSessions/HiSeasNet-SatelliteBasics2012.pdf	Monell Auditorium	Steve Foley
Multibeam Discussion and MAC Tools – Open discussion about Multibeam data acquisition practices including both successes and challenges. It included a demo of tools and resources being made available by the MAC.	Lamont Hall	Vicki Ferrini

Adjourn Day 1 at 4:15 pm.

L-DEO Campus Tour - Sean Higgins provided a brief history of L-DEO. They are celebrating 60 years of ship operations. Lamont was the CFO for Morgan Stanley. He donated the property that L-DEO is on. Most of the buildings have been repurposed. The Comer Building construction was funded by the owner of Lands End. It is the newest building on campus. Ships are integral to L-DEO. The group split up into 3 groups for a walking tour of the campus.

L-DEO Hosted Reception (Monell Lobby) from 5 – 6:30 pm.

Tuesday, February 12, 2013

Meeting Called to Order and Announcements (Monell Auditorium) – Day 2 of the meeting was called to order at 8:45 am.

MC800 Multicorers with Camera and CTD – Dan Fornari joined the meeting via Webex and provided the report on MC800 Multicorers. His slides are included as ***Appendix V*** <MC800 Multicorers with Camera and CTD>.

Discussion:
- Bill Fanning - Was there any concern about hocklin? Dan - They used a sufficiently torque balance cable and had no problems. They were operating at shallow depths.
- Robbie Laird - The .322 wire has a limit that the multicore is right on the edge of. Dan - They are operating in a very controlled, safe way. They can see exactly where they are in terms of tension. Dan is happy to share the data.
- Any questions about the gravimeter poster can be directed to Dan by email.

Summary of Monday Afternoon Sessions – Moderators provided a brief summary of their respective technical sessions from Monday.

- **Shipboard Satellite Communications Basics -** Steve Foley gave a quick summary. He can offer training if needed.

- **Multibeam Discussion and MAC Tools** - Vicki Ferrini reported that they had a great turn out. The MAC website is mac.unols.org . During the session, she explained what they do on ship visits. They have already visited 5 ships and might visit *Sikuliaq* and *Healy* in the future. Email the MAC group with questions and to schedule a visit

R2R Program Report – Bob Arko provided the R2R report. His slides are included as ***Appendix VI*** <R2R Program Report>. Since last year, they added almost 1000 cruises to the repository. There is steady traffic to the website. They produce standard data products. R2R collaborates with SAMOS. Ten university vessels were recruited into the SAMOS program.

Looking forward, R2R will:
- Continue to recruit additional vessels.
- They will try new approaches to capture cruise personnel manifests from marine superintendents
- They will work with the Sikuliaq operator as the ship comes into service. It will provide an opportunity to review procedures and best practices.

Discussion:
- Dave Fisichella – With respect to the data release form, does R2R contact each of the PIs? Bob Arko - They do. It works pretty well. Dave - Would it be better to have it as part of the pre-cruise meeting? Bob - His way is working well so far.
- Jim Holik - Four ships are providing data to the cruise directory in the R2R – why only four? Bob Arko – R2R approached this as a prototype. They will encourage this for additional vessels in the future.

MATE Update and Longer Term Internship Program – Erica Moulton provided the MATE report. Her slides are included as ***Appendix VII*** <MATE Update and Longer Term Internship Program Report>.

Erica's provided an overview of the Internship Program.

- The program is supported by an NSF Grant for 2011-2014
- It hosts 12-16 interns in 2-16 week internships each summer
- It also hosts 1 six-month intern each year on 1-2 host vessels each year
- Intern selection process:
    - Preference (except for six-month internship) given to technical community college students and marine technology undergraduate students
    - 50% of interns in 2012 were from community colleges
    - Interns' interests, knowledge, and skills are carefully matched to mentor requirements
    - Mentor receives the 3-5 resumes that best match their needs
    - Mentor makes final decision on which student(s) they host
- Selection process for 6-month interns:
    - Alice Doyle at UNOLS and Tami Lunsford review applicants for marine technical qualifications and determine top 10-12 finalists
    - Ad-hoc committee of RVTEC members reviews the finalists and score and rank them
    - Top 5 candidates from this review are sent to the host(s) to interview, call references, and select.

Poster/Demo Session, Refreshments, and Informal Discussions – (Monell Upper Lobby) – Copies of some of the posters that were displayed are included with the Appendices. Refer to the Appendix list at the top of these minutes.

Agency Reports:

National Science Foundation (NSF) – Jim Holik provided the NSF Report. His slides are included as ***Appendix VIII*** <NSF Report>.

- NSF is on a continuing resolution until March 27th.
- They are allowed to spend up to 80% of 2012 budget levels. it is impossible to continue to operate at that level as currently planned.
- It would require that NSF move to funding on the Fiscal Year (as opposed to the Calendar Year). This would be a lot more work for everyone.
- Sequestration - If there is no resolution, NSF's budget would be curt 6.4% this year. They are not sure how that would trickle down to the section levels.
- The Continuing Resolution expires on 27 March 2013. It can be extended, but if not, the Government would shut down.

Office of Naval Research (ONR) – Tim Schnoor provided the ONR report. His slides are included as ***Appendix IX*** <Navy and Ocean Class Research Vessel Report>.

- *Knorr* and *Melville* are slated to retire in 2014.
- The status of the Ocean Class Research Vessel (OCRV) AGOR construction is included in Appendix IX.
- The AGORs were removed from the ITAR list, but are still on the commercial export list.
- There is a UNOLS OCRV advisory committee. The committee was formed with nominations from the Fleet Improvement Committee (FIC).
- 3-D renderings of the OCRVs are in the slides
- The vessel has many of the same qualities as the sharp.
- They will have straight shafts and propellers as opposed to z-drives.
- The mission equipment list is in the slides.

Discussion:
- Jim Holik - With all of the requests for the larger ships, why are we building smaller vessels?
- Dale Chayes - Modern hull designs and equipment allows us to build smaller ships that can operate in higher see states.

USCG - No report.

NOAA - No report.

Break

RF Subcommitee - Richard Perry reported that he would resurrect the RF committtee. They would not to survey the community for frequency information. However, if there is a threat on bandwidth, such as by Lighthouse, report it to the subcommittee.

JMS Inspection Report with Highlights of Features and Practices that could Enhance Fleet Technical Services – Ted Coburn provided the JMS report. His slides are included as ***Appendix X*** <JMS Inspection Report >.

The major purposes of the NSF Ship Inspection Program are:
1) To assure that the capabilities of the research vessel and technical support meet accepted scientific community standards and expectations;
2) To assure the seaworthiness and safety of research vessels supported by NSF meet or exceed the standards set forth by the *UNOLS Research Vessel Safety Standards (RVSS)*, and applicable requirements of the International Maritime Organization, American Bureau of Shipping (ABS), the Code of Federal Regulations (CFR), and the U.S. Coast Guard;
3) To ensure NSF-owned ships as capital assets, are being adequately maintained;
4) To ensure NSF-funded science is scheduled on properly outfitted and maintained vessels.

Ted provided two Assist Sheets, one for RVSS Appendix A and the other for RVSS Appendix B:

Appendix A - Assist Sheet
Appendix B - Assist Sheet

Ted concluded his report by providing the written policy for lithium batteries (see his slides).

Discussion:
- Dale Chayes - The specification calls for monitoring the tension display, but not the peaks. It does not require them to display the peaks. Rich Findley - The alarm should beep when there is a peak. If you exceed a set value, the alarm will go off.
- Ted Coburn - Appendix B talks about a top-level check.

HiSeasNet Update and Highlights from the Recent Revelle Cruise – Steve Foley provided the HiSeasNet report. His slides are included as Appendix XI <HiSeasNet Update and Highlights>. Some of the topic he covered included:

Current capacity
- Temporary capacity in 2012
- *Revelle* bandwidth expansion – Steve encouraged any one interested in expanding their bandwidth for a project, to contact him.
- Satellite changes in 2012.
- Equipment changes in 2012
- Plans for 2013

Discussion:
- Jim Holik - There will be telepresence on *Thompson* this year. Changes are coming. NSF is open to suggestions. Steve Foley - There are also changes in the works from the satellite industry. He is interested in telepresence. The PIs also have ideas.
- David Fisichella - Should RVTEC have a subcommittee to assist in developing plans for communications in the future - telepresence, satellite, etc.? Dave will talk to people this week and perhaps they will form a committee.
- Webb Pinner - It is more complicated than just getting more bandwidth. Coming up with a fleet-wide plan, can be a challenge. There are mission specific needs.
- Jim Holik - Form a subcommittee. He would like RVTEC to take the lead.

Afternoon Session Introductions – The following technical discussions and training sessions were held in the afternoon. Each session leader provided a brief introduction.
- HiSeasNet Equipment Basic Training – Steve Foley said that they would talk about the gear on the ship and about what the gear is supposed to do.
- Cruise Planning Application Introduction – Adam Shepherd will give a demo of the system.
- Technical Discussion Session: R2R – Bob Arko said that a variety of R2R topics will be discussed and there will be a series of speakers.
- L-DEO Facilities and Special Programs - Dale Chayes reported that Kristen Lenard will give an introduction and there will be a visit to the core lab and the ocean bottom seismometer lab.

Lunch Break

The following concurrent technical sessions were held:

			Time		
Session:	**Room**	**Facilitator**	**1:00 – 2:30 pm**	**2:30 – 3:30 pm**	**3:30 – 5:00 pm**
HiSeasNet Equipment Basic Training (1/2 day training) –Largely intended for techs or managers that are not very familiar with the HiSeasNet gear, this session will present the HiSeasNet equipment on the ships (modem, routers, and antennas), what the individual parts are supposed to do, how they do it, and how to troubleshoot problems when they arise. Steve's slides are available at: HiSeasNet Equipment Basic Training	Seismology Seminar Room, 2nd Floor	Steve Foley	**X-----→ ------→ ------X**		
Cruise Planning Application – Adam Shepard called into the meeting. Alice Doyle helped to facilitate the session.	Monell Auditorium	Adam Shepherd	**XXX**		

Poster/Demo Session, Refreshments, and Informal Discussions	Monell – Upper Lobby			**XXX**	
Technical Discussion Session: R2R - Discussion topics led by R2R team members, in order, will include 1. "Data Quality Dashboard" for underway sensors (Ferrini); 2. Navigation data quality assessment and best practices for acquisition (Sweeney); 3. real-time metadata, automated reporting, and SAMOS subscription service (Smith); 4. next-generation Event Logger (Maffei); 5. Web-based vessel/sensor profile editor (Clark).	Lamont Hall	Bob Arko			**XXX**
L-DEO Facilities and Special Programs (OBS Group, IEDA Database Group, etc.)	Meeting in Monell Upper Lobby	Sean Higgins and other L-DEO reps			**XXX**

5:00 pm ***Adjourn Day 2***

Wednesday, February 13, 2012

8:00am **Coffee and Informal Discussion** (Monell Lobby)

8:30am **Meeting Called to Order and Announcements** (Monell Auditorium)

Summary of Tuesday Afternoon Sessions:

- **HiSeasNet Equipment Basic Training** – Steve Foley gave a brief recap. His slides from his session are posted with these minutes.
- **Technical Discussion Session: R2R –** Bob Arko reported that they had a long spirited discussion. Some of the topics they covered included data gaps and the event logger. Shawn Smith discussed real-time data. A lot of people handed him data.
- **Cruise Planning Application Introduction –** David Fisichella gave recap for Adam. They have been using the planning tool at WHOI and they like the software. Alice Doyle said that if anyone was interested in the planning tool, she could set up a Webex session to discuss it.
- **L-DEO Facilities and Special Programs** - Sean Higgins reported that the facilities tours went well.

UNOLS Report – Peter Ortner, UNOLS Chair, provided the report. His slides are included as ***Appendix XII*** <UNOLS Report>. One of the responsibilities of the Chair is to go to the UNOLS committee meetings. Peter commented that this has been a great meeting.

Peter showed a chart of UNOLS ship utilization. His slides include a summary of the agency recommendations for fleet operations in 2013. These included:

- In CY 2012, NSF approved the transfer of *R/V Oceanus* to OSU and retirement of *R/V Wecoma.*

- NSF plans to retire *R/V Cape Hatteras* in 2013 and *R/V Point Sur* will be considered for retirement in 2014
- ONR plans to retire *R/V Knorr* & *R/V Melville* to prepare for crew training prior to deliveries of AGORs 27 and 28.
- ONR has initiated scoping studies for mid-life refit of Global AGOR 23 class to include *R/V Thompson, R/V Revelle*, and *R/V Atlantis*.
- NSF and ONR recommend the operators of all ships find ways to reduce costs and seek appropriate opportunities to support research and education programs by other funding sources, including institutional funds

Peter reported on Fleet renewal activities. R/V Sikuliaq will begin Science Operations in CY 2014. The Navy's OCRVs will be delivered in 2014/2015 with AGOR27 to WHOI and AGOR28 to SIO. NSF awarded an RFP for the construction of up to three Regional Class ships to OSU. The first ship would enter the Fleet in roughly 2019 if the funding and planning process moves forward as planned.

Peter discussed the heightened security for UNOLS Ship Schedules. The UNOLS Website will now publically post "secure" schedules for the Navy-owned ships- *Atlantis, Knorr, Revelle, Melville, Thompson, Kilo Moana.* Full, detailed schedules are available for internal use and scheduled PIs. UNOLS can authorize permissions.

The UNOLS Goals and Priorities for 2012/2013 are to develop and implement a systematic and transparent process (or processes) to facilitate our agency sponsors in responding to the changing realities both in ocean science and the U.S. economy/federal budgets specifically addressing the difficult tradeoffs that almost certainly will need to be made. Another goal is to nurture the next generation of seagoing oceanographic scientists. UNOLS has initiated or is assisting in a varied of early career scientist programs.

Discussion:
- Woody Sutherland - Over the years the technical support budgets haven't increased a lot. Yet NSF has been saying that the infrastructure is too high in relation to the science budget. There was discussion on whether tech service should be categorized as science as opposed as infrastructure.
- Dale Chayes - The level of sophistication of the instrumentation has exploded and we are struggling with that.
- Woody - The university indirect INDC rates have increased significantly.
- Peter Ortner - The costs that are increasing are fuel and manpower.
- Woody inquired about the heightened security measures. Tim Schnoor - UNOLS has taken care of securing the schedules. ONR has contacted the program officers and asked that they tell the PIs to password protect their cruise sites. As a heads up, NSF is following the same path.
- Woody - Has anyone thought about the federal science that is being placed on non-UNOLS vessels? Then, the PIs want services for free that the non-UNOLS vessel does not offer.
- Pter Ortner - This is a very sensitive issue that the Council and UNOLS operators are fully aware of.
- Jim Holik – There is a policy regarding OCE science on non-UNOLS vessels. The vessels must meet RVSS and must comply with R2R.

INMARTECH 2012 – Daryl Swenson provided a report (no slides). The meeting was hosted by NIOZ. They haven't posted the meeting presentations/minutes yet. It was a very good meeting with more time for discussions.

Erica Konig asked that NOAA and the U.S. host the 2014 meeting. It will be in conjunction with RVTEC. They can anticipate the attendance to be very large. If anyone is interested in helping to plan the meeting, see David, Daryl and Annette.

There was a lot of industry participation at the INMARTECH meeting. They had a day on the water. There was great schwag. Kongsberg sponsored the Dinner. The convention hall had a lot of venders.

Discussion:

- Jules Humman - She wanted to attend but there was nothing on the agenda that she was interested in. Daryl - This came up and they will want to address it for future meetings.
- Daryl - It would be good to have UNOLS and NOAA ships at INMARTECH 2014.
- Shaun Smith - He went to WHOI and it was well done.
- Marc Willis suggested that the organizing committee be formed soon.

Export Controls and what it means to the UNOLS Fleet – David Fisichella lead the discussion. At the next meeting it might be good to get someone who is expert in export controls to speak to us. There is ITAR and there are export controls. Tim Schnoor explained that the Navy AGORs are no longer on the ITAR lists.

David reported that there are three lists:

- The commerce control list
- The munitions list
- The nuclear regulatory controls list.

There are three separate agencies to comply with.

What is the definition of export? At WHOI they feel that equipment on the ship is not "export" because it stays on the ship. Export gets complicated because software can be considered export and there are problems if foreign nationals look at it. David doesn't feel that the technicians should be so involved in this. Each institution should handle it.

Discussion:

- Woody Sutherland - The export license has been around since the cold war. The enforcement arms have been targeting universities. They have been issuing fine including to PIs. There has been one imprisonment of a PI. It is really on the PI to determine if a license is needed. They are often ignorant on this as are their institution. Within ship operations, the PI is either the marine superintendent or the tech manager. The equipment that falls under the export list is mind-boggling: cameras, motion sensors, ADCPs, etc. He doesn't know how they are going to keep up with this. Each nation has their own rules.
- ITAR includes manuals. If a tech is carrying a manual as a pdf on their laptop, they should have an export license. Scott Ferguson added that if you have a posMV on your laptop, it falls under ITAR.
- Annette DeSilva - Dennis Nixon has studied this topic and made a recommendation. He is in communication with the Dept of State and is following up. He is not dealing with the manual issue.
- Marc Willis recommended that everyone go to their respective institution and find out what they are doing.

Radioisotope Use Onboard UNOLS Vessels – Alice Doyle provided the report. Her slides are included as ***Appendix XIII*** <Radioisotopes on Board Vessels>. NSF hosted a workshop to address this issue. Alice as created an informative webpage about this issue.

Discussion:

- Allison - She has been on the post cruise clean up and this is a very important problem. The Miami SWAB group is already gone when the results get back. Then the techs get stuck with the cleanup.
- Richard - A lot of this is happening in the rad van. He recommends that the PI be charged a commercial fee if the space is not left clean.
- David Fisichella - There are two different issues. Natural abundance users want to see the van log. They will know who is leaving the mess and what they are dealing with.
- Marc Willis - PIs who leave the spaces dirty should be reported to program officers who could deny future use to sloppy PIs.
- Jim Holik - Tell him if there is a messy PI.
- Alice Doyle - Should there be a fleet wide policy about clean up?
- Alice will make the webpage live now.
- Jim Holik - If there is a case where you have to do a clean up, let him know.

Poster/Demo Session, Refreshments, and Informal Discussions (Monell Upper Lobby)

Fleet BroadBand communications on UNOLS ships update – Al Suchy provided the Fleet BroadBand (FBB) report. His slides are included as ***Appendix XIV*** <Fleet Broad Band Communications on UNOLS Ship Update>. Al showed highlights and charts with FBB usage. The 2012 FBB Program highlights were presented. In 2013, the first month we are above what we bought.

Inmarsat: The direction of satellite communications, FBB update, the new KA band services – Manoj Mohindra provided the report. His slides are included as ***Appendix XV*** <Inmarsat: The direction of satellite communications, FBB update, the new KA band services>. Manoj covered the maritime product portfolio, Inmarsat adding value, and a look at the future of maritime communications.

There are three Inmarsat BGAN I-4 Satellites. They provide higher power and give higher speed. The current portfolio includes FB500, FB250, FB150, and Global Xpress. FB500 is their primary system. The most important part of the frequency is the LBand. Without the Lband, no matter how many satellites you have, it won't matter. There has been such a demand in Lband. If you went something more flexible, you need Global Xpress. The goal is delivering quality performance. They proactively go out of their way to provide coverage. Terminals offer a variety of network, technical and IP features. The l-band will be provided at no additional cost.

In conclusion Manoj reported that Inmarsat delivers today. It offers the best of l-band coverage, bandwidth, and reliability and GMDSS safety.

Discussion:

- Scott Walker - Are we moving towards an unlimited plan? Al Suchy - We have a contract thru 2014. We then have to decide on how to do the transition to Global Express
- Sarah Kaye - How high with the satellite reach be? Reply - 78 degrees.

World-Link - Shipsat Gateway: Bandwidth optimization and management of broadband channels – Asad Salameh provided the report. Details of his report are included in his slides, ***Appendix XVI*** <World-Link - Shipsat Gateway>.

Afternoon Session Introductions – Each session provided a brief introduction.

- **ShipSat Bandwidth Optimization Tool, a hands-on demonstration –** Facilitator: Al Suchy
- **Real-Time Data Acquisition Systems "Hands-on" –** Facilitator: Dale Chayes
- **Interactive session with the Arduino microcontroller platform** – David O'Gorman

Lunch Break

Three Parallel afternoon sessions (3 hours each):

			Time
Session:	**Room**	**Facilitator**	**1:00 – 4:15 pm**
Shipsat Gateway Hands On Demonstration: Features and customization to fit the operational and technical requirements of the UNOLS fleet users and operators. (See additional details at the bottom of the agenda.)	Lamont Hall	Al Suchy Vielka Cedeno Manoj Mohindra	**X----------X**
Real-Time Data Acquisition Systems "Hands-on" - We will have space and infrastructure (power, network hardware, tables, data feeds, a test tank, tools, test equipment, etc.) for folks bringing examples, subsets, prototypes, etc. of real-time shipboard data acquisition systems. (See additional details at the bottom of this agenda).	Instrument Lab	Dale Chayes	**X----------X**
Interactive session with the Arduino microcontroller platform - The session is aimed at enabling everyone or anyone to use the Arduino platform to easily add electronic control and monitoring to equipment. (See additional details at the bottom of this agenda).	Monell Auditorium	OSU Marine Technician Group	**X----------X**

Thursday, February 14, 2013

8:30am **Coffee and Informal Discussion –** Monell Lobby

9:00am **Meeting Called to Order and Announcements –** Monell Auditorium

Summary of Wednesday Afternoon Sessions:

- **Real-Time Data Acquisition Systems "Hands-on"** - Dale Chayes proved a summary. His summery report is in ***Appendix XVII*** <DAS Technical Session Summary>.
- **ShipSat Bandwidth Optimization Tool, a hands-on demonstration -** Al Suchy - Dave Fisichella provided the summary. The box is $200/month to use.

- **Interactive session with the Arduino microcontroller platform** – David O'Gorman reported that it was a very cool session.
    - Shawn - Is there an RVTEC library? Annette - There is a tech document page and we would be willing to host any new ideas are welcome.

Research Vessel Safety Standards – Appendix A & B – Status report on implementation and future plans. – Rich Findley provided the report. His slides are included as ***Appendix XVI***II <Research Vessel Safety Standards - Appendix A & B>. The basic idea is that each component in the system is strong enough to do the job in the way that I am using it.

Discussion:
- Jim Postel - The tension member is supposed to work before anything else. Does your shackle have to be strong enough for the safety factor? Rich Findley – Yes, if it has to be 75% of the water depth. Ted Coburn - The 75% only applies to uninspected ships.
- Ted Coburn - You always want the cable to break first. If you are on the deck, you want the tension member to part first, instead of having the a-frame going over the deck.
- Dale Chayes - There is written guidance. The important part is making the ship safer.
- Josh Eaton - If the winch is rated for 10,000 breaking strength, do you need a shackle rated at that? Ted - no. Josh - We can have things weeker than the stronger part.
- Robbie Laird - some of the things that you put at the end of the cable are weaker than the cable.
- Ted Coburn - if you are an uninspected vessel, you have special characteristics. If you are an inspected vessel, CFS 46 comes into play.
- Ted Coburn - You don't want the equjipment on the ship to be the weak link.
- Marc Willis – What happens when you use the crane? Ted - If you are going to tow with a crane, that is a whole different story.

East Coast and West Coast Winch Pools – Josh Eaton provided the report. His slides are included as Appendix XIX <East Coast and West coast winch pools>. He has been on the job for a year. He has developed a primer that he will put on his site.
- They have a 2' by 2' bolt pattern in his lab. They have two new winches that are rated for 4000m for 1/2" cable and 2000m for .322 cable.
- TSE Mooring Spooler - Josh asked if averyone was happy with this. Most people were happy with it. He is thinking about replacing it with a new design winch. The issue with the TSE is the precruise prep requirements and the post cruise maintenance.

There is a UNOLS East Coast web page with descriptions of the systems. There is a request form.
There is no cost for NSF users. There is a day rate for others - Navy and NOAA, etc, but it is reasonable.
There is a winch inventory on the web page.

Discussion:
- Steve Hartz - Is it free for NSF OPP? Jim - Technically no, but it can be worked out.
- Woody - is there tension management system. Josh - The WHOI port office has one, so if needed request it. If it is a NSF project, it is free.
- Bill - they had great support over thanksgiving weekend
- Dave - The turntable design is very nice.
- Woody - Is there any effort to standardize the request system and the support? Josh - yes, there is a new person on the west coast and he is working with that person to standardize the process.

- Woody - what about the vans? Dave - this is a good idea and he can follow up with Delaware.
- Dave - please request as early as possible.

Poster/Demo Session (Monell Upper Lobby)

UNOLS Reports:

Fleet Improvement Plan (FIC) – Marc Willis reported that FIC has been very involved with ship utilization. Yesterday they participated in a webinar about the future of the WHOI Long Core. They are keeping abreast of the ongoing construction of the RCRV and OCRV. FIC is looking at new models for funding the ship acquisition. Marc is stepping down as the RVTEC liaison to FIC. FIC meets twice a year with the Council.

RVOC and Safety Committee – Dave attended the RVOC and Safety Committee meeting. Steve Hartz attended and gave the report. The RVOC was held in Wisconsin to tour the vessel *Sikuliaq*.

AICC and SCOAR – Steve Hartz provided the report.

Arctic Icebreaker Coordinating Committee:
- *Polar Sea* is in limbo and its future is unclear.
- *Healy* had some different missions for 2012. They brought the ice-capable ship to Nome and delivered fuel to Nome. Because of that operation, there were some delays to science. STARC has assumed the tech responsibilities. It has been a smooth transition. Scott Hiller is the lead. They are revamping the computer lab.
- AICC chair is now Lee Cooper.

SCOAR – The new emphasis is on unmanned systems. Appendix XX <SCOAR Report>.
The SCOAR held their meeting in Alaska and had an UAS demo at Poker Flat Research Range.
- Steve showed an image of the scan eagle on the launch pad.
- The scan eagle has been deployed off of the *Revelle* - Oct 2012 for the Air Sea Interaction Equator Mix.
- Sikuliaq will have a quadrotor project.
- Recovery - UAS flies into the cable
- It doesn't take much space for launch and recovery
- UAF was going to write procedures for operating AUS off vessels.

Discussion:
- Daryl Swenson - What do the AUS carry? Steve Hartz- They are instrumented with a variety of sensors and cameras
- James Postel - How do they power them? Steve - This one was gas, but there a variety of power means.
- Tim Schnoor - For *Revelle*, the scan eagle was outfitted with particle sensors. There were back-to-back 11-hour flights.

1:20pm **Two Concurrent Technical Sessions (1/2 day each):**

			Time
Session:	**Room**	**Facilitator**	**1:20 – 4:15 pm**
Real-Time Data Acquisition Systems "Hands-on" - We will have space and infrastructure (power, network hardware, tables, data feeds, a test tank, tools, test equipment, etc.) for folks bringing examples, subsets, prototypes, etc. of real-time shipboard data acquisition systems. Please consider bringing something and participating. (See additional details at the bottom of this agenda).	Pool/Test Room	Dale Chayes	**X----------X**
Wire/Cable Terminations: Various termination methods will be demonstrated by RVTEC participants. The session will address: • Mechanical (load bearing) terminations • Electrical termination • Field termination • Production or Lab terminations	Welding Room	Richard Perry	**X----------X**
Sensor Calibration and Management	Monell - Room 205	Robbie Laird	**X----------X**

35:00pm ***Adjourn RVTEC Meeting***

Friday, February 15, 2013

Training Sessions: (Monell Auditorium and Lower Lobby) Friday is reserved for training sessions. The sessions include:

			Time	
Session:	**Room**	**Facilitator**	**8:30-10:30 am**	**10:30-12:30 am**
Megger Hands-on (and TDRs) sessions	Instrument Lab	Dale Chayes	**X----X**	
Desktop Printed Circuit Board fabrication. Demo of PCB design software, printing, etching, plating, and drilling of an actual single sided PCB.	Instrument Lab	Tom Wilson		**X----X**

Additional Details about Technical Sessions:

Shipsat Gateway Hands On Demonstration – Facilitators: Al Suchy, Vielka Cedeno, and Manoj Mohindra

ShipSat is a Network gateway that accommodates the specific requirements of the Maritime Satellite environment. It is designed to provide a number of services onboard to optimize usage on the satellite link, provide failover between multiple links, and facilitate the ease of network management from the shore side. ShipSat offers a number of capabilities that allow a robust secure infrastructure to be built on the remote mobile side and connect back to the shore office. When integrated with Satellite service provider network services, a highly secure network can be established.

For voice and data, ShipSat offers the ability to distribute the cost of communication between the different parties operating and using the vessel; cost distribution is accomplished by using pre-paid and post-paid accounts. Satellite services on the different links can be rated differently, and accounted for. Communication cost can be distributed between a vessel's operator, science party, and individuals' personal usage.

A number of techniques are used to optimize the usage of the Satellite link. Proxy caching, image compression, and delta file transfer are some of the techniques used to achieve an enhanced user browsing experience, and optimize link usage.
Remote vessel network and asset management is achieved through encrypted VPNs that can be established on demand between shore and ship. This allows for remote access to any computer or piece of technology that is connected to the onboard network.
Our RVTEC presentation, will elaborate on the above capabilities of the ShipSat gateway, how it can be customized to fit the operational and technical requirements of the UNOLS fleet users and operators.

Interactive session with the Arduino microcontroller platform – Facilitator: David O'Gorman

The Arduino is a popular cross-platform open-source single-board microcontroller, designed to make the process of using electronics in multidisciplinary projects more accessible. It is inexpensive and commonly available, and a large variety of interface 'shields' (circuit boards) are available to connect the Arduino to everything from thermocouples to motors to wireless and/or wired networks. In addition to commonly available hardware, a wealth of example code and reference material is available for the Arduino platform.

The session will be aimed at taking any participant from any level of programming ability to a point where they can put code into an Arduino controller to perform a basic monitoring and control function. The session will also demonstrate some of the more advanced capabilities of the Arduino including network control and monitoring.

RVTEC 2012 Real-time data acquisition system "hands-on"
Facilitator: Dale Chayes

We will have space and infrastructure (power, network hardware, tables, data feeds, a test tank, tools, test equipment, etc.) for folks bringing examples, subsets, prototypes, etc. of

real-time shipboard data acquisition systems. Please consider bringing something and participating.

There will also be a UDP broadcast of real-time data which can be used to exercise display systems and software.

The location and infrastructure will be available all week, starting with set-up (for those who are interested) as early as Sunday afternoon. (If you want to come in on Sunday afternoon, please make arrangements with Dale.)

There are two major goals:
1) Facilitate cross-fertilization of strategies, implementations, hardware, and code, and

2) Provide a hands-on opportunity to explore/compare/measure performance and capability.

The agenda has time scheduled on Wednesday and Thursday afternoons and Friday until we run out of steam.

The format will be hands-on and informal - focused on running examples of hardware and software.