

ANTARCTIC RESEARCH VESSEL OVERSIGHT COMMITTEE (ARVOC) MEETING

**15-16 October 2001
Woods Hole, MA**



R/V LAURENCE M. GOULD

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Post Meeting Recommendations

RECOMMENDATION 1: NSF (AL SUTHERLAND) WILL INVESTIGATE HAZARDOUS WASTE REMOVAL OPTIONS AND DISCUSS FINDINGS WITH ARVOC.

RECOMMENDATION 2: ARVOC/RPSC WILL DEVELOP A MORE SYSTEMATIC PROCESS FOR DISTRIBUTION OF VESSEL OUTBRIEFS. THE “CHIEF SCIENTIST” LETTER WILL BE AMENDED BY RPSC AND THE NSF TO MORE CLEARLY INSTRUCT THE MPC AND CHIEF SCIENTIST IN THE DISTRIBUTION OF OUTBRIEFS. ARVOC (CHAIR) WILL DESIGNATE AN ARVOC MEMBER TO CONTACT THE CHIEF SCIENTISTS DIRECTLY TO DISCUSS ANY ISSUES ARISING FROM CRUISES. RPSC SCIENCE AND IT DIVISIONS WILL WORK TOGETHER TO CONSOLIDATE OUTBRIEF AND METRIC PERFORMANCE FORMS TO MAKE THEM LESS REDUNDANT.

RECOMMENDATION 3: AGUNSA WILL HAVE AN AGUNSA EMPLOYEE FROM THE WAREHOUSE BOARD THE VESSELS TO “CHECK IN” CLOTHING AFTER THE VESSELS GET TO PORT AND BEFORE THE GRANTEES LEAVE THE VESSELS FOR CONUS.

RECOMMENDATION 4: ARVOC WILL POLL THE SCIENCE COMMUNITY OF USERS IN THE SPRING (APRIL/MAY) BEFORE THE NEXT YEAR’S BUDGET IS FINALIZED. ARVOC WILL PRIORITIZE THE VARIOUS SUGGESTIONS AND FORWARD THIS LIST TO RPSC (JIM HOLIK) IN TIME FOR EFFECTIVE INPUT AND CONSIDERATION BY RPSC AND THE NSF. RPSC (JIM HOLIK) WILL PROVIDE ARVOC THE STATUS OF THE MULTI-USE CAPITAL EQUIPMENT SUGGESTIONS/PRIORITIZATION AT THE NEXT REGULARLY SCHEDULED ARVOC MEETING.

RECOMMENDATION 5: ARVOC (BILL DETRICH/ROBIN ROSS) AND PAUC (TAD DAY) WILL FORMULATE, FOR COMMITTEE REVIEW AND POSSIBLE PRESENTATION TO DR. ERB, A LETTER THAT FORMALIZES ARVOC’S SUPPORT FOR A WORK BOAT IN THE PALMER STATION AREA.

RECOMMENDATION 6: JIM DOLAN WILL PREPARE A COMPARISON REPORT ON EMAIL STATS OVER THE NEXT YEAR AND HAVE THIS AS A PART OF HIS PRESENTATION AT THE NEXT ARVOC MEETING.

RECOMMENDATION 7: NOMINATIONS FOR ARVOC MEMBERSHIP WILL BE REQUESTED (ROBIN ROSS) FROM THE SCIENTIFIC COMMUNITY AND FROM THE ARVOC. EFFORTS WILL BE MADE TO SELECT NOMINEES THAT COMPLEMENT THE SCIENCE DISCIPLINES ALREADY REPRESENTED IN ARVOC. ROBIN ROSS WILL CONDUCT ELECTION BY EMAIL.

RECOMMENDATION 8: THE ARVOC CHARTER WILL BE AMENDED (ROBIN ROSS) TO INCLUDE A STATEMENT THAT WILL ALLOW CLOSER INTERACTION WITH AICC AND ARVOC. THE DRAFT WILL BE AVAILABLE AT THE NEXT ARVOC MEETING FOR RPSC AND THE NSF REVIEW AND APPROVAL.

**ARVOC Meeting Agenda
OCTOBER 15 – 16, 2001
Clark Building, Room 271, Quissett Campus
WOODS HOLE, MA**

Executive Session- (Sunday evening 7:00PM The Nautilus Inn, Meeting room provided)

Day 1, Monday 15 October, 2001

7:45	Coffee/Rolls	
8:00	Welcome, Introductions	R. Ross
	Review/Approve 2000 minutes	
	Review of current agenda	
	Executive Session report	
8:30	NSF Report	D. Peacock/A. Sutherland
9:00	Raytheon Reports	
	Science Support/Marine Operations	L. Bonde
	Cooperative Agreement with WHOI	J. Holik/B. Walden
9:45	Vessel Performance Measures	J. Holik
10:15	Break	
10:30	GLOBEC Update	A. Doyle
11:00	Warehouse Upgrade/Renovations in Punta Arenas	J. Holik
11:30	Specialized Technical Support	R. Ross
12:00	Lunch (Box lunches)/ video/tour planning	
1:00	Major Changes/Improvements to vessels	J. Holik
1:30	Capital Equipment Past and Future Acquisitions	J. Holik
2:00	RVIB Rebid Update/Multibeam Update	L. Bonde
2:30	Workboat	B. Detrich
3:00	Break	
3:15	MG&G Update	J. Holik
3:30	Ship of Opportunity	T. Chereskin
	Underway data collection	
4:00	Adjourn	

Icebreaker-Hors d'ouerve, Cocktails- The Coonamessett Inn 5:00 – 7:00

Cash bar/Hors d'ouerve This is apparently also a good place to eat afterwards

Day 2, Tuesday, 16 October, 2001

8:00	WHOI Tour	B. Walden
10:00	Electronic Support Planner (ESP) Update	D. Atwood
10:30	IT Update	J. Dolan
11:00	Shipboard quality of life	R. Ross/M. Gisclair/J. Holik
11:30	RPSC POC system: Is it working?	R. Ross/J. Holik
12:00	Lunch (Box lunches)	
1:00	AAIC	J. Swift
1:30	ARVOC Business	R. Ross
	Call for nominations	
	Next Meeting Date/Location	
2:00	Open Forum, Other items, other committee business	
4:00	Adjourn	

Welcome, Introductions

Robin Ross, Chair, opened the meeting, welcomed everyone, and introduced new ARVOC members Drs. Steve Ackley and Jamie Austin. The meeting agenda was reviewed and Robin asked if there were any new additions from the floor.

Robin and Jim Holik updated the group on the current status of the R/V NATHANIEL B. PALMER and the difficulties in Marguerite Bay due to extreme ice conditions. The ARVOC was updated as messages arrived from the vessel regarding the weather conditions.

Robin reported on the Executive Session held last evening and it was noted that items specifically discussed during the meeting and scheduled to be topics today and tomorrow are: the ARVOC charter, liaisons with other user groups, hazardous waste runs, outbriefs at cruise end, evaluation forms, multi-use capital equipment suggestions, and election of new committee members.

Motion was made, seconded and approved to accept the ARVOC minutes of 07-08 September 2000.

NSF Report

Dennis Peacock updated the ARVOC on several of this season's activities and impacts:

- The Senate Committee recommended a 10% budget increase for NSF
The House recommended an 8% budget increase
As these budgets are still being worked out, it appears the NSF may only see a 4.5% to 7.5% increase in FY03
- Presently, the NSF is operating on a continuing resolution which expires October 16
- Congress asked that the NSF consider ways to improve security in Antarctica as a result of September 11
- The DOD withdrew the C-17 support to McMurdo and as a result the C-141's were utilized at a higher cost of operation and the cost of a secure air field meant a short term expense to the NSF of approximately \$500,000
- The IceCube project has been dropped from the budget
- The South Pole project is running a little behind schedule due to weather conditions
- Upgrades to air crafts were completed. However, a shortage of pilots proved troublesome

OPP initiatives included:

- Communications upgrade at South Pole
- Resolution of transportation problems

The NSF was tasked by the President with identifying new programs that might be implemented to address global warming issues over the next five years with the intention that funding might be available for these types of programs. Unknown is how September 11 might affect funding.

Activities in-progress include:

- Climate initiatives

ARVOC October 15-16, 2001

- Ocean GLOBEC
- West Antarctic ice sheet- stability and influence on sea level
- Astronomy at South Pole
- Vessels in Pine Island Bay area
- ANSLOPE and RIME meteorology study in Ross Sea area in collaboration with NCAR
- COSMIC – longer term test GPS satellite
- Vostok Lake research
- Workshops- Scott Borg is initiating a workshop in March re: MGG needs with Amy Leventer heading this group. Other opportunities for workshops might be science planning for ocean research or a broader scientific workshop

Al Sutherland reported that it's unknown what, if any, impact the September 11 World Trade Center attack will have on the NSF budget, though it was already known that the NSF budget would be tight for FY 02.

Another impact to the budget is the ECO charter increase. To help offset this increase, the vessel renovations were begun early, which will mean a shorter "off-charter" time for the R/V NATHANIEL B. PALMER. This coming year, between two winter cruises in 2003, it's planned for the vessel to go off charter for two months to allow for completion of renovations.

Al posted, for ARVOC review, the vessel schedules for austral summer 2003. It was noted that the schedule is still in a state of flux with numerous events competing for the same time frames. Al will continue to keep ARVOC and vessel users informed as the schedule is developed.

Hazardous waste runs to the U.S. and how these cruises impact the USAP vessel schedules every two years was discussed. ARVOC, when it learned that proposals have been turned down because of logistics and ship availability, asked that the NSF and RPSC consider other haz waste removal options...other than the R/V LAURENCE M. GOULD and the R/V NATHANIEL B. PALMER.

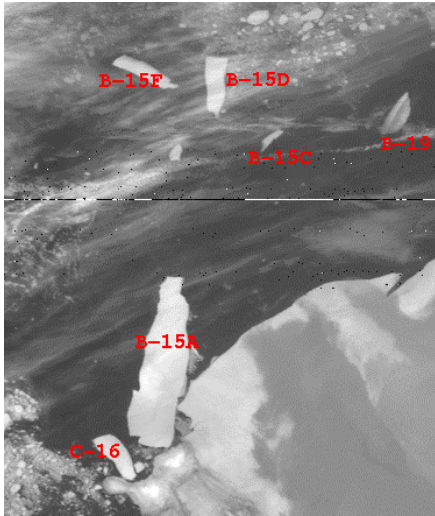
Options might be transporting the waste from Palmer Station on a USAP vessel to McMurdo, then further transport by the GreenWave or a USCG vessel sailing by the Palmer Station area might be another viable option.

RECOMMENDATION 1: NSF (AL SUTHERLAND) WILL INVESTIGATE HAZARDOUS WASTE REMOVAL OPTIONS AND DISCUSS FINDINGS WITH ARVOC.

Bill Detrich suggested that PIs communicate with Polly Penhale and Al Sutherland to request "cruises of opportunity" when feasible.

AI reported the NSF has been in contact with the British Antarctic Program regarding the Rothera British Laboratory fire this last season. If the NSF can be of assistance, that offer has been extended to the British.

The iceberg B-15A is locked into the Ross Ice Shelf and has caused unprecedented difficulties this season. It is unclear when this iceberg will move from the area. The U.S. Coast Guard has been asked by the NSF to send the POLAR STAR and the POLAR SEA ice breakers to open a path for the GREENWAVE. The second ice breaker will cost an estimated \$3 million for its service.



The U.S. McMurdo Station is on Ross Island, just off the bottom of the image. Sea ice is seen in the lower, left corner of the image.

Lastly, AI reported on the excellent Air National Guard LC-130 transport support to McMurdo and South Pole this season.

Science Support/Marine Operations

Les Bonde continues as Acting Science Support Director until a new director is chosen by RPSC and Les reported the six-year contract with 2 two-year options between the NSF and RPSC was officially signed in March.

Les briefly discussed the Deployment Specialist Group (DSG) and the Acquisition Specialist Group (ASG). These two new organizational groups are being created to better serve the science community, employees, and RPSC management with travel, medical, and purchasing processes.

Cooperative Agreement with WHOI

Jim Holik and Barry Walden updated ARVOC on activities to-date and explained that WHOI will continue to work with RPSC in scheduling work that is specific to WHOI, such as cruises requiring MOCNESS. The scope of WHOI involvement may increase dependent on mutual needs. WHOI also supports mooring operations of the vessels for GLOBEC although this work is funded through Scientist's grant rather than directly through RPSC.

Vessel Performance Measures

Jim Holik presented overviews prepared by Dr. Steve Kottmeier showing the performance metrics. The ARVOC asked if RPSC could identify and explain more clearly the metrics and could the number of responses also be a part of the information available to the committee.

Following discussion, ARVOC recommended that RPSC develop a more systematic process for distribution of vessel outbriefs. This will allow ARVOC the opportunity to contact the Chief Scientist directly to discuss any vessel issues arising from cruises.

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Al Sutherland asked if an annual metrics report could be written for ARVOC and the NSF and Steve Ackley added that load/berthing would be information he would like to see factored into the report.

GLOBEC Update

Alice Doyle reported, the second year GLOBEC cruises occurred with very positive responses from the scientists. The comparison opportunities between the two vessels proved very successful and the overall goals were met.

GLOBEC Overall Goals

- Study shelf circulation processes and their effect on sea ice formation and Antarctic krill distribution
- Examine factors that govern krill survivorship and availability to higher trophic levels including seals, penguins, and whales

These goals were approached by a moored instrument program, broad-scaled physical, biological and chemical oceanographic surveys, process-oriented investigations, and modeling studies focused on austral winter processes in the region west of the Antarctic Peninsula.

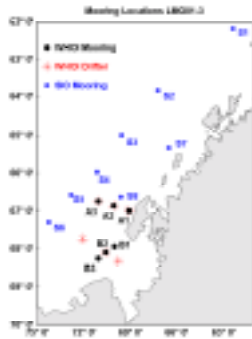
Research involved 33 Principal Investigators from 18 institutions

Operations involved both research vessels and cruises occurred between March 18 and September 01, 2001

Areas of research - predators, prey, mooring/drifted, water column, ice

R/V LAURENCE M. GOULD mooring cruise activities:
 WHOI current array moorings
 SIO bioacoustic moorings
 Cetacean observations/biopsy sampling
 Drogue deployments

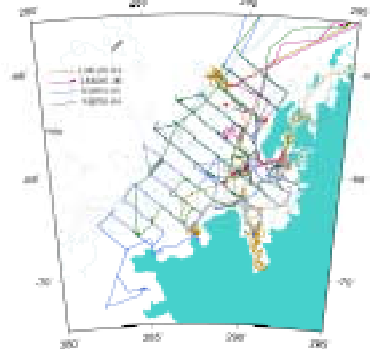
LMG01-03 Mooring Cruise



US SO GLOBEC 2001 FIELD SEASON

Process/Survey cruises

(LMG01-04/NBP01-03.LMG01-06/NBP01-04)



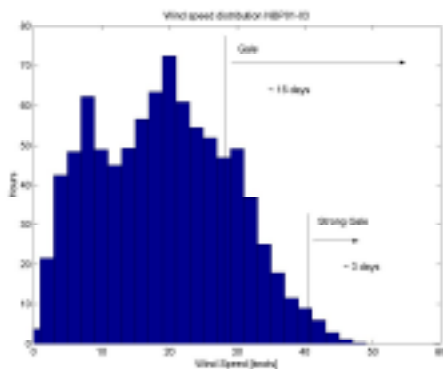
Survey I & II

Biomapper/VPR
 MOC 1 and MOC 10 (SURVEY II only)
 CTD
 Sea-bird transects/diet sampling

ROV
 AWS station (SURVEY I only)
 Cetacean Observations/biopsy sampling
 SCUBA diving (SURVEY II only)

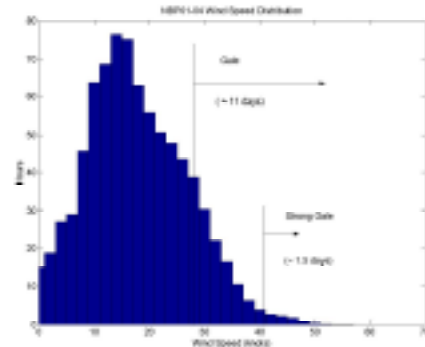
SURVEY I

Wind speed distribution



SURVEY II

Wind speed distribution



AWS operations- Survey I and II

Latitude: - -68 20.397 S

Longitude.: -69 00.44 W

Height of site above sea level: ~75 ft (crude estimate) (25m estimate) (12m)

Installation: May 25, 2001; reprogrammed May 27, 2001

Kirkwood Island (AWS #8930)

Latitude: - -68 05.243

Longitude. -68 49.480W

~35ft (crude

May 27, 2001

Dismal Island (AWS #8932)

Alice reported that there are five cruises planned for the 2002 field season with a similar cruise timeframe as last year. It's expected that next season will be just as successful as 2001 with the returning PIs, the same RPSC point of contact, and the experiences learned to-date.

Warehouse Upgrade/Renovations in Punta Arenas

Alice Doyle and Jesse Doren are the Marine Division contacts in planning and scheduling warehouse storage upgrades. Jim Dolan is coordinating the IT workstation setup in the Agunsa warehouse/office area. RPSC Logistics is point of contact for contract negotiations with AGUNSA.



Warehouse Storage before reorganizing



Warehouse Storage following cleanup



Continued warehouse cleanup



Drum storage area



Warm stores and open work area



Inside warm stores area



Clean Shop



area
New electrical power outlets at warehouse

Electrical Technician's work



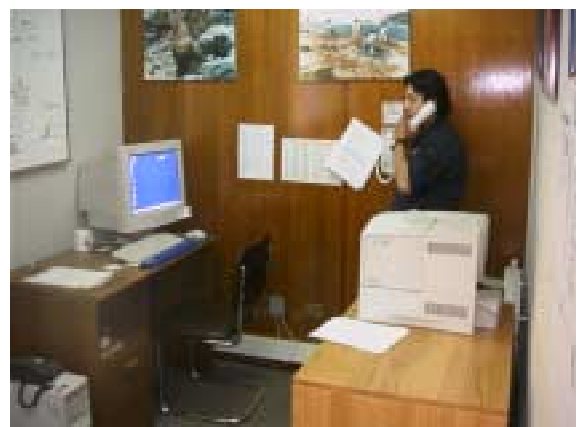
Warehouse second floor



Warehouse first floor



Grantee/transit computer area



What's Next??

- AGUNSA was awarded the contract in rebid (3 year base, 5 option years) beginning 01 November 2001
- AGUNSA will remodel internal clothing fitting rooms and remove one wall to expand clothing fitting area after 01 November 2001
- Further definition, development, implementation of shop area design and requirements
- Clothing return/check-in procedures will be reviewed and a method that works best for vessels/Punta Arenas will be implemented. (following discussion at today's meeting, it was determined that an AGUNSA representative will board the vessels at cruise end to collect clothing. RPSC will rewrite the procedure to be more applicable to vessels/Punta Arenas and not as McMurdo/South Pole driven.
- Develop system of cargo inventory tied into new segregation plan
- Hazardous Goods storage/segregation is inadequate and not compliant with local regulations. This issue is being addressed.

HAZ-STOR™ Fire-rated Hazardous Materials Storage Building



Below is Brien Borden's information regarding Logistics plans for the Punta Arenas warehouse as presented at PAUC meeting (included for ARVOC information).

- **Punta Arenas Warehouse**
 - **Additional Space Acquisition**
 - **900 M3 Indoor Warehouse Space (Warehouse #2)**
 - Palmer Station Equipment and Supplies
 - Field Support Staging
 - GLOBEC storage
 - **900 M3 Outdoor Storage Area**
 - Oversized Equipment
 - Container, Flat Rack, Lab & Berthing van holding area
 - **Use of Warehouse #1**
 - Clothing issue
 - Administrative office for Warehouse
 - Storage of Marine Cruise materials
 - Hazardous Storage Area
 - Ultra Low Freezers
 - Work Shop Area (in process)
 - Warm Storage (in process)
 - Chemical Storage (in procurement)
 - Electronics part storage area (in process)
 - **Clothing Upgrade**
 - Redefined clothing issue standard
 - Created "Additional Clothing" available for issue
 - Instituted clothing issue meeting times for participants
 - Defined minimum stock levels for ECW garments
 - Annual inventory audits and ordering plan
 - **IT Technology Upgrade**
 - Benefits to USAP in Punta Arenas
 - **Work in process**
 - **Electrical upgrade for WHSE #1**
 - **24/7 network support/email capability**
 - **Visitor work stations**
 - **Full use of CTS/tracking**
 - future - electronic transfer of data into system
 - future - wireless comms. with vessel (in port only) to increase email visitor stations
 - Multi-use software capability
 - Better usage of AGUNSA labor
 - **Field Gear Consolidation**
 - **In process**
 - **Areas of operation (Room off mezzanine/Warehouse #2)**
 - **Handling of "inventory" visé "cargo in transit"**
 - **Inventory management system**
 - **Excess /Obsolete material purge**

- **Additional space allowed Marine Division to evaluate equipment and materials storage**
- **Warehouse #2 allows Palmer wbs managers to more easily (and quickly) evaluate equipment and materials**
- **Retro 40 ft. container for resale**
- **For science equipment, need to establish dead-time before retro**
 - **After 2 Years?**
 - **Material not required within 2 years - retro?**
- **Planned Upgrades/Impacts**
 - **Increase clothing area**
 - **Males and Females in separate fitting sessions**
 - **Encompasses office area not currently utilized**
 - **Clothing area becomes one private room (current men’s fitting area), one large fitting room, and one bathroom**
 - **New tile flooring**
 - **Walls and ceiling re-painted**
 - **Finish off ceiling in clothing inventory area**
 - **Commercial Shipping Port is the Catalina Pier**
 - **Commercial Reefer operations no longer require power from Whse #1**
 - **Opens space on outside of for lab vans, and USAP equipment requiring power**
- **Retrograde Shipping Issues**
 - **Air transport restrictions during tourist season in Chile**
 - **30 Day commercial air transport to PTH. Shipments with earlier deliveries to the US require separate advisories and communication for priority forwarding**
 - **Lan Chile operates “Agency” operates outside Santiago**
 - **AGUNSA intervention with the Director of Customs, Patagonia Region - slow customs processing**
 - **ERR’s require approval and contract in place from Purchasing before PTH can ship to supplier**

The ARVOC members discussed the proposed process for returning ECW gear to the Agunsa warehouse following cruises. It is the opinion of the committee that, as Punta Arenas is quite different from McMurdo Station, the process should be amended to better facilitate scientists/RPSC/NSF participants moving through the Punta Arenas system.

RECOMMENDATION 3: AGUNSA WILL HAVE AN AGUNSA EMPLOYEE FROM THE WAREHOUSE BOARD THE VESSELS TO “CHECK IN” CLOTHING AFTER THE VESSELS GET TO PORT AND BEFORE THE GRANTEES LEAVE THE VESSELS FOR CONUS. This amended process will meet the goals of having all ECW gear returned to inventory in a timely manner and will not delay departures.

Bill Detrich asked for better clarification on “sample retrograde” back to the US especially in light of the September 11th World Trade Center attack. Bob Kluckhohn

noted that Joni English, Haz Cargo Specialist, Logistics, is currently working on this issue and that plans are to work with the airlines to make these types of shipments move smoothly and quickly. Bill suggested that the PIs be kept informed on how to best send dry shippers, which documents need to be used, provided a letter with contact names on who will verify/authorize the dry shipper contents.

Bob added that the MPC or MST may stay a day longer in Punta Arenas to make sure items are sent out successfully. Alice Doyle is working on new labeling so the warehouse staff will store items at the correct temperatures. Also, in an effort to clear out old, obsolete items from the warehouse, PIs may be contacted for authorization to ship items back to home institutions or disposal approval. Al Sutherland noted that NSF should be brought into the process and approve disposals.

Jim Holik will confirm that vessel Situation Reports are being sent to all ARVOC members. It was noted that ships' schedules must be subscribed to from the individual's email account by sending a message to:

Majordomo@polar.org

In the body of the message, type

Subscribe rvlmg

Then in a second message, type

Subscribe rvnbp

Specialized Technical Support

Concerns regarding the requirements for, berthing of, and logistics for specialized technical support, such as a Nutrient Analyst, were discussed. ARVOC members and Chief Scientists sailing cruises asked for clarification.

Questions include:

Who is responsible for overseeing that the Specialized Tech work is done? RPSC? The PI? The Chief Scientist?

Who decides when a Specialized Tech is needed?

If space is totally occupied by the Specialized Tech and his equipment, this can be a problem for the Chief Scientist/grantees. Who has authority to resolve the space issue?

Who actually is responsible for paying the extra expense of a Specialized Tech?

Jim Holik and Bob Kluckhohn responded to the questions by advising the members to begin by noting in the SIP their need for a Specialized Technician. This will allow RPSC time to determine the level of training/knowledge needed for that specific cruise. (Dr. Lou Gordon's lab may still be utilized as a source of training on nutrient analysis equipment.)

Al Sutherland added that there couldn't be a flat rule that applies to every cruise. Rather each project must be looked at on a case by case. The NSF can then review the request and approve or not approve the cost/need for a Specialized Technician.

It was suggested that the Nutrient Analysis equipment might be set up to allow mobility between cruises. This will free up space when the equipment isn't being used.

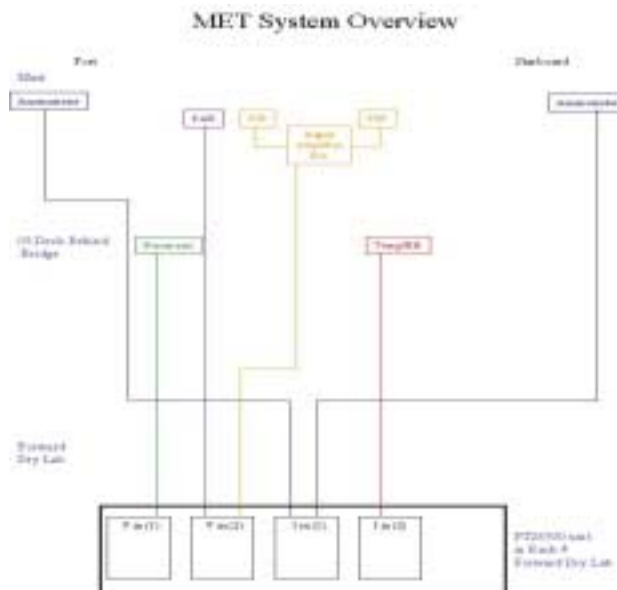
Major Changes/Improvements to vessels

Jim Holik discussed the major changes/improvements either already completed or started for both vessels over the last year.



Installed new R. M. Young Meteorological System on the NBP

- Removed old METDAS, a hybrid collection of sensors from six different vendors. Too many failure points and data was unreliable.
- New system has most sensors made by same manufacturer and shows significantly better data quality (full resolution, no clipping)
- Complete set of technical and users manuals have been created for this system.
- NBP system will be duplicated on the LMG this November
- Provided ECO with independent anemometer and bridge display

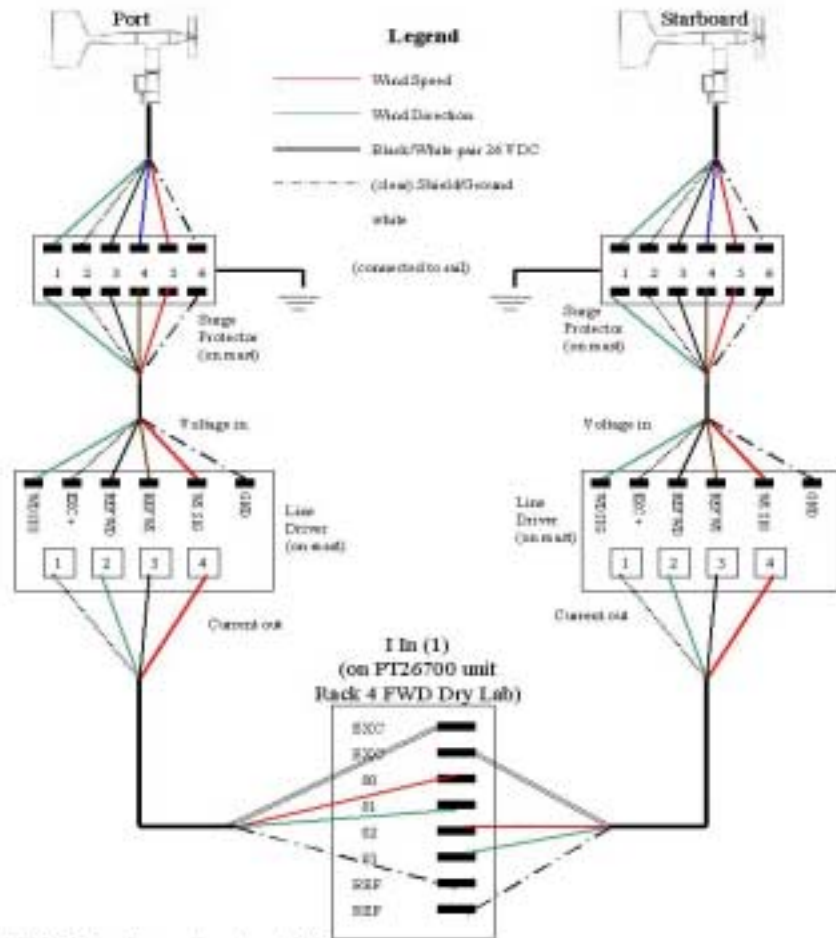


Science Mast



1.

Wire Run Diagram: Anemometer



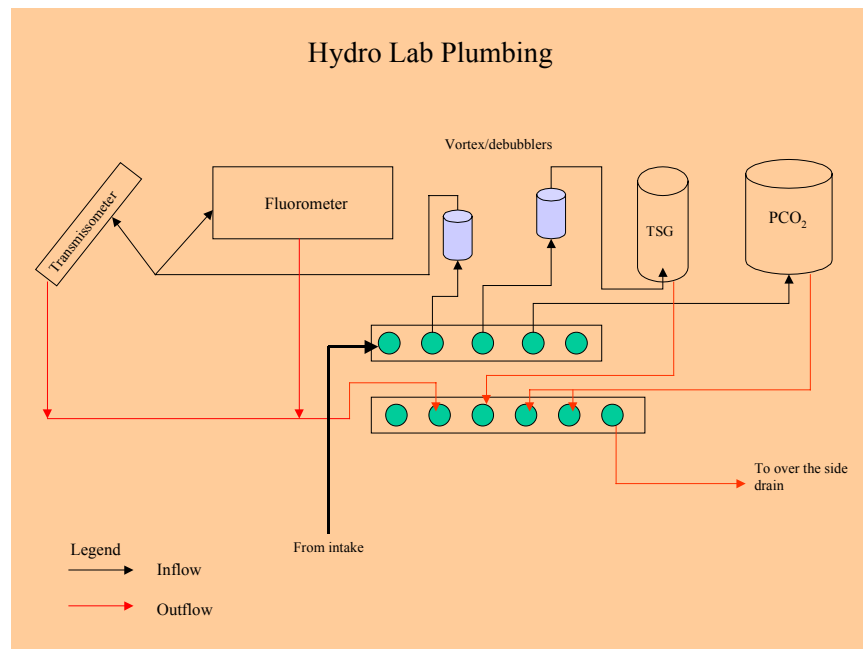
*NOTE: Line driver not used on LMG



Bridge Anemometer display

Upgrade/Reconfigure Underway Seawater Sensors

- Identical configuraton on both ships
 - pCO₂ system to be installed on LMG
 - Transmissometer installed on NBP
- Supply pumps are larger capacity, slower moving w/positive pressure
- Manifold expandable
- Removes micro bubbles
- Improved delivery of seawater to NBP labs. This system is scheduled for complete redesign and improvement in June 2002.



CCTV System and Remote Displays

- Redesigned system and installed distribution amps for each deck
- The new system shows improved video quality and is expandable
- Installed remote ECDIS display in Forward Dry Lab
- Everybody now using same navigation display
- Installed multibeam SeaView remote display on bridge
- Real time display allows mate to steer the survey based on data collected

INMARSAT

- Installed and commissioned a spare INMARSAT (NERA B transceiver) on the NBP



CCTV system

Laboratories -New stainless steel sinks with mud traps/sieves on drains installed in Wet and Aft Dry Labs



Drains on NBP

- Multiple 4" floor drains with strainers installed in Wet and Dry labs
- Multiple 4" drains installed in Baltic Room
- Floor drains and Aquarium drains are now connected to large diameter pipes that discharge directly over the side instead of into the vessel's bilge



Ultra Low Freezers

- New Ultra Low Freezers with surge protection installed on both ships

New Freezer/Ice Processing Lab

- Capable of maintaining temperature to -25°C with two people working inside
- Operates to spec in outside temperatures up to 30°C
- Supplies 10 cu ft/min fresh air
- Temperature configurable between -25°C and ambient allowing the van to function as temperature controlled van if required



Nutrient Analyzer

- ALPKEM flow solution methodologies have been updated to JGOFS standards
- System now has SOPs for five seawater elements
- University of Oregon will offer training to future operators



Bio Lab expanded on R/V NATHANIEL B. PALMER



Bob Kluckhohn reported on the vessel lab furniture installation planned for June, July 2002. Drawings of the layout were available for ARVOC review.

Microscope Room installed on the R/V NATHANIEL B. PALMER



Nikon E800 Microscope, Imaging System and Vibration Table install on the R/V
LAURENCE M. GOULD



Sea water wash-down pump capable of 40 psi for back deck operations installed on the
R/V NATHANIEL B. PALMER



MG&G Upgrades

Upgraded airgun deployment system

- Upgrading BATH 2000 to BATHY W
- New 1200 meter multi-channel streamer being purchased



Bolt airguns and deployment rails

Capital Equipment Past and Future Acquisitons

Jim Holik presented overviews and discussed with ARVOC Capital Equipment acquisitions for FY01 and proposed acquisitions for FY02. It was noted that, due to the SIP due date (April) and the often long lead-time for purchases, RPSC may place capital equipment orders based on needs as deemed appropriate by RPSC and the NSF.

Marine Tech Capital Equipment FY01	Electronic Tech Capital Equipment FY01
New .680 Coax wire for LMG	16 new SBE 43 dissolved oxygen sensors for CTD Ops - <ul style="list-style-type: none"> • temperature compensated: will eliminate excessive soak time • resolution of data is better by an order of magnitude • the up-trace more closely matches the down-trace
New ½” wire for LMG	BATHY-W Upgrade
New TSE winch for moorings	R.M. Young Meteorology system
	Iridium phones <ul style="list-style-type: none"> • hand-held satellite telephone with global coverage • limited e-mail and data capability • will replace INMARSAT voice and fax on vessels • reduced cost for voice/fax • 3 phones on each ship MPC office for voice/fax Unit ro remote field work Bridge for abandon ship/lifeboat (controlled by Master) VHF=~25 Iridium=global

FY02 (Marine Tech cont'd)		FY02 (Electronic Tech cont'd)	
New .680 blocks	15K	New PUV/GUV system both vessels	72K
NBP Tugger winches rebuild	15K	New magnetometer	15K
Dush 6 on LMG	500K (not budgeted)		

Laboratories FY01	
Nikon E800 Research Microscope with digital and video imaging systems for LMG	
Video and digital camera system for NBP Ziess Microscope	
2 ea small upright Ultra low freezers for LMG	
1 ea large chest Ultra low for NBP	
3 ea UVT deck incubators	
3 ea Acrylic deck incubators	
3 ea large volume photosynthetron incubators	
2 ea Langdon 0 ² titrators	
2 ea 10cm cells for Alpkem Nutrient Analyzer	
1 ea RDI workhorse navigator (GLOBEC)	
5 ea Xantic tanks and plumbing for NBP	
1 ea wash down pump with spares for NBP	
3 ea workstations for LMG conference room	
chemical storage with constant temperture control	
75 KW motor generator for PA warehouse	
freezer/ice processing lab van	
FY02	
replacement blue-m ovens	6K
replacement rad van UNOL specifications	98K
2 ea dry ice makers for PA	13K
instrument computers	8.5K
Backup port-a-sal	26K
2 ea replacement water baths for NBP	5.5K
replacement Beckman LSC for new rad van	25K
freezer/temp control lab van for LMG	72K
flow-through fluorometer for NBP	12K
vibration platforms for NBP microscope room	19.5K
Total Laboratories FY02 285.5K	

ARVOC members noted their willingness and interest in working with RPSC and the NSF in determining the science community's input/suggestions for capital equipment needs on the vessels.

RECOMMENDATION 4: ARVOC WILL POLL THE SCIENCE COMMUNITY OF USERS IN THE SPRING (APRIL/MAY) BEFORE THE NEXT YEAR'S BUDGET IS FINALIZED. ARVOC WILL PRIORITIZE THE VARIOUS SUGGESTIONS AND FORWARD THIS LIST TO RPSC (JIM HOLIK) IN TIME FOR EFFECTIVE INPUT AND CONSIDERATION BY RPSC AND THE NSF. RPSC (JIM HOLIK) WILL PROVIDE ARVOC THE STATUS OF THE MULTI-USE CAPITAL EQUIPMENT SUGGESTIONS/PRIORITIZATION AT THE NEXT REGULARLY SCHEDULED ARVOC MEETING.

Jesse Doren noted that plans are to keep the DUSH 6 on the R/V LAURENCE M. GOULD operational as long as possible but that RPSC and the NSF will most likely look

into replacing/repairing it sometime in the next two years. ECO/RPSC will look at the placement/angle of the DUSH 6 for safety reasons, as suggested by Bill Detrich.

Multibeam Update and RVIB Rebid

Jim Holik reported that ECO and SIMRAD worked on the SIMRAD EM120 plans in August. Mark Gisclair worked on the contract between ECO and SIMRAD and the contract has been signed. The system should be at North American Shipbuilders by the beginning of April for further shipment to Talcahuano, Chile.

Les added that the SIMRAD EM 120 is on an accelerated installation schedule.

Tentative schedule is:

May 23-30 R/V NATHANIEL B. PALMER transits to Talcahuano. RPSC will remove Seabeam 2112 in-hull electronics

June 1-6 RPSC will remove Seabeam 2112 hull transducer arrays

June 7-July 16 ECO will install SIMRAD Em 120

July 17-25 R/V NATHANIEL B. PALMER will transit to Punta Arenas and conduct sea trials/training

ARVOC members (Gene Domack/Steve Ackley) discussed various multi-beam systems on the market. However, following general discussion, Don Atwood noted that the SIMRAD is what is needed in today's circumstances and is within approved budget.

ECO will be sending 20-25 NAS workers to Talcahuano during the dry dock period and RPSC has 10-12 employees tentatively scheduled for this dry dock period as well. Work will include the moon pool, seawater system, furniture, etc.

Al Sutherland reported the charter for the R/V NATHANIEL B. PALMER has been signed and will begin March 12, 2002.

MG&G Update



Jim Holik presented the following MG&G information.

What's New in MG&G

We have purchased a new Multichannel Streamer

- 1200 meters
- Modular (8 sections, 50m each)
- Programmable through array interface unit (AIU)
- Configurable between 48 and 96 channels
- Provides flexibility to do many different tasks with one streamer
- Acceptance tests are scheduled for Oct-Nov 2001

S/N Technologies Inc.
"NexGen"
Next Generation Solid Streamer



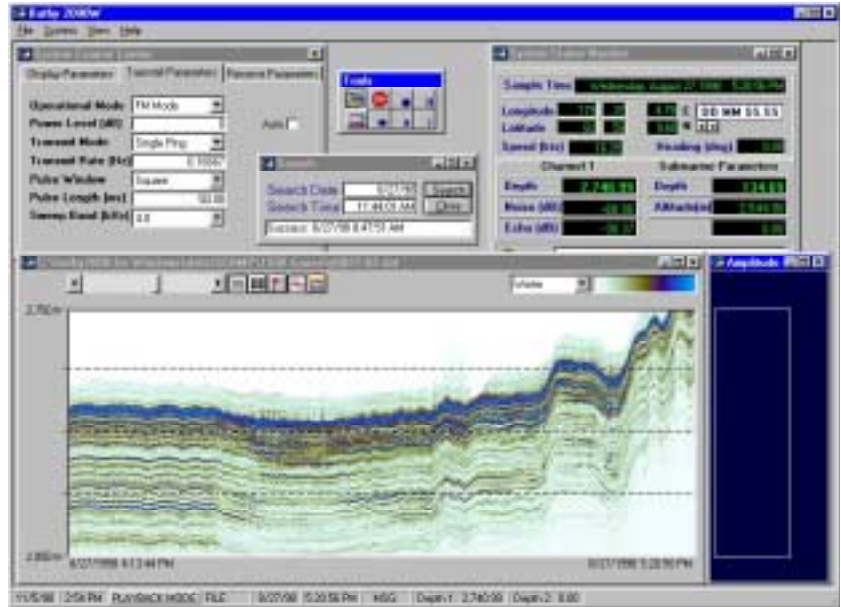
- Highest Signal to Noise performance
- Flexible syntactic buoyancy technology
- Advanced strength member technology
- Digital and Analog platforms
- Superior operational envelope
- Robust construction
- Multi-layer leakage resistant
- Extremely flexible
- Field Repairable
- UV resistant

S/N Technologies, Inc.
8101 Airport Road, Mineral Wells, Texas 76067
Ph: 817.888.0023 Fax: 817.881.8008 E-mail: SNMarketing@aol.com

BATHY 2000 will be Upgraded to BATHY W

- Upgrade in power from 5 kW to 8.3 kW
- Increased resolution due to hardware and software upgrade
- Saves Sub-bottom data across network rather than to MO disk
- Printing/plotting not controlled by acquisition parameters
- Installation scheduled for Dec. 2001
- Processing software purchased:
 - 5 copies on ship
 - 5 copies to give to PI's if requested in SIP

BATHY-2000P



Workboat

Bill Detrich reviewed a brief history of small vessels that have been used in Palmer Station Area research. Bill, as an original member of PAUC, recalls a work boat recommendation was proposed in 1985. During the last three years PAUC has continued to discuss and promote the possibility of a workboat that would free-up the R/V LAURENCE M. GOULD for research. The ABEL J is suggested as a possible option when selecting a workboat and Bill Detrich and Bruce Sidell presented figures/costs for a six-month charter. This would be in continuous use at Palmer Station; crew would stay on board and no berths would be needed at Palmer Station.

ARSV Laurence M. Gould Vessel Utilization Analysis

Year	#Cruises	Science Days	Transit Days	PA Days	Yard Days	Station Days
1999	12	180	90	61	29	31
		% Days Supporting Science = 49%				
		% Days in Transit = 25%				
		Total Days at Sea = 270 (74%)				
		% Days in PA = 17%				
		% Days in Yard = 8%				
		% Days Station Logistics = 9%				
Year	#Cruises	Science Days	Transit Days	PA Days	Yard Days	Station Days
2000	13	162	120	62	15	19 (13 Haz)
		% Days Supporting Science = 44%				
		% Days in Transit = 33%				
		Total Days at Sea = 282 (77%)				
		% Days in PA = 17%				
		% Days in Yard = 4%				
		% Days Station Logistics = 5%				

USAP vs. UNOLS Vessel Utilization

"Apples vs. Apples"

Definition: Days productively deployed = science days + transit days + days loading at non-home port.

ARSV Laurence M. Gould:

1999 = 331 days

2000 = 344 days

R/V Nathaniel B. Palmer:

Before 1999 = 316 days

UNOLS Large Vessels (>275'):

275-300 days (AS)

255-322 days (SJ)

UNOLS Intermediate (150-180'):

200-250 days (AS)

UNOLS Small (<135'):

125-200 days (AS)

Conclusions

- (1) **USAP vessels are at least as productively deployed as UNOLS large vessels.**
- (2) **Productive deployment entails compromises inherent in vessel missions.**

Workboat Justification

Premises

- The *ARSV L.M. Gould* must maintain its role in logistic support of Palmer Station.
- The *ARSV L.M. Gould* is overkill for many Palmer-based science programs.
- Use of the *ARSV L.M. Gould* for blue-water research should be maximized, within overall mission constraints.
- The workboat will enhance Palmer-based research without requiring additional science funding.
- Acquisition of a purely logistic/supply vessel to free the *ARSV L.M. Gould* for research would inevitably strip Palmer Station of its marine research platform.

Workboat Justification

Advantages

A workboat meeting the specifications of the Sidell report would:

- support research up to 150 nm from Palmer Station.
- provide close support to shore parties engaged in research on marine birds or geology.
- serve as a fishing platform for trawling and trapping operations.
- support servicing of automated weather stations in the vicinity of Palmer Station.
- permit more extensive exploration of coastal islands.
- open new possibilities for marine mammal research.
- enable the Palmer LTER to extend seasonal surveys.

Conclusion

Many current projects that require ship time on the *LMG* could be accommodated by a smaller workboat, easing demand on the larger ship and ensuring its more efficient use in support of projects requiring the more sophisticated platform.

Support for Palmer Station Workboat

1. Workboat Letter

Subject: Workboat for Palmer Station

Date: Tue, 18 Sep 2001 16:17:44 -0400

From: "H. William Detrich" <iceman@neu.edu>

ARVOC October 15-16, 2001

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To: Bill Fraser <bfraser@sun.3rivers.net>, Bruce Sidell <bsidell@maine.edu>, Dave Kieber <djkieber@mailbox.syr.edu>, Lisa Crockett <crockett@oak.cats.ohiou.edu>, Patrick Neale <neale@serc.si.edu>, Tad Day <tadday@asu.edu>, Wade Jeffrey <wjjeffrey@uwf.edu>, dcroll@cats.ucsc.edu, costa@biology.ucsc.edu, ian@ig.utexas.edu, Chuck Amsler <amsler@uab.edu>, Donal Manahan <manahan@usc.edu>, Karen Baker <karen@icess.ucsb.edu>, Langdon Quetin <langdon@icess.ucsb.edu>, mvernet@ucsd.edu,

Dear Colleagues,

At the next Antarctic Research Vessel Oversight Committee (ARVOC) meeting (15-16 October), the "Working Group on a Nearshore Vessel for Support of Palmer Station," which I Chair, is to reconsider the options for a 100-ft "workboat." At its meeting last year, the ARVOC reacted with moderate enthusiasm to the concept and requested that further information and justification be sought. My objective is to strengthen the case by providing community input for the ARVOC to consider.

The workboat should be a "win-win" situation both for station- and vessel-based science. First, the workboat would substantially enhance the capabilities for Palmer-based science by permitting excursions up to 100 miles from station and providing for inshore sampling, which at present are difficult to accomplish from our large vessels. A major specification would be that the workboat be acoustically quiet, the better to survey marine mammals, birds, krill, etc. Not only biologists would benefit; small field camps for glaciologists and geologists could be deployed by the workboat. Second, the workboat would relieve pressure on the NBP and LMG during the peak period of demand (December - May), thus enabling them to deploy on longer duration cruises (e.g., for oceanography, etc.). Although the LMG will always be required for station logistics/resupply and for Palmer personnel exchange, a local workboat should enable the LMG to deploy on one-month cruises near the Palmer Archipelago during the Austral summer.

To buttress the case for a Palmer-based workboat, I'm writing to ask you to provide me with brief descriptions of how the workboat would enhance your science (biology, glaciology, geology, etc.) during its proposed six-month deployment (Dec. 1 - May 30) and estimates of the number of vessel days that you could transfer from the NBP or LMG to the smaller vessel (for example, of 20 ship science days during a two-month deployment, 15 could transfer to the small vessel; consider only ship science days, not transport to/from Punta Arenas). Please tell me whether your estimates are based on past field seasons or future projections. Some of you may not have used the vessels in recent years, but I'd like to get your perspective anyway.

Please send me your comments by 10 October so that I can summarize them for presentation to the ARVOC. Many thanks for your help.

Cheers!
H. William Detrich

2. Responses

a) Marine Mammalogist

Dear Dr. Detrich,

While I presently have no funded projects in Antarctica, I believe a 100-foot work boat would be a much-needed addition to research support in the Antarctic Peninsula region. Many projects are difficult to accomplish because they are either 1) need to be too remote to be supported by Palmer Station or 2) intensive studies of longer duration in a localized area (rather than synoptic studies) that are not well supported by a very large and expensive vessel. A similar model to that you may be suggesting is the R/V Tiglax that is run by USFWS in the Alaska Maritime National Wildlife Refuge. This vessel is 120 feet with a small crew (6). It works the SE Alaska and Aleutian Islands region supporting everything from benthic surveys, seabird research, marine mammal research, oceanographic work, and vessel-based archeological and geological studies (using a skiff for shore sampling). This boat is efficient, cost-effective, and has tremendously expanded the scope of work that the USFWS can accomplish. A similar vessel could do the same for Palmer Station. Personally, I would see using such a vessel to support studies of trophic dynamics of large whales (particularly humpback whales) foraging on krill in the LeMare

Channel region. Under current vessel support such a study would be very expensive and difficult to fit into the ship schedule. I whole-heartedly endorse your endeavor to improve vessel support and wish you luck!

b) Marine Secondary Metabolite Biologist with Diving Program

Our current project does not use the big research vessels and I don't have any realistic expectation that we would propose to do so in the foreseeable future. That's not to say that operations away from Palmer would not be of value. Some of the questions we are asking would benefit from an expanded geographic study area. Just not enough to, in my mind, justify the expense of requesting dedicated time on one of the two large oceanographic research vessels currently available to US researchers. If a smaller vessel more appropriate for supporting coastal diving operations such as the proposed 100 ft "workboat" was available at Palmer Station, it would potentially make it practical to expand the research questions we are asking by making it feasible to sample over broader geographic areas.

c) LTER Biological Oceanographer

yes, I think the idea of a small boat to work in coastal areas is a great idea. Talking to Langdon yesterday it became clear this boat could add more to Palmer research by

- 1) providing a platform for research carried out by small groups, i.e. one PI with 4-5 people to work in a variety of projects such as fishing, plankton sampling, geology (coring, camps), support for COPA, etc.
- 2) From the point of view of LTER it would allow more sampling in areas not covered by the January cruise and collaboration with new research groups that are now limited by lack of space on the Gould.

From the point of view of my research, the small ship could be used

- 1) to expand sampling from the 2-mile limit to Palmer Basin and Lemaire channels. Closer interaction between the 600 line and Palmer sampling.
- 2) International collaboration with other research bases, such as Brown (Paradise Bay) and others along the coast and on King George Island.
- 3) Excellent for sampling around moorings, servicing moorings and sediment traps, maintenance and repairs of AWS, etc.
- 4) Collaboration with BAS to study/compare Marguerite Bay vs Palmer area and other benthic research.
- 5) For a closer study of the relationship between penguin rookeries, krill and phytoplankton from Arthur Harbor to Marguerite Bay, in areas such as Renaud Island.
- 6) The possibility of getting seasonal data in areas outside Palmer/Arthur Harbor.

Thus the small ship will improve the quality of existing projects as well as open new research lines.

d) LTER Biological Oceanographer

I agree with most of the comments and suggestions made in email by both you and XXXXX. A few complementary comments: 1) As you well know, the "small boat" concept has been with us since the beginning of our project in the early 90's. Is this "workboat" large enough to be "safe" on it's own - or will we again go down the road that a small boat needs a backup and we can't afford two?
[ACTUALLY IT HAS BEEN WITH US SINCE 1985 WHEN JARLE STROMBERG VISITED PALMER AND HIGHLY RECOMMENDED THAT USAP GET A SMALL VESSEL!][I THINK THESE

COMMENTS ARE PREMATURE AS THEY WOULD BE FOR THE BID - BUT MIGHT BE USEFUL FOR THINKING.]

4) From my perspective there are a few essential requirements for the workboat:

4.1 It must have the most advanced gps navigation, mapping and communication capability. This will ensure that moorings can be accurately revisited, near shore locations of interest (and hazards to avoid) will be well recorded. It should also have the ability to receive satellite data relayed from the Palmer TeraScan system as well as ARGOS signals for the tracking of satellite tagged whatever (penguins, seals, buoys, etc.).

4.2 It should come equipped with an independent clean water system for along-track mapping and measurement of mets, optics, surface CTD, fluorescence, transmittance, etc. This will permit the accurate determination of near shore parameters that currently are unresolved by both larger ships and limited resolution satellite data. (Imagine the following possible scenario. The ship comes replete with a "core" suite of sensors and a technician who has the sole function of keeping these sensors periodically calibrated, running, collecting data in the Palmer operational area, processed to "level 1" and placed in a data base for all Palmer users to access.)

e) Terrestrial Plant Biologist

Bill:

I would foresee that terrestrial biologists could greatly benefit from a workboat because it would greatly expand the type of research the do (e.g. by expanding the number of populations they could sample and allowing researchers to address biodiversity questions). Obviously this depends on what they are studying and their research questions. In my case, I could foresee the need for a workboat to sample terrestrial plant populations in outlying islands along the Peninsula. A workboat would allow one to conduct biogeographical studies examining genetic/physiological differences among the many plant populations that are outside the Palmer boating limit, and conduct surveys to assess whether these populations are increasing and spreading, and whether this might be linked to climate change.

Depending on the direction of a future proposal I might submit, I could foresee wanting to use a workboat for island support about 15 days over a 3-4 month field season. This would entail taking us to distant island groups, where we would deploy via zodiac to survey plant populations on islands. We used this approach in January 1998, when we sampled the Joubin Islands with the support of the Abel-J. We found vascular plant populations in the Joubins (surveys by researchers in the past had not found any plants, and considered the Joubins "plant-less"). During our two-day survey of the Joubins, we were accompanied by Bill Fraser's group and Deneb Karentz's groups, who conducted similar surveys on the organisms they study.

You may not want to mention this, but the Abel-J also provided an emergency backup way to deploy from PA - Bill Fraser and I needed to be down at station in early January, and due to problems with the LMG coming on line, we would not have been able to get in until about a month late. The Abel-J provided an emergency alternative for deploying. Somewhat related, and possibly worth mentioning, is that (I think) a workboat would greatly improve the safety situation at station by providing a means to rescue field teams in trouble (within the 2 mile boating limit) and also to get people out in the case of a medical emergency.

f) Marine Microbiologist/Virologist

Bill,

I support the 100' work boat concept and agree that it will greatly enhance science capabilities along the peninsula (safety too... reduce time for medevacs for instance). The obvious improvements of geographic coverage of sampling areas is tremendous and also, as you said, increasing the ability to support

field camps (geologists, glaciologists, birds, seals) is obvious. I could also see that the LMG is provided greater oceanographic research time if not supporting operations closer to Palmer Station..

Our current work has always been done during ozone season so deployment of the boat Nov 1 - May 1 may have little impact on UV projects unless used at the very beginning of the contract period. It would allow greater geographic study of ozone effects at the end of the season and so could prove beneficial in determining whether responses observed at Palmer are "universal."

Good luck with your endeavors.

g) Phytoplankton Biologist

Bill,

Great to hear that the workboat idea may move ahead. I think the main thing the workboat would make possible for my work is greater flexibility with in-shore sampling as noted in your message. However, this is assuming that it would be possible to get it in the water by Nov. 1 (or earlier) and that it would be able to deal with modest amounts of pack ice. If so, we could sample off-shore from Palmer Station at places that we can't get to with the zodiacs, especially critical during the early season when Palmer goes through episodes of pack ice. For example, in my most recent field work at the station we could of easily used 10-15 ship days over a two-month deployment mid-October to mid-December. These would be half-day trips to get samples and bring them back to station. If an appropriate vessel became available in the future, I would probably propose to use it in such a way. I'm not sure if I will do more field work at Palmer, if in shore sampling access continues to be only via zodiac. Instead, I would concentrate on the R/V only approach. So, in a way, the availability of a workboat will decrease the load on the R/Vs because I would propose less work for them (the R/Vs).

I think XXXX XXXXX would have a similar response, hopefully he's sending something to you also. Hope this helps and let me know if there's anything else I can do to assist your efforts.

h) Geologist

Hi Bill,

I think the work boat is a terrific idea. One of the main problems for my type of work is mobility. We have operated in the past with the Gould dropping us off at sites for about 6 weeks and then moving us. This severely limits the number of sites we can visit. Nor is it a very efficient use of time because our schedule is dictated to a large extent by that of the ship and the big-name ocean cruises. The smaller boat would provide much more flexibility. A boat with a 100 mile range would allow a lot of geologic work to be done in the Palmer vicinity. I'm not sure that it would reduce the number of days required by the larger ships very much (perhaps 2 days, based on last year's experience), but it would give a much greater science return for the amount of time spent.

RECOMMENDATION 5: ARVOC (BILL DETRICH/ROBIN ROSS) AND PAUC (TAD DAY) WILL FORMULATE, FOR COMMITTEE REVIEW AND POSSIBLE PRESENTATION TO DR. ERB, A LETTER THAT FORMALIZES ARVOC'S SUPPORT FOR A WORK BOAT IN THE PALMER STATION AREA.

Ship of Opportunity-Underway data collection

Terri Chereskin reported the results of the underway data collection poll. This poll solicited by the ARVOC working group was a result of discussions from the September 20, 2000 ARVOC meeting and an ARVOC recommendation that the Research Support Plan better explain the underway data collection process as it applies to each specific cruise.

Cover letter to underway data collection poll (excluding the text from September 20,2000 meeting)

On October 15-16 the Antarctic Research Vessel Oversight Committee (ARVOC) will meet at WHOI. At last year's meeting we formed a committee (Teri Chereskin, Robin Ross, Bob Anderson) to advise on underway data collection on the Antarctic icebreakers. Included below is the relevant section from the minutes of last year's meeting.

I am contacting you because you are listed as a past/recent user of either the NB Palmer or the LM Gould. I would welcome any suggestions regarding issues that should be brought up at this year's meeting re: underway data (ADCP, tsg, met, bathy, fluorometry, XBT), e.g., issues with respect to collection, access, quality, calibration, etc. I will need your input by Friday, Oct. 12.

I apologize if you get this message more than once. I tried to eliminate duplicates in the list.

Thanks,
Teri Chereskin

Four responses:

Thank you for asking for my input on the underway data collection/distribution for your upcoming meeting. I agree that it is important to collect it any time the ship is underway, that it should be given to PIs from the cruise (as long as it is not part of a specific PI's project), and that there should be some quality control. I'm sorry not to have any specific input, but I have not had the occasion yet to need to use the underway data.

The biggest problem we had with the underway data sets on the recent SO GLOBEC cruises was cross-calibration between the sensors on the Gould and the Palmer. The issues/problems we encountered are described in detail in the cruise report from the Palmer survey cruise (NBP01-03). If you will send me your address, I will send you a copy of the cruise report for use at the ARVOC meeting.

Thanks for the opportunity to respond. I have done cruises on both the NBP and LMG. In general, I would say the systems have been improving, although I think there is much that could be done.

First and foremost, I think a better system could be used. Last summer I spent 2 weeks on the RV PELICAN in the Gulf of Mexico and the underway system they had was far superior to what I have seen on the NBP or LMG. I think they call their system MIDAS. It was interactive, you could get graphical displays of the prior 24 hr data at anytime (ie, where and when did we cross that front?). Displays were based on lat/lon as well. All of this was also overlaid with a navigational chart which the user could zoom in or out of as needed. This could be done at any display station on board without any interruption of the data acquisition system. I would recommend investigating the system that they use to see if its appropriate for the USAP vessels.

My previous experience with data access have been mixed. On the NBP a year ago, all of the data was archived and burned onto a CD for me without problem, and there hasn't been problems getting to the data from those CDs. There was some concern with calibration, specifically with CTD data (OK, that's not underway) so I would support the notion of a centralized archives with calibration info, and updated calibration info (for instance if the instruments were calibrated post cruise how would that change the data recorded at sea). Also, this archival data would allow back access to not only our cruise, but perhaps previous cruises that worked the same waters for comparison purposes. These archives should be maintained by a full time RPSC person. In many cases, the techs who work a cruise are part-timers, and so not readily available for post cruise contact to clarify data. There should be a primary contact at RPSC to handle this.

I agree that RPSC underway data should be widely available to anyone in USAP. But also that this data be in some sort of user friendly format (ie converted to Excel sheets so that we are not post-processing from scratch). This could be a job for the computer support people on board. And this was pretty much done for us on the NBP last year).

Hope this helps, let me know if I can provide any more details.

Thanks for soliciting input.

Re underway data, I appreciate what has been done with the ADCP data - would be nice if similar compilations were easily available for the other UW data sets.

For example, I looked into getting the underway bathymetry from all NBP cruises to the Ross Sea.....a daunting task the way the system works now. I'd suggest having all underway data archived at a central site accessible via the www, including everything as recent as 6 months excepting that material that a PI specifically requests to have withheld for 2 years (most UW data sets are not sensitive in this way). After 2 years it's all public no matter what. UW data includes the pCO2 data as well, but not data from specialized equipment brought on board for one cruise, nor seismic and seabeam data. Note that the geophysics data must go to the MG&G WDC after 2 years anyway.....

Teri reported that GLOBEC PIs have been extremely proactive and have suggested the following:

1. RPSC should make sure calibrations are explicit. (Bob Beardsley and Jim Holik might discuss the best way to ensure calibrations- with documentation or a "read me" file.
2. A model study might be carried out to determine the air flow disturbance pattern for both ships. Such a study would help in siting the met. instrumentation. Since all multiple measurements (e.g., air temperature, humidity, wind speed) can go into a single calculation, it is useful, where possible, that met. sensors be co-located.
3. The TSG intake- location will be moved to the moon pool and should no longer be a problem. (One question that was not asked at the meeting but that is relevant, per Teri- Why are these sensors on batteries? And can they be on ship's power?)

Thermal Salinograph (TSG)

A Standard Operating Procedure (SOP) has been written on the cleaning and testing of the TSG on the R/V LAURENCE M. GOULD. An abbreviated explanation of the SOP is that the TSG is cleaned in port at both the Palmer Station pier and the Punta Arenas pier. Salt samples are then collected and analyzed on the AutoSal. If the offset is high, the TSG is pulled and cleaned again during LMG Survey Cruises. If the offset is within 1-2%, the offset is recorded with the Dataset and released with each cruise report.

Electronic Support Planner Update

Don Atwood noted that the RPSC ESP team worked to resolve and answer questions from grantees as questions arose over the past season, continued to make improvements to the ESP system. The RPSC ESP team will continue to work closely with grantees until an improved system is in place. A web based ESP system may be a future consideration, however, Don advised ARVOC that the present ESP system will remain in place for the next season and that RPSC will continue to investigate web based options.

IT Update

Jim Dolan reported on Information Technology activities and plans for the future.

Activities since the last ARVOC meeting.

ARVOC October 15-16, 2001

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- Vessel IT Staffing
 - Currently fully staffed
 - Project Manager, Jim Dolan (01/01)
 - Three Network Administrators, Ernie Joynt, Kevin Bliss, Aaron Hunt
 - Two Senior Systems Analysts, Kathleen Gavahan, Lea Martellaro (08/01) Contract, Susanne O'Hara (pending)
- Fielded System Upgrades
 - Hardware
 - Network Upgrade
 - Installation of two Cisco Catalyst 4000 Layer 3 switches
 - 48 ports each (96) total for main deck
 - Provide layer 3 switching capability throughout Lab areas
 - Eliminated need for router-based networking
 - Installation of Cisco Switch in Helo Hanger workshop
 - Provides layer 3 switching capability in workshop and helo hanger itself (24 ports total)
 - Installed additional network drops throughout lab spaces on main deck
 - Forward Dry Lab, Aft Dry Lab, Wet Lab and Electronics Lab
 - Upgraded servers on both NBP and LMG
 - Changed from single processor Pentium III (400 MHz) and AMD K-6 based systems to dual Processor Pentium III (833 MHz) processor based systems
 - Faster SCSI drive Systems
 - Faster front side bus systems
 - Dual ethernet ports
 - Higher disk capacity
 - Quadrupled RAM capacity on each server
 - Upgraded Tape backup system to DLT from DDS III
 - Software upgrades (covered separately)
 - Installed SNAP server network storage devices
 - 4X30 GB mirrored file systems for users directories, home and scratch space and data storage
 - Installed upgrades on SGI DAS systems
 - Additional memory in Challenger (doubled)
 - Additional 18 GB disk space on challenger, primarily for SeaBeam data
 - New DDS III tape backup system on discovery
 - Installed SGI cinema flat panel displays on SGI 0² systems
 - Installed new Compaq PC systems in public areas
 - 3 on NBP
 - 2 on LMG
 - Installed new Apple G4 systems for public use
 - 3 on NBP
 - 2 on LMG
 - Installed 2 new SUN systems on NBP
 - Sun Ultra 10 (1 GB RAM) forward Dry Lab
 - Sun Blade system Lan office
 - Software
 - Upgraded Linus OS on file and print services (both ships) to Red Hat 7.1
 - better support for heterogeneous system networks
 - better networking capabilities
 - better security management
 - better virus protection
 - better file backup and data recovery capabilities
 - Upgraded Samba network services
 - provides support for Windows NT and Windows 2000 systems

- Upgraded NIS (Network Information System) software
 - unified NIS implementation which simplifies administration
 - Installed ArcView GIS software on LMG and NBP on new Compaq PC systems
 - Installed Matlab on PC systems on LMG and NBP
 - Installed new versions of GMT and mbsystem on LMG and NBP
 - Installed new version of GNU software
 - Installed new Coastlines database
 - Upgraded JFT software to 32 bit version
- Denver Headquarters Upgrades
 - Hardware
 - purchased and deployed new DAS prototype server for projected porting of DAS system from current SGI systems to Linux based systems
 - benefits
 - cost savings
 - cheaper hardware
 - essentially free OS and utility software (compiler and scripting languages)
 - dramatically reduced hardware and software maintenance costs
 - parts availability
 - “off the shelf” system components available worldwide
 - benefits of DAS port to Linux platform
 - Increased knowledge base with Linux OS
 - Upgrade of integration lab with comparable systems to fielded systems for testing and troubleshooting
 - Software
 - JFT software to 32 bit version compatible with ships versions
 - Port of DAS system to Linux platform

Vessel IT Plans for FY 02

- Field Deployments of New Systems
- Hardware
 - Replacement of HP inkjet color printers with 1200 dpi color laser printers (12/01)
 - Upgrade the Lookout Geophysical seismic data acquisition system with new tape drives and spares (12/01)
 - Upgrade the tape backup systems on all servers to DLT (12/01)
 - Continued upgrading of primary user common system to flat panel displays for MAC and PC systems (10 new flat panel systems budgeted or already in purchase)
 - Field new Linux DAS systems and phase out SGI DAS systems
 - Replace SeaBeam system with new Simrad EM120 system
 - Continued upgrade of network cabling with RVIB process
 - 2 new SUN workstations
 - Continue upgrading PC's and MACs
 - Upgrade to Bathy 2000 W system with network data storage capability
 - Install new computer kiosk in LMG lounge with 2 PCs and 1 MAC G4 for general use, email, etc.

Denver Headquarters Upgrades

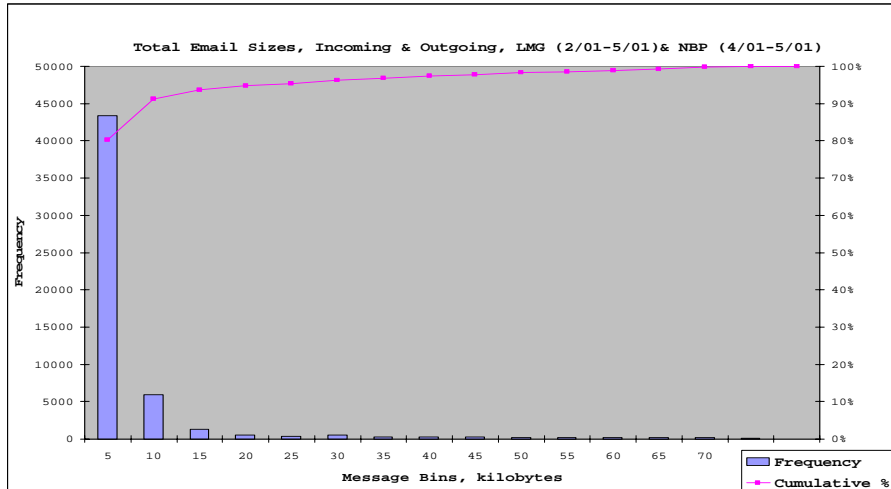
- Hardware
 - Upgrade the RVMail server (Pentium II systems) with redundant Compaq Pentium III servers
 - benefits: redundancy, higher reliability, higher performance

Planned upgrade of SeaBeam software in September 2000 failed

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- Several capability failures were not resolvable during test cruise
- We stayed with old version of software which was working
- Spares Used
- Replaced one jumper cable prior to GLOBEC I

Email Size Distribution



Email Policy

Email policy need modification

- Current policy is ambiguous and difficult to enforce
- All parties are less than fully satisfied
 - Grantees find it oppressive
 - RPSC finds it time-consuming to enforce and puts us in an adversarial position
- It is expensive and requires strict control of costs
- Propose lowering the threshold for email size from 75K to 15K and then allow attachments

RECOMMENDATION 6: JIM DOLAN WILL PREPARE A COMPARISON REPORT ON EMAIL STATS OVER THE NEXT YEAR AND HAVE THIS AS A PART OF HIS PRESENTATION AT THE NEXT ARVOC MEETING.

Following lengthy discussion of the current Email policy and taking into consideration ARVOC’s suggestions, RPSC (Jim Dolan and Jim Holik) will revise the Email policy. Email policy revision has been implemented on the R/V NATHANIEL B. PALMER (January 2002) and will soon be implemented on the R/V LAURENCE M. GOULD. The new policy follows. (Email policy- see page 48)

Shipboard Quality of Life

At ARVOC’s suggestion, ECO (Mark Gisclair) will improve the quantity and quality of towels on both vessels. Mark will also investigate if the hospital bed might be a bething option if a doctor or physician’s assistant sails on long cruises. The plumbing problem in Room 133 will be repaired to avoid any potential health issues.

RPSC POC System

ARVOC members and RPSC staff discussed concerns arising from points of contact switching during the initial Research Support Planning stages. Difficulties may arise when the POC assigned to a specific event is deployed and RSP duties are handed off to a second or third POC. The continuity and cohesiveness is negatively impacted with RSPs sometimes being late, orders not placed in time for delivery, etc. Jim Holik responded that RPSC is attempting to improve the process by assigning the Marine Superintendent (Al Hickey) as backup for any deploying POCs. The Marine Superintendent's job description will be modified to include this tasking and it will be his/her responsibility to ensure RSPs are available to the PIs by the six-week deadline.

AAIC

Jim Swift provided ARVOC with the following AAIC report and, as this may be his last attendance as AAIC Chair, he asked that the ARVOC continue to invite the AAIC Chair to the regularly scheduled ARVOC meetings. Consensus of the ARVOC members was agreement interaction between USCG ice breakers and USAP vessels is very important to Antarctic research and to further support interactions between AAIC, USCG and USAP vessel users groups, the ARVOC Charter will be amended to reflect this point. (see Recommendation 7, page 40)

UNOLS Arctic Icebreaker Coordinating Committee Activities Since 9/2000

Notes prepared by J. Swift, AICC

Present AICC membership includes:

Lisa Clough, East Carolina U (Chair); email: cloughl@mail.ecu.edu	
Jim Swift, SIO	Terry Whitley, U Alaska
Kelly Kenison Falkner, OSU	Dale Chayes, LDEO (RVTEC)
Larry Lawver, U Texas	Peter Minnett, RSMAS
Dan Schwartz, U Washington (RVOC)	Margo Edwards, U Hawaii
	Robert Bourke, NPS

The last AICC meeting was September 10-11, 2001, at NSF Headquarters in Arlington, VA. The most important business had been completed before news of the terrorist attacks. Some attendees had interesting travel-home stories. Other UNOLS meetings scheduled later that week were cancelled or postponed.

The AICC is readying an EOS article for submission, focusing on Healy specifications and science testing. A companion article from the summer 2001 science party seems likely. The test reports from the science test cruise legs are also nearly ready for release. Partly as a result of testing, the winch control system was substantially revised, and a long list of other matters was addressed. One surprise has been the SeaBeam 2112 system, which is now working well. Healy's uncontaminated seawater system still needs work. (Sound familiar to ARVOC?)

The big story has been the first funded science mission for USCGC Healy, a major eastern Arctic marine G&G mission joint with the PFS Polarstern, focused on the Arctic mid-ocean ridge, which is the slowest spreading ridge. The mission included heavy use of SeaBeam, cores, dredges, etc. Some wire problems early on were solved. Icebreaking went well, with Healy breaking out the Polarstern on several occasions. The ships visited the North Pole, too. There was good cooperation between the vessels. A message received from the Healy's Chief Scientist was glowing with success and delight. Healy is now completing a second eastern Arctic funded science mission, having to do with AUV and remote sensing tests.

The Arctic schedule for the Coast Guard icebreakers for 2002 exclusively focuses on the western Arctic. NSF has reserved all the time available, and the number of days scheduled may have been bumped up at that. (This may be causing a bit of a problem for agencies slower to commit 2002 ship funds.) The largest 2002 program is the start-up for the 4-year western Arctic Shelf-Basin Interactions Phase II field program,

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involving 2 6-week cruises, but there are 2 MG&G legs for Healy, and an SBI mooring cruise and a PO cruise for Polar Star.

There is no reason to expect future years to be any less busy in terms of funded Arctic science missions.

With Healy in operation on funded science missions (beginning summer 2001), the AICC is now focused more on the Arctic science operations of the two USCG Polar-class icebreakers and USCGC Healy.

AICC business matters are familiar to ARVOC members, such as data distributions from the science data network and underway systems, advance planning for equipment purchases and upgrades, means for providing ancillary technical support at sea, pre-cruise preparations and post-cruise evaluations, etc. There is no single academic institution or corporate body providing support, as there is with the Antarctic program. The UNOLS structure and procedures are being used, with the Coast Guard providing full-time support for a science liaison. UNOLS provides guidance and manpower, and the AICC provides advice. It is all working out OK so far.

The AICC has reiterated its enthusiastic support for the TEAA program, which is expected to continue on some of the future cruises. The teacher's web site from this summer's cruise was widely praised.

<http://tea.rice.edu/tea_adamsfrontpage.html>

The University of Alaska is going ahead with the preliminary design stage of planning for a new intermediate-sized ice-capable (MIZ) multi-purpose research vessel. Funds are not yet allocated for its construction. The AICC has a loosely-defined role for now; UNOLS Fleet Improvement Committee probably has larger role at present time.

The AICC wishes to call ARVOC's attention to the matter of both funded and unfunded [the latter are called Science-of-Opportunity (SOO)] science activities on USCG icebreakers in non-Arctic waters. While oversight of funded Antarctic marine science clearly - at least to the AICC - falls under ARVOC's purview, it is the AICC's view that ARVOC should consider adopting (or adapting) the SOO policy for the Arctic agreed upon by the Coast Guard, NSF, and the AICC. What follows is a slightly modified version of the current AICC policy. If this meets ARVOC's approval, we suggest it then be approved by the AICC, ARVOC, NSF, and USCG.

" A US Coast Guard icebreaker may have a limited number of science berths available for Science of Opportunity (SOO) activities during the long transits to and from, and during missions to, the Southern Ocean. The USCG may allow scientists to deploy with the icebreaker on a not-to-interfere basis with trials, training, and daily shipboard activities. Scientists who deploy on SOO missions are not charged for icebreaker use under the current multi-agency reimbursement agreement for dedicated science missions. There is no funding being made available by the USCG to support SOO research other than the possible opportunity for ship time.

"It is important to note that while science will be accommodated when appropriate, science is not the first priority of an SOO mission, and in fact, there is no guarantee that ANY science will be accomplished during the SOO mission. For reference, the science success rate of Arctic SOO missions is often about 50%".

"The Coast Guard requests that scientists who are interested in participating in a Science-of-Opportunity operation submit an Icebreaker Science-of-Opportunity Request Form, available through the UNOLS web site <<http://www.unols.org>>. Requests will be assessed for suitability, including geographic region, seasonality, number of berths, compatibility of scientific programs and personnel responsibilities, USCG equipment requests, and laboratory requirements.

"Highly specific time and geographic requirements cannot be guaranteed. Arrangements for sample-only requests will be the responsibility of the investigators. Investigators without sea experience, or who contemplate sending participants without sea experience, are very strongly

urged to obtain relevant training, and to discuss plans and recommendations with an experienced participant well ahead of time. All scientists who have programs selected for SOO should attend a pre-cruise meeting with the Coast Guard. No other mechanism is as effective in promoting the communications vital to ensure success.

It may be that the Coast Guard has already unofficially adopted a variant of this policy for Antarctic SOO. This follows a 2000 incident recently reported to the AICC.

ARVOC Business/Call for Nominations/Next meeting

Robin Ross will solicit nominations for the ARVOC and election will be by email. Robin thanked Dave Karl, Stan Jacobs, Eugene Domack, and Vernon Asper for their years of service as ARVOC members.

RECOMMENDATION 7: NOMINATIONS FOR ARVOC MEMBERSHIP WILL BE REQUESTED (ROBIN ROSS) FROM THE SCIENTIFIC COMMUNITY AND FROM THE ARVOC. EFFORTS WILL BE MADE TO SELECT NOMINEES THAT COMPLEMENT THE SCIENCE DISCIPLINES ALREADY REPRESENTED IN ARVOC. ROBIN ROSS WILL CONDUCT ELECTION BY EMAIL.

ARVOC Charter

As proposed at the September 7, 2000 ARVOC meeting, the committee consensus that *Executive Committee Vice Chair (nominated from the ARVOC)* be deleted from the charter is approved and is deleted from the Draft Charter below.

Also, during today's session, ARVOC requested RPSC's and the NSF's advice on the advisability of adding OPP funded projects aboard the USCG icebreakers to ARVOC oversight. If the use of the USCG icebreakers for science research continues to be a trend, interaction between the AICC and ARVOC can serve to improve and strengthen multiple areas.

Examples of multiple areas might be:

Shared-use equipment stored in Seattle or possibly other locations

Advice on how to best coordinate RPSC and USCG logistics- equipment, personnel, retro items, port call staging efforts

End-of cruise outbrief communications to ARVOC, AICC, RPSC, the NSF
Generation of Research Support Plans

RECOMMENDATION 8: THE ARVOC CHARTER WILL BE AMENDED (ROBIN ROSS) TO INCLUDE A STATEMENT THAT WILL ALLOW CLOSER INTERACTION WITH AICC AND ARVOC. THE DRAFT WILL BE AVAILABLE AT THE NEXT ARVOC MEETING FOR RPSC AND THE NSF REVIEW AND APPROVAL.

ANTARCTIC RESEARCH VESSELS OVERSIGHT COMMITTEE (ARVOC)
DRAFT DRAFT CHARTER DRAFT DRAFT

The Antarctic Research Vessels Oversight Committee (ARVOC) exists to ensure representation of the scientific community in the management and operation of the U.S. Antarctic Program (USAP) research vessels. An important function of ARVOC will be to provide advice and make

recommendations regarding the ships and other scheduling issues, efficient utilization of shipboard equipment and instruments, and the shipboard computer network and hardware. Recommendations of the committee may also involve staffing, communications, allocation of space, and other matters related to improving the research support capabilities of the research vessels. ARVOC will provide advice and make recommendations to RAYTHEON POLAR SERVICES (RPS), who is responsible for making recommendations in turn to the National Science Foundation (NSF) Office of Polar Programs (OPP). RPSC will be responsible for implementing NSF/OPP approved recommendations.

Membership: Members of ARVOC will be drawn from the community of ocean research scientists, with particular emphasis on those with current or previous NSF/OPP support for research aboard USAP research vessels. Members will serve for three years with one-third of the membership replaced each year. Members will assist in the selection of a Chairperson, who will serve for three years in that capacity in addition to time already served as a member, and one additional year at their discretion as an ex-officio member to assist in the transition of the new Chairperson. Explicit details regarding membership term limits and selection criteria are provided below. On occasion, one or more persons with expertise related to a specific agenda item may be invited to participate in the ARVOC meeting. Decisions concerning the need for and selection of meeting guests shall reside with the ARVOC Executive Committee consisting of the ARVOC Chairperson, RPSC Representative, and NSF/OPP Representative. Guests will be identified in the meeting agenda which shall be distributed to ARVOC members at least one week prior to each meeting.

Meetings: ARVOC will meet at least once a year in appropriate locations. Minutes will be taken at each meeting by an RPSC staff person and provided to ARVOC members, and RPSC and NSF/OPP. The minutes will also be made available to the general scientific community via the World Wide Web (WWW) RPSC home page. ARVOC may also hold special meetings in association with major conferences in order to facilitate the communication of ARVOC-related matters to the general community.

Working Groups: Topics may occasionally arise that warrant particular focused attention. When such topics arise, an ad hoc Working Group may be formed to formulate a position, make recommendations to ARVOC, or directly to RPSC and NSF/OPP.

TERM LIMITATIONS AND SELECTION CRITERIA

1. Membership should be representative of all relevant areas of expertise with minimal institutional overlap.
2. Members will serve only one three-year term, unless selected to serve as the Chairperson (and in an ex-officio capacity [see above]). This shall not rule out a non-consecutive term.
3. Membership will be staggered so that approximately one-third of the membership is rotated annually.
4. Nominations for new members will be solicited from the broader community through the ARVOC list-server, and will also be made by ARVOC members, and RPS and NSF/OPP representatives to the ARVOC.
5. Membership nominations will be prioritized in Executive Session, and then presented to the Chairperson, and RPS and NSF/OPP representatives for concurrence.
6. The committee size will be limited to no more than nine (9) members, plus the ex-officio former Chairperson, to maintain manageability. Advice on certain subjects may be required from experts possessing knowledge complementing that of the ARVOC members, which will

be sought in writing and/or telephone. Guests may also be invited to participate in ARVOC meetings for their specialized expertise.

7. Nominees for Chairperson will be restricted to current ARVOC members to ensure continuity and "corporate memory", and solicited from ARVOC members, and RPSC and NSF/OPP representatives to the ARVOC. The nominations for Chairperson will be presented to the incumbent Chairperson, and RPSC and NSF/OPP representatives for review and concurrence.

Liaison efforts between User Groups

Bill Detrich volunteered to attend the next AICC meeting as the ARVOC representative. ARVOC (Robin Ross) will contact Tad Day, PAUC Chair, to extend an invitation to a PAUC member to the next ARVOC meeting.

The next ARVOC meeting will be in Port Hueneme, California and will take place at the end of the NBP02-05 cruise tentatively scheduled for September 24-October 23, 2002. The meeting is to be held aboard the R/V NATHANIEL B. PALMER between October 20-23, 2002.

There being no further business the meeting adjourned.

Recommendations September 7-8, 2000

RECOMMENDATION 1: CAPTAIN WARREN SANAMO,ECO, IS ASKED TO REVIEW THE DRAFT DOCUMENT AND PROVIDE INPUT/SUGGESTIONS TO THE COMMITTEE. THIS ACTION IS CONTINUED UNTIL TOMORROW'S MEETING TO ALLOW CAPT. SANAMO AND COMMITTEE MEMBERS TIME TO REVIEW THE DRAFT BEFORE A VOTE TO APPROVE. FOLLOWING COMMITTEES' APPROVAL THE *Interaction of USAP Research Vessels and Research Stations* WILL BE INCORPORATED INTO THE PI LETTER, THE POLICY MANUAL, AVAILABLE ON THE VESSELS AND ON THE WEB. **DONE- INTERACTION BETWEEN VESSEL AND STATIONS HAS IMPROVED.**

RECOMMENDATION 2: AN ARVOC WORKING GROUP (VERN ASPER, BILL DETRICH, AND STAN JACOBS) WILL CONTINUE TO GATHER INFORMATION ON WORKBOAT OPTIONS. INFORMATION WILL BE BROUGHT BACK TO ARVOC AND PAUC AND THE PREFERRED WORK BOAT OPTIONS, COST ESTIMATES, ETC. WILL BE COMPILED INTO AN EXECUTABLE PLAN AND FOLLOWING APPROVAL BY ARVOC AND PAUC, THE ARVOC/PAUC CHAIRS WILL INFORM DRS. ERB AND MCCLINTOCK OF COMMITTEE ENDORSEMENTS. THE PROCESS FOR FUNDS ALLOCATION CAN THEN BEGIN. **-IN-PROCESS- BILL DETRICH/COMMITTEE MEMBERS WILL DISCUSS WORKBOAT OPTIONS DURING THE OCTOBER 2001 MEETING.**

RECOMMENDATION 3: RPS (JIM HOLIK) WILL UPDATE THE CAPITAL EQUIPMENT LIST THAT APPEARS ON THE WWW, DELETING ITEMS ALREADY PURCHASED OR NOT BEING PURCHASED, AND ADDING ALL NEW CAPITAL EQUIPMENT ITEMS. **IN-PROCESS CAPITAL EQUIPMENT WILL BE AN AGENDA TOPIC AT THE OCTOBER 2001 MEETING**

RECOMMENDATION 4: JIM HOLIK WILL DEVELOP A CAPITAL EQUIPMENT LIST OF PROPOSED ITEMS. THE LIST WILL BE SUBMITTED TO COMMITTEE CHAIR AND WILL BE DISTRIBUTED TO ARVOC MEMBERS FOR REVIEW. THE COMMITTEE WILL GIVE FEEDBACK TO JIM HOLIK AND THE CAPITAL EQUIPMENT LIST WILL BE DISCUSSED AT THE NEXT ARVOC MEETING. THE LIST CAN BE PRIORITIZED BY MEMBERS PRIOR TO THE MEETING TO SAVE TIME AND ITEMS CAN BE SUBMITTED BY COMMITTEE FOR CONSIDERATION. **CONTINUING RECOMMENDATION- THIS IS A TOPIC AT THE OCTOBER MEETING.**

RECOMMENDATION 5: THE RESEARCH SUPPORT PLAN (RSP) WILL BE AMENDED TO INCLUDE AN EXPLANATION OF THE UNDERWAY DATA COLLECTION PROCESS AS IT APPLIES TO EACH SPECIFIC CRUISE. **DONE- THE POCS NOTE IN THE RSPS THE SCIENCE OF OPPORTUNITY OCCURRING DURING THE CRUISE.**

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Email Policy

Overview

This document describes the changes made to the Vessel email policy in January 2002, including descriptions of the old policy and the new policy and the reasons for the change.

Vessel email service constitutes one of the most visible morale boosters for the USAP marine operations in addition to being a vital communication tool for overall vessel and science operations. The hardship of extended separation from friends, loved ones and colleagues in a harsh, remote location is mitigated somewhat by communication via email. The advent of digital imagery technology provided a means of communication beyond mere words and its proliferation in recent years has occurred to the extent that nearly everyone owns or has access to a digital camera. For many, life at sea in the Antarctic constitutes the adventure of a lifetime, which they naturally want to be able to share. However, the budgetary constraints on vessel communications limit the total amount of bandwidth, or data throughput, available for High-Speed Data (HSD) connect time. The previous email policy stated that only attachments that are directly related to the science objectives of the cruise and those that are necessary for ship's operations are allowed. Teachers Experiencing Antarctica (TEA) data transmissions are also allowed with prior approval from the NSF. That policy stated:

“Unacceptable uses would be sending of personal digital photos and documents, and flagrant violators (those sending non-science, cruise or TEA attachments more than once every two weeks) will be notified and asked to cease such activities. Repeated flagrant violations may result in notification to the NSF, home institutions, suspension of email privileges or other actions.”

Most passengers aboard the vessels acknowledged the policy and abided by it. However, there has been a small portion of the research community who repeatedly violate the policy and require reminders and warnings; although no sanctions such as suspension of email privileges have ever been imposed. These repeat violators consume the lion's share of the available funding for HSD, while those who adhere to the policy are effectively penalized for following the rules. The policy as it is currently formulated and implemented requires the vessel IT staff to monitor and administer it. This places IT staff in an adversarial position with respect to grantees and ECO crew members who want to use vessel email for correspondence of a personal nature, including sending attachments, and for those correspondents ashore sending personal email and attachments to the ship. ECO has agreed to guarantee payment of any of the ECO crew members who do not pay for their email usage. It has been brought to the attention of Vessel IT staff on many occasions and by many grantees as well as ECO crew that they would gladly pay for their “personal” use of email if there were some way to do so. In the following document, we propose a change in the official Vessel email policy to address these issues, to make the email policy more closely reflect the wishes of those using it, and to make it fair for everyone. Our proposal would keep within current budgetary constraints and would

provide a generous and uniform quota of email for everyone aboard which could be consumed at the discretion of the user.

Briefly, we propose a quota of 25KB (25600 bytes) per user per day (including incoming as well as outgoing email traffic) calculated and accumulated for the duration of the cruise and expendable when and how the user sees fit. This quota is exclusive of specific SIP requirements and TEA document transfers. The SIP includes dialogue for grantee requests for additional data/document transfers. users who exceed their email quota will have to pay for the excess. Those who refuse to pay for their email excess will have their email accounts restricted to 3K per message for any future embarkations. PI's will be held responsible for their own people, and in Al Sutherland's words, the NSF can be very persuasive in getting those accounts cleared. The quota is calculated using the current HSD budget, prorated on a per user basis assuming full berthing and a full ship's operating schedule. The proposed 25KB quota is actually twice the current average daily usage, underscoring our assertion that a few irresponsible users, by their excessive abuse of the policy, have effectively taken advantage of the users who comply with the policy. "Privileged" or work-related accounts would be set up for the ADMIN (IT), MPC, ECO and RPSC (ET, MT, MST). These privileged accounts would have higher quotas, as well as a higher value for the maximum individual message size (currently at 75KB for both incoming and outgoing messages). RPSC will monitor the privileged accounts to ensure that they are not abused. It will usually be evident from the addresses of both senders and recipients if the correspondence is of a business or personal nature. We do not intend to look at the contents of the messages, unless a clear violation exists, and only then with the consent of recipient and sender.

Users who exceed their cumulative email quota during the course of a cruise will be required to pay for the excess. Current average cost is approximately \$1.00 for 36KB. This is what we'll charge participants who wish to send email in excess of their standard quota. Payment for this excess usage will be made in cash or by check to the MPC at the end of each cruise. The PI for each grantee will be ultimately responsible for ensuring that the payment is made for each grantee that accumulates a balance due. ECO will be responsible for ensuring payment for each of its own employees. RPSC will adhere to the current USAP standard policy for collection of funds from grantees in the field. It is our understanding, from Lee Anne Hess here at RPSC, and from Al Sutherland at the NSF, that the NSF maintains a policy of making good on checks issued by grantees in the field that may have insufficient funds to cover the amount of the check. The funds collected for excess email usage will be received by the MPC at the end of the cruise, and directed into the petty cash fund for the ship. These funds will be deposited into the Information Technology communications WBS (R-PS27-252G27C07AD). The mechanism for this transfer of funds is in place and has been approved by Lee Anne Hess at RPSC. The IT manager responsible for implementing the policy in the field will be the senior IT person on board at the time, and ultimately the project manager for Vessel IT. See Vessel Email Administration SOP and Vessel Email Fiduciary SOP.

Upon NSF approval, this policy shall be enacted on a 6 month trial basis pursuant to account auditing to ensure that the derived account quotas work within the fiduciary

constraints of the FY02 communications budget. If it becomes apparent during this trial period that the quotas are too generous, they will be adjusted accordingly. In no case will the current communications budget be exceeded in accommodating this new policy.

Current Usage Analysis

NBP:

Average I/O per user per day 13kB
 Average HSD cost per month \$1,610

LMG

Average I/O per user per day 12kB
 Average HSD cost per month \$1490
 Projected Total Cost for FY01 \$37200

Proposed Allotment

The following shows the annual projected budget for HSD communications from the RVIB Nathaniel B. Palmer and ARSV Laurence M. Gould under the proposed new email policy. The projected costs are based upon a personal email allotment of 25kB per person per cruise day for 123 people (full berthing for both vessels). As can be seen by the accompanying table, the individual accounts will be afforded the majority of bandwidth, but it will be distributed evenly for all users, and not consumed by a few. Those few who are large volume users will still be able to send as much email as they want, but they will be required to pay for their usage in excess of the quota. These quotas have been established on the conservative side given that some users will not use their entire quota. As a point of reference, JPEG compressed images generally run approximately 100 Kbytes per megapixel. RPSC staff, with the exception of sanctioned science and TEA activities, will not assist in the processing or compression of digital images. We will have a web page "how to" available on both ships' intranet to help with compression and reducing image size. We can also include a brief tutorial on how to minimize image size during the ship's orientation. Ultimately, it will be up to the individual to husband their allotment and to "spend" it wisely. The ships maintain various software utilities useful in manipulating images to reduce size and transmission cost: ImageMagik, XV, PhotoShop, MS PhotoEditor and ghostscript.

Transfer Rate:	360 kB/min	Cost:	\$ 10.00 /min			
Type	kB/unit	number	unit	kB/yr		# Total
per user	25	365	day	9125	\$ 253.47	123 \$31,177.08
TEA/Outreach	250	365	day	91250	\$2,534.72	2 \$ 5,069.44
Admin (1)	1024	52	week	53248	\$1,479.11	2 \$ 2,958.22
MPC (2)	512	52	week	26624	\$ 739.56	2 \$ 1,479.11
RPSC (3)	512	52	week	26624	\$ 739.56	2 \$ 1,479.11
ECO (4)	512	52	week	26624	\$ 739.56	2 \$ 1,479.11
						<u>\$43,642.08</u>

- 1 Admin account also covers daily email of news, isobaric images
- 2 For work related mail from/to the MT, ET, MST: overage bill to RPSC
- 3 MPC allotment to cover sitreps, and other cruise business
- 4 For work related mail from/to the Captain and Officers. Overage bill to ECO.

Policy Quotas and Restrictions

- **Standard account**
 - A per message size filter of 100kB outbound and 75kB inbound will be in effect. This will prevent extremely large messages from being sent to or from the ship except via approved accounts and will prevent a user's quota from unwittingly be consumed by a large inbound "spam" message. 100kB will allow for high-resolution images to be sent, while protecting them from using their allotment too quickly. However, these size limits are subject to review and could easily be adjusted as needed. For a legitimate and approved request, the limit can be adjusted for a single email transmission, or for the duration of a cruise as necessary and by individual user account.
- **Privileged Accounts**
 - The MPC and Admin accounts will have permission to send and receive oversized messages
 - The TEA account and captain (this will be a special work account, not the Captains' personal accounts) will have permission to send but not receive oversized messages
 - Abuse of the oversized email privilege, defined by the use of the privileged account for personal email, will result in removal from the privilege account list and return to the standard size filter
- **Special Account Allotments:**
 - The TEA account and Outreach account shall have a combined allotment of 250kB/day to cover sending of pictures and text for TEA events and NSF approved Outreach.
 - The MPC account and Admin account shall have a specified allotment of 512kB and 1024kB, respectively, per week to permit necessary email traffic, including but not limited to, Sitreps, News, Weather Data, special science requests and emergency software transfers.
 - An allotment of 512kB/week shall be used to cover business /cruise related email sent to and from RPSC and ECO staff. The RPSC accounts covered by this are: ET, MT, MST, EMT, and Terascan. The ECO accounts covered by this are: Captain, Engineer, and Bridge.

- A user's email allotment for a cruise will be based upon the cruise length (plus 4 days for port call time) multiplied by the current daily quota. Example: 42 day cruise at 25kB/day \Rightarrow (42+4) days * 25kB/day = 1150 kB or 1.12 MB.
- Allotments and usage will be calculated using the compressed file size of each email message sent from or to the user across the HSD connection. The user will be financially responsible for any usage over the per cruise allotment. Current transfer rate is approximately 360kB/min of compressed data at \$10/min. The billing is based on actual compressed bytes transmitted, and will be prorated on an average cost per byte. The billing rate and the policy itself are sent to the individual accounts at the beginning of the cruise, stated and explained during the IT orientation at the beginning of the cruise, and posted prominently in multiple locations on the ship.
- Accounting information is provided daily to each account user, and this information is collated and maintained by the IT staff and an end of cruise report is submitted to the MPC. Payment shall be made to the MPC in either cash or personal check.
- The user's total off-ship email usage will be calculated each day, and record of it placed in their home directory for review of current usage, remaining allocation, and current user-borne cost.
- Users who have exceeded their allotment will receive an invoice at the end-of the cruise, both hardcopy and electronic, showing their usage during the cruise, the amount they owe and instructions to settle the account with the MPC. All accounts must be settled on a per cruise basis, even for users who are remaining aboard for the following cruise.
- Users who do not settle their bills will have future email access restricted to 3kB/message. The NSF (Al Sutherland, Pat Smith, and Brian Stone) will be notified of those violators of the policy.
- RPSC contract employees should settle their account when receiving their travel fund.
- ECO shall be held responsible for any outstanding email bills for its employees.
- The PI for each science group shall be responsible for the email use bill for members of that science group. The PI will be given a running account of the email usage of those grantees for whom they are responsible.

If a user is receiving excessive (in size or volume) email from a particular address and is unsuccessful in requesting an end to the email from the sender, email from the sender shall be blocked at the server in Denver.