Revised February 7, 2013

Agenda

Research Vessel Technical Enhancement Committee (RVTEC) Meeting

February 11-15, 2013

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

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Sunday, February 10, 2013

5:30 – 7:00pm **Pre-meeting check-in at the Holiday Inn, Orangeburg, NY** - Annette DeSilva

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Monday, February 11, 2013

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

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

- Introductory Remarks by David Fisichella, RVTEC Chair
- Welcome and Science Talk by L-DEO – Art Lerner-Lam
- Accept minutes of 2011 RVTEC Meeting http://www.unols.org/meetings/2011/201111rvt/201111rvtmi.html

9:30am **RVTEC Participant Introduction**

9:45am **Icebreaker Session –** Tell us about this year's technical/operational crisis and how you resolved it. A representative from each of the following vessels is requested to make a presentation. Presentations should be limited to 5 min with 1 slide per ship. Please consider having a junior member of your group make the presentation. If you have a slide it must be sent to the UNOLS Office no later than February 5th.

Order of Presentations

- University of Miami – *Walton Smith*
- University of Washington
  - *Clifford A. Barnes* – Stephen Jalickee
  - *Thomas G. Thompson* – Patrick A'Hearn
- BIOS – *Atlantic Explorer* – Emily Dougan
- Woods Hole Oceanographic Institution
  - *Atlantis* – Allison Heater
  - *Knorr* – Robbie Laird
- University of Minnesota – *Blue Heron*
- Duke University – *Cape Hatteras* – Tina Thomas

10:30am **Break** (Monell Lobby)

10:45am **Resume Icebreaker Session**

- University of Rhode Island – *Endeavor* – Erich Gruebel
- University of Delaware – *Hugh R. Sharp* – Ted Cummiskey
- University of Hawaii – *Kilo Moana* – Scott Ferguson
- Scripps Institution of Oceanography

  - *Melville* – Mary Huey
  - *New Horizon* – Mary Huey
  - *Robert Gordon Sproul* –Brent De Vries
  - *Roger Revelle* - Brent De Vries
- LUMCON – *Pelican*
- Moss Landing Marine Lab – *Point Sur*
- Skidaway Institute of Oceanography – *Savannah*
- Oregon State University – *Oceanus* – Erik Arneson
- L-DEO – *Marcus G. Langseth* – Lisa Hawkins
- NOAA Vessels – Douglas Perry
- USCG – *Healy* – Sarah Kaye
- USAP Vessels
  - *Nathaniel B. Palmer* – Ross Hein
  - *Laurence M. Gould* – Ross Hein
- Schmidt Ocean Institute – R/V *Falkor* – Colleen Peters
- Florida Institute of Oceanography - R/V *Weatherbird II*
- Stony Brook University – R/V *Seawolf* – Tom Wilson
- Others – Other vessel presentations are welcome, please notify the UNOLS Office in advance of the meeting if you wish to make a presentation.

12:05pm **Introduction of Afternoon Sessions** – Moderators will provide a brief description of their respective technical session:
- **Shipboard Satellite Communications Basics (**Steve Foley – 3 min)
- **Multibeam Discussion and MAC Tools** (Vicki Ferrini – 3 min)
- **Sensor Calibration and Management** – (Robbie Laird - 3 min)

12:15pm **Lunch Break** (Monell Lobby)

1:15pm **Three Concurrent Sessions are planned:**

			Time	
Session:	**Room**	**Facilitator**	**1:15 – 2:45 pm**	**2:45 – 4:15 pm**
Shipboard Satellite Communications Basics - This session will discuss the core concepts of satellite communications, stabilized antennas, RF equipment and pathways, and how they all apply to shipboard data networks. Discussion will dip into different satellite technologies as they are now and what might be coming in the future.	Monell Auditorium	Steve Foley	**X----→ ------X**	
Multibeam Discussion and MAC Tools – Open discussion about Multibeam data acquisition practices including both successes and challenges. Will include a demo of tools and resources being made available by the MAC.	Lamont Hall	Vicki Ferrini	**X----→ ------X**	
Sensor Calibration and Management	Monell - Room 205	Robbie Laird		**X---X**

4:15pm ***Adjourn Day 1***

4:15pm **L-DEO Campus Tour -** Break into 2-3 groups

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

Tuesday, February 12, 2013

8:15am **Coffee and Informal Discussion** (Monell Lobby)

8:45am **Meeting Called to Order and Announcements** (Monell Auditorium)

8:50am **Summary of Monday Afternoon Sessions** – Moderators will provide a brief summary of their respective technical session:
- **Shipboard Satellite Communications Basics (**Steve Foley – 5 min)
- **Multibeam Discussion and MAC Tools** (Vicki Ferrini – 5 min)
- **Sensor Calibration and Management** – (Robbie Laird - 5 min)

9:05am **R2R Program Report –** Bob Arko

9:20am **ADCP and UHDAS in the Fleet Report** – Jules Hummon

9:35am **MC800 Multicorers with Camera and CTD** – Dan Fornari

9:50am **Lightsquared Corp. / GPS Interference Issue** – Richard Perry

9:55am **MATE Update and Longer Term Internship Program** – Erica Moulton

10:10am **Poster/Demo Session, Refreshments, and Informal Discussions –** (Monell Upper Lobby)

11:00am **Agency Reports –** Issues specifically targeted at RVTEC group
- NSF – Jim Holik
- ONR – Tim Schnoor
- USCG
- NOAA

11:30am **JMS Inspection Report with Highlights of Features and Practices that could Enhance Fleet Technical Services** – Ted Coburn

11:55am **HiSeasNet Update and Highlights from the Recent Revelle Cruise** – Steve Foley

12:10pm **Afternoon Session Introductions** – The following technical discussions and training sessions will be held in the afternoon: A brief introduction by each session leader will be provided.
- **HiSeasNet Equipment Basic Training** – Steve Foley (3 minutes)
- **Cruise Planning Application Introduction –** Adam Shepherd (3 minutes)
- **Technical Discussion Session: R2R –** Bob Arko (3 minutes)
- **L-DEO Facilities and Special Programs** (Sean Higgins – 4 min)

12:15pm **Lunch Break**

1:00pm **The following Concurrent Sessions are planned** (the HiSeasNet training will be concurrent with the technical discussion session)**:**

			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. Attendance of Monday's session will be very helpful, but not required.	Seismology Seminar Room, 2nd Floor	Steve Foley	**X-----→ ------→ ------X**		
Cruise Planning Application	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**

5:00pm ***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)

8:35am **Summary of Tuesday Afternoon Sessions**:

- **HiSeasNet Equipment Basic Training** – Steve Foley (5 minutes)
- **Cruise Planning Application Introduction –** Adam Shepherd (5 minutes)
- **Technical Discussion Session: R2R –** Bob Arko (5 minutes)
- **L-DEO Facilities and Special Programs** (Sean Higgins – 5 min)

8:55 am **UNOLS Report** – Peter Ortner

9:05am **UNOLS Equipment Inventory Online –** Alice Doyle

9:20am **ADCPs and RDI Maintenance Agreement (Phoenix)** – Jim Postel

9:35am **Export Controls and what it means to the UNOLS Fleet –** David Fisichella

9:55am **Radioisotope Use Onboard UNOLS Vessels** – Alice Doyle

10:10am **Poster/Demo Session, Refreshments, and Informal Discussions** (Monell Upper Lobby)

11:00am **Fleet BroadBand communications on UNOLS ships update** – Al Suchy
World-Link - Shipsat Gateway: Bandwidth optimization and management of broadband channels – Asad Salameh
Inmarsat: The direction of satellite communications, FBB update, the new KA band services – Manoj Mohindra

12:00pm **Afternoon Session Introductions** – A brief introduction by each session leader will be provided:

- **ShipSat Bandwidth Optimization Tool, a hands-on demonstration –** Facilitator: Al Suchy (3 minutes)
- **Real-Time Data Acquisition Systems "Hands-on" –** Facilitator: Dale Chayes (3 Minutes)
- **Interactive session with the Arduino microcontroller platform** – David O'Gorman (3 minutes)

12:10pm **Lunch Break**

1:15pm **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	Instrument Lab	Dale Chayes	**X----------X**

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).			
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**

4:30 pm **General Discussion (if needed)** – Monell Auditorium

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RVTEC Dinner – Wednesday, February 13th
Confetti Restorante & Vinoteca
Flywheel Park at 200 Ash St, Piermont, NY 10968
http://www.confettiofpiermont.com/
6:00pm Cocktail Reception (cash bar)
7:00pm Dinner
Reservations for the dinner are required at time of registration

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Thursday, February 14, 2013

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

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

9:05am **Summary of Wednesday Afternoon Sessions**:
- **Real-Time Data Acquisition Systems "Hands-on"** - Dale Chayes (5 Minutes)
- **ShipSat Bandwidth Optimization Tool, a hands-on demonstration -** Al Suchy (5 minutes)
- **Interactive session with the Arduino microcontroller platform** – David O'Gorman (5 minutes)

9:20am **INMARTECH 2012 –** David Fisichella

9:35am **Research Vessel Safety Standards – Appendix A & B** – Status report on implementation and future plans. – Rich Findley

10:05am **East Coast and West Coast Winch Pools –** Josh Eaton

10:15am **Poster/Demo Session** (Monell Upper Lobby)

11:00am **UNOLS Reports**
- FIC – Marc Willis

- RVOC and Safety Committee – Rich Findley
- AICC and SCOAR – Steve Hartz
- Ship Design/Construction Updates
  - R/V *Sikuliaq* –Steve Hartz
  - Ocean Class Research Vessel Status – Tim Schnoor
  - Regional Class Update – Jim Holik

11:45am **RVTEC Officer Elections and Liaison Appointments –** David Fisichella

12:00pm **Afternoon Session Introductions** – A brief introduction by each session leader will be provided:

- **Real-Time Data Acquisition Systems "Hands-on" –** Facilitator: Dale Chayes (3 minutes)
- **Wire/Cable Terminations –** Facilitator: Richard Perry (3 minutes)

12:10pm **Lunch Break** (Monell Lower Lobby)

1:00pm **Meeting Format Discussion –** LDEO Auditorium

1:10pm **Closing Remarks** – David Fisichella (Please Note: Technical discussion, demonstrations, and training will continue through mid-day on Friday, November 9th)

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**

3:00pm **RVTEC Manager Roundtable** (Seismology Seminar Room, 2nd Floor)

5:00pm ***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.