University-National Oceanographic Laboratory System

Research Vessels Operators Committee

Newsletter

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Editor's Note

CONTENTS

As you can see, I have changed the format of the newsletter a bit. I hope the new look stimulates more interest and provides a more readable platform. In addition to changes in format this edition contains an up date on action items from our meeting in St. Petersburg and a short list of pertinent items from the last Council meeting at the Biosphere II in Arizona.

The "Around the Yard" section contains a run down on major shipyard work with a smattering of reports to include routine yard visits. I thought it might be of interest to include routine yard work in order to pass along ideas and inform other operators of what is going on around the country.

Lastly, you will notice that the Clippings section has many articles about marine activities in the Gulf of Mexico and the associated petrochemical industry. As you can see, things have moved into deeper waters and the technologies that have allowed this shift may be of interest to some of you. To those of you not interested, I apologize and promise to go a little lighter on the subject next time around. I have also included a few items on SWATHs because applications for this type vessel are expanding and there is the possibility that a new UNOLS Class II/III SWATH will be built by the Navy for use in the Central Pacific.

Steve Rabalais

From the Chair

Well, at this point I have missed a winter up north managing to spend most of it in Tampa at a shipyard and lay up. As a result I have been late in getting out the minutes for the 1996 RVOC Meeting (my apologies!), but at last they are done and should be on their way.

I think it is not too early to begin thinking about our 1997 meeting and the agenda. I would like to throw out two ideas, one of which Steve addresses in another section of the newsletter. That idea is that we consider devoting one day of the meeting to a workshop as an alternative format to our work groups. I would like to get your reaction and see if this is of interest to you as well as some suggestions of subjects that would be informative to all.

The next item is the Special Reports. Special Reports at the last meeting, in my opinion, took up a large amount of time to the detriment of at least one significant topic on the agenda. I propose that we limit the number of Special Reports to perhaps three-four. Persons interested in making a special report could prepare a one-two page write up of the topic to be covered and submit it for selection. Reports not selected to be presented at the meeting would be included in the appendices of the minutes. Please give me your reaction to this as well.

WHOI will be hosting this year's annual meeting and the dates have been set for October 21, 22, 23.

Joe Coburn advises that he has drafted a proposal for funding of the safety video.

SeaNET, which is a collaborative effort under JOI, is submitting a proposal which could ultimately result in the acquisition of several Inmarsat-Bs; some probably will be installed on UNOLS vessels. SeaNET has requested, and I have written, a letter endorsing the proposal. I note in this letter that the system has significant potential to benefit operators, not just those UNOLS vessels operating on a global basis, but many of the regional vessels as well. I feel the operational benefits are clear; however, one challenge will be to prioritize (or schedule) the assignment of a limited number of ship stations to vessels (or institutions) so that maximum benefits can be achieved.

Best Regards,
Paul Ljunggren

RVOC Update

- Post Cruise Evaluations - An introduction is being prepared by Ken Johnson, UNOLS Chair, after which the completed draft will be forwarded to UNOLS for circulation.

- Salary Questionnaire - Paul is working on compiling input from the operators (at least from those few who responded) and hopes to have a final version for the next RVOC meeting. If you still want to contribute, please send your data to Virginia Beck at LDEO.

- Small Boat Primer - Dave Powell, coordinator for the effort to develop a primer on small research vessels, has requested input from the "committee" before 31 March 1997 with a planned completion date of 30 June. The Primer will include sections on requirements and capabilities (R. Dinsmore), Design & Construction (R.Long, J. Van Leer, R. Dinsmore), Stability (G. Allmendinger), Conversion (S. Rabalais, B. Cornwall), Outfitting (W. Hahn), Insurance (D. Nixon), and Introduction (J. Bash). An author for the sea-keeping section has not been identified, so if you want to contribute to this section or any of the others please respond to the appropriate individual.

- Safety - According to Tom Smith, RVOC Safety Committee Chair, Jamestown Marine has been contacted and is preparing a proposal for producing a safety video for use by scientists on UNOLS vessels. In the meantime, Tom has contacted the Executive Director for the Netherlands Institution for Sea Research seeking permission to use their video in the production of our film. Tom hopes to make significant progress towards having a proposal available before the next RVOC meeting.

- Service Charges - At the last meeting Linda Goad and Mike Prince were tasked with obtaining information on institutional charges above and beyond the regular daily rate of the vessel. This would include services like cranes, fabrication charges, and other shore based activities. Linda will post a request for input from the operators some time in March.

- Cost of Medical Service Contract Change -Mike Prince also was asked to gather information from the operators on their costs if a new medical services contractor was selected. But, because the current contract will not expire for another year Mike has decided to put this issue on the back burner for now.

- Medical Standards- Robert Hinton is spear- heading the effort to finalize a set of medical standards for employees on UNOLS vessels. The current guidelines are under review and evaluation by the risk management group at the University of Washington.

UNOLS Update

The winter 1997 UNOLS Council meeting was held at the Biosphere II in Oracle, Arizona. The following is a brief summary of some of the pertinent issues discussed at this meeting:

COMMITTEES:

DESSC - ATLANTIS will be delivered late in February and will be outfitted with ALVIN in March or April. The ship will tour to Washington and New York in the spring before beginning its regular schedule later that summer. Jason and the ROVs have had a successful year in the fly-away mode.

FIC - Chris Mooers, FIC Chair, reported that 1997 would not be a good year for a new Fleet Improvement Plan because of the fluidity of major field programs, so the committee will consider a supplement to the 1995 plan. Because of the age of the Class III & IV vessels, plans for their replacement should begin. FIC recommended that UNOLS take the lead in this effort.

RVTEC - John Freitag, RVTEC Chair, presented an overview of the last meeting at Harbor Branch. Every Operating Institution was represented. A workshop lead by Phil Gibson of Tension Member Technologies was very successful. Much of the workshop discussion centered around the replacement of the soon to be obsolete .322 cable. In the short haul, .322 fiber optics cable will be used as a replacement until the value of fiber cable is established, but it

is only good to 2,000m so a stronger cable must be developed. This of course will require significant changes in existing deck equipment. The 1998 meeting will be in Seattle, WA and marine corrosion will be the major topic of discussion.

SSC - This year is a full year with 250-300 more ship days scheduled then in 1996. But, it was noted that ATLANTIS will be out of service for about half of the year and non-recurring programs like the Derbyshire survey and possibly the NAVO work may make 1998 tight. A draft report of the UNOLS Ship Scheduling Procedure Review Group was presented to the Council. In this report the Group recommended a number of changes to the current scheduling procedures which include revision of the ship-time request form, development of a ship-request tracking system, an automated procedure for P.I. input on preliminary schedules, standardization of procedures for all users, optimizing scheduling meetings, and adoption of a cost benefit analysis systems.

AICC- Jim Swift, Chair, reported that he was optimistic about the Coast Guard's willingness to accept the Committee's recommendations for improvements to the scientific facilities on HEALY. The Committee is working on bringing the Coast Guard into the UNOLS ship scheduling process and will continue overseeing the scientific outfitting of HEALY.

Other UNOLS Issues:

- Science Mission Requirements were presented for the new Central Pacific vessel.

- The Interim Fleet Improvement Plan was presented to the Council.

- Funding for NAVO is expected to be similar to the 1997 level with spring/fall physical oceanography cruises, West Coast ODISTA Surveys, continuance of Gravity surveys, AUTEC range surveys for NUWC Newport and expansion of SoCal range environmental surveys.

- NOAA's RON BROWN will be delivered in late March.

- Bob Wall presented recommendations of his Committee for re-assessing the status of the UNOLS fleet. Don Heinrichs indicated that NSF would review the Committee's recommendations and develop a plan for review by UNOLS (for more information on this topic, contact the UNOLS Office).

- A proposal for the preparation of a white paper on crewing requirements was presented (for more information on this topic, contact the UNOLS Office).

- The need for a concept design for replacement of intermediate/coastal vessels was discussed and it was decided that UNOLS would take the lead in this effort.

- An RFP for ship inspection program was presented to the Council (for more information on this topic, contact the UNOLS Office).

Around the Yards

CAPE HATTERAS - HATTERAS was at Lyons Shipyard in Norfolk, VA from the first week of December to 15 January. This was the ship's first activity since being laid-up early last year. Consequently, the Duke marine staff had to dive under the vessel and remove about two feet of growth from the keel coolers and props before the vessel could leave the dock. At the yard, she went through her third special survey. International self polishing bottom paint was applied below the water line and a 150

khz ADCP transducer, which had recently been refurbished by RDI, was installed. Unfortunately, it was not discovered until she returned to the dock that RDI had left an O-ring out and the transducer was flooded. RDI worked to make repairs and get the unit on the ship midway through the winter NAVO cruise. In addition to ABS inspection and a shave and a hair cut, the vessel's Hundstadt propeller hubs were reworked to remove play from wear that had accumulated from working in shallow waters. New U.S. manufactured hubs have been funded through NSF and are scheduled for installation in December or early January 1998. After the shipyard and the extended lay-up, the kinks were worked out on a six day mooring cruise off CAPE HATTERAS.

MAURICE EWING - EWING underwent a bi-annual dry-docking and availability at International Ship Repair in Tampa, FL. The shipyard portion of the lay-up period was largely directed to maintenance related items and those items necessary to complete the ABS Special Survey #3 and the Coast Guard's dry-docking requirements. A Hiab 250 Seacrane was

installed and the MCS streamer oil capacity was increased from approximately 300 gal. to over 1500 gal.

On completion of the dry-dock period the ship was moved to lay berth at International Ship Repair for the remainder of the lay up. Ship's personnel and contractors completed a 12k hour overhaul of two main engines, overhaul of DO and LO purifiers, overhaul GHH Rand screw compressor (this compressor acts as the first and second stage compressor on one of our three LMF compressors used for MCS), completed the replacement of a lab AC compressor and installed a microprocessor load controller, and replaced the pressure vessels and membranes in our RO.

Before the ship leaves the yard, GMDSS equipment will be installed and a Coast Guard COI Inspection will be performed. This should result in assignment of a SOLAS Safety Construction Certificate and SOLAS Safety Equipment Certificate.

The last week of the lay up will be devoted to staging for our first cruise of the year, a NAVOCEANO cruise. It will include a brief port call in Newark, New Jersey, the first port call in the New York/New Jersey area since May 1993.

CAPE HENLOPEN - A routine overhaul of the starboard main GM16V149 and 1-GM 471 service generator was completed this year. Both engines were removed from the vessel at her berth in Lewes, DE and repaired in the shop.

LONGHORN - LONGHORN will be at Master Marine Shipyard in Bayou LaBatre, AL in February/March for major sandblasting and a new paint system on the entire

boat. All three Dynacon winches are undergoing factory renovations. This is the first extensive yard period since the vessel was renovated in 1986. The current work should take the vessel well beyond her 30th birthday in the year 2,000.

PELICAN - PELICAN was at Allied Shipyard in Larose, La for new anodes, bottom paint (Ameron 385/279) and modifications to transducer blister and remounting three ADCP transducers and 12 Khz PDR transducer.

SUNCOASTER - SUNCOASTER was at Diversified Marine Technologies in Tampa, FL for a new paint system by Devoe (formerly International) from cap rail to keel and minor repairs to fuel tank bulkhead.

ATLANTIS - Work is progressing and the ship should be in the water the first week of March. After a short dockside period for crew familiarization, the vessel will transit to Woods Hole; ETA 11 April. During the transit period the ship's scientific equipment and deck gear including cranes, winches and the SeaBeam system will be exercised. ALVIN is nearing completion of her overhaul period and should be available for shallow water tests by the end of April.

URRACA - Field testing of the new Dynacon winch and Leevac A-Frame were completed during a cruise beginning on 8 January 1997. Problems associated with integrating power packs into the existing hydraulic system on the vessel were corrected on this cruise. A major part of this year's cruise schedule will involve geological sampling of sediments, so the crew is very happy to have this new equipment on line.

Oregon State University - Construction of a large dock and scientific support building at OSU Ship Support Facility in Newport, OR is complete. The dock has a 320 ft. face with 25 ft. MLLW alongside and will accommodate the largest UNOLS and NOAA vessels. "Support Services Manual" describing the new facility is available from Fred Jones. WECOMA was at MCI in Bellingham, WA last fall for a routine dock.

RVOC 1997

It is not too early to start thinking about this year's meeting, which by the way, is being hosted by WHOI. Paul Lunggren has suggested that the membership might consider changing the meeting format by organizing one or possibly two tutorials as alternatives to workshops. Possible topics for these training sessions would be:

- Changes in Admeasurement rulings - How these changes will affect crewing, and equipment requirements and the overall impact of the new regulations for vessels undergoing major modifications.

- Shipyard periods - Some good information from an informed source on the do's and don'ts of preparing bid specs, change orders and what to include as boiler plate, I am sure would be valuable to us all.

Paul and I agree that a one day session conducted by an expert in a particular field of interest to operators would be time well spent. Let us know if you agree and forward your ideas on topics for discussion.

SeaNET Update

November 1, 1996
Andy Maffei and Dale Chayes

The SeaNET Communications Node (SCN)/INMARSAT-B system which has been on R/V THOMPSON was moved to the Ocean Drilling Program drill ship JOIDES RESOLUTION (formerly the SEDCO/BP-471) during a regularly scheduled port stop in San Diego at the end of October. This move would not have been possible without the able assistance of Mike Realander who handled the removal and packing on the THOMPSON end and the RESOLUTION crew who managed to find time to assist with the installation in the middle of replacing both of their radars.

The installation on RESOLUTION was done to allow wire line logging data to be transferred ashore for analysis with the results to be sent back out to the onboard science party during the drilling leg 170. The Borehole Research Group which leads the wireline logging effort on RESOLUTION has been using a VSAT system courtesy of Schlumberger to do this for some time. The SCN/INMARSAT-B system was installed for the current leg because the drilling site was expected to be beyond the reach of the existing VSAT capability.

As with all INMARSAT-A installations, there are still problems with antenna masts (and the drill rig!) blocking the view of the satellite on certain headings. This problem is somewhat lessened by RESOLUTION remaining stationary for much of the time during a cruise. High Speed Data (HSD) connections to shore need to be coordinated for a time when the ship is pointed towards the equator (more or less). We are working on a software module that calculates good headings based on a ship's above deck profile and the predicted azimuth and elevation to an INMARSAT satellite.

Careful planning of the antenna location can reduce the impact of obstructions. One of the things we have learned about INMARSAT-B is that voice connections are more robust in the face of obstructions than for INMARSAT-A. However, HSD connections require a clear line of site to the satellite. For shipboard applications where continuous HSD service is critical and a single location can not be found, consideration of two antennas might be an alternative.

We are now getting ready to help with some periodic transfers of wire line logging data from RESOLUTION after the first hole is finished and logged which we expect within the next week. There are some ISDN problems to be worked out and some software to be tweaked in support of their efforts to transmit some fairly large seismic files over the INMARSAT-B SeaNet system installed on RESOLUTION.

It is likely that we will see on the order of half a dozen large (multi-megabyte) file transfers during this leg and we expect to be able to monitor the transfer characteristics. We hope to be able to improve the throughput, over time, and provide a useful service to the science community at the same time.

When it became clear that the INMARSAT-B system with HSD was going to be installed to support the wire line logging effort, TAMU expressed interest in using the link to transfer their cc:Mail messages between ship and shore. We are working with them to develop and implement a test plan. One of the problems is that the ship is currently using a network number that is already in use on the TAMU campus. A "simple" TCP/IP routing scenario is not an option. A lesson to be learned from this is that even for ships (or remote sites) that do not anticipate a direct Internet connection, now is the time to allocate legitimate network addresses.

Our hope is that when (if) UNOLS vessels move to using INMARSAT-B, more then we will have an attractive communications hub for them to use for various lnternet type tasks. We should have some hard numbers to report by the end of the year concerning optimal file transfer rates and costs. We are also hoping to port the software to a Linux platform soon and make it available as a development platform for other shipboard applications.

Ashtech GLONASS Tests

Joe Stennett, Lamont Science Officer
Stennett@ldeo.columbia.edu.
29 November 1996

Summary:

An Ashtech GG24 GPS/GLONASS receiver was used for general navigation on R/V EWING. At its best, navigation accuracy was improved to the point of being comparable to differential GPS. Unfortunately, erratic reception of the GLONASS satellite transmissions caused performance degradation for a couple hours daily.

Introduction:

The GLONASS satellite navigation system is similar to the GPS, but does not have the accuracy degradation that is imposed on the GPS. The Ashtech GG24 GPS/GLONASS receiver was acquired in order to find out if the GLONASS would provide reliable, high-accuracy navigation for R/V EWING.

Equipment:

The GG24 Evaluation Kit consists of the single-board GG24 receiver, a marine antenna, interface cabling for RS232 connection and a software package which allows monitoring performance on a PC. The kit is complete and is easy to assemble and operate.

Operation:

The GG24 antenna was first installed atop the main mast, clustered with the GPS antennae, but transmissions from the Inmarsat satellite telephone caused it to lose lock, even though nearby GPS antennae were not affected.

The antenna was moved to another, lower position and this reduced interference to the point that it was not a serious problem.

The GG24 uses all tracked satellites in computing a fix. However, if enough GLONASS satellites are being tracked, (four or more), the fixes are essentially those from GLONASS. Typically, the receiver tracks from 11 to 16 satellites, with 13 being a normal number. The mix is, typically, six to eight GPS satellites and four to eight GLONASS satellites. The number of GLONASS satellites tracked is more variable than for GPS. During the cruise, the number of GLONASS satellites tracked would drop to two or three for irregular intervals lasting from fifteen minutes to an hour. The receiver would then revert to GPS operation and accuracy's. These intervals totaled about two hours per day.

Accuracy:

During the last ten hours of the cruise, the Trimble receiver was used in DGPS mode, using the Bermuda beacon. The cross-track errors were compared for the DGPS, GLONASS and GPS. The GLONASS and DGPS agreed to within a couple meters, while the GPS had an average cross-track error of +/- 20 meters.

During the cruise, the accuracy of the GLONASS was tested by measuring the time for the ship to move 100 meters. The assumption was made that, in calm seas with constant RPM, the ship would run at a constant speed. Using GLONASS to compute the distance run, the time varied +/- 2%. The interval varied +/-10% while using GPS.

Conclusion:

The GG24 navigation evaluation kit was acquired with the aim of using the GLONASS constellation to provide more accurate real-time position fixes than is provided by GPS. At its best, fix accuracy is improved by a factor of three or four over the GPS. The GLONASS fixes, however, are not continuously available, and the receiver reverts to GPS mode for at total of more than two hours per day, at erratic intervals. This limits its utility for many purposes such as fire-by-distance operation or tracking on a turn. The GG24 is still in an experimental stage and perhaps Ashtech can further improve the receiver.

New Panama Canal Tolls

Dave West
Smithsonian Tropical Research Institute

For those members who use the Panama Canal, there has been a change in tolls and admeasurement. Probably most members are already aware of the tolls increase (per net Panama Canal Ton) and the fact that by this summer the canal will be charging for deck cargo containers. I called John Eberenz, Chief of Admeasurement at the Canal, to find out more information as to what this means for R/Vs in terms of added cost, delays, paper work, etc. While this should not affect most of our fleet, the larger vessels will have to demonstrate that they do not have capacity for more than nine containers in their deck or container plan. This will be done the first time they are boarded since the changes went into effect John sees no additional time required at boarding as the paperwork is a one time affair and is just a couple of new forms. He did suggest, though, that captains have a general arrangement and, if it applies, a container plan ready at the time of that first boarding. I asked him about vans and he opined that if there are no more than nine there is no issue, but probably, since they are not in permanent container pads on deck, they would not be considered containers

anyway. All ships will be issued new Panama Canal Tonnage Certificates regardless of whether they carry containers or not. I have already gone through this whole process and it was not even a slight inconvenience.

AEA International News

Christine Young

Facts About Sudden Cardiac Arrest

- One of the leading causes of death in the United States, claiming an estimated 350,000 lives each year.

- Usually caused by an electrical malfunction of the heart called a ventricular fibrillation.

- Strikes men and women, young and old, though prevalence increases with age.

- Symptoms of sudden cardiac arrest include immediate loss of consciousness and death within a matter of minutes without prompt medical intervention.

- Fewer than one in 20 victims in the U.S. survives.

Facts About Defibrillation

- Stops ventricular fibrillation with an electrical pulse that allows a normal heart rhythm to resume.

- Highly effective when administered within the first few minutes following sudden cardiac arrest.

- Only 50% of ambulances carry defibrillators.

Facts About Response Time and Survival Rates

- The likelihood of successful resuscitation decreases by approximately 10% with each minute following the onset of sudden cardiac arrest.

- In New York City the average response time is 12 minutes and only 1% of victims survive.

- In Seattle the average response time is four-six minutes and approximately 30% of the victims survive.

- Patients who survive sudden cardiac arrest have an excellent long-term prognosis: 57% survive for another five years or longer.

Automated External Defibrillators are available through MHS. Additional pharmaceutical supplies should be purchased to maintain normal heart rhythm. Purchase of AEDs require a physician's prescription and CPR and AED training in encouraged.

SALTS Training Course Schedule:

June 4-6, 1997
September 17-19, 1997
November 17-19, 1997
December 15-16, 1997

Time: 8:00 A.M.-5:00 P.M.

Location: Seattle, WA
Cost: $600/person

Contact:
AEA International (USA)
Maritime Health Services
4050 Columbia Seafirst Center
701 Fifth Ave.
Seattle, WA 98104

Phone: (206) 781-8770

Notes and Clippings

(NOTE Notes and Clippings are not included in these minutes. They can be obtained from the UNOLS Office.)

Regulatory:
I. New U.S. Vessel Fire Code Set for Comment
II. GMDSS Information Bulletin
III. Inflatable PFDs Approved

New Products:
I. Nylon Immersion Suits
II. Through a Screen Clearly:
Refinements in Wheelhouse Electronics
III. Small Talk: VHF/GPS
IV. Easy on the Eyes: Purchasing Guide for Binoculars
V. Satellite Phones

Miscellaneous:
I. Biodegradable Hydraulic Fluid
II. Fire Fighting
III. Ahoy! Electronic Charts
IV. Out of the Fog: ECDIS
V. Inmarsat Signatory, and Epirb Test
VI. Training and Certification of Crane Operators, and Safety Video
VII. Wire Rope Breaking Strength
VIII. Internet
IX. NOAA Ships
X. Swath OSV
XI. Global Industries Swath
XII. The Big Enchilada
XIII. Shipbuilders Booming
XIV. Mobile Monster
XV. Wreck of the Halcyon
XVI. Rope/Rigging Safety Video
XVII. The Obligation to Train

Harbor Branch and University of Miami Sign MOU

Tim Askew

On December, 1996, HBOI and the University of Miami (U of M) signed a Memorandum of Understanding (MOU). The document was over a year in the making, but the time was well spent, since now, the two organizations have a solid foundation upon which they can continue to build on their already highly successful

cooperative Marine Operations Program. The MOU was signed by Rick Herman, HBOI s President and Managing Director, and representing U of M was Otis B. Brown, Dean of the Rosenstiel School of Marine and Atmospheric Science (RSMAS), and Luis Glaser, Executive Vice President and Provost of the University of Miami.

In the words of Rick Herman, he is very confident that we will enjoy an excellent working relationship under this agreement. Together, our respective researchers and professionals have already demonstrated that the two organizations can and do work together productively achieving meaningful results. Rick's words revolve around the purpose of the agreement, which is to establish a cooperative program of marine operations research, engineering and education to facilitate collaborative efforts between U of M and HBOI, dealing with undergraduate and graduate education and research in the marine, atmospheric, environmental and biomedical sciences. and engineering on local, regional, national, and international problems. The MOU declares the intent of the two institutions to engage in cooperative activities that enhance their respective strengths.