Minutes of the RVTEC 2002 Meeting

12-14 November 2002

Honolulu, Hawaii

Compiled by Steve Poulos and Dale Chayes

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9am Meeting begins

Welcome by Steve Poulos (Vice Chair and host)

Welcome by Brian Taylor on behalf of Dean Barry Raleigh

- History of SOEST

Dale Chayes , RVTEC chair

- Topics to ponder for later in the meeting:
    - Location for future meetings
    - Meeting schedule and potential conflicts with holidays

Introductions by attendees

Minutes of 2001 meeting

- Motion to accept the minutes of 2001 meeting
- Ayes carry it motion passed

Agency Reports:

NSF Report – Sandy Shor

- See PowerPoint
- Budget is delayed getting to NSF. Don't know if increases are there for new research initiatives. Money for routine stuff is there.
- Quality of Service
- Clear standards by Ship Class
- Cost Effective operations
- New Ship Issues
- Ocean Science (OS) Division Proposals
- Address Post-Cruise Assessments (UNOLS handles distributions)

Questions to Sandy Shor

- Distribution of Post Cruise Assessments

ONR John Freitag

- Internal Changes at ONR
    - Dr. Jane Alexander replaces Steve Ramberg who has gone to SACLANT
    - Sujata Millick moved on to State Department
    - Tim Pfeiffer retired.

- Ship time funding makes it appear that 60% more ship days requested. Total request ~950 days. ONR requests alone ~750.
- Funding Highlights for CY2003
    - East coast Scanfish via DURIP
    - Delaware Multibeam
    - Model testing for UDel design
    - POS/MV for Knorr
    - SCR Drive Replacement for Knorr/Melville
    - Fleet Renewal (Kilo Moana is first "ocean class" vessel
    - ONR Common Hull study
    - Z-Drive reliability effort jointly funded w/ NSF, organized by Linda Goad
- Ship time funding makes it appear that 60% more ship days requested. Total request ~950 days. ONR requests alone ~750.
- Common Hull study:

    Money from Code 32.

    Work by JJMA and NAVSEA

    TAG(two, 66 and work vessel), Regional, Ocean-class SMRs

    Swath and mono-hull were only realistic contending designs

    Report goes to Congress from Navy (Cohen, CNO)
- Fleet Renewal Costs

    Regional class estimate $25M. Probably NSF funded. The $25M would keep the decision in the NSF OCE directorate.

    Ocean class $65-70M. ONR likely to fund.
- Replacement schedule

    Navy has draft schedule that shows the ocean class vessels spread out.

USCG – Joseph Bodenstadt

- Good year, lots of work in Antarctic, both Polars were busy.
- Open house on Polar Sea on Friday (downtown) 1-3pm at Aloha Tower.
- Healy did SBI this year, just back. Had to alter cruise track to avoid the native subsistence whale hunt.
- Next year major shipyard for Polar Star. Healy will deploy for 150 days. Some SBI, NOAA bathymetry, coring. Northwest passage.
- Polar Sea on Deepfreeze this year.
- Working on how to support the old (25 years) Polar Class breakers. Planning a major midlife (~$200M for each).

- Planning to improve level of support for science data systems. Advance procurement went to CBD last week. There will be a December proposal for shore-side and at-sea support.

UNOLS Reports – Annette DeSilva

UNOLS annual meeting – Elections,

- Tim Cowles (OSU) UNOLS Chair
- Peter Wiebe (WHOI) Chair-Elect
- Fleet Renewal: FOFC Long Range Fleet Plan
- Continuous Quality Improvement
    - Feedback from PCAR
    - Safety standard under revision to comply w/ ISM
    - Our own level of service effort
- Fleet Security Issues – Enhanced Security Awareness & Preparedness
    - Security Awareness
    - Weekly ONI report
    - Safety tranining
    - Schedule committee now reviews on safety

Discussion during Major Agenda Items (Medical Stds, MikeP, Woody S)

RVOC was at MLML

Stewart Lammerdin represented RVTEC.

Joint meetings will be arranged as needed. Interval of perhaps three to five years.

ISM impacts

Medical requirements (from NOAA, T.J. Edwards) USCG has occasionally used this form (P. McGillivary) USCG will probably got to Form 93.

Updated Research Vessel Safety Standards (RVSS) will be ready in 2003

Fleet Improvement Committee (FIC)

Realized that FOFC does not adequately address Observatories, both for response (science) and for maintenance. Atkinson will bring up the potential impact on ship utilization at the FOFC meeting this week.

FIC would like to debrief Kilo Moana science parties to assess capability of the swath vessel. Also how well the cruise fit the vessel.

Ship Scheduling

Ships are very full

Challenges are the same (ROV scheduling, mult-ship programs, weather windows)

DESSC

Jason II has entered service

All upgrades are complete?

DESSC meeting December 5th at AGU

WHOI will report on conceptual design for 6,500m replacement for Alvin

Expeditionary planning

Shallow water submergence report

How can RVTEC participate in the CREATION of draft effort such as RVSS and Security committees from other UNOLS

- Much discussion
- Mike Prince follow on with regard to RVOC – RVTEC cooperation ref Safety standards. Along with Dale Chayes (Chair) propose liaison to RVOC – RVTEC member added to Safety committee, Security Committee

Break

11:02am Resume

Levels of Tech Instrumentation Support: Woody Sutherland & Barry Walden

- List of standard questions. There are some answers that can be addressed and standardized.
- Please look at the list and fill in more details.
- What they are getting and what to expect
- What are the performance standards – very hard to deal with or get handle on.
- We need to Backup one level:
- List/issues scientist deals with or will come to grapple with
- Woody S. more comments
  - What will NSF pay for us to do so that we can provide better support for the types of cruises that have not gone so well in the past.
  - Presentation of "amplified or interpreted" NSF proposal guidelines of what technical support will do. Comments now are very timely as there is a task at NSF to revise these time lines.
  - Comments on procedures , Steven Hartz, Bill Martin

1125: Annette, Inventory of equipment

- Review of how to assemble an inventory based on NSF Ship Condition Forms
- Got RVOC permission to use the existing forms.

11:33am NOAA Report Mike Webb

- Townsend Cromwell is retiring forever

- New vessel conversion TAGOS
- Other new TAGOS conversion for Marine Sanctuary
- New FRV keel was laid in Pascagoula a few months ago. It's going to Alaska. Homeport will be Kodiak.
- Fairweather will homeport in Ketichan.
- Discoverer went to Windjammer cruises. Started it up in Seattle 9after 8 year lay-up. Will be lengthen by 100 feet and turned into a sailing vessel. Oceanographer was moved to Kirkland to serve as a wind break. A new rock windbreak will be made and ship will go to surplus. The Surveyor is up for auction after sitting on the canal for 10 years.
- Will try to take McArthur off line if can get money for refit
- Guy Noll, NOS, stated policy to put multibeams on every platform.

11:38am Mike Prince Post Cruise Reports (PCAR)

- % Return of Post Cruise Reports for Ch.Sci & Capt 2002
- Electronic vs Paper
- Techs not reporting as a % for what is represented
- Steven Hartz & Mike P, & Dale in response to comments
- Others comments – round table

12:02pm Adjourn for lunch

1:06pm – Return from Lunch

1:07pm – John Freitag, USN vessel inspection discussion

- History of NSF science inspections.
- The INSURV inspections for Navy ships are mandated by Congress. They brought 19 inspectors. This inspection is only to find problems. Does not evaluate science needs.
- NSF-contracted inspections don't have the background to do science inspections.
- Outline of goals of an inspection.
- ONR needs to have some kind of an inspection procedure.
- Discussion of John's strawman proposal.
- Potential to do in collaboration w/ INSURV.

1:27pm – Networking/wireless/

- Val Schmidt (LDEO), Fleet 77 MPDS evaluation
- Woody Sutherland, SIO Roadnet on Revelle
- Jim Wilson (USCG)

- Healy, Polarstern had a pair of 180-degree antennas on each ship. There were some antenna blockage depending upon headings
- Moved huge files over multi-mile links. Multibeam, terrascan and seismic data.
- Currently testing "speedlan 9000" omni-directional "self-healing" antenna from pier to ships.

- Toby Martin (OSU) Ship-to-Ship wireless
  - Data exchange,
  - Thompson & Wecoma
  - ORiNOCO Outdoor Router (OR)

Break

2:57pm Isotope Procedures (Jim Happel)

- low level 14C & Tritium checks , not health issues
- his def: swipe – dry wipe, put into LSC cocktail and then LSC
- his def: swab – wet test, pouring soapy water on deck, sponge up. After any use.
- His method sees contamination about a 1000x lower concentration detection levels
- (anything above or just above background levels)
- Rad Van for RadioIsotopes – only for radiation work! no one having any business in Rad vans for any other reason.
- Stay out, not to be used for storage. Should incorporate design changes, like – shoe change area, or covering shoes. Benchtop should be impervious material – not wood. Lips on benchtops to contain spills.
- Sandy S. has funded this(Jim's) project for 5yrs. Sulfer 35 is detected as a 14C, but if left
- While – half life 90days will indicate then sulfer35
- What are the background levels of Tritium, 14C, how were limits determined. The background limits are changing so does one lower the limits? Jim needs to Document how we got to levels we are at now. And
- These Particular limits are they still valid for today.
- This program has been going on for more than 20 years.
- Q and A:

  Q: Do you have a sample (salted) test that can be used to explain the difference between swab and swipe tests?

  A: No. It would be a good thing to do.

  Q: Sandy (SIO) had some questions about getting "splits" funded.

  A: No problem.

  Q: Do you get the same accuracy if the operators do the swab test themselves?

A: Yes.

Q: How long does it take to do the results?

A: High quality results take several days after the samples get back to their lab.

Q: Can you provide training when you make a ship visit?

A: Yes, training is no problem.

Q: Wouldn't it make more sense to do this instead of a swab?

A: They test for different things.

Q: What tests to you do?

A: Only C14 and Tritium.

Q: Should we ask you to come of if it's other than C14 and Tritium?

A: Yes. They can see Sulfer35 by differentiating by difference in half life.

Q: Can you explain the current limits and their evolution? The limits have recently been changed. Ostland.

A: Don't have the details here. Background limits have changed.

Q: Can we get the background of the levels documented?

A: Yes

Q: Is there a decree that isotope work only be done in vans? What about small ships doing it on deck?

A: No. There is some discussion in the safety standards and it is a strong recommendation.

What can we do to move forward:

1) Review the current levels and procedures
2) Document the history of how we got to where we are now
3) Standardize reporting (documenting) the procedures used by the various operators with regard to frequency of tests, who does the tests, etc.
4) Community review of what might be changed with representation from the operators.
5) Community education.

<u>3:36pm ISM discussion,</u>

- Woody Sutherland, SIO.
  - Ship ops does everything in detail.
  - Science changes from day to day and cruise to cruise so it would be difficult, even for routine operations to define operations and then do it the same every time.
  - There are two science pages in the ISM manual:

- before any science ops, persons (Captain, Chief Sci, technicians (ship and science) will come up with and agreed upon procedure. These agreements are ad hoc and temporary.
- There is no real change in the way that science is done except that everyone has to be there.
- woodys@sio.ucsd.edu will email those pages
- SIO does not have their ISM online.

Q: have you seen any changes in the way things are done?

A: Yes, we are more uniform. The agreement event (not the procedure) is documented and changes are documented. Everyone (crew members and technicians) are more aware of what they have agreed to do.

- Bill Martin, UW,
  - document SOP for over-the-side,
  - have SOP for stern using A-Frame
  - Moving from paper style to Electronic online form for ISM.
  - Tried to model from SIO but our procedures are quite different. They do document their standard over the side and over the stern operations (CTD, coring, etc.)
  - Unique science operations they sit down with all the parties involved (eg Jason group, chief scientists, captain, chief engineer) and go over the procedures. After review these are submitted as ISM documentation.
  - Science briefing then requires that the captain requires that everyone signs and understands. Their first time around was a very cumbersome event. First time took four hours for first science meeting. The new (current) event takes about two hours including exposure suits and ship tour.
  - Some "standard" and most specialty operations require participation from science party members. Participants must sign off on these procedures.
  - There has been some impact on their operations but no show-stoppers. Things do take longer. It takes a day or two at least before programs get in the flow of how things are done on the Thompson. Some simple things continue with people on deck with sandals!
  - The procedure has to be repeated on every leg. Each cruise generates at least a 2" ring binder in case they get inspected. They intend to transition to a signed off electronic version. The idea was for an ABS ship maintenance package.
  -
- Jon Albert, WHOI–
  - discuss WHOI Atlantis, Knorr, Oceanus
  - oncoming winches being documented with regard to breaking strength for wire etc.
  - have available mechanical documentation to allow for over-the-side operations.
  - Wet weight handling gear – foreign port issues. Has been helpful (ISM) and troubling at times.

- Their procedure is more or less the same for over the side operations. Have brought the smaller ships into compliance.
- They have had some issues with over-the-side (wet handling) handling systems that have come on board with science parties, particularly with older equipment.
- The WHOI procedure manuals are online and sent to science parties.
- There has been some anxiety on the part of the crew about being the "police" for enforcing the rules.
- Comment: In many situations, these regulations don't apply very well. This tends to interfere with doing anything slightly novel which significantly raises the hassle factor.

  Q: What happens when there is an "issue" that could raise serious safety issues.

  Q: Do the insurers know or adjust the rates for different approaches?

- John Deibold (LDEO) by email
  - At worst, ISM is a bureaucratic millstone; at best, a basic and essential tool for safety and QC. ISM's implementation involves the amassing and codification of manuals and procedures for maintenance and operation of equipment. During this process, we discovered that much of our documentation was in disarray. Straightening this up was tedious, but worthwhile. The really hard part, however, comes in the day-to-day integration of the ISM approach with science.
  - None of our technicians was hired on the basis of bookkeeping ability, and we are finding it difficult to stay current with the identification and filing of NCRs. It is much easier to simply attack a problem and solve it, at least for the time being, even though historical recording, corporate memory, and proper resolution of most problems would be better handled within the ISM procedure. Maybe we need an additional technician, whose sole responsibility would be to deal with these things. [How about it, Sandy?]

<u>4:00pm floor discussion pros-cons of ISM, Barry Walden</u>

- Bill Martin illustration, discussion
- comments with regard to ISM & voluntary compliance.- Annette, Mike Prince.
- What would it take to be voluntary compliant for smaller vessels?

<u>4:10pm Vans – Mark Willis, problems –</u>

- Marc Willis: We had a new aluminum rad van. Users love it. Had some quirks. One major problem is that they are not stiff enough and they do warp if put down on uneven surfaces and then the doors don't open.
- Rich: Had a proposal for a "hydro" van for salinities and dissolved oxygen. Not for use by scientist but by their technical group directly and had some very special goals. They were told to use a group purchase van and then modify it them selves. It may turn out to cost more than originally proposed.

- Woody: We got a specialized van and by working with Delaware got nearly everything they wanted.
- Jon: Looking for a small chemical storage van. SIO has a 6'x8' industrial hazmat container.

4:15pm SeaBird Calibrations -

- Desire for electronic version of calibration factors for automatic input to SeaBird software.
- It seems that SeaBird might be amenable to doing something if we as a community were to make a common request.
- Discussion of approach which covers the cases of automatic re-formatting of calibration data for use with SeaBird (and other software), which contains all of the appropriate metadata.
- Possibly use XML coding to allow re-formatting for insertion into data bases, creation of printable (PDF) documents, and automatic reformatting into SBE software.
- Woody Sutherland will follow-up with a "design" that we could ask SeaBird to implement.

4:27pm Ship status changes:

- Mike prince UNOLS Ocean and Regional SMR efforts
  - Technicians please provide input with reference to details!
- Dale Chayes (LDEO) Ewing midlife
  - Reports and plans are at http:/www.ldeo.columbia.edu/Ewing
  - Refit workshop was held
- Steve H. Alaska Regional Research Vessel (ARRV)
  - presentation of design features overall look.
- Tim Deering (U Del) Cape Henlopen replacement
  - Moving along
- Steve Poulos KM presentation
  - There was an inspection for entry into the UNOLS ship. Came from the same folks that do the NSF ship inspections.
  - Science outfitting folks from different people at SOES Shipboard Technical Assistance Group, Hawaii Mapping Research Group, and Research Computing Facility.
  - Self-noise is very dependent upon clean propellers.
  - Pilots were nervous about going through the canal in the dark so did a daytime transit.
  - Data philosophy: raw and processed data available everywhere through the network. They did not install all of the science cable raceways that UH thought they had asked for so they put some fibers in power raceways. There was supposed to be a two foot air gap between science raceways and power cables.

- The yard gave them racks but they weren't adequate and were replaced with four point racks.
- They log in distributed Linux boxes and broadcast everything on the 'net.
- They got 9600 baud analog modem to work over their Furuno Felcom INMARSAT B. They were not able to get HSD to work (yet?). Have Iridium for backup.
- Had deployment issues (due to vessel motion) in the place where the CTD system was originally install. Are planning on moving it to the starboard mid-ships.
- There is a residual problem reconciling the sound speed values provided by CTD, lowered velocimeter, XBTs and velocimeter mounted in the sea-water intake.
- Installed an SBE-38 in-hull temperature probe coupled into the data system.
- Knudsen subbottom. 4x4 Massa 1075A transducers. No welding. Used silicon pad on hull to couple the transducer arrays into the hull. They will (eventually) weld a box in place.
- Cross-decked LaCoste and Romberg gravimeter S33 after rebuild.
- Many of the vendor-supplied fiber connectors were broken. They spend two person weeks fixing them

5:15pm meeting adjourned to Reception at Waikiki Yacht Club

Wed 13 November 2002

8:30am Intro –

Discussion of handouts for quality review

RVTEC Meeting Locations (future – be thinking about it)

Break Out session Order??, Will do in series, O2 and Scintillation are short

Winch & Wire Design Discussion Dale Chayes (ref Rich Findley email)

- Design is a process:

  define, investigate develop, choose a solution, model, prototype….
- To meet some set of goals:
  - reduce ship to ship variability in operating limit
  - improve ratio of working load to yield strength
  - define uniform bounding procedures

8:43am Rich Findley – presentation "Every thing you didn't want to know about cable"

- We need to discuss when do you clear deck for some working loading conditions
- Discussion on floor with ref to why 3 conductors?
  - no one has to equipment that requires the 3rd conductor
  - it is useful for redundancy(Woody Suthernland.)
- Options, 1 copper conductor, or 1 fiber, other options discussed.
- Prisim makes a PC-104 telemetry interface for 10 Mb Ethernet and RS-232 + video on a single, single mode fiber.
- Rochester is now part of Tyco.
- Dolly is the lead at NSF on managing the wire pool.
- Where are the test results from TMT on the tests that they did on 0.322 cable.
- **Dataline** depiction or drawing of cable **Dataline** schematic
- Does the towed cable spec have to match up with over-the-side package cable specs? (Sandy Shor.)

Break

9:42am Continue wire discussion (Dale Chayes leading discussion)

(See Power Point slides)

- Questions 1, CLIVAR – Climate Variability (what other programs are going to need various cable constraints.
- Questions: 2, What do we do now, how well does this data predict future use,
- Assumptions (1) CTD cable is our biggest(current) problem
- Assumptions(2) needing 3 conductors, power – how much;
- Assumptions(3) not in spare time, support from professional wire designers

Possible Process for discussion

- Proposal (funded); Careful design requirements (science & ops); Multiple cable designs
- Evaluate designs and impact;
- Design: www.bergen.org/technology/despro.html

10:05am Break

10:38am Mike Prince – British UK procedures for wire/cable use –

- safety factors (5 to 1)
- Winch logging and monitoring integral part when talking to Lloyds (Mark W.)
- Approved by Lloyds

- Static of 2.5:1 with transientt addition that gets to 2:1
- Operations cease when limits are reached.
- Checking required when you reach 3:1, check average and peak at 500m intervals.
- At FoS = 5:1 all personnel have to be excluded to prevent injury.
- In excess of 5:1 requires continuous monitoring.
- Who did the background engineering (reports and documentation) underlying this effort?
- Marc: ref discussion with folks from SOC, they had to demonstrate the monitoring and logging system as part of this approval.
- Barrie: Rich's results will surprise many people. The small increment may not be the right approach, and should not be the only approach.
- Sandy: Seems like the density of the wire (ratio of filler to OD), Has that been looked at yet?
- Marc: The payload is in the difference in the slope of the depth/weight line.
- Richard: The trend of larger, heavier packages isn't going to go away.
- Rich: At the December 1999 New Orleans winch and wire meeting. The result was that they were surprised that they could do what they had been doing and there is no magic solution.
- Phil M offers to looking into carbon fiber cables like NASA uses for space sales.
- Mike: Walter Paul of WHOI is willing to help (for money.)
- Mike: Perhaps draft Stewart from the undulating vehicle community.
- Sandy: Is this effort diverging or running in parallel with the undulating vehicle community?
- We need a list of the winches and cables that have been bought over the last several years for them. There are (may be) different requirements.
- Dave (URI): The Norwegians have done scanfish on 0.322" cable. But don't get OPC and other things that need other conductors.
- Mike: The mandate is not just for CTD cables. We need to have a statement that says: "…. Towed undulator need to have their own or something else…….". Craig Lee has said that if there was a suitable cable out there along with proper control, he would use it.
- (Barry Walden.) thought that increasing strength of cable would not be a big deal,
- Scientists seeing Rich's info are surprised you get so little return in capacity for all the energy/cost put in.
- Perhaps Rich's wire info should be disseminated to the scientists (Dale C)

<u>11:10am Follow-up on John Freitag's science evaluation proposition</u>

How many volunteers (~6 people)

Repeat interval ~ every two years

Per ship event is ~5-10 days per person.

The design and charge to the inspector process

Maybe not call it an inspection?

John would like email input for his six ships that have no science inspection presently. Used to be done by Dinsmore during INSURV.

Bill M: worried about being "graded" during inspection.l

Sandy: Current NSF inspection cannot be changed. Best option would be for ONR to do a prototype that could be evaluated. We are encouraged to pursue John's idea.

Steve P: Based on the effort that they just did on the KM (UNOLS entry inspection) science inspections could be a good thing.

Marc W: John has been taking copious and accurate notes. If he were to circulate a short statement of his plan based on our discussions here we would then get comments back.

Sandy: WHOI and SIO should provide their feedback to John.

John: will update and circulate his notion. Hopes for comments.

11:28 – MATE Marine Technician Intern Report, read by Dale Chayes

Comments (Tim Deering) from scientists good

Comments(Bill Martin) – a good interview is key, candidates were bent toward Marine biology instead of technician capable.

Comments, some borderline people, they seem to be accepted from anywhere, anyone who applied to the MATE program as intern seems to be accepted, whether they are technician bent. How does the MATE

Program integrate the interns.

Would be good to have a tighter integration of participants actually having some formal MATE background training.

The goals of MATE from our understanding are worthwhile to pursue but for us to take our time in interview/participation there needs to be some pre sceening from the MATE program whether in formal classroom or some other schemes.

Steve will give a summary.(but Aubri Steele came up afterward and will provide summary)

What was intended doesn't seem to be realized with the actual types that pass thru.

Some are just doing this not to be technicians but as a pause. So we seemed to have a mix of response because of type of people showing up not that they were available.

Aubri Steele will deliver the summary

11:47am SeaNet discsussion Dale Chayes

Comparison of INMARSAT B vs F77

12:00pm Adjourn for Lunch

1:15pm Back from Lunch

New SBE-23 oxygen sensors

- Rich: They have 6 of them. They look good, It is a significant improvement.
- Won't work with MOCNESS.
- Works with CTD. Single voltage out.
- SBE does not make the old type anymore.
- Should be pumped but flushes well.
- SOEST: Has had trouble with two membranes tearing. SBE replaced them. Calibrations are $300.
- Beckman sensors had short shelf life and cost to replace is $1,200 to $1,500 from SBE. SBE expects to phase out the old membrane modules.
- Old membrane replacement was about $1,200.
- Does it make sense to replace existing ones? Probably yes.
- There are publications out on the performance of the new sensors.
- Steve: Russians are doing optical methods for O2. Will membranes become out of date.
- Bill M: The scientist they've had is much more comfortable with the quality of the new data.
- Woody: Vast improvement but not perfect. They last longer. They do not replace titrations. Application note from SBE in the last few weeks that has some kind of theory error on the 23 sensor.
- Sandy: Longer between calibrations? Woody: ODF does not trust O2 or conductivity without field calibration.

1:27 Sandy _____, SIO, Liquid Scintillation Counters (LSC) being on board

- There are regulatory (Nuclear Regulatory Commission) requirements that can be accommodated by Liquid Scintillation Counter on board.
- If there is one on-board science parties are more likely to do more, better, regular wipe tests during a cruise. It's better to keep ships clean by checking often and mitigate early.
- SIO has NRC come regularly (every few years.) They don't have a comfort level with sea-going operations. If they see that the ship is well equipped, they are more likely to be more comfortable. NRC can issue a "cease and desist" order on an operation.
- Science party estimates of concentrations in leftovers may be off by an order of magnitude. Can help with shipping if the isotope level can be measured on board.

- Q (Sandy): How many ships have LSCs on board now?
- A: Many, only two are single channel.
- An LSC needs to have it's own external source to calibrate against. There is also a sealed source in the machine (americium, thorium, cesium). These sources have to be tracked. Rules are different from country to country. SIO takes the sources out of the machine and ship them separately. They stabilize their lead inside carefully. They have been able to work out a maintenance agreement. They bought Beckman LSCs because they can get worldwide service and they get local service techs to re-install the internal source.
- They keep spares on board, particularly the monitor and keyboard for the Beckman. Other types just use external computers. Their experience is that the Beckman is more reliable than alternatives from Packard Bioscience.
- Mounting orientation makes a difference.
- Atomic Mass Spectrometers (AMS) is about 12 orders of magnitude more sensitive that LSC.
- SOFEX (the sulfur fertilizer) had multiple LSCs down at the same time and some science suffered. It would be a good idea to have redundant instruments.
- Beckman says that ~30 degrees F is the lowest temperature that will work. Cooler will stiffen the grease too much.
- Florescent probes (such as Texas Red) and other cocktails can cause LSCs to have errors. Because Florescent probes are non-toxic and often handled casually but can appear as contamination to an LSC.
- Take source out for shipping, so if source is held up in customs etc, whole van & LSC will not be held up.
- NRC license to go out > 2mi into offshore & international waters, requires inspections from NRC.
- Radiation Officer – look at license that says you can carry radioisotopes offshore beyond state limit.
- (Woody S.) Scientist can do their work, and Regulatory Issues. Needs to be further education
- about licensing and regulation requirements for ship use, shipping to/fm ship.
- RVOC
- Put on a training session by Sandy at SIO as a suggestion by B.Martin
- Joint committee RVOC – RVTEC on Isotope radiation issues recommended by Woody
- Woody will supply to Annette RVOC presentation on radiation use etc

2:45pm break

Multibeam

Woody Sutherland, Revelle,

- Replaced SeaBeam 2112 2 degree by 2 degree with a Kongsberg EM-120 one degree transmit, two degree receive. Long one is 8m. The new receive array is a bit wider.
- Donated the 2112 to "another institution"
- This is a flush installation.
- They have hand transducer problems in the past with their SB2112
- They required cables longer than "normal" and ended up with somewhat more than necessary
- The big cable loops have some risk of chafing. They don't think they have any noise coupling.
- Commercial survey company from Longbeach for the alignment survey.
- Still have not accepted after 1 1/2 years due to artifacts that may or may not be related to yaw correction.

1.1.1 Tim Deering, U. Del

- Last year bought POS/MV
- Bought Reson 8101 (240kHz).
- Installed in February

Bill Martin, Thompson

- EM-300 on DURIP grant from ONR
- POS/MV through Lamont from NSF in January, 2002
- They selected the Kongsberg bid over HS.
- Trails for POS/MV where held inside Puget Sound due to weather.
- Real sea-trials later. Had Christian deMoustier from University of New Hampshire.
- Collected data to evaluate yaw compensation data.
- Everyone is very happy.
- Swath width goes to 2x in 2500m of water?
- They don't process data for the science party.
- Use standard script that Realander wrote using MB and GMT to do simple processing and display in near real-time. They turn over the raw data only unless asked.
- In shallow water they generate 5-6 GB per day which taxes their data system.
- Q: How often do you run it and how much tending does it require.

- A: We run it as much as we can. We ask science parties (who care) to provide real-time watch standers.
- Q: Does it require much attention?
- A: Not much. We did have a communications error. Simrad swapped a board and they don't see it as often since.
- Q: Still have the Calcomp?
- A: No, we have not had that for about 5 years. Got an HP Design Jet. We don't have a real-time paper display for them and some science parties complain about that.

Steve Poulos: Kilo Moana

- EM120 for deep water
- EM1002 max of about 600m
- HMRG is real interested in the performance of this system

Dale Chayes, Ewing

- Review of the Hydrosweep DS to DS2 upgrade on the Ewing
- See Power Point Slides

4:27pm Adjourn for the day (Wednesday)

8:30am 14 November 2002

Opening remarks by Dale Chayes

INMARTEC Report Barry Walden

- INMARTEC 2004 meeting, British Antarctic Service
- Late Aug early Sept – housed at Dorm facilities at Cambridge

8:56am Jules Hummon, Eric Firing "Comparison of Two RDI Shipboard ADCPs:

- Evaluation of an RDI Ocean Surveyor Phased array (75kHz) ADCP and 150 Narrowband ADCP on the comparison on the Endeavor
- http://currents.soest.hawaii.edu/ has copy of the paper.
- Trigged the Phased array from the narrowband ADCP. This sequencing turns out to not have been necessary.
- The Broad Band Phased Array implements both narrow band and more complex filtering.
- Broad band processing has better single ping accuracy compared to an old narrow band.
- Ocean Survey has a slightly longer blanking window than the narrowband.

- Ocean Surveyor in broadband has the same noise performance in rough weather compared to narrow band instrument. The Ocean Surveyor in narrow band processed data performs significantly better. Why?
- Eric Firing evaluated an Ocean Surveyor 38 kHz ADCP on the Kaiyo. Some of it is good to 1,200m in 16m bins.
- Strongly encourages installation of 75kHz and 38kHz on as many ships as possible.
- They prefer gyro heading for continuous availability plus GPS aiding. Their old user-exit code does this but the old RDI app does not.
- In the Ocean Surveyor software they can capture everything (at the expense of larger volumes of data per unit time.) Total of about 150M Bytes per day.
- Direct syncho (for gyro) plus two serial. One serial input port must be used for position input (GGA messages from GPS.) GPS derived heading can come in the other port. The only way to use higher quality heading is done through post processing.
- Error in estimated current due to low quality (gyro) heading can be 5 to 8 cm/sec.
- Ocean Surveyor Issues:
- Side lobes are higher and degrade performance somewhat
- How to tell if the sidelobes on a particular system are acceptable
- Understand the impact of sidelobes on the resulting data.
- How to work out a decent (and acceptable) acceptance testing.
- Explorer of the Seas (Miami cruise ship) has to Ocean Surveyors for about a year and could look at the data from them as they cycle over the same patch of seafloor.
- KM has a Sontek ADCP with transducers from Edo. Edo and Sontek seems to have both lost interest. Delivered system was not in working order. The ‘ducers are installed but not accessible. The electronics had serious noise problem and low power problem. Hoping for useful performance eventually.
- There does not seem to be a viable commercial competitor.
- The Revelle has a custom system (Pinkel). Perhaps some other ships should consider installing these for high frequency and use Ocean Surveyor 38kHz system for lower frequency. NSF has funded some improvements to the Pinkel system. It is different from RDI (as it is a on-off research instrument) that is optimized for resolution so it can do things that the RDI designs will never be able to achieve.
- NSF has funded 11 systems this year.

9:41am Mike Prince, Basic Shipboard Scientific Gear –

- Historical Look

BReak

Guidelines for technical support Woody Barry, Mark Willis

- Feedback on the outlines from Woody, Marc and Barrie
- Lots of discussion
- Please turn, send, or otherwise contribute comments.
- They will create an updated draft and distribute via list-server for comment

10:54am (Dale Chayes) Knorr Shallow Drilling DP

- See Power Point
- Logistical Issues, Navigation Issues, Weather issues,
- Dynamic Position affected by bad fixes throw off solutions, Wind across bow threw off solution to DP
- system – consequences result in a time settling issue.
- Dale will review Dynamic Positioning Requirements, SMRs needs to be calibrated to reality (M.Prince)

11:16am Bill Martin Globally Corrected GPS

- goal for decimeter accuracy
- www.cctechnol.com/cnav
- Dan Galligan from C& C Technologies, Louisiana 337-261-0660 dan@cctechnol.com

Rich Findley. DVD use '-R'

11:34am Liasion with other UNOLS committees

- RVTEC chair to evaluate UNOLS committees/councils to see if the RVTEC has specific liaison or interest in any said committees
- Goal is to determine which ones we should have formal representation, i.e. a regular voting member
- Overwhelming approval to above motion, pass motion, no negatives

11:45am Elections – Chair nominations (in no particular order)

- Candidates: Woody Sutherland. , Stuart Lamerdin, Dale Chayes(current chair)
- Stuart – statement written presented by Mike Prince
- Woody Sutherland – Statement
- Dale Chayes – Statement
- Dale Chayes re-elected to second term as chair

Location of next meeting:

- Rich Findley (who has already left) – thru Aubri Steele offers meeting on Cruise Line
- Comments about future meetings, INMARTEC, Joint RVOC

- Could Bermuda be viable place for joint meeting RVOC – RVTEC, Dale C will check on
- Discuss meeting logistics

12:20p Subcommittee reports

1. Motion passed by acclamation to thank Tom Wilson for service rendered and express our hope that he will stay involved.

Other Business Issues

- Action – Item
  - Switch to using the "unols" domain e.g. rvtec@UNOLS.org

12:34pm Adjourn