



# Division of Ocean Sciences

Fall/Winter 2001 Newsletter

## Setting a Course for the National Academic Research Fleet

The National Academic Research Fleet has enabled the conduct of ocean research for decades. The fleet presently consists of 28 vessels that are coordinated by the University-National Oceanographic Laboratory System (UNOLS). Eleven of these vessels (seven of which are federally owned) will reach their projected service lifetimes within the next ten years.

A group of federal agency representatives, under the auspices of the Federal Oceanographic Facilities Committee (FOFC) of the National Oceanographic Partnership Program (NOPP), met over the last year and a half to develop a long-range plan for the fleet. As a result of extensive agency and UNOLS community

fulfill existing Class functions but with improved technological capabilities and, in some cases, increased number of science berths. These capabilities will be necessary to meet the growing trends towards larger, interdisciplinary science teams that use increasingly sophisticated research equipment. The Plan does not address the “local” class vessels, which are under 40m (130 ft) and, for the most part, are not federally owned.

The future number and geographic distribution of the research vessels proposed in the Plan is consistent with the anticipated demand for federally-funded academic research and a conservative fiscal outlook. The Plan accepts UNOLS projected

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## OCE Guidelines for Fleet Security

Isolated incidents of crime and piracy against UNOLS ships are not new. Most recently, the R/V Ewing was threatened by weapon-carrying individuals who approached in a small boat 18 miles off the coast of Somalia in late August 2001. Unfortunately, such incidents against ships worldwide have increased significantly in recent years. Overlaying this are the potential dangers from terrorism and proximity to war zones, which have also become highly visible issues.

Before submitting a proposal to NSF, Principal Investigators should carefully consider regions of potential danger when proposing a cruise strategy. Wherever possible, cruises should be planned to avoid regions for which research vessels are not automatically insured through their existing global coverage insurance policies. These war exclusion zones are the coastal waters adjacent to countries with significant political instability or active warring factions. Various websites and

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efforts, FOFC produced a Fleet Plan that will guide us through the next 20 years. In early December, the Plan was accepted by the National Ocean Research Leadership Council (NORLC), which is the senior leadership of NOPP.

The Fleet Plan addresses renewals, retirements and technology upgrades for those vessels in the fleet over 40m (130 ft) in length (vessels traditionally federally owned). Four basic vessel classes are defined within the Plan: Global, Ocean, Regional and Local Classes. The Ocean Class is a new type of vessel classification introduced in the Plan. Ocean Class ships will fulfill a critical need in fleet modernization by replacing the currently aging “Intermediate” Class ships with vessels of increased endurance, technological capability, and number of science berths. While these vessels will be ocean going, they will not be globally ranging. Future Global and Regional Class vessels will continue to

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Dear Colleague,

I am very pleased to begin my Intergovernmental Personnel Act (IPA) assignment (on loan from the University of Rhode Island) as the new Division Director. It is a very challenging position, and my predecessor, Mike Purdy, set a high mark for accomplishment. On behalf of the ocean community, I thank Mike, and Interim Director Don Heinrichs, for their strong leadership of the Division and for their contributions to its growth and success during the past six years.

Oceanographers need also to acknowledge Dr. Rita Colwell's hard work within the Administration and with Congress to focus attention on the importance of basic research. Following a budget increase of about 15% in FY2001, NSF will receive an increase close to 8.4% in FY2002. The latter is remarkable growth, particularly under present economic and national security circumstances and attests to the strong support for science and science education we enjoy in our nation.

One way that ocean science receives additional funding is through agency-wide priority areas such as Biocomplexity in the Environment (BE) and Information Technology Research (ITR). These initiatives have separate program announcements with themes and priorities determined in part by community input. Watch for these program announcements, and please consider participating in the planning workshops that determine program priorities. Other new programs include Opportunities for Research Collaborations Between the Mathematical Sciences and the Geosciences, the Integrated Carbon Cycle Research Program, and Centers for Ocean Science Education Excellence.

The Division is actively pursuing several major infrastructure projects that will help prepare ocean sciences for the future. First, the Ocean Observatories Initiative received National Science Board (NSB) approval for consideration for inclusion in a future budget request within NSF's Major Research Equipment (MRE) account. The concept for the Initiative has three elements: a regional observatory consisting of interconnected sites on the seafloor, several re-locatable deep-sea observatories based around a system of buoys, and an expanded network of coastal observatories. Second, NSF has worked closely with other members of the Federal Oceanographic Facilities Committee (FOFC) and with the broader community to develop a long-range renewal plan for the academic research fleet. It is an ambitious plan that calls for a mixture of new global, ocean, regional and local class ships over the next two decades to replace an aging academic research fleet. Providing the funds to implement the plan will require close coordination and cooperation among NSF, ONR and other federal agencies. Finally, NSF is working with the Japanese and other international partners to begin a new phase of ocean drilling that will involve two dedicated drill ships, as well as other mission-specific platforms. The Japanese will provide one of the new ships, and NSF plans to provide the other.

If support for basic research, and the infrastructure necessary for its conduct, is to remain strong, we must make both the public and policymakers aware of the exciting results generated by NSF-funded investigators. Over the coming months, we intend to highlight the results of OCE investments as well as their potential relevance to issues of national interest. To help us in this endeavor, please have your public affairs office contact me before they release major publications or announcements of a significant finding stemming from OCE-funded research. The NSF Office of Legislative and Public Affairs believes that simultaneous press releases yield maximum coverage. In addition, NSF was recently asked to consider how basic research contributes to national security, including homeland defense. We are interested in hearing your thoughts on this topic and will consider financial support for innovative projects, workshops, etc., that we believe could make a significant contribution.

I look forward to working with you for the next two years.



James Yoder  
Director  
Division of Ocean Sciences

## Target Dates vs. Deadlines

In the last newsletter, we announced that the Division was considering moving from target dates to deadlines for our biannual panels. We thank those of you who shared your perspective on the issue. At this time, the Division Director has decided to continue the use of target dates. However, please keep in mind that target dates are intended to provide investigators with a day or two of flexibility. For the reasons described in the last newsletter, we will switch to hard deadlines if we receive too many significantly late proposals. If you cannot get your proposal to us within a few days of the target date, or have not discussed your circumstances with the relevant Program Director, we ask that you hold the proposal and submit for a subsequent panel.

### Proposal Target Dates/Deadlines

#### **Programs**

#### **Target Dates/Deadlines**

##### **Ocean Section (OS)\***

Unsolicited proposals for Biological Oceanography, Chemical Oceanography, and Physical Oceanography Feb. 15 & Aug. 15

##### **Marine Geosciences Section (MGS)\***

Unsolicited proposals for Marine Geology & Geophysics and the Ocean Drilling Program Feb. 15 & Aug. 15

##### **Integrated Programs Section (IPS)**

Instrumentation Development/OTIC Feb. 15 & Aug. 15  
 Shipboard Scientific Support Equipment Sept. 1  
 Oceanographic Instrumentation Sept. 15  
 Ship Operations Oct. 1  
 Oceanographic Technical Services Oct. 15

##### **Inter-Agency and Special Initiatives**

Climate Variability and Predictability (CLIVAR) Feb. 15 & Aug. 15  
 Ridge Inter-Disciplinary Global Experiments (RIDGE 2000) Feb. 15 & Aug. 15

(note: Integrated Studies begins Aug. 15, 2002; others begin Feb. 15, 2002 )

Integrated Carbon Cycle Research Program Mar. 5, 2002 (deadline)  
 Continental Margins Research (MARGINS) Nov. 1, 2002 (deadline)  
 Ecology of Harmful Algal Blooms (ECOHAB) Jan. 10, 2002 (deadline)  
 Earth System History (ESH) Jan. 15, 2002 (deadline)  
 Collaborations Between the Mathematical Sciences and the Geosciences (CMG) Feb. 25, 2002 (deadline)  
 Centers for Ocean Science Education Excellence (COSEE) Jan. 18, 2002 (deadline)

##### **Other NSF programs of interest to ocean scientists**

Major Research Instrumentation (MRI) Jan. 24, 2002 (deadline)  
 CAREER (Faculty Early Career Development Program), Geosciences Directorate TBD 2002  
 Research Experiences for Undergraduates (REU) Program Sept. 15 (deadline)  
 (contact research program regarding REU Supplements)  
 Biocomplexity in the Environment (BE) deadlines vary  
 Nanoscale Science and Engineering (NSE) TBD 2002  
 Information Technology Research (ITR) deadlines vary  
 Geoscience Education March 19, 2002

\* Proposals for field programs that require the use of University-National Oceanographic Laboratory System (UNOLS) ships in the following calendar year (2003) must be submitted by the February 15, 2002, target date.

*(fleet security continued from page 1)*

newsletters provide frequent updates on crime and piracy incidents (e.g., [http://pollux.nss.nima.mil/onit/onit\\_j\\_main.html](http://pollux.nss.nima.mil/onit/onit_j_main.html)). Territories for which the State Department has posted warnings to travelers (<http://www.travel.state.gov>) are also of concern. The UNOLS web site provides links to these and other useful sites (<http://www.unols.org/rvoc/security.html>) and will keep track of war exclusion zones. Bear in mind that the vast majority of criminal acts perpetrated on ships and their personnel occur on or near land (e.g., traveling between ship and airport or dockside). Attacks at sea, out of sight of land, are rare.

The Division of Ocean Sciences currently advises reviewers and panelists not to introduce issues of security as a criterion in the proposal merit review. We recognize that the security status of regions can change rapidly, and most proposed cruises would occur a year or two beyond the proposal review period. Proposals recommended for funding that require cruises to locations considered a security risk, such as those areas not covered automatically by the worldwide insurance of the ship operator, will be held until a determination is made regarding insurance and security. If parts of the proposal are independent of the cruise, those parts can be funded.

Ship operators are responsible for the general safety of the cruise, which includes the ship, crew and science complement. Thus NSF

does not require operators to sail to regions or enter ports they deem unsafe. NSF will not support cruises in areas where war risk insurance is unavailable, or is available at excessive premiums.

In sufficient time prior to ship scheduling meetings (which begin early in the summer of the year preceding the cruise), the ship operator will be asked to indicate willingness to undertake the planned cruise. If the operator agrees to schedule the cruise, NSF will make a final determination to support the cruise based on (1) a security review made in consultation with relevant federal offices (Office of Naval Intelligence, Maritime Administration of the Department of Transportation, US Coast Guard, Oceanographer of the Navy, State Department), and (2) additional cost of insurance, if available, and cost of any additional security measures recommended. Any additional costs will be weighed in the context of other program fiscal constraints. Cruise safety will be reevaluated prior to ship sailing, and the chief scientist should have a well defined alternate cruise plan in case last minute changes are required in the cruise schedule. NSF will continue to support safety and security training aboard UNOLS vessels.

For inquiries related to these guidelines, please contact Holly Smith ([hesmith@nsf.gov](mailto:hesmith@nsf.gov)) who will direct questions to appropriate Program Directors for ship and scientific issues.

### Sites of Interest

OCE	<a href="http://www.geo.nsf.gov/oce/start.htm">http://www.geo.nsf.gov/oce/start.htm</a>
ODP	<a href="http://www.oceandrilling.org">http://www.oceandrilling.org</a>
JOI	<a href="http://www.joiscience.org">http://www.joiscience.org</a>
UNOLS	<a href="http://www.unols.org">http://www.unols.org</a>
RIDGE	<a href="http://ridge.oce.orst.edu">http://ridge.oce.orst.edu</a>
ECOHAB	<a href="http://www.redtide.whoi.edu/hab">http://www.redtide.whoi.edu/hab</a>
GLOBEC	<a href="http://www.usglobec.org">http://www.usglobec.org</a>
MARGINS	<a href="http://www.ldeo.columbia.edu/margins">http://www.ldeo.columbia.edu/margins</a>
JGOFS	<a href="http://www1.whoi.edu/jgofs.html">http://www1.whoi.edu/jgofs.html</a>
CLIVAR	<a href="http://www.clivar.org">http://www.clivar.org</a>
WOCE	<a href="http://www-ocean.tamu.edu/WOCE/">http://www-ocean.tamu.edu/WOCE/</a>
CoOP	<a href="http://www.skiio.peachnet.edu/coop/">http://www.skiio.peachnet.edu/coop/</a>

*(fleet plan continued from page 1)*

operational life spans of existing fleet vessels and assumes a nominal 30-year life span for new vessels. Over the next two decades, at least one Global, six Ocean, and three Regional Class ships will be needed to maintain current fleet capacity and reinvigorate the fleet as aging and less capable ships retire. However, should optimistic budget scenarios enable new scientific thrusts outlined in the Plan to move forward, fleet size and composition may need to increase up to 13 new ships.

The Plan supports building a portfolio of Science Mission Requirements (SMR) and concept designs to play an integral role in developing a capable, modern fleet. In addition, vessels will be expected to undergo significant technology upgrades over their lifetimes to ensure innovation and access to the latest technologies.

The Fleet Plan will maintain flexibility by being reviewed and updated by FOFC at least every five years. This will ensure that the fleet continues to meet evolving science needs, priorities and funding trends. Federal funds for ship construction and operation will continue to be awarded on the basis of open competition.

To receive a copy of *Charting the Future for the National Academic Research Fleet*, please send a request to [ocepubs@nsf.gov](mailto:ocepubs@nsf.gov). The plan is also available electronically at <http://www.geo.nsf.gov/oce/ocepubs.htm>.

## Communicating Research Results to an Interested Public

It has become increasingly important to highlight significant breakthroughs resulting from NSF-sponsored research in the ocean sciences. Put simply, those that make the difficult decisions regarding agency funding levels have informed us that performance results will affect future agency budgets. For those agencies funding basic research, this presents a significant challenge.

To respond effectively, we need your help.

Discoveries in our oceans captivate the human imagination and serve to remind all about the values of public funding for basic research. We urge you to inform your Program Director or the Division Director of significant discoveries stemming from NSF-funded research and to notify us in advance, if possible, of the publication of results in *Science*, *Nature*, and the popular press. Timely notification allows us to make optimal use of such news — if we learn of breaking news after the fact, we lose much of the advantage of being able to respond appropriately within the agency.

In addition to sharing the excitement of research results, there are a number of ways to enhance the visibility of the scientific community and the National Science Foundation. We encourage you to:

- Give NSF, as well as other government agencies, appropriate credit in articles, during interviews, etc.
- Ensure that equipment purchased or constructed with NSF funds or facilities supported by NSF grants, are clearly labeled as such. It would be particularly beneficial if NSF logos were prominently displayed on anything that is likely to be photographed!
- Notify us of any special outreach activities such as web-based efforts to link our science directly to the classroom and the public. A recent news release from the University of Delaware (<http://www.ocean.udel.edu/newscenter/deepseaDNA.html>) is an excellent example.
- Seize opportunities to educate your communities about the excitement and value of scientific discovery.

Implementing these efforts will further our mutual interest, and the nation's interest, in sustaining the health of the scientific enterprise.

## Reports Available



***NEW!!! Charting the Future for the National Academic Research Fleet: A Long-Range Plan for Renewal***  
Federal Oceanographic Facilities Committee

For copies, please e-mail a request to [ocepubs@nsf.gov](mailto:ocepubs@nsf.gov) or go to <http://www.geo.nsf.gov/oce/ocepubs.htm/>

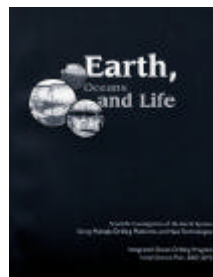
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***Ocean Sciences at the New Millennium***  
Decadal Committee,  
Peter Brewer and Ted Moore, co-chairs



For copies, please e-mail a request to [ocepubs@nsf.gov](mailto:ocepubs@nsf.gov) or go to [http://www.joss.ucar.edu/joss\\_psg/publications/decadal/](http://www.joss.ucar.edu/joss_psg/publications/decadal/). A high resolution version is available at <http://www.geo-prose.com/decadal/Decadal.hi.pdf>.

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***Earth, Oceans and Life: Integrated Ocean Drilling Program Initial Science Plan, 2003-2013***

The Initial Science Plan, and additional planning information on the program, is available at <http://www.IODP.org/>.

# PROGRAM NEWS

## OCEAN SECTION

### Biological Oceanography

#### Funding Opportunities

Please see the NSF-wide Biocomplexity announcement and the GEO-wide Carbon Cycle announcement for opportunities for marine ecological research support outside of the “core” program. The latter is the first result of lots of planning on the part of the OCE Division and the community on the future of carbon cycle research – including the EDOCC (<http://picasso.oce.orst.edu/ORSOO/EDOCC/docs.html>) and OCTET (<http://alpha1.msrc.sunysb.edu/octet>) efforts that have been mentioned in previous OCE newsletters. Also, please see the multiagency (NSF, EPA, NOAA, NASA, ONR) announcement on ECOHAB – the Ecology and Oceanography of Harmful Algal Blooms (<http://www.geo.nsf.gov/cgi-bin/showprog.pl?id=50&div=oce>).

#### LTER

The first of the Division of Ocean Science’s Long-Term Ecological Research (LTER) projects has just received its first mid-award review as per established LTER procedures. The Plum Island Ecosystems (PIE) LTER, with Chuck Hopkinson, Marine Biological Laboratory (MBL) as the PI, along with a stellar group from MBL and other institutions, was initiated three years ago. This LTER is cooperatively funded by the NSF Divisions of Ocean Sciences and Environmental Biology. The mid-award review is intended to help the project as it anticipates the renewal proposal process for continued funding. The completed review is extremely positive about the status and progress of the PIE-LTER, regarding the quality of the science, the management, and education and outreach activities. Congratulations to Chuck and the PIE team for achieving so much, and with such strength, as a new LTER.

#### JGOFS

US-JGOFS is in the final stage of synthesis activities with proposals currently under review. While JGOFS will be winding down over the next three years, support for carbon cycling research at NSF and, in particular, within the Biological Oceanography Program will remain strong and even grow in the future. The community planning efforts of EDOCC and OCTET that have been supported by OCE and have been discussed in previous newsletters have paid off in terms of formulating NSF plans for the future of ocean carbon cycle research. Please see the new announcement (<http://www.nsf.gov/cgi-bin/getpub?nsf02016>).

#### RIDGE 2000

Biological Oceanography continues to work with Marine Geology and Geophysics to support science on mid-ocean ridge processes and ecosystems. Dr. Charles Fisher, Penn State, is the new chair of the RIDGE 2000 Science Steering Committee. Please see the new announcement of opportunity for RIDGE 2000 (<http://www.nsf.gov/cgi-bin/getpub?nsf02011>) as well as the new RIDGE 2000 website at <http://RIDGE2000.bio.psu.edu/>.

#### GLOBEC

US-GLOBEC is just entering the initial stages of synthesis activities for the Northwest Atlantic program, while field programs in the Southern Ocean, California Current, and Gulf of Alaska are still underway. The first synthesis activities are currently under review.

#### Biocomplexity and Nanoscience

Finally, the Program continues to be actively involved within the NSF with the NSF-wide activities of Biocomplexity (and all of the sub-themes) and Nanoscale Science and Engineering. We continue to encourage the community to take advantage of these opportunities for research. We particularly note the stated interest in Biocomplexity CBC on life in extreme environments.

Phil Taylor ([prtaylor@nsf.gov](mailto:prtaylor@nsf.gov))  
 Dave Garrison ([dgarrison@nsf.gov](mailto:dgarrison@nsf.gov))  
 Phil Yund ([pyund@nsf.gov](mailto:pyund@nsf.gov))  
 Gayle Pugh ([gpugh@nsf.gov](mailto:gpugh@nsf.gov))

#### Join our Ranks!

OCE regularly searches for qualified individuals to complete two-year assignments as Associate Program Directors in all of our research disciplines. This is a win-win opportunity. We in OCE gain valuable insight and fresh perspectives from rotators actively engaged in the community, and rotators gain insight into the full breadth of their discipline as well as an understanding of the grantmaking process.

Openings occur periodically as current rotators complete their assignments. Please refer to our Home Page for vacancy announcements (<http://www.geo.nsf.gov>) or contact the relevant Program Director for more information.

## Chemical Oceanography

During the past six months, there have been a number of developments at NSF that should be of interest to the ocean chemistry community. Although many others may be found on the NSF web site, the following should be of particular interest.

### US JGOFS Synthesis and Modeling Project (SMP)

The final proposal cycle for the US JGOFS Program (under program announcement *NSF 01-103*) began in August 2001, with the arrival of 14 proposals for the peer review panel held during the first week of December 2001. The CO and BO programs plan to combine resources to make four or five awards totaling approximately \$2 million. Awards will be announced by the middle of January 2002.

### Integrated Carbon Cycle Research Program (ICCR)

In FY 2002, the Directorate of Geosciences expects to put \$11 million into ICCR to inaugurate a new decade of global carbon cycle research at NSF (under *NSF 02-016*). Approximately half of this total will be directed to ocean-related research (ocean, sea-air, land-sea) and half to terrestrial carbon studies (land, land-air, land-sea). The goal of ICCR is to achieve a process-level quantitative understanding of the major reservoirs, transformations, and exchanges of carbon within and among the terrestrial, marine, and atmospheric systems of Earth. The proposal deadline for ICCR is March 5, 2002.

### Biocomplexity in the Environment — Coupled Biogeochemical Cycles (CBC)

The FY 2002 CBC competition (under *NSF 02-010*) affords an excellent opportunity for marine chemists and biogeochemists to form collaborative multidisciplinary alliances to study complex interactions between organisms and the environment. Successful full-scale research projects may be funded for up to \$400,000 per year for five years. Additionally, a limited number of small awards (< \$100K) will be made to support workshops, symposia, and small pilot studies, or to support the building of international and/or interdisciplinary research teams. Approximately \$16 million will be available for CBC in FY 2002. In the previous CBC competition, proposals from marine scientists were among the most highly rated, no doubt reflecting our community's long experience of teamwork on interdisciplinary problems. The proposal deadline for CBC is February 20, 2002.

### Opportunities On the Horizon

Other funding opportunities for ocean chemists are developing on the horizon. Within the next twelve months, we hope to release an FY 2003 program announcement for **carbon cycle studies in the**

## Town Meeting in Hawaii!

NSF's Division of Ocean Sciences will hold a Town Meeting at the February AGU/ASLO conference. Dr. Peter Brewer will lead a discussion on the process leading to the "Ocean Sciences at the New Millennium" report as well as its recommendations. Division Director Jim Yoder and others from NSF will discuss how NSF plans to implement the recommendations. The meeting is also an opportunity to hear the latest NSF news and updates and to meet and ask questions of Division of Ocean Sciences staff.

The meeting is scheduled for Tuesday, February 12, from 12:15pm - 1:15pm at the Hawaii Convention Center. Room TBA.

Please join us!

**North Atlantic Basin** that would be coordinated with corresponding activities sponsored by NOAA and NASA and consonant with the goals of the U.S. Carbon Cycle Science Plan. The Ocean Carbon Working Group, chaired by Dr. Cindy Lee at SUNY-Stony Brook, is assisting the Division of Ocean Sciences with the planning.

The CO Program is also working with other programs in the Division of Ocean Sciences to develop a partnership between NSF and the National Institute of Environmental Health Sciences (NIEHS) to support cutting-edge research into the relationships between **oceans and human health** (OHH). The results of an NSF-NIEHS roundtable meeting of OHH experts convened in December 2002, will be presented to the ocean sciences community at a special session on Thursday, February 14, 2002, at the Ocean Sciences Meeting in Honolulu.

For further information on any of the items above, please feel free to contact any of us in the CO Program.

Don Rice (drice@nsf.gov)

Simone Metz (simetz@nsf.gov)

Peter Milne (pmilne@nsf.gov)

## Physical Oceanography

Once again, the Physical Oceanography Program would like to thank the many people, both in the U.S. and abroad, who have taken the time to read proposals and provide us with thoughtful reviews. These reviews are crucial to the process of proposal evaluation and it is a tribute to our community that the return rate has consistently been above 80%, the highest in the Division of Ocean Sciences. The program would also like to thank this year's panelists who, in the Spring or Fall, dedicated a substantial amount of time considering roughly 90 proposals.

### Funding Highlights

The span of ocean science covered by recent proposals continues to be broad. Topics range from the dynamics of estuaries to the circulation of the abyssal ocean. The November 2001 panel also

included 19 CLIVAR or CLIVAR-related proposals. One of the few remaining gaps in the synthesis of the WOCE data set was plugged with the funding of a pair of complementary proposals to analyze WOCE and historical hydrography around the Southern Ocean. Both projects will try to quantify exchanges between the Southern Ocean and the major ocean basins to the north as well as determining the circulation between the sub-basins of the Southern Ocean and the processes responsible for the creation of intermediate waters. One project will use classical hydrographic analysis techniques while the other will adopt a box inverse model approach.

Nearer to shore, the Program is collaborating with the Office of Naval Research to fund several investigators to participate in NCEX, the Near-shore Canyon Experiment, a major effort to push the understanding of near-shore processes in the presence of complex topography not captured in the various experiments at Duck, NC. Other near-shore research funded includes the use of video imagery of the surf zone to determine information about both the circulation and the bathymetry, and the analysis of data from a rip-current system

### **The Hawaii Ocean Mixing Experiment: Survey Field Phase**

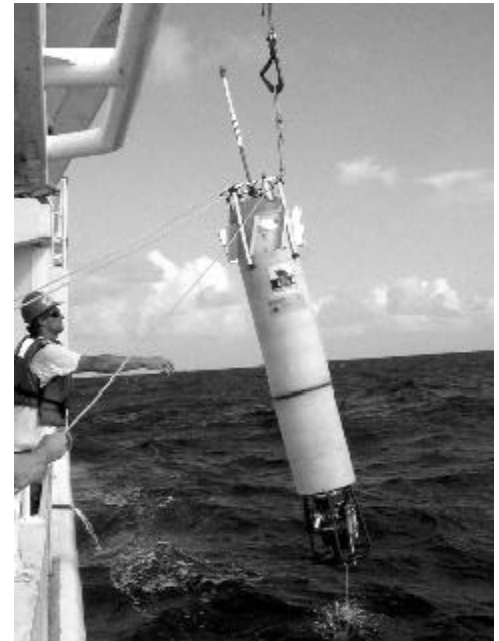
Contributed by Rob Pinkel, SIO

The Hawaii Ocean Mixing Experiment is a five-year NSF program to study tidally induced ocean mixing in the vicinity of the Hawaiian Ridge. The Experiment is divided into five programs, including Historic Data Analysis, Modeling, Survey, Farfield and Nearfield components. The Analysis and Modeling efforts began in 1999, with the objective of identifying locations along the Ridge where the barotropic-baroclinic conversion process was strong and mixing was likely. Guided by these efforts, the Survey observational program conducted a reconnaissance of the Ridge from August 2000 through January 2001. The objective was to identify sites of intense internal tide generation and strong mixing. Scientists from the University of Washington, Oregon State University, University of Hawaii and Scripps Institution of Oceanography, UCSD participated.

How much mixing might one expect to find? The over-all tidal energy budget for the Ridge includes three principal terms: the energy lost from the surface tides, the energy radiated away as baroclinic (internal) tides, and the energy lost to mixing processes near the Ridge. Recently, using TOPEX Poseidon data, Egbert has estimated the barotropic energy loss to be of order 20 GW (from the M2 tide alone). Present estimates (satellite derived) of the baroclinic flux are of order 10-15 GW, leaving 5-10 GW available for mixing. The HOME Farfield Experiment began in the Spring of 2001 to provide an accurate in-situ estimation of the radiated baroclinic flux.

The Surveyors identified sites of intense barotropic to baroclinic conversion near French Frigate Shoals, Nihoa Island and in the Kauai Channel west of Oahu. Mixing levels were enhanced in these regions, with eddy diffusivities approaching  $10^{-3} \text{ m}^2 \text{ s}^{-1}$  in the bottom quarter of the ocean, up to distance of order 10 km from the Ridge (Gregg, Moum, Sherman). Shear and strain were elevated above open ocean background levels to 50-100 km off the Ridge axis (Rudnick, Pinkel). Preliminary estimates suggest that the total dissipation in this farfield "glow" might be comparable to the energy loss in the much smaller region of intense nearfield mixing.

Extremely large (300 m) amplitude internal tides of cnoidal form were observed above the topography of the Kauai Channel. It was found that the Princeton Ocean Model implemented by Merrifield and Holloway was extremely successful in identifying the sites of strong barotropic-baroclinic conversion and in quantifying the radiated low mode internal wave energy. Their POM model predicted three sites of strong baroclinic tide generation along the Ridge, the Kauai Channel, Nihoa Island and French Frigate Shoals. Measurements by Sanford, Kunze, and Lee corroborated the model predictions. The internal tide generation process and the associated cascade of energy to mixing scales will be the focus of the coming Nearfield Experiment (August-November 2002).



*The Absolute Velocity Profiler being deployed from the R/V Wecoma. Photo courtesy of J. Nash, University of Washington.*



on a barred beach. Studies within the coastal zone also include an examination of eddies produced by tidal flow past headlands and an investigation of river plumes.

Major field projects funded over the last year include several related to inter-basin exchanges. One tackles the formation and transformation of deep and intermediate waters in the Nordic Seas. In the South Atlantic, a new field experiment is aimed at quantifying the transport of Indian Ocean waters by Agulhas eddies using in-situ and satellite observations. Over in the Indian Ocean, several oceanographers will try to establish whether there is a sustained Agulhas undercurrent. Another significant field effort is an attempt to obtain direct estimates of isopycnal dispersion using very accurately ballasted RAFOS floats.

In 2001, the PO program has continued its commitment to the collection of long time-series data off Bermuda and Hawaii. Such time-series can be expensive and difficult to maintain for decades. It is anticipated that over the next two years, the physical and biogeochemical components of HOT will become more tightly coordinated. It is hoped that the optimization of the data collection schedule and the use of new technologies will lead to greater efficiency and a reduction in the overall cost. A desire for additional time-series sites is clear in community planning documents. If the number of long time-series sites is to expand without severely compromising the program's ability to fund other types of research, the per site cost must become more manageable. In the past year or so, the program has seen proposals to begin sustained time-series efforts in several other locations. These have been expensive proposals and the reviewers have wanted to see a careful explanation of the scientific payoffs, reassurance that the site location and experimental design will meet the scientific objectives, instrumentation and manpower pared to what is essential for the task, and a commitment to making the data collected freely and rapidly available (the HOT and BATS programs are excellent examples in this regard). The program would also like to see some indication of a long-range plan for maintaining these time series after their start-up phase.

*What do Program Directors do when they're not reviewing proposals?*

Most people know of the program's role in managing the review of new proposals and making funding recommendations. Some will have seen us during site visits, often in conjunction with Program Officers from ONR or a nearby workshop, or at national meetings such as Ocean Sciences. On these occasions we try to broaden our sense of people's research directions, get to know young scientists starting their independent research careers, listen to feedback about NSF and/or the proposal review process, and try to answer whatever questions we can.

A less visible role is the one we play in trying to secure new funding for ocean science and in promoting both disciplinary and interdisciplinary opportunities for new science. In this we draw heavily upon the white papers and planning documents prepared by the community. Internally, we act as advocates for programs devel-

oped by the research community. We are frequently asked for input on new Foundation-wide and inter-agency initiatives and contribute to strategic planning documents. We serve as Program Directors for inter-agency competitions like NOPP and the large NSF-wide competitions such as Biocomplexity in the Environment (BE) and Information Technology Research (ITR). For the ocean science community, these competitions are becoming increasingly significant opportunities for funding outside of the core programs and ocean scientists have had noticeable success within them. Ocean researchers who have not yet proposed to ITR or BE are encouraged to investigate the lists of funded awards from previous year competitions, as well as abstracts, available on the NSF web pages. Last, we liaise with a number of advisory and steering committees established by the research community; for example, CLIVAR, Ocean Carbon Research and Ocean Information Technology Infrastructure.

### CLIVAR/Carbon Cycle

The Program continues to fund climate-related research and, with the recent emergence of detailed CLIVAR implementation plans, anticipates a growth in the number of CLIVAR and CLIVAR-related projects. Our initial emphasis will be the implementation of the components of the ACVE plan dealing with the mid- to high-latitudes in coordination with the developing ASOF and NERC's ACCE programs, as well as pilot studies to examine the role of low latitude boundary currents in Pacific climate variability, a critical component of the P-BECS plan. In the near future, Global Change research will include significant efforts in the study of the carbon and hydrological cycles. For more information about the recent announcement of opportunity for carbon cycle research, see the chemical oceanography program news.

### Staffing

Several personnel changes will greet us with the New Year. Dr. Bill Wiseman will return to LSU this winter after a two-year tour of duty, taking with him a great knowledge of estuarine and coastal systems and a wicked sense of humor. We will miss the challenging scientific discussions we have had on a daily basis around morning coffee about priorities and future directions in our field and wish him well. The Physical Oceanography Program anticipates welcoming on board two new faces in 2002. Dr. Theresa Paluszkiwicz who managed the Ocean Modeling program at ONR for the past four years will join us as Program Director in a permanent slot in January of 2002 and we are negotiating with a second person who should join the program as a rotator in the Summer of 2002. Both are experienced and well-respected scientists and we expect a smooth transition.

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## MARINE GEOSCIENCES SECTION

### Marine Geology and Geophysics

#### MARGINS

All four MARGINS initiatives (Seismogenic Zone, Subduction Factory, Rupturing of Continental Lithosphere, and Source to Sink) are competing for ~\$5 million in funding in the fourth MARGINS competition. Due to an earlier submittal deadline (November 1), funding decisions will also be made earlier, in the February-March 2002 time frame. The Program has received a total of 37 proposals for this competition (4 for SEIZE, 14 for SubFac, 10 for RCL and 9 for S2S). The RCL proposals include 3 for the Red Sea focus area and 6 for the Gulf of California/Salton Sea focus area. To encourage wider collaboration with scientists from countries surrounding the RCL focus site in the Red Sea, the MARGINS Office recently signed a Memorandum of Understanding with the Saudi Geological Survey that will promote greater logistical and scientific cooperation with Saudi Arabia.

The MARGINS community held a workshop in July 2001 on the combined topics of the Mid Americas Seismogenic Zone and Subduction Factory. The main objective of the workshop was to provide, with more specificity than the overall MARGINS Science Plan (see MARGINS web site: <http://www.ldeo.columbia.edu/margins/Home.html>), a strategy for implementing studies in the Central America Volcanic Arc (CAVA) and associated subduction zone. The following topics were addressed: 1) reconstructions of the incoming plate; 2) incoming plate structure and history; 3) forearc Structure; 4) forearc deformation; 5) fluid and heat interaction between lower and upper plate; 6) seismogenic zone earthquakes and earthquake history; 7) deep subduction zone structure; 8) arc volcanism and the output of the subduction factory; 9) arc volatiles; 10) hazards and effects on local populations; and 11) insights from other regions — Nankai, IBM, Japan, and the Aleutians. The workshop also held several specific planning sessions that included incoming plate kinematics and their seismic, chemical and volcanic aspects; mass, fluids, volcanism and heat transfer; and geologic and climatic hazards. A workshop report will be available in early 2002. To ensure greater participation in the discussions, the MARGINS' community also plans to hold several town meetings at the Fall AGU on the Nankai and the Central America Seismogenic Zone Experiments as well as on the Central America Subduction Factory studies.

A MARGINS Source-to-Sink workshop of community representatives was convened at NSF in August to review and update their science plan. The participants were asked to better define the

program's objectives and set priorities, including details of the schedule and sequencing to implement the science objectives of this initiative. The draft revisions were incorporated in the S2S science plan in time for the community to submit proposals for the November 1 deadline.

In other news, the MARGINS Program intends to promulgate a Fellowships plan for MARGINS that will be incorporated in the MARGINS program announcement early in 2002. The Fellowship plan is designed to encourage multidisciplinary research on MARGINS problems related to the four initiatives. The MARGINS Program has also drafted a data policy statement that will obligate funded Principal Investigators to meet a series of data management requirements to maximize collaboration and data transfer within the program.

#### RIDGE 2000

The RIDGE Program ended on the last day of September, and RIDGE 2000 started the next day. The RIDGE 2000 program announcement is available on the GEO home page ([www.nsf.gov/home/geo/](http://www.nsf.gov/home/geo/)). Information on the RIDGE 2000 program is available on the RIDGE 2000 home page ([RIDGE2000.bio.psu.edu](http://RIDGE2000.bio.psu.edu)). In particular the "RIDGE 2000 Program Summary" and "RIDGE 2000 Integrated Studies Site Selection Panel Summary of Proceedings" provide summaries of the reorganization.

The reorganization of the program began in 1999, and Dave Christie did an admirable job of guiding the program through the many meetings and workshops involved. We wish him well in getting back to his research, as well as Carol Chin, Randy Keller and Chris LeBoeuf who put an incredible effort into organizing all the meetings and workshops.

Chuck Fisher has been selected as the new chair of the RIDGE 2000 steering committee and the RIDGE 2000 Office is located at Penn State (221 Mueller Lab., Penn. State U, University Park, PA; 814-865-7434; [RIDGE2000@psu.edu](mailto:RIDGE2000@psu.edu); [RIDGE2000.bio.psu.edu](http://RIDGE2000.bio.psu.edu)). In addition to Chuck, the R2K office will be manned by Program Assistant Patty Nordstrom, Education and Outreach Coordinator Liz Goehring and an, as yet unnamed, office coordinator.

#### ESH/MESH: (Marine aspects of) Earth System History

During the last year, MESH took the lead in developing a focused research effort on Holocene Climate Variability. A workshop organized by the MESH Program Office and NSF, along with input from the wider scientific community, identified a series of research questions. Answers to these questions will provide important clues to the nature of Holocene climate variability that occurred on human time scales beyond the observed instrumental record of climate. The workshop resulted in a research plan that outlines a focused effort on Holocene Climate Variability that will be part of the ESH Program. The Holocene research plan and priorities can be found on the NSF Web page (<http://www.geo.nsf.gov/cgi-bin/showprog.pl?id=90&div=oce>). We anticipate that additional focused research ef-

forts will be developed as part of ESH/MESH over the next few years. If you are interested in helping to develop a particular research focus, contact Bill Curry at the MESH Program Office ([wcurry@whoi.edu](mailto:wcurry@whoi.edu)).

### MG&G Metadata Management System

Since the FUMAGES workshop in 1996, we have been evaluating infrastructure issues within the MGG community. Data management has been a long-standing problem. Last May, Debbie Smith, Suzanne Carbotte, Bill Ryan, Steve Cande, Steve Miller, and Dawn Wright organized a workshop on Data Management for Marine Geology and Geophysics. The report of that workshop is available at <http://hummm.who.edu/DBMWorkshop/>.

The workshop resulted in two overarching recommendations: that active archives be created for all MGG data, and that a searchable metadata catalog be created. Creation of active archives will, for the most part, occur on a distributed basis as community needs dictate. Some are already operational, such as the RIDGE multibeam database. The metadata catalog does not exist, and we are considering how to implement this recommendation.

Compliance with OCE (<http://www.geo.nsf/oce/programs/oceandat.htm>) and NSF data policies has also been a long-standing problem. The NSF Grant Policy Guide ([http://www.nsf.gov/pubs/2002/nsf022/nsf0202\\_2.html](http://www.nsf.gov/pubs/2002/nsf022/nsf0202_2.html)) states that the proposal Project Description should include "plans for preservation, documentation, and sharing of data, samples, physical collections, curriculum materials and other related research and educational products." Within MGG we consider this appropriate for all proposals and ask PIs to tell us how they are complying. Progress reports must include plans for such compliance, and final reports must document compliance. Approval of a final report will depend on such compliance, and failure to document it could delay the processing of any future financial support for the responsible Principal Investigator.

### Staffing

Brian Midson has joined the MG&G Program as the new Science Assistant, replacing Lisa Crowder who has chosen a yeoman's adventurous life on board the JOIDES Resolution with ODP. Brian hails from the University of Hawaii and is widely known to many in the MG&G community. Brian will be happy to answer many of the routine questions from the PIs concerning the MG&G, MAR-GINS, RIDGE and MESH proposals, deadline, target dates, etc. He can be reached at 703-292-7585, or via email at [bmidson@nsf.gov](mailto:bmidson@nsf.gov).

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## Ocean Drilling Program

In August, ODP's Science Committee set the schedule for ODP's last year of drilling, scheduled to end September 30, 2003. An exciting and robust scientific drilling program has been developed for the *JOIDES Resolution's* final year of operations. The track takes the drilling vessel from the eastern Pacific into the North Atlantic and ends in the Gulf of Mexico where it will be demobilized. As ODP approaches its final stages, planning within the science community and potential funding entities continues at a vigorous pace to ensure that the follow-on program, the Integrated Ocean Drilling Program (IODP), is seamlessly in place by October 1, 2003.

The IODP International Working Group (IWG), a group of international funding agency representatives engaged in the formal planning for a post-2003 scientific drilling program, met in Ottawa, Canada this past June. The IWG has been meeting on a regular basis every six months since 1997 and is co-chaired by Dr. Yoichiro Otsuka, Director for the Earth and Oceans Division of Japan's Ministry of Education, Culture, Sports, Science, and Technology (MEXT) and by Dr. Margaret Leinen, Assistant Director for Geosciences at the U.S. National Science Foundation (NSF). MEXT and NSF are defined as the Lead Agencies for IODP and as such will contribute equally to total program cost and will take on additional responsibility as necessary to fully support the program.

The IWG has made significant progress in defining and agreeing to the various elements needed to make the new program a reality. At its last meeting the IWG reached agreement on the Management Principle for IODP. This Principle calls for a Central Management Office (CMO) that will develop and manage the implementation plans for the IODP science program and will have a formal arrangement with IODP Lead Agencies for this activity. In defining the tasks and responsibilities of the CMO, the IWG agreed that these are to be based on the recommendations of IODP's international Science Advisory Structure (SAS). The IWG attached the following characteristics to the CMO: a) it should be committed to IODP science, b) it should be unbiased, c) it should be independent, and d) it should be a legal entity. The full text of the Management Principle and the definition of the Tasks and Responsibilities of the CMO can be found at IODP's web site: <http://www.iodp.org>.

Also significant at the June meeting of the IWG was discussion of a joint European effort to provide IODP with a mission specific platform capability. The proposal envisages Europe participating in IODP as a single entity or consortium. Ideally, Europe would like to participate as a lead agency. The same conditions that apply to the riser and non-riser platforms, as defined by the Platform Principle, would apply to the mission specific platform(s). The European members of IWG were very positive about this approach to European participation in IODP and requested that IWG consider and comment on a set of principles,

which they developed, that defines this participation. A response and discussion will occur at the next meeting of the IWG in January 2002 in Kobe, Japan.

An interim Science Advisory Structure (iSAS) for IODP is now in operation and functions in a similar manner as the JOIDES advisory structure for ODP. The Interim Planning Committee (IPC) of iSAS is equivalent to SCICOM in ODP and is Co-Chaired by Dr. Ted Moore, University of Michigan, and Dr. Hajimu (Jim) Kinoshita, JAMSTEC. The IPC had its first meeting in August and has recommended the formation of several interim science advisory panels. IPC will be responsible for shepherding, evaluating and encouraging drilling proposals for the platforms to be supported in the future drilling program. October 1 was the first deadline for submission of IODP drilling proposals and the iSAS support office received eleven new proposals. In addition, fifty-nine proposals were transferred to IODP from ODP. Several have undergone revision. At the moment there are seventy active proposals in the system being considered by iSAS. More information is available at <http://www.isas-office.jp/>.

This is an opportune time to remind everyone that the NSF/ODP office is encouraging the development of mature drilling proposals for IODP by supporting regional geological and geophysical studies, well in advance of drilling, from U.S. scientists and institutions. In keeping with the thematic emphasis of the IODP Initial Science Plan, the NSF will accept proposals for work in any ocean. However, as the international planning effort begins to focus drilling plans on a particular region, proposals for work in that region will receive special attention.

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Vacancy (Program Director) -- see p.18

Vacancy (Associate Program Director) -- see p.18

### Recruiting Students from Underrepresented Groups

Oceanographic institutions traditionally have difficulty recruiting students from underrepresented groups into graduate programs in oceanography and related fields. The pool of applicants is often very small, and this is a contributing factor to the low numbers presently enrolled in graduate programs. OCE supports undergraduate activities, including those emphasizing programs for underrepresented groups. Students participating in these programs are a potential pool of applicants to your graduate program. Points of contacts and host institutions for undergraduate students who are learning about ocean science and participating in oceanographic research programs are listed at <http://www.nsf.gov/home/crssprgm/reu/reuoce.htm>.

The first awards made under the GEO Diversity Program are listed at <http://www.geo.nsf.gov/geo/diversity/>. Some of these new programs are focused on undergraduates, and this is another potential pool of applicants for graduate programs.

## INTEGRATED PROGRAMS SECTION

### Education

#### The COSEE AO is out!

We are delighted to announce that OCE's Announcement of Opportunity (AO) for the COSEE (Centers for Ocean Science Education Excellence) initiative was posted on the NSF website on October 11, 2001. With the issuance of this AO, OCE hopes to initiate development of a network of Centers around the country that will coordinate and promote ocean science education in schools and in a variety of informal settings. All ocean scientists with an interest in becoming more involved in education are encouraged to access this document at <http://www.geo.nsf.gov/oce/oceeduopps.htm> and consider becoming involved in a COSEE regional or national planning initiative. Although the optional deadline for submitting letters of intent for COSEE has passed, it is not too late to get involved with an existing planning group for a Center or the network's Central Coordinating Office. It is also possible to submit a full proposal by the January 18 deadline even if no planning letter has been submitted. For further details, please see the NSF website referenced above. You can also e-mail or call Dr. Susan Cook (e-mail: [scook@nsf.org](mailto:scook@nsf.org); phone 703-292-7592).

Our objective within the COSEE AO is to emphasize the very high priority that we place upon the role of the scientific professional in education. It is critical that NSF facilitate development of a system whereby ocean scientists with a genuine interest in education can contribute their scientific expertise and creativity to a range of educational activities. It is equally important that the COSEE network expands and diversifies the pool of scientists involved in significant educational and outreach activities.

To underscore the importance of this theme, the COSEE AO includes specific minimum eligibility requirements for the types of organizations and individuals that must be involved with each Center proposal. At a minimum, there must be at least one organization from each of three "sectors": (1) the ocean science research community, (2) a formal education entity and (3) an informal education organization. Throughout the AO, NSF has stressed the intended catalytic nature of COSEE funding. The Foundation seeks to support people who will rise to the challenge of establishing new and creative partnerships, adding value to existing collaborations, and identifying new directions in ocean science education.

## A Brief COSEE History

The development of COSEE has followed a path typical of most new programs starting with an internal white paper in which OCE staff recognized community input calling for a coordinated national effort to “make the best use of available resources for ocean education.” The document identified missed opportunities to “use the exciting discoveries of oceanographic research to catch the imagination of young minds and involve them in a lifetime of science learning” and noted a lack of national coordination for ocean education efforts. After internal circulation of the white paper, OCE and the Division of Undergraduate Education (DUE) decided to support a more comprehensive community planning effort.

An advisory committee of ten community leaders from a range of educational sectors and interest groups (ocean science research/technology, undergraduate education, K-8 education; 9-12 education; informal education, teacher preparation and professional development, traditionally under-represented groups) was formed. These individuals planned, organized and facilitated a comprehensive COSEE needs assessment workshop May 23-26, 2000 at the Gulf Park campus of the University of Southern Mississippi. Seventy-five people attended and a 69 page workshop report was submitted to NSF in September 2000.

In early 2001, Dr. Susan Cook, a Senior Scientist at Harbor Branch Oceanographic Institution, joined NSF on a COSEE-focused IPA assignment and OCE formed a COSEE Implementation Phase Steering Committee. This group of nine scientists and educators, some who had participated in the original workshop and some who were new to COSEE, met July 24-25, 2001 at NSF. The group reviewed the original workshop report and identified a focused set of high-priority goals and activities that could be implemented with the modest funding available (about \$1-1.5 million per year). Reports from both groups are posted at [www.cosee.org](http://www.cosee.org). The Implementation Steering Committee Prior Recommendations (along with executive summaries of the recommendations from the original workshop) were also published in the October 2001 issue of *Current*, the journal of the National Association of Marine Educators.

## The Review Process & NSF’s Long-term Commitment

NSF’s peer review process is rigorous and designed to identify the proposals most likely to generate highly innovative and productive research and education outcomes from a set of proposal submissions. After January 18, 2002, reviews will be solicited from *ad hoc* mail reviewers and/or a convened panel. Funding decisions are anticipated by June/July 2002.

As with the evolution of any new program, development of the COSEE network will be a long-term effort. OCE anticipates a commitment to the COSEE effort for at least ten years depending on future NSF budgets. We will continue to involve the oceanographic and educational communities in the evolution of COSEE by estab-

lishing steering committees to advise the Centers and the NSF on future directions for the program. This effort will be driven by community consensus and assessment of future needs. We expect that the organizational development of COSEE may require three to six years, possibly longer. We hope that its success will lead to expanded support for COSEE from both NSF and other sources. However COSEE’s success is the responsibility of the community. We look forward to receiving visionary proposals that will lead to major enhancements in oceanographic education for all Americans.

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## Ocean Technology and Interdisciplinary Coordination

This is my first contribution to the Ocean Sciences newsletter as Program Director for Ocean Technology and Interdisciplinary Coordination (OTIC). It will be a big challenge to live up to the high standards and vision established for the OTIC program by Larry Clark. As Larry summarized in the previous newsletter, it is an exciting time for ocean science and with this will come an enhanced need for innovative instrumentation to advance research activities. In light of this, my plans are to continue with the current priority of OTIC to support the development of new tools to enhance ocean science research. In particular, I would greatly encourage submission of proposals for innovative biological and chemical sensors for the collection of long-term datasets.

## Technology Development

Planning for the Ocean Observatories Initiative is continuing with preparation for potential projects currently underway. Some of these planning efforts were presented at the recent MTS meeting in Honolulu, Hawaii. Among the issues raised during these presentations was the need for continued development of low power sensors and systems as well as improved data telemetry rates. An example of these planning efforts is the Neptune feasibility plan, which is available on the Neptune website (<http://www.neptune.washington.edu/>).

In other observatory news, the Ocean.US webpage is now online (<http://www.ocean.us.net>). Ocean.US was created by the National Oceanographic Partnership Program (NOPP) in late 2000 to coordinate the integration of long-term observing systems for research and operations.

## Coastal Ocean Processes (CoOP) program

Currently, CoOP has two active initiatives: 1) the Great Lakes Episodic Processes initiative, in which EEGLE and KITES are entering the final year of project funding and are continuing the synthesis, modeling and publication of their field results; and 2) the Wind-Driven Transport Processes initiative, in which WEST and COAST will both be starting their third year of funding and continuing the collection and analysis of field data. Web links for more information on these programs can be found on the CoOP website (<http://www.skio.peachnet.edu/coop/>).

An Announcement of Opportunity (AO) for proposals related to buoyancy-driven transport processes will soon be released. This AO developed from an open community workshop that defined the research needed to better understand processes controlling buoyancy-driven systems influenced by freshwater flows. The workshop results and Science Plan were published as "Coastal Ocean Processes: Transport and Transformation Processes over Continental Shelves with Substantial Freshwater Inflows" (CoOP Report No. 7). The Executive Summary and Science Plan resulting from this workshop are available on the CoOP website. This AO is driven by the importance of buoyancy-driven transport in controlling the cross-shelf transfer, transformation, and fate of biological, geological and chemical materials on continental margins. Appropriate study locations should have buoyancy-influenced flow as a major component of coastal transport. Flow-induced dissolved and particulate constituent loads should be large enough to allow detection and quantification. Furthermore, buoyant input should be sufficiently large so as to influence the structure and/or productivity of biological communities that are affected by freshwater inflow.

In other news, CoOP will host an evening meeting at the AGU/ASLO Ocean Sciences meeting in Honolulu (February 2002). This meeting will serve to address community questions about the Announcement of Opportunity and facilitate the development of collaborations for interdisciplinary proposals.

Alexandra Isern ([aisern@nsf.gov](mailto:aisern@nsf.gov))

## Oceanographic Instrumentation and Technical Services

### Major Research Instrumentation Program (MRI)

Guidelines for the 2002 MRI competition are available on the NSF website at <http://www.nsf.gov/od/oia/solicitations/start.htm> (select MRI, NSF publication 01-171). The deadline for MRI submittals is January 24, 2002, and future deadlines have been estab-

lished as the fourth Thursday of each year. The anticipated funds for the NSF-wide competition are expected to be the same as for FY '01, about \$75 million, with about a third of these funds reserved for non-Ph.D.-granting institutions. For general information about MRI, refer to the solicitation or contact the Office of Integrative Activities at [mri@nsf.gov](mailto:mri@nsf.gov); for specific information related to Ocean Sciences submittals, contact Alexander Shor at [ashor@nsf.gov](mailto:ashor@nsf.gov).

Prior year MRI awards by the Division of Ocean Sciences are listed with our shipboard instrumentation awards on the Ocean Sciences web site <http://www.geo.nsf.gov/oce/> (then select Award Search under Funding, and use Oceanographic Instrumentation and the relevant fiscal year to search).

### Oceanographic Instrumentation Program (OIP)

Prior year OIP awards can be found at the same location as MRI awards, described above. Proposals received for the September 15, 2001 deadline are presently being evaluated for 2002 funding. With rare exceptions, instrumentation requests via OIP should be for shared-use instruments that will be supported by shipboard technical personnel at UNOLS operating institutions. For more information, see guidelines (NSF Publication 00-39) for this and other Ocean Sciences facilities programs at <http://www.nsf.gov/cgi-bin/getpub?nsf0039>.

### Oceanographic Technical Services Program (OTSP)

Support under OTSP is provided by 3-year awards to UNOLS operators, with annual budgets based on actual numbers of operating days and specific scheduled requirements. Proposals for CY2002 were due on October 15, and will be awarded during the first quarter of the new year. 2002 is the third year of the current award, and all operating institutions' proposals will undergo external review for 2003.

NSF has provided support since 1972 for basic shipboard technical services on UNOLS research ships through OTSP (and its predecessors, beginning with the Shipboard Technician Program). Beginning in 1999, with strong encouragement from two external reviews, the Division began an effort to simplify and expand our direct support of shipboard technical services via the annual Oceanographic Technical Services proposal. The primary objectives were to a) eliminate user fees for "standard" oceanographic equipment, consolidating these into the single, required technical services daily rate charged to all users, and b) provide facility-type support for some more specialized shared-use instruments. Changes were made in the belief that they would reduce costs and budgeting effort by technician groups, improve agency ability to review quality, remove barriers to efficient ship scheduling, and assure continuity of facilities and staff as needed. It was recognized that cost "transparency" to PIs would potentially make cruise planning more difficult for the operators, but it was felt that procedures could be developed to improve this process if it became a major concern.

The implementation of new procedures has been relatively smooth. However, as we enter the fourth year under the revised guidelines, there are a few questions that are frequently asked by PIs and technical support groups. We address some of these here:

*Why do we need to include costs for some systems but not others in research proposals?*

We changed the guidelines for Basic Technical Services to include most common, shared-use oceanographic instrumentation in the required Technical Services Daily Rate for each vessel. All UNOLS operators that participate in OTSP (this includes all UNOLS vessels except R/Vs Gyre and Urraca) have now eliminated such fees. We also created a new category of support for some more specialized shared-use instruments, and costs for NSF users of qualified systems (see below) are supported directly via the annual OTSP proposal from each operator rather than on individual research grants. User fees are set, however, and users supported by other federal agencies (and most other funding sources) are assured they will not pay a different rate than NSF-funded users.

Instrument systems that are not available to the academic research community for shared-use operations via a UNOLS operator's OTSP proposal are not eligible for direct support, and all costs related to use of such systems should be included in proposals for individual research projects.

*What costs are paid by OTSP for eligible systems?*

The intent of the OTSP "specialized services" program is to cover the costs of data acquisition using shared-use instruments provided by a UNOLS vessel operator. Such instruments should be available (subject to reasonable scheduling) to any federally-funded

researcher using a UNOLS research vessel. They may be ship-specific (such as the multibeam echosounders on UNOLS Global Class vessels) or portable (like large coring systems available from OSU or WHOI). Eligible costs are outlined in the OTSP proposal guidelines; briefly, they include those reasonable costs for personnel and equipment that are required to ensure safe and appropriate use in data acquisition for all funded projects for the operating year. This includes items such as maintenance and calibration, but it is intended to exclude costs of most data processing and analysis. As an example, the costs paid by OTSP for use of multibeam echosounders typically includes XBTs (for calibration), software licenses for on-board and shore-based editing, display and processing, fractional salaries of shipboard technicians responsible for instrument operation, and costs for shore-based staff for overall system support. It does not include the cost of extra shipboard staff for processing data for an individual research cruise. Those costs, if needed, should be requested and justified in the research proposal.

*Why doesn't the OTSP cover costs of data processors at sea?*

This is considered to be a fundamental component of research in most instances and, thus, not something that is appropriate for standardized support via the OTSP. We provide funds to have necessary software and computer systems on the vessels to allow for shipboard processing of most types of data. We also pay costs for routine calibrations, maintenance and repair. Processing needs of individual projects vary widely, however, and we believe that they should be defined and budgeted in the context of the proposed research.

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*Launch of the U.S. Navy-constructed R/V Kilo Moana, the newest oceanographic research vessel, at a ceremony in Jacksonville, Florida on November 17, 2001. The Kilo Moana is an AGOR26 swath ship that will be operated by the University of Hawaii. After completion of sea trials, NSF will fund research using the vessel in the latter half of 2002. Photo courtesy of Naval Sea Systems Command.*

## FastLane Update

### Reminder for Collaborative Proposals

When submitting collaborative proposals, ONLY THE LEAD INSTITUTION should submit the project summary, project description, and references cited.

### New Process for Printing Collaborative Proposals

Effective August 3, a non-lead organization on a collaborative proposal must assign its proposal a Proposal PIN by using the "Proposal PIN" button on the "Proposal Actions" screen and then give the lead organization the temporary proposal ID and the Proposal PIN. To link the proposals, the lead organization then enters the non-lead organization's temporary proposal ID and Proposal PIN by using the "Link Collaborative Proposals" option on the FastLane Form Preparation screen.

On October 26, 2001 NSF changed how collaborative proposals are printed. When the lead proposal is printed, the lead and non-lead proposals will be printed as one proposal with each separate section of the lead proposal followed by the corresponding section of the non-lead proposal. For instance, the proposal will have the lead proposal cover sheet first followed by the non-lead cover sheets. Each subsequent section of the lead proposal will be followed by the corresponding section of the non-lead proposal. Within the FastLane Review applications, when the reviewer prints the entire lead proposal, the non-lead proposal will print as well.

### FastLane Home Page Gets A New Look

The FastLane home page has changed considerably in recent months. The new FastLane Home Page is easier to use and loads much faster than the old Home Page. A single login for Principal Investigators (PIs) has been created so PIs no longer need to know their proposal and award numbers to log into FastLane. Within this "Proposals, Awards, & Status" login, PIs can check on the status of their proposals and continuing grant increments and prepare their proposals, project reports, supplement requests, revised proposal budgets, and notifications and requests.

In addition, the new Home Page has a single login for panelists to submit reviews, update banking information, update travel information or use the new interactive panel system.

### Compliance Check for Uploaded Files

FastLane now checks uploaded files against the following conditions:

GPG Compliance (all submitted files)

- Warnings: Text in margin, Project description page count, Empty pages
- Blocks: Page sizes other than 8.5" x 11" (orientation ignored)

PDF Compliance (user submitted PDF files only)

- Warnings: Files created dvips and dvipsk
- Blocks: PDF files produced from the following products: FrameMaker, GhostScript versions prior to 6.5, Hewlett-Packard Intelligent Scanners, PDFWriter, PhotoShop, Pstool, Canvas/Deneba PDF filter and Dvipdf(m). For more information on the issues related to these products and their use with FastLane go to <https://www.fastlane.nsf.gov/a1/PitstopBlockedPDF.html>; files with Adobe encryption or security settings, Type 3 or other unembeddable fonts, PDF version 1.1 or below.

If a file is blocked or receives a warning, context specific help is provided to help the user create a FastLane compliant file.

Starting December 20, 2001, FastLane will be able to fix most of the following blocked file types: Blocked PDF Producers except PDFWriter, old PDF versions, non 8.5" x 11" page sizes, and empty pages. These file types will still be blocked and the reasons provided, but users will be presented with the option to have FastLane fix the problem. If the fix option is requested, FastLane will attempt to fix the file, and then re-submit the file to the compliance checker.

### FastLane Proposal and Panel Review Submission

A number of reviewers have expressed concern that their reviews have been lost while entering them into the Proposal and Panel Review system. We recommend that reviewers create and save a copy of the review locally, and then log on to FastLane to copy and paste the text into the appropriate blocks. This will prevent wasted time and frustration if something happens to the internet connection during the session.



## Proposal Guidelines -- Items of Interest

### Support for Collaborations with International and Federal Agency Investigators

The Division of Ocean Sciences actively encourages collaborative partnerships with foreign investigators and with scientists from other federal agencies and laboratories. However, we have constraints about what we can or will support as part of these collaborative efforts. We welcome such partnerships with the expectation that there is a partnership in both science and funding. Often requests for support are included in proposals as subcontracts – this does not get around the problem of funding policies.

We do not provide salary or travel support to other federal employees or scientists from foreign institutions, and we are very reluctant to provide other support, except where it clear that there is a unique expertise (e.g., special analytical services) or other circumstances where the research support cannot be provided by any other means. These guidelines are in keeping with NSF policy as stated in the Grant Proposal Guide (NSF 02-2):

*Foreign organizations*— NSF rarely provides support to foreign organizations. NSF will consider proposals for cooperative projects involving US and foreign organizations, provided support is requested only for the US portion of the collaborative effort.

*Other Federal agencies* — NSF does not normally support research or education activities by scientists, engineers or educators employed by federal agencies or Federally Funded Research and Development Centers.

Our Division guidelines are also based on the recognition that at every panel we must decline a good number of meritorious proposals from U.S.-based investigators. It is important that PIs contact the relevant Program if they have questions about our funding policies. If we receive proposals with critical aspects of the proposed research dependent on funding that we would not recommend because of policy, we have little choice but to ask that the proposal be withdrawn. That is, we are reluctant to ask reviewers to evaluate proposals that we know in advance could not be funded as proposed. Most often the problematic budget items are minor and can be addressed by documentation that the needed support could be obtained from other sources were the proposal to be recommended for an award. Again, please contact the relevant Program if you have questions.

### Revised Grant Proposal Guide (NSF 02-2) Now Available

The revised NSF *Grant Proposal Guide* (GPG) (NSF 02-2) is effective for proposals submitted on or after January 1, 2002. This revision implements:

- revised proposal preparation guidelines relating to the Project Summary and Project Description. These changes continue NSF's efforts to remind proposers that both NSF merit review criteria must be addressed in the preparation and review of proposals submitted to NSF;
- updated guidelines for submission of Single Copy Documents; and
- new capabilities within FastLane for submission of requests for PI transfers, PI changes, and Subaward approvals.

Other sections have been revised, as appropriate, to further implement changes in policy and procedure brought about by the electronic signature process. The GPG is available on the NSF website at <http://www.nsf.gov/cgi-bin/getpub?gpg> in HTML and PDF. A complete summary of the significant changes is included within the GPG.

Organizations or individuals unable to access the GPG electronically may order paper copies (maximum of 5 per request) by either of the following means:

- telephoning the NSF Publications Clearinghouse at (301) 947-2722; or
- sending a request to [pubs@nsf.gov](mailto:pubs@nsf.gov) or the NSF Publications Clearinghouse, P.O. Box 218, Jessup, MD 20794-0218.

Please address any questions or comments regarding the GPG to the Policy Office, Division of Contracts, Policy & Oversight at 703-292-8243 or by e-mail to [policy@nsf.gov](mailto:policy@nsf.gov).

## R E M I N D E R ! ! !

All investigators submitting proposals to the Division of Ocean Sciences that include sea-going field work must also submit an electronic research ship request form and include a copy with the proposal. Electronic ship request forms are available on the UNOLS Home Page web site (<http://www.unols.org>). In addition, investigators submitting proposals that require use of a UNOLS ship to NSF programs other than Ocean Sciences must follow the same procedure.

Please note that ship time requests **must be received by the Feb. 15 target date** to be considered for ship time in the following calendar year.

## Staff Changes

We are delighted to announce that **James Yoder** arrived in October 2001 to serve as the new Director for the Division of Ocean Sciences. Dr. Yoder comes to the Foundation from the University of Rhode Island, where he served as Interim Dean and Associate Dean of the Graduate School of Oceanography. He has participated extensively on national and international committees and panels, including membership on the Consortium for Oceanographic Research (CORE) Board of Governors, the U.S. Carbon and Climate Committee, and as Chair of the International Joint Global Ocean Flux Study Task Team on Remote Sensing. In 2000, Dr. Yoder began serving as President of The Oceanography Society. He received his M.S. and Ph.D. degrees in Oceanography from the University of Rhode Island.

We are also pleased to announce that **Bruce Malfait** has been selected to serve as Head of the Marine Geosciences Section. Bruce has been with NSF since 1974, serving as Program Director for the Ocean Drilling Program (ODP) since 1987. **Paul Dauphin** has been promoted to Program Director with increased responsibility for support of U.S. scientific participation in ODP and U.S. scientific planning for the future phase of ocean drilling under the Integrated Ocean Drilling Program. A search for a Program Director to fill Bruce Malfait's former position will soon be underway.

**Cynthia Suchman**, Assistant Program Director for Biological Oceanography, has returned to academia after nearly two years with NSF. Division Secretary **Shannon Hughes** left the Division to assume a new position in the Office of Budget, Finance and Award Management. Her good humor is greatly missed.



**Alexandra Isern** is the new Program Director for the Ocean Technology and Interdisciplinary Coordination Program. Alex received her PhD from the Swiss Federal Institute of Technology and most recently served as a program officer with the National Research Council Council's Ocean Studies Board. Her research focuses on the influence of sea level and paleoceanography on carbonate platforms.



**Brian Midson** joined us in July as the Science Assistant for Marine Geology and Geophysics. He received his Master's in Oceanography from the University of Hawaii and worked for the Hawaii Undersea Research Laboratory.



**Gayle Pugh** is the new Science Assistant for Biological Oceanography. She is presently working toward a Master's degree in Natural Resources at the Virginia Polytechnic Institute.

## Vacancies in the Division of Ocean Sciences

Vacancy announcements with further details about the positions listed below may be accessed on the NSF web site at <http://www.nsf.gov/home/chart/work.htm>.

### Associate Program Director, Oceanographer AD-3; Ocean Drilling Program (IPA)

The Associate Program Director has primary responsibilities which involve the oversight and participation in the selection/charter/conversion of an offshore drilling vessel which will be equipped through NSF support for scientific research. He/she will provide the technical knowledge, expertise and experience with this type of platform acquisition. The individual would be involved in all aspects of the procurement process, ranging from development of technical

specifications for the vessel, through RFP/AO development, to proposal evaluation and selection of contractor. Applicants for this position must have four or more years of managerial experience, successful research and/or research administration experience pertinent to the position; plus a Ph.D. or equivalent experience in marine science, marine engineering, or a related field. Previous involvement with ocean drilling would be an advantage, but is not required.

### Program Director, Oceanographer AD-4; Ocean Drilling Program

Coming soon! Please monitor our job information site, noted above, for the forthcoming vacancy announcement.

## Other Noteworthy News...

### **NSF Sees 8.4% Growth in FY 2002 Budget**

For FY 2002, NSF received \$4.789 billion - \$373 million or 8.4% over FY 2001. Within this increase, the Research and Related Activities Account, from which the Division of Ocean Sciences is funded, received \$248 million over last year, for a total of \$3.598 billion. For further details, please go to the NSF web site at <http://www.nsf.gov/od/lpa/congress/start.htm>.

### **International Safety Management (ISM) Code Being Implemented by UNOLS Vessels over 500GT**

In the fall 2000 Newsletter we reported that the International Safety Management (ISM) Code, Annex IX of the International Convention for the Safety of Life at Sea (SOLAS) would apply to UNOLS vessels over 500 GT (MELVILLE, KNORR, THOMPSON, REVELLE, ATLANTIS, EWING, and KILO MOANA) effective July 1, 2002. The objectives of the ISM Code are to ensure safety at sea, prevention of human injury or loss of life, and avoidance of damage to the environment and property. Each ship operating institution subject to ISM is required to establish a Safety Management System that includes safety and environmental policy and procedures necessary to implement that policy. The operators of the above vessels (SIO, WHOI, LDEO, UW and UH) have worked together and with consultants to create and implement the required Safety Management Plans. The plans are based on each institution's existing operating procedures and may not be identical. These plans are in the final stages of implementation and approval which requires that they be utilized and audited prior to final approval. The intent of the operators has been to make the implementation of this code as transparent to scientists as possible, but it will mean that adherence to safety and pre-cruise planning requirements will be more closely enforced. It is also the intent of the operators that this will improve safety and ensure that the operators are better prepared to achieve your scientific goals.

The immediate impact to scientific users under ISM will primarily be during the pre-cruise planning process. Documentation of requirements, procedures and equipment that will be utilized during a cruise will become even more important than it already is. Chief Scientists are encouraged to contact the research vessel operators early in the planning process and to participate fully by completing cruise plan forms and attending pre-cruise planning meetings. The primary thing to

keep in mind is that the goal of the ship operators and of the ISM code is to achieve your scientific objectives while at the same time protecting the safety of the people involved and the environment. The pre-cruise planning process is an integral and vital part of achieving all of these goals. For more information on the background of the ISM code and how it will be implemented in the UNOLS fleet you can visit the website at <http://www.unols.org/rvoc/safety.html>.

### **Commission on Ocean Policy Holds Initial Meetings**

The Commission on Ocean Policy, chaired by Admiral James Watkins, held meetings in Washington D.C. in September and November. The initial meeting succeeded in setting up a framework for the structure and operations of the Commission. In November, the Commissioners invited Members of Congress, national organizations and federal agencies to speak about key issues of interest to the respective groups. Dr. Rita Colwell represented the National Science Foundation. In the months to come, the Commission plans a series of nine regional meetings. More information on Commission activities is available at <http://www.oceancommission.gov>.

### **Committee on Exploration of the Seas Established**

In response to Congressional legislation, the Ocean Studies Board of the National Research Council has established a Committee on the Exploration of the Seas. Dr. John Orcutt, of Scripps Institution of Oceanography, serves as the Chair of the Committee.

The Committee will assess the feasibility and potential value of implementing a major, coordinated, international program of ocean exploration and discovery. Drs. Margaret Leinen and Jim Yoder addressed the Committee on behalf of the National Science Foundation at their first meeting in November. Three additional meetings have been scheduled and a final report is anticipated in early 2003.

### **U.S. and EC Officials Sign Agreement to Foster Scientific Collaboration**

In October 2001, the National Science Foundation and the European Commission signed an Implementing Arrangement for Cooperative Activities to promote greater collaboration in environmental research, including marine science and technology, in the coming years. A Steering Group has been established to coordinate implementation with NSF's Dr. Margaret Leinen and the EC's Dr. Christian Paternmann serving as co-chairs.

The National Science Foundation (NSF) funds research and education in most fields of science and engineering. Grantees are wholly responsible for conducting their project activities and preparing the results for publication. Thus, the Foundation does not assume responsibility for such findings or their interpretation.

NSF welcomes proposals from all qualified scientists, engineers and educators. The Foundation strongly encourages women, minorities, and persons with disabilities to compete fully in its programs. In accordance with federal statutes, regulations, and NSF policies, no person on grounds of race, color, age, sex, national origin, or disability shall be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving financial assistance from NSF (unless otherwise specified in the eligibility requirements for a particular program).

Facilitation Awards for Scientists and Engineers with Disabilities (FASSED) provide funding for special assistance or equipment to enable persons with disabilities (investigators and other staff, including student research assistants) to work on NSF-supported projects. See the program announcement or contact the program coordinator at (703) 292-6865.

The National Science Foundation has Telephonic Device for the Deaf (TDD) and Federal Relay Service (FRS) capabilities that enable individuals with hearing impairments to communicate with the Foundation regarding NSF programs, employment, or general information. TDD may be accessed at (703) 292-5090 or through FRS on 1-800-877-8339.

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This newsletter is published and distributed by:  
Division of Ocean Sciences  
National Science Foundation  
4201 Wilson Blvd, Suite 725  
Arlington, VA 22230

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