



*US Coast Guard Cutter HEALY offshore in the Antarctic.*

## 2003 Annual Report

### A Message from the Chair:

On behalf of the ocean sciences community it is a pleasure to introduce the UNOLS 2003 Annual Report. This report presents the wide range of activities and issues that the UNOLS Council and its seven standing committees have addressed this past year. In this report you will find a statement of the goals and objectives for the year as well as the election results for new members of the UNOLS Council. Of particular interest are the summary reports from the seven UNOLS standing committees. These committees provide the vital interface between the interests of the community and specific resources such as icebreakers, deep submergence facilities, aircraft and research vessels.

In 2003 UNOLS Council approved the revision of the Research Vessel Safety Standards and the

Science Mission Requirements for Ocean and Regional Class vessels. These documents are included on the enclosed CD ROM along with minutes of all Council and Committee meetings and copies of all the 2003 UNOLS Newsletters.

As our community moves toward implementation of new science initiatives it is essential that we stay informed and vigilant about the assets that provide us access to the oceans. Your feedback and involvement is key to the continued successful operation of our academic fleet and research facilities.



Sincerely, Tim Cowles

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### Forward

This annual report with the proceedings of UNOLS Committees and Council meetings provides a consolidated view and record of the organization's activities during the past year. The year begins in October 2002 and ends with the Annual meeting in September 2003. This record takes the place of the numerous printed meeting records provided in years past.

A review of this report will inform you about the many important issues facing the oceanographic research and education community surrounding the use and development of major shared use facilities.

UNOLS exists in order to provide the scientific community with a forum for influencing the type of major facilities available for their ocean research and education requirements and how they are operated. UNOLS also provides a forum for cooperation between facility operators and supporting agencies in achieving the goals of efficient and ever-improving operation of these important oceanographic facilities, including research vessels, submersibles and aircraft.

UNOLS and its various committees give you the opportunity to provide input on these important issues in a wide variety of ways, from assessing an individual

research cruise to helping develop plans for major renewal of the Academic Research Fleet. I hope that this report will spark an interest in one or more of these issues.

The work, over the past year, represented by this annual report reflects the dedication and community service of the UNOLS Council and committee members. The Council is elected and committee members are appointed to represent the entire oceanographic community. This is only possible when a broad cross section of ocean science researchers and educators take an active interest in maintaining the best possible facilities to support their work and engage in UNOLS activities, either directly or through those serving on the Council and Committees. Lastly, this important venue for community input and cooperative use of facilities is possible because of the support and involvement of the program managers at the federal agencies working with UNOLS and facility operators to ensure this important scientific infrastructure. The National Science Foundation, Navy, NOAA, USGS, MMS, DOE and USCG all participate actively and provide the resources necessary for this important enterprise.

Mike Prince, UNOLS Executive Secretary

UNOLS Office  
Moss Landing Marine  
Laboratories  
8272 Moss Landing Road  
Moss Landing, CA 95039  
(831) 771-4410  
office@unols.org

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#### *December 2002*

Deep Submergence Science Committee - Winter Meeting – 2002 Fall AGU, San Francisco, CA

#### *January 2003*

Fleet Improvement Committee - Winter Meeting – NSF, Arlington, VA

#### *February 2003*

Arctic Icebreaker Coordinating Committee - Winter Meeting – USCG Base, Seattle, WA

Scientific Committee for Oceanographic Aircraft Research – Winter Meeting – CIRPAS, Marina, CA

Observatory Working Group Meeting – Holiday Inn Logan Airport, Boston, MA

#### *March 2003*

UNOLS Council – Winter Meeting – UCSD/SIO, La Jolla, CA

#### *June 2003*

UNOLS Council – Summer Meeting – U So. Miss, Gulf Park Campus, Long Beach, MS

Polar Class Icebreaker Workshop – USCG Base, Seattle, WA

Deep Submergence Science Committee - Spring Meeting - WHOI, Woods Hole, MA

#### *July 2003*

Ship Scheduling Committee – Summer Meeting – NSF, Arlington, VA

JJMA Study Meeting – NSF, Arlington, VA

#### *September 2003*

Ship Scheduling Committee – Fall Meeting – NSF, Arlington, VA

Fleet Improvement Committee – Fall Meeting – NSF, Arlington, VA

UNOLS Council – Fall Meeting – NSF, Arlington, VA

UNOLS Annual Meeting - **\*\* Cancelled**

**\*\* View a *summary of reports* scheduled to be presented at the UNOLS Annual Meeting.**

#### *2003 Newsletters*

UNOLS News Winter 2003 – Vol. 20, No. 1

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#### *Other Items of Interest*

Message From the UNOLS Chair - Tim Cowles, Oregon State University

Forward - By Mike Prince, UNOLS Executive Secretary, Moss Landing Marine Laboratories

UNOLS Committee News

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Current UNOLS Charter

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Contact Lists and Ship Information : [Marine Operations](#), [Ship Scheduling](#), and [RVTEC Point of Contacts](#)

## Arctic Icebreaker Coordinating Committee News

*Submitted by Lisa Clough,  
AICC Chair*

Things have been busy for the AICC. With the current Antarctic ice conditions now requiring two USCG icebreakers to do the break-out and resupply of McMurdo station, refit/ replacement of the two POLAR Class icebreakers, POLAR STAR and POLAR SEA, has become a major focus for the committee. We held a workshop in June in Seattle, covering science changes that might take place if the POLARs undergo a major refit. The workshop report is included in this report and also on the UNOLS web site. We have also held informational meetings at the NSF, and have now given two briefs to the Polar Research Board. The USCG has also been aggressively pursuing the refit/replacement issues, and is currently beginning a major study on the topic. Even as the UNOLS newsletter is going to print, both POLAR STAR and POLAR SEA are headed south for the 2004 Deep Freeze mission.

HEALY very successfully supported three different science missions this summer: 1) the Canadian Arctic Throughput Survey (CATS); 2) the Northwind Ridge, Chukchi Plateau, and the Canada Basin bottom mapping program, and 3) the Western Arctic Shelf Basin Interactions (SBI) project. Links for all the projects are available on the UNOLS website ([www.unols.org](http://www.unols.org)).

Currently HEALY is in dry dock in Seattle. While in dry dock, she is having her science seawater system completely redone. The first system worked quite well in open water, but when in the ice, her intakes quickly got clogged. The USCG worked extensively with the Antarctic icebreaker support staff to improve upon the system. With two six-week cruises to support the SBI program in 2004, the new system will get quite a workout in the upcoming summer.

As for the committee itself, we held our "September" meeting in Seattle in November. The shift allowed HEALY and POLAR SEA's crew to participate. We talked quite a bit about the POLARs, as well as several continuing AICC topics: How to best complete cruises while being sensitive to subsistence hunting on-going

in the area, how to facilitate long-term planning for the entire international icebreaker fleet, quick look reports on the 2003 cruises, as well as updates on the underway and computer systems. Have a look at our action items list on the UNOLS web page for a complete update on what we've been up to over the last few months. Our next meeting will be March 22-23, 2004 in DC to facilitate participation of representatives from the funding agencies. The main topic for that meeting will be to go over the debriefs (a series of 20 questions we ask all chief scientists and the USCG to answer after each cruise). At this time we also want to thank retiring AICC members Larry Lawver (on the committee since the beginning- a total of 7 years!) and Terry Whitledge (who put in a full six years of service). Stay tuned for updates on our new members and Chair in 2004.

## Deep Submergence Science Committee News

*Submitted by Patricia Fryer,  
DESSC Chair*

The DESSC meeting was held Sunday, January 25, 2004 at the Oregon Convention Center. One day before the Portland AGU meeting. In the afternoon a special workshop was held to give attendees a training session in the use of, and preparation for use of the National Deep Submergence Facility (NDSF) vehicles. This training session was the first of its kind and was offered to provide detailed information on both the capabilities of the NDSF vehicles (primarily ALVIN, Jason2 ROV, and the DSL-120A sidescan sonar system), sensor suites, and their at-sea operations procedures. The report of this meeting will be available at <http://www.unols.org/dessc/desmt401/desmi401.html>

For those who attended the Fall AGU meeting in San Francisco, there was a special poster session on December 10, 2003 entitled "Recent Advances in Understanding Submarine Environments and the Future of Submergence Research and Facilities." Patty Fryer and Dan Fornari convened the session. It highlighted recent developments in submergence science. The poster presentations during the session reviewed use of occupied submersibles and remotely operated vehicles as mechanisms by

which marine geologists, biologists, and geochemists can perform field work in extreme environments, collect samples, run experiments, and establish observatories on the seafloor and in the water column. This session highlighted recent advances in marine studies as pertains to systems investigated with submergence assets including ridge crest studies, convergent and passive margin studies, and research in the water column. Presentations on upgrades to existing vehicles and projected uses for the future provided attendees with up-to date information on the state of the art in submergence vehicles and systems.

### Fleet Improvement Committee News

*By David Hebert,  
FIC Chair*

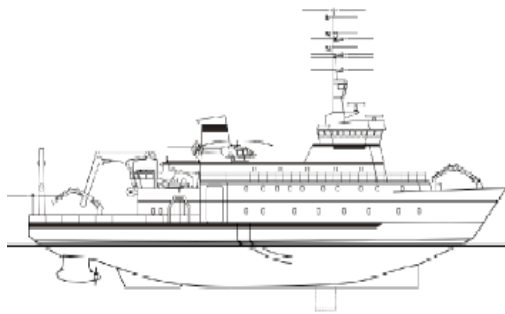
The Fleet Improvement Committee (FIC) met at the National Science Foundation on September 17, 2003. Minutes of the meeting and reports are available on the UNOLS Web site at: <http://www.mlml.calstate.edu/unols/fic/ficmt309/ficmi309.html>. There have been a lot of changes in the membership of FIC this fall. At this meeting, two new FIC members, Jim Bauer of Virginia Institute of Marine Science and Ron Benner of University of South Carolina were introduced. Toby Garfield (San Francisco State University) then joined FIC in October.

Joe Coburn, who represented the Research Vessels Operators' Committee, retired from WHOI this fall. Joe's job was to keep us scientists in the world of reality as we discussed ships. He is being replaced by Al Suchy who also replaced Joe at WHOI as the Marine Superintendent. Additionally, Marc Willis

(OSU) joined FIC as representative of the Research Vessel Technical Enhancement Committee. Finally, Larry Atkinson completed his second term as Chair of FIC and nearly a decade of FIC service. Larry did a fantastic job in publicizing the efforts for the need to renew the Academic Fleet and leading efforts for defining the Science Mission

Requirements (SMRs) for the planned future research vessels. Before rushing home to defend his house against Hurricane Isabel, Larry's last act was to make as many 'action points' for FIC as possible.

FIC continues to review and provide feedback on the design and construction efforts of the CAPE HENLOPEN replacement vessel, the Alaska Region Research Vessel and the EWING replacement. Bids were received from several shipyards for the CAPE HENLOPEN replacement vessel. Dakota Industries of Anacortes, WA was chosen to receive the contract. The National Science Board approved a resolution that included a funding request for the Alaska Region Research Vessel as part of the NSF Major Research Equipment and Facilities Construction account in a FY2005 or future budget request. The ARRV committee is continuing with design efforts and sharing their design decisions with FIC - see <http://www.mlml.calstate.edu/unols/fic/arrv/arrv.html> for the details. Finally, Lamont-Doherty Earth Observatory (LDEO) presented their ideas for replacing the EWING with a more capable commercial 3-D seismic vessel and modifying this vessel to have a more general marine geophysical and oceanographic capability. Draft SMRs for this ship, available from the main UNOLS Web page, are posted for feedback by the oceanographic community. Please provide your input to this important document. FIC has sent a letter to NSF strongly endorsing LDEO's plan for the replacement of the EWING.



FIC had asked the Office of Naval Research (ONR) to fund a motion study comparison of the KILO MOANA, University of Hawaii's new SWATH vessel, and a monohull ship. John Freitag (ONR) has funded Curt Collins of the Naval Postgraduate School to undertake such a study. The initial part consists of studying two

similar sized vessels operating out of the same homeport undertaking reasonably similar, although not identical, mission profiles. The POINT SUR and WESTERN FLYER both operate in the Monterey Bay area. POINT SUR is 135 feet in length and displaces 640 Tons. WESTERN FLYER is 117 feet and 419 Tons displacement. Sea state will be obtained from Wave Rider buoys in

Monterey Bay. Additionally, ONR has given the University of Hawaii the go ahead to undertake the deployment of similar instrumentation for KILO MOANA. The results of these studies will begin to quantify the motion of the vessels under different sea states.

The National Science Foundation is examining design and acquisition strategies for the Regional Class vessels. Based on the results of a study by the naval architectural firm, JJMA Inc., Jim Yoder (NSF) presented a possible scenario (see meeting report for details) for the design and acquisition of Regional Class ships given a cost cap of approximately \$25M. In a letter to Jim Yoder, FIC has raised its concerns about ensuring that there is broad community input to the design and acquisition process. Although the recent SMRs represent broad community agreement on a range of desired capabilities, we anticipate that design constraints will emerge during the next steps in the process. While the JJMA study showed that the Regional Ships

### Research Vessel Operators' Committee News

*By Tim Askew,  
RVOC Chair*

The University of Minnesota's Large Lakes Observatory, located in Duluth on beautiful Lake Superior, hosted the 2003 RVOC meeting on 8-10 October. Everyone brought his or her earmuffs and snowshoes, however as luck would have it, "Indian Summer" set in for the week. A big thanks to Mike King, Marine Superintendent; Jim Riehl, Dean; and Dr. Tom Johnson, Director for hosting this meeting.

Committee reports included a presentation by Safety Committee Chair Tom Althouse. Tom welcomed new member Bill Martin (UW) to the committee as the RVTEC representative. Topics of discussion were the new Research Vessel Safety Standards (RVSS) Status, the RVOC Safety Training Manual, which will need to be



updated to include SOLAS, ISM and other new regulations. Additionally, Shipboard Security; Port Security; Van Security; and Safety were discussed. The issue of liability and safety concerning the chartering of non-UNOLS vessels was also discussed. Lastly, the issue of "wet weight handling gear design requirements" (CFR 189.35.9) needs to be addressed in depth to provide consistency on handling gear requirements such as cable, winches, blocks, weak links, and shackles that are not currently matched uniformly throughout the fleet. The Ship Scheduling Committee's outgoing Chair, Joe Ustach (Duke/East coast) and outgoing Vice Chair Dan Schwartz (UW/West coast) announced that Liz Brenner and Rose Dufour (SIO/West coast) will Co-Chair and Jon Alberts (WHOI/East coast) will be Vice-Chair. Jean Captain (LLO, UM-D) presented a brief overview of current RVTEC issues including ship-to-ship wireless networking, dissolved O2 sensors being affected by cold weather, new Seabird sensors and depth limitations on Tri-axis. Dan Schwartz who replaced Joe Coburn as the RVOC Representative to AICC gave the AICC Report. He discussed the Polar Fleet and the fact that the vessels are aging and will need to be replaced. Matt Hawkins (UDEL) presented the Van Standards and Inventory Committee report. He stated that the database for the inventory is being completed by Doug White at UDEL. Matt is the East coast Van Pool Contact and Fred Jones (OSU) is the West coast contact.

A total of nine Research Vessel updates were presented. Stan Winslow (UH) discussed the KILO MOANA's first full year of operation, which included five months of operation in the Bering Sea and Gulf of Alaska. Joe Ustach (Duke) reported on the CAPE HATTERAS mid-life refit.

He stated that most of the modifications and renovation items had been completed and after operations are complete this year they will finish. The PELICAN mid-life refit took seven months and \$2.4 million to complete according to Steve Rabalais (LUMCON). Steve indicated that with the 10-foot stern extension (105' -

115') the deck load increased from 15 to 25 tons and provided 280 square feet of additional deck

space which has allowed a re-arrangement of deck equipment, including a new crane and winch. Tom Smith (UAK) discussed the status of the ALPHA HELIX replacement. Tom stated that the conceptual design for ARRIV was completed in 2001 with model testing in 2002 and anticipated completion in 2007, assuming funding is available. The CAPE HENELOPEN replacement is on track according to Matt Hawkins (UDEL). Construction should begin by mid-2004 with completion in 2005. The shipyard selection is currently being undertaken. Dutch Wegman (WHOI) discussed progress on the ASTERIAS replacement with their newly designed coastal R/V being 60 feet long with a 350-mile range and a 20-knot cruising speed. He stated that the vessel would be built to sub chapter "T" specifications. Paul Ljunggren (LDEO) discussed the EWING replacement vs. upgrading. Paul stated that in order to provide 3D seismic operations of up to 12 KM, maintain enough deck space for vans, etc. vs. the present 2D and occasional 3D ops, they are considering a replacement vessel instead of a mid-life on the present vessel. Jim Meehan (NMFS) discussed the new fisheries vessel progress. The first FSV, OSCAR DYSON, was christened in October 2003 and is scheduled to be fully operational by 2005. The first of four planned, she is 208 feet long and is being constructed by VT Halter Marine, Moss Point, Mississippi. Lastly, Randy Maxson (FIO) reported that the SUN COASTER replacement was on hold for State funding; however, the conceptual design has the vessel at 140 feet versus the original 120 feet.

Vessel operators from foreign institutions included Geraint West, National Environment Research Council (NERC) at Southampton Oceanography Centre, UK; Ian Sage, the NATO SACLANT Undersea Research Centre, La Spezia, Italy; and Marieke Rietveld, Royal Netherlands Institute for Sea Research (NIOZ). They each discussed their Institution's past year operations and future plans. Additionally, Marieke indicated that at least five new ship builds are planned for European countries.

Invited speakers provided insight on several important topics. Dr. Thomas Dobie from the National Biodynamics Lab, College of Engineering, University of New Orleans presented an enlightening talk on "Critical Significance of Human Factors in Ship Design". LCDR John Herring discussed implementing the new security rules at NOAA. Mark Witsaman,

Vice-President of Technology and Development at SeaWave Digital, provided an overview of low cost voice and data communication with users able to have individual accounts. Mr. Jim Shelley, Director of Security Programs for Mitags/PMI gave an overview of National and International Security Regulations and Mr. Gregg Trunnell, West coast Director of Mitags/PMI discussed "Maritime Training Challenges." (See RVOC minutes 2003 appendices for details on their presentations.)

The final day of the meeting was devoted to RVOC business matters. Matt Hawkins (UDEL) was elected to a three-year term as Vice-Chair/Chair Elect. Tim Askew (HBOI) assumed the duties of Chair for the next three years and Steve Rabalais (LUMCON) stepped down after serving a total of seven years (four as Vice-Chair and three as Chair). Steve helped bring RVOC through the post 9/11 myriad of new regulations and changes that affect all of the operators irrespective of vessel size. A vote of thanks goes out to Steve for his tireless efforts on behalf of RVOC. Other business items included discussions on voluntary ISM compliance, continued membership in the Ship Operators Cooperative Program (SOCP), Post Cruise Assessment's (PCAs), chartering of non-UNOLS vessels, vessel inspections, Safety Training Manual and Safety video updates. Next year's meeting will be hosted by Lee Black at the Bermuda Biological Station for Research in St. Georges, Bermuda.



*In September 2003, presentations were made to outgoing UNOLS Committee Chairs: Larry Atkinson, Steve Rabalais and Joe Ustach. (Pictured L to R: Joe Ustach, SSC Chair; Tim Cowles, UNOLS Chair; Mike Prince, UNOLS Exec. Sect'y; Steve Rabalais, RVOC Chair. Not shown Larry Atkinson, FIC Chair.)*

## Research Vessel Technical Enhancement Committee News

### *2003 Annual Meeting Highlights*

The United States Coast Guard hosted the RVTEC 2003 Annual Meeting on 18-20 November in Seattle, WA. Captain Dan Oliver, Commanding Officer of HEALY, welcomed the Committee.

Key topics of the meeting included discussions on defining levels of technician/instrumentation support, wireless networking and data transfer, and ship to shore communications. Various issues were addressed including response to the post cruise assessment form, ship inspection programs, pooled support, STCW and ISM compliance, and fleet renewal efforts. Efforts to develop a next generation wire design were discussed. A variety of technical topics were presented including HEALY multibeam upgrade options, the high-resolution marine meteorology workshop, improved ADCP quality, performance of globally corrected-GPS, Ridge 2000 metadata forms, and Arctic CTD operations. Future INMARTECH meeting plans were discussed. The meeting included a factory tour of Sea-Bird Electronics, as well as a tour of the US Coast Guard Icebreaker HEALY at Todd Shipyard.

The meeting concluded with RVTEC business items. Steve Poulos was re-elected to another term as RVTEC Vice-Chair

### Ship Scheduling Committee News

*By Rose Dufour (SSC Co-Chair)  
with input from*

*Liz Brenner (SSC Co-Chair) and  
Jon Alberts (Vice Chair)*

The fall scheduling meeting was overshadowed by the approaching storm, Hurricane Isabel, an ominous sign of the difficulties facing the 2004 scheduling. Despite the weather, the task at hand was to satisfy the various components of complicated scheduling, while keeping within Federal Agency budgets. The issues were exacerbated by a list of deferred 2003 programs that had high priority in 2004. Many of these programs had strict weather window considerations, required scheduling around asset availability, and compulsory IHA permits

and foreign clearances, both of which dictated long lead times.

In preparation for the September meeting, schedulers had taken the July meeting recommendations and provided scheduling options for discussion. Prior to the September meeting, at least four web/telephone teleconferences were made in order to help wring out all the possibilities (using the new web-based PIXION PictureTalk system, chosen after testing driving various products). Mike Prince and Linda Goad's enormous scheduling spreadsheets proved to be a tremendous tool to schedulers as they struggled to keep track of the various constraints and funding decisions. At numerous times during the fall scheduling meeting, phone calls were made to key individuals to help sort out the priorities and availability of equipment if certain scenarios prevailed. The schedules for the intermediate and large ships do not stand alone, and like a house of cards, the re-arrangement of one schedule can "cascade" down to the need to re-do various ship schedules. In addition, positioning the ships to handle early 2005 needs was especially important since the austral summer (January of 2005) will require large ships

The small ships didn't avoid the effects of the large and intermediate ship tribulations. Many programs will be squeezed onto the smaller vessels in 2004 in order to satisfy the need to complete time-dependent projects. The level of effort needed to accomplish the same number of ship days is greater on the smaller ships because of the amount of turn-arounds required, and with an average of 176 days on the Regional Class vessels, they will certainly have their work cut out for them in 2004! The large ship schedules were on the hefty side as well, with the average number of funded days at 323. The Intermediate Class vessel average is 221 days, while Local Class vessel's average is 136 days. However, in the end about 218 days could not be accommodated in 2004 and thus becomes our starting point for 2005 scheduling.



## Scientific Committee for Oceanographic Aircraft Research News

*By John Bane,  
SCOAR Chair*

The newly formed Scientific Committee for Oceanographic Aircraft Research met for the second time on October 14 and 15 at the offices of Ocean.US in Arlington. John Bane, professor in the Marine Sciences Program at the University of North Carolina-Chapel Hill, was installed as the Committee Chair following the move of Carl Friehe (UC-Irvine), original SCOAR Chair, to ONR's Marine Meteorology Program.

The meeting was held at Ocean.US because of the committee's interest in learning how research aircraft can best fit into the emerging efforts in ocean observing systems. Presentations were made to the committee by Eric Lindstrom and Larry Atkinson of Ocean.US and by Scott Glenn from Rutgers University. During subsequent committee discussion, it was determined that aircraft will be useful in at least three areas in ocean observing systems: Routine observations in areas that do not have fixed *in situ* instrumentation (e.g., to gather initialization/verification data for circulation models), observations surrounding fixed instrumentation (e.g., to gather initialization/verification data for circulation models), observations surrounding fixed instruments sites, and intense observations for specific, short-term events such as an algal bloom, a high runoff episode, an atmospheric storm, a Gulf Stream intrusion or an ocean eddy event. It was noted that long-range aircraft that are operated by agencies such as NOAA, NCAR and NASA would be needed for deep-ocean observatories. In order to best serve the growing coastal observing systems around the country, SCOAR members foresee the need for four regional centers that would operate shorter-range aircraft. The Naval Postgraduate School's CIRPAS is a good candidate to be the West Coast center. New centers on the East Coast, in Alaska, and on the Gulf of Mexico coast are envisioned. Finally, it was decided that a SCOAR member should attend the CoOP Pioneer Workshop (November) and NSF ORION Workshop (January) to bring aircraft information to these discussions on ocean observatories.

A presentation was made to SCOAR by Cheryl Yuhas, from NASA, who described the possibility that several NASA research aircraft, including the P-3B, the DC-8, and the two ER-2's, may be decommissioned. Alternative possibilities include the transfer of one or more of these aircraft to another agency. Carl Friehe spoke briefly about recent ONR activities relevant to aircraft research.

Other topics at the meeting included a discussion of CIRPAS and how it can become most effective as a UNOLS facility. A tentative "standard aircraft oceanographic instrumentation list" was constructed, and various ways that CIRPAS aircraft capabilities could be advertised were considered. It is very important to get into place an understandable application procedure for the use of these aircraft. These procedures could then potentially be adopted by other aircraft facilities that receive the UNOLS National Facility designation in the future.

