Division of Ocean Sciences

Spring 1999 Newsletter

Communication

The quality of communication between investigators and Division Program Officers is a critically important factor in how well programs are managed. Good communication can consume considerable time and effort, and so it is important to be aware of the areas where thorough and complete communication is the most valuable. It is also important to use the mode of communication (telephone, email, personal contact, written word) that is most appropriate to the situation.

It is unfortunate, but true, that the most frequent message that Program Officers are required to transmit to investigators is that of a declination. The long-standing tradition in the Division of Ocean Sciences (OCE) is that this disappointing news is provided directly via a telephone call. OCE makes a particular effort to inform community members as soon as possible. This provides investigators the maximum lead-time to revise their proposals for resubmission should that be appropriate. The most important component of these 'decline' phone calls is the guidance from the Program Officer to the principal investigator (PI) concerning the future of his or her proposal. Are major or minor modifications required in order for the proposal to be competitive? Are there particular components that are poorly justified and damage the credibility of the overall effort? Are the foundations of the proposal sufficiently weak that it is unlikely to compete successfully even with substantial revision? Is the proposal competent and the objectives achievable, but the topic likely to provide simply more detail of well-understood phenomena rather than achieve significant new insights into fundamental processes? These are *examples* of the types of questions about which a PI should expect to receive guidance from a Program Officer. The Division believes this information can be communicated most thoroughly via a direct question and answer discussion by telephone. *OCE reaffirms to its community the commitment to discuss every decline decision with the PI by telephone*, should the PI so wish. This does not mean, necessarily, that it is the most efficient use of everyone's time for the *first* notification of declination to be provided by telephone. In some cases, an email message may be most appropriate. It is commonly the case that a phone conversation can be substantially more specific and helpful *after* the PI has had an opportunity to read and digest the mail review and panel comments that are transmitted in writing as part of the 'formal' decline package. Program Officers are best positioned to make the decision on this. It is important to realize that the Division has to decline approximately 900 proposals each year.

Deployment of a CTD (Conductivity/Temperature/Depth) rosette from R/V New Horizon. Photo courtesy of Scripps Inst. of Oceanography Explorations, La Jolla, CA.

Almost all the significant decisions within the Division are founded upon the results from community-based deliberations - workshops, panel meetings, steering committees, etc.

Fortunately, the trauma of the notification of a decline is not the only communication that is important between community PIs and Division management. Because decisions made within the Division have profound impact on the lives of community members, it is the responsibility of OCE to describe the process and reasoning that leads to

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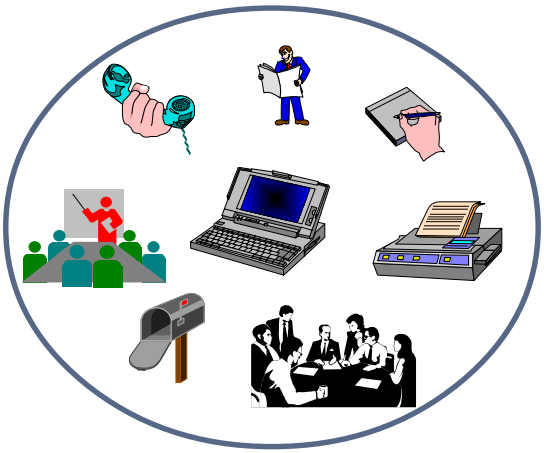
a particular decision as clearly as possible. This responsibility extends beyond declinations of proposals to decisions concerning program directions, facility developments, budget initiatives, etc. There is no single mode of communication that can effectively achieve all this. OCE tries to keep the web page updated so investigators can readily gain access to current program descriptions and new program announcements. This newsletter is an attempt to keep the community informed of changes and trends. Most importantly, the Division frequently supports workshop activities, bringing together community members to discuss research results and new ideas for progress and innovation. The results of these deliberations greatly impact program decisions within the Division. OCE also supports community-based steering committees to help guide the directions of the major focused research programs. These groups of community leaders constitute an important conduit for two-way information flow between OCE and PIs, and these



It is important to use the mode of communication that is most appropriate to the situation.

steering groups, in turn, often support web pages and newsletters that further inform researchers.

Almost all significant decisions within the Division are founded upon the results from community-based deliberations - workshops, panel meetings, steering committees, etc. So clearly the communication issue is a shared responsibility. Communication from the community to OCE is just as important as the reverse. The Division depends upon the community to work hard to effectively inform OCE about ideas, trends, and opportunities.

Of course, there is no substitute for face-to-face conversations between Program Officers and community members, and this is one of the reasons why travel is such a large part of a Program Officer's life. OCE encourages you to take advantage of the presence of Division staff at professional meetings to meet with them in person and talk about your plans and your research. Frequently the Division of Ocean Sciences, or the Directorate for Geosciences, supports a general information booth at major meetings (e.g. AGU, ASLO, TOS, etc.). A visit to the booth can be used to determine if an appropriate Program Officer is in attendance. Also, Program Officers visit research centers for 'Site Visits' to give talks about NSF and spend a day or so meeting with PIs and prospective PIs. As a Division, it is the goal of the Division to make 8-10 such visits each year.

One of the quotations that I use too frequently is attributed to the great satirical songwriter Tom Lehrer, who said, 'If people can't communicate, the least they can do is Shut Up!' I believe there is no more eloquent way of saying that it is not the quantity of communication that counts - it is the quality. But, we do not want you to 'Shut Up'—we want to hear from you. Please remember that it requires real effort by both parties to exchange information effectively. It is as difficult to communicate satisfactorily an unwelcome decision on funding, as it is to explain a complex research concept. We need your cooperation, understanding, and advice if we are to continue to improve the way we communicate with one another. *by Mike Purdy*

Meetings are an ideal place to meet with Program Officers to discuss current and future research plans.

Sites of Interest

OCE http://www.geo.nsf.gov/oce/start.htm

ODP http://www-odp.tamu.edu/

ODP http://www.oceandrilling.org

JOI http://www.joi-odp.org

UNOLS http://www.gso.uri.edu/unols/unols.html

RIDGE http://ridge.unh.edu/

JOIDES http://www.whoi.edu/joides

ECOHAB http://www.redtide.whoi.edu/hab/

LEXEN http://www.nsf.gov/home/crssprgm/lexen

LTER http://lternet.edu/

LMER http://www.mbl.edu/html/ECOSYSTEMS/lmer/lmer.html

GLOBEC http://cbl.umces.edu/fogarty/usglobec

MARGINS http://www.soest.hawaii.edu/margins

JGOFS http://www1.whoi.edu/jgofs.html

CLIVAR http://www.clivar.ucar.edu/hp.html

WOCE http://www-ocean.tamu.edu/WOCE/uswoce.html

CoOP http://www.hpl.umces.edu/coop

CAREER Award Recipients

The Faculty Early Career Development (CAREER) Program is a Foundation-wide activity that supports junior faculty within the context of their overall career development. It combines in a single program the support of research and education of the highest quality. This premier program emphasizes the importance the Foundation places on the early development of academic careers dedicated to stimulating the discovery process in which the excitement of research is enhanced by inspired teaching and enthusiastic learning.

The Division of Ocean Sciences would like to acknowledge the FY1998 and FY1999 CAREER Award Recipients. This is a very competitive program—only 2 out of 18 proposals in the Division were awarded in FY1999. Congratulations to all of our recipients!!

FY1998 Awardees

John R Buck, University of Massachusetts, Dartmouth
"Instruments and Algorithms for Marine Mammal Behavioral Acoustics"

David B Eggleston, North Carolina State University
"Scientific Method, Stochastic Dynamics & Deterministic Forcing: Integrated Modelling, Field Research, & Educational Outreach to Understand Population Dynamics of the Blue Crab"

William M Graham, Marine Environmental Science Consortium, Dauphin Island Sea Lab
"Energetic Consequences of Feeding in a Patchy Environment: Possible Limitations to Jellyfish Production in Coastal Ecosystems"

Daniel P Schrag, Harvard University
"Geochemical Approaches to Oceanography and Climatology: A Plan for Research and Education"

FY1999 Awardees

J. Evan Ward, University of Connecticut
"Trophic Interactions between Benthic Suspension Feeders and Marine Aggregates: An Initiative for Experiential Learning in Coastal Studies"

Marc M Hirschmann, University of Minnesota, Twin Cities
"Experimental Studies of Mantle Melting"

CAREER WORKSHOP

NSF hosted the first CAREER Principal Investigator (PI) Workshop on January 10-12, 1999 in Washington, D.C. This meeting was attended by approximately 370 CAREER Award recipients who received their awards in FY95-FY97, and about 60 senior faculty such as chairmen and deans. The purposes of the meeting were to assess the impact of the program on junior faculty and their institutions, to identify accomplishments and potential problems with the program, and to give recipients a chance to meet their peers and exchange ideas concerning the integration of research and education. This meeting resulted from an ongoing, broadly based survey of the impact of the CAREER program within the NSF.

Twenty-seven CAREER PIs who have received funding from the Divisions of Ocean Sciences, Earth Sciences, and Atmospheric Sciences attended the meeting, as did four senior faculty members and about 15 program officers from the Divisions. There were extensive discussions of the program, it's past accomplishments and limitations, the highly variable support for the program at different institutions, the intrinsic difficulties in integrating research and education, and potential changes that might be warranted for the future. It was widely considered a successful and enjoyable meeting from which most participants felt that they gained a useful perspective on CAREER and the integration of research and education. The NSF staff is currently assessing the various comments. Please feel free to contact Don Elthon (delthon@nsf.gov) if you would like further information or have comments on the CAREER program.

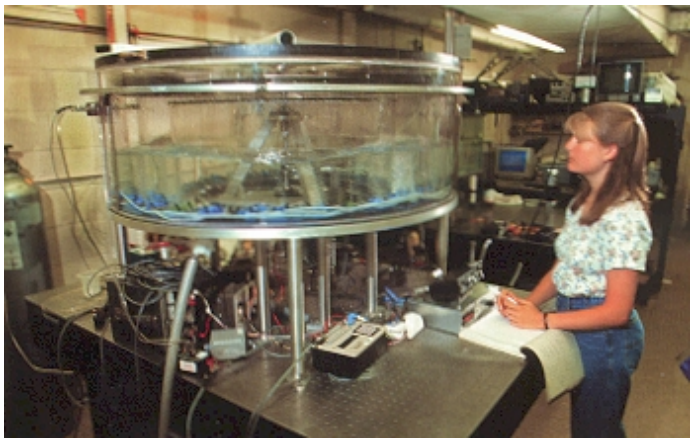
Special Focus: Research Experiences for Undergraduates (REU) Program

Continuing efforts at promoting and advancing science and engineering are required to attract a diversified pool of talented students into research careers, as well as to ensure they receive the best education possible. The undergraduate years are critical in the educational sequence for career choices, allowing students the first real opportunities for in-depth study. Active research experience is one of the most effective techniques for attracting and retaining talented undergraduates in science careers. Few such experiences are now available. The REU Program is designed to help meet this need.

NSF is dedicated to increasing the participation in research of women, minorities and persons with disabilities. REU project directors from institutions are encouraged to involve students who are members of these groups. Proposals are submitted for support of projects that typically fit into two categories: (1) REU Sites and (2) REU Supplements. The first, REU Site Grants, generally support several undergraduates students at a research institution (usually for 10-12 weeks during the summer). The second, REU supplements, are additions to existing grants to support a small stipend and other needs of an undergraduate.

REU Students from the University of Wisconsin-Milwaukee pause after a major sampling effort on the R/V Laurentian.

The Division of Ocean Sciences supports a number of research programs for undergraduates. These programs range in length from one week to a semester. They also vary in activities. One program, headed by Dr. Ben Cuker from Hampton State University, allows under-represented minority students to participate in the American Society for Limnology and Oceanography (ASLO) annual meeting. These students are guided through the meeting with a mentor who helps interpret the science and introduce the students into the community. Students also present their own research projects through either a poster or a talk.



An REU student from Woods Hole Oceanographic Institution is using a wave tank to study energy transfer from winds to water.

Another REU program that the Division of Ocean Sciences funds, Minorities in Marine Science Undergraduate Program (MIMSUP), allows students to take marine-related classes and do their own research at Shannon Point Marine Center, Anacortes, Washington. This program is run by Dr. Steve Sulkin of Western Washington University. Dr. Sulkin also runs a summer program for undergraduates interested in research in the ocean sciences. Many REU programs are interdisciplinary. For example, the program headed by Dr. Ivan Valiela of the Boston University Marine Program focuses on linkages between terrestrial and adjoining estuarine ecosystems. Specific areas include hydrology, physics of estuarine circulation, terrestrial ecology, geochemistry, and physiological ecology. These and similar REU summer programs allow undergraduates to broaden their research experience in marine science, while also earning money--an important factor in any undergraduate's life. Some of these programs are targeted at under-represented minorities in order to encourage these students to further their education in the ocean sciences. These are exciting programs and receive much praise throughout the community for their dedication to young scientists.

At Savannah State University an REU student studies sharks.

The Division of Ocean Sciences education awards will total approximately $2.7M for FY1999, with about $1M going to REU programs. The average award for an Ocean Sciences REU grant is approximately $55K/year, and the standard duration of an award is three years.

The program announcement for REU programs can be found at: **http://www.nsf.gov/cgi-bin/getpub?nsf96102**. If you have questions about the Ocean Sciences REU Program or other education programs supported by the Division please contact Don Elthon by email at delthon@nsf.gov Other undergraduate programs funded by NSF can be found at the Division of Undergraduate Education home page located at: **http://www.ehr.nsf.gov/EHR/DUE/**.

The following is a list of currently funded REU programs, including those designed to promote diversity. For updated information on education programs funded by the Division of Ocean Sciences please see our web site at: **http://www.geo.nsf.gov/oce/oceeduc.htm**.

- San Diego, Scripps, Undergraduate Research Fellowship Program (SURF), **http://www-ogsr.ucsd.edu/affaction/surf.html**
- Oregon State University, Native Americans in Marine Science (NAMS), **http://www.oce.orst.edu/native/**
- Hampton State University, Expanding Linkages Between Under-Represented Minorities and Careers in Aquatic Sciences, Contact: Dr. Ben Cuker, **cuker@hamptonu.edu**
- Savannah State University & Harbor Branch Oceanographic Institution, A Bridge to Research in the Marine Sciences, **http://www.savstate.edu/scitech/MarineSci/fly99a.htm**
- Western Washington University, Minorities in Marine Science Undergraduate Program (MIMSUP), **http://www.ac.wwu.edu/~bingham/mimsup.html**
- Virginia Institute of Marine Science, Summer Intern Program (SIP), **http://www.vims.edu/sms/intern/**
- Florida Tech Summer Internships Research Experiences for Undergraduates: Science in Support of Coastal Resource, **http://www.marine.fit.edu/irlandi/nsfreu.html**
- Bermuda Biological Station for Research, Inc., Research Experience for Undergraduates, **http://www.bbsr.edu/Hands-On_Education_for_Graduat/Internships/REU/reu.html**
- Woods Hole Oceanographic Institution, Summer Student Fellowship Program, **http://www.whoi.edu/education/dept/ssf.html**
- University of Wisconsin-Milwaukee, Center for Great Lakes Studies Summer Internships in Aquatic Sciences, **http://www.uwm.edu/Dept/GLWI/reu.html**
- University of Delaware, Summer Intern Program, **http://www.ocean.udel.edu/interns/intern.html**
- University of Hawaii, Ocean Research Experience for Undergraduates, **http://www.soest.hawaii.edu/oceanography/reu.html**
- State University of New York, Stony Brook, Summer Undergraduate Research Fellowships in Estuarine Processes, **http://www.msrc.sunysb.edu/pages/ugreu.html**
- University of Rhode Island, Summer Undergraduate Research Fellowships in Oceanography (SURFO), **http://bobbyorr.gso.uri.edu/~surfo/**
- Columbia University at Lamont-Doherty Earth Observatory Summer Internship Program for Undergraduates, **http://www.ldeo.columbia.edu/~dallas/abbott_sum.html**
- Boston University, Research for Undergraduates in Coastal Bays of New England, **http://www.mbl.edu/REU/**
- University of Maryland, Undergraduate Fellowships in Estuarine Sciences, **http://www.mdsg.umd.edu/MDSG/Education/REU.html**
- Dauphin Island Sea Lab, Undergraduate Fellowships for Research in Marine Science, **http://www.disl.org/**
- Virginia Institute of Marine Science, Summer Intern Program (SIP), **http://www.vims.edu/sms/intern/**
- Western Washington University, Shannon Point Marine Center (SPMC), Research for Undergraduates, **http://www.ac.wwu.edu/~spmc/**

REU students and Dr. Matt Gilligan review plans for fish biodiversity censusing of habitats in the Indian River Lagoon.

REU students examine samples of Sargussum weed collected on a R/V Seward Johnson cruise on the east central Florida shelf.

Program News

Biological Oceanography

We have two new colleagues in the Biological Oceanography Program, either of whom you might encounter when you call or visit the Division.

Alison Sipe arrived in late January as a John Knauss Sea Grant Fellow and will be working this year with both Biological Oceanography and the Oceanographic Technology and Interdisciplinary Coordination Program. Some of you may have met Alison at the ASLO meeting in Santa Fe. We will be working hard during her fellowship to show Alison the diversity of what we do in the NSF Ocean Sciences Division, as well as showing her the wealth of inter-agency activities we get involved with in Washington D.C. Alison is a marine scientist with a background in microbial ecology. She earned her M.S. degree in Marine Science from the University of Delaware's College of Marine Studies, where she applied molecular genetic tools to research the symbiotic association of wood boring molluscs and their cellulolytic bacterial counterparts.

Natasha Gray joined us the 1st of March as a Science Assistant, also working with both Biological Oceanography and the Oceanographic Technology and Interdisciplinary Coordination Program. She came to the NSF from the Smithsonian's National Museum of Natural History where she was the project coordinator for the invertebrate collections of the U.S. Antarctic Program and Museum's Biological Resources Division. Natasha is a marine ecologist with a M.S. from American University dealing with larval settlement ecology. She obtained her Bachelor's degree from UC Santa Cruz working with John Pearse and Margaret Delaney. Natasha's experience with ecology and evolutionary biology, proposals, and information systems will be a real asset to us.

We are still searching for a replacement of Jim Ammerman as a Visiting Scientist and Associate Program Director. Please contact us if you are interested. Also Dr. Kendra Daly has been promoted from Assistant to Associate Program Director and Visiting Scientist and will be with us another year.

The activities that the program is/will be busy with in 1999, besides the unsolicited ('core') proposals, include:
US GLOBEC Northeast Pacific Program, ECOHAB, NSF's new Biocomplexity initiative, LExEn, LTERs for Land/Ocean Margin Ecosystems, JGOFS Synthesis and Modeling Project, RIDGE
(see page 12 for future deadlines)

Phil Taylor (prtaylor@nsf.gov)
Kendra Daly (kdaly@nsf.gov)
Dave Garrison (dgarriso@nsf.gov)

Chemical Oceanography

For the first time, the CO and BO Programs held panel review for a major U.S.JGOFS competition — the second round of the Synthesis and Modeling Project — during the same week as our regular panels. After a lot of work by the Panel and Program Officers, we were able to recommend total SMP funding of approximately four million dollars.

We also report that the total U.S.JGOFS FY1999 science budget is the first step in the ramp-down of U.S.JGOFS funding. The plan is for the ramp-down to continue gradually until sometime in 2002 when funding for the program is expected to cease. There appears to be abundant community interest in continuing support for the BATS and HOT time series stations beyond the close of U.S.JGOFS.

Meanwhile, the CO Program, like other science programs in the Division, is heavily involved in planning for the future of ocean biogeochemical research related to the global carbon cycle. Current efforts involve not only other programs and Divisions at NSF, but also a variety of other potential federal agency partnerships.

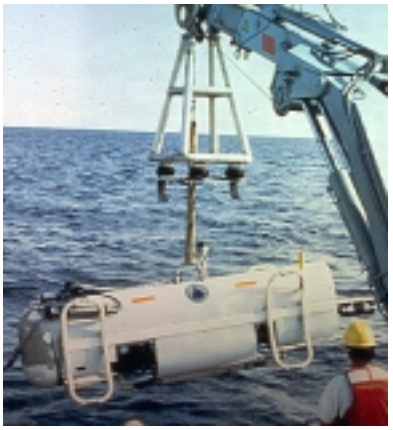
The Chemical Oceanography Program is pleased (ecstatic, actually) to announce that Dr. David Kadko, joined us in January 1999, to fill the rotator position formerly occupied by Ken Buesseler. Dave is a geochemist from the Rosenstiel School of Marine and Atmospheric Sciences of the University of Miami and has expertise in trace metals and radiochemistry. For a number of years he has been involved with studies of ocean ridge chemistry and has been an active participant in national and international RIDGE programs. He hit the ground running when he arrived, and we can expect that he will be aggressive in his role as a CO program officer.

We have still not replaced Rodger Baier, who retired in March 1998, from the permanent staff of the Program and from federal service. The search continues. If you or someone you know might be interested in this immensely important position, please contact either Dave Kadko or Don Rice at the email addresses below.

Donald Rice (drice@nsf.gov)
David Kadko (dkadko@nsf.gov)

Marine Geology & Geophysics

The FUMAGES workshop report on the "Future of Marine Geology and Geophysics" has been published. The report is based on NSF-sponsored marine geosciences community-wide workshop held in Ashland Hills, Oregon, in December 1996. It endeavors to answer the question: what are the most promising directions for the future of MG&G and what research strategies will be needed to address these problems? The report also summarizes the state-of-the-science in various subfields of MG&G, including, Mid-Ocean Ridges, Convergent



A DSL-120 sonar vehicle. Photo courtesy of WHOI, Woods Hole, MA.

and Passive Margins, Formation and Aging of Oceanic Plates, the Role of Water in the Lithosphere, Paleoceanography, and Shelfal and Nearshore Sedimentation. A hard copy of the report can be requested from the Consortium for Oceanographic Research and Education (CORE), 1755 Massachusetts Avenue, NW, Washington DC 20036. It can also be accessed at the JOI-ODP web site, **http://www.joi-odp.org/FUMAGES.html**.

The Divisions of Ocean and Earth Sciences' jointly sponsored MARGINS initiative is off the ground with a program announcement published in October 1998, and a potential budget of approximately $4,000,000 (in the MG&G, ODP and CDP/EAR programs) for FY1999. The program announcement can also be accessed from the NSF web site, **http://www.nsf.gov/pubs/nsf98165.html**. The competition for MARGINS will be held once a year with a proposal submittal deadline of January 15th. Although the MARGINS scientific objectives are broadly defined, "to understand the complex interplay of processes that govern the creation and destruction of continental margins over time", at least initially, the MARGINS program will concentrate on a few well-defined special-focus experiments. This list will be periodically supplemented as new experiments are identified and planned in detail. MARGINS, however, will not replace individual investigator studies related to the broader Margins-related science objectives. Thus far, special-focus experiments with well-developed science plans, based on community-wide workshops, include the "seismogenic zone" and the "subduction factory". Workshops to define experiments on the themes of "rupturing continental lithosphere" and "sediment dynamics and strata formation" are planned for the near future. A panel for the first competition of MARGINS proposals will meet in May 1999.

The development of the RIDGE initiative by MG&G community began with the Salishan workshop in 1987. This general workshop was followed by three smaller topical workshops and by five program-element working group meetings. The Initial Science Plan released in 1989 and the 1993-1997 Science Plan released in 1992 were developed from these workshops. While RIDGE has hosted a large number of workshops in the intervening years, there has not been another large community workshop such as Salishan. The RIDGE 2000 conference, scheduled for September 1999, will be an opportunity to get broader community input in setting future directions for the RIDGE Program.

The MG&G Program is looking for an IPA (Intergovernmental Personnel Act) replacement for Don Elthon who will be returning to his academic position in the autumn. The Program is looking for a distinguished marine geoscientist, especially in the areas of marine petrology, geochemistry or hydrothermal processes. The IPA program brings active research scientists on assignments of 1 to 3 years to NSF to give them the valuable experience of how scientific programs are managed and funded, and in return benefit from the expertise and fresh ideas of the assignees. If you fit the bill, we encourage you to talk to any one of the program officers listed below.

Bil Haq (bhaq@nsf.gov)
Dave Epp (depp@nsf.gov)
Connie Sancetta (csancett@nsf.gov)
Don Elthon (delthon@nsf.gov)

Ocean Drilling Program

Even as a casual reader of this column, you should know by now that drilling in the present ODP will terminate at the end of 2003 and that significant effort is presently underway to refine the scientific and technical requirements for future ocean drilling. In previous newsletters we have traced the development and status of the community vision for a new international program (IODP) that would primarily utilize two vessels: one vessel devoted to drilling deep holes with capability to deploy riser and other well-control techniques, and a second vessel that would utilize upgraded technology and operate in a mode similar to that of the present *JOIDES Resolution*.

A significant step toward realizing this vision was reported at the January meeting of the JOIDES Executive Committee where officials from the Japanese Science and Technology Agency reported that initial design and construction funds for a deep-drilling, riser-equipped drillship had been included in their budget for FY 1999 as part of the Japanese OD-21 program. The initial increment of funding totals approximately $150 million. Initial operation of the vessel is planned for the 2004-2005 time period, with the vessel becoming available for full international operations soon thereafter. The JOIDES Executive Committee (which includes senior representation from 10 of the 11 JOI institutions) unanimously approved the following motion in response to the Japanese report:

EXCOM congratulates our Japanese colleagues on the funding in its FY '99 draft budget for the construction of a new drillship with riser capability. This represents the successful culmination of nine years of effort by STA/JAMSTEC, in cooperation with MONBUSHO and ORI, and a potential investment of over $500M (US) in the future of scientific ocean drilling. We commend Japan on the vision and leadership it has shown in pursuing the OD-21 initiative, and look forward to

incorporating the unique new capabilities of this drillship into a post-2003 IODP.

With this step toward realizing part of the IODP, significant attention will now be focused on defining the scientific and technical requirements for the second vessel. A major international meeting has been scheduled by JOIDES for 25-28 May in Vancouver, Canada, to begin this task. The meeting chairs are Nick Pisias of Oregon State University and Asahiko Taira of the Ocean Research Institute of the University of Tokyo. Over 250 letters of interest outlining future research priorities have been submitted to be used in structuring the agenda and organization of the conference known as COMPLEX.

CTD (Conductivity/Temperature/Depth) cast aboard the R/V Edwin Link. Photo courtesy of Savannah State University and Harbor Branch Oceanographic Institute.

A second major step at the Miami EXCOM was creation of an IODP Planning Subcommittee within the JOIDES structure to guide the detailed planning activities that will address scientific objectives, technical and operational issues, and the financial and management requirements for the future drilling program. Dr. Ted Moore of the University of Michigan has been chosen to chair the committee , known as IPSC (IODP Planning Subcommittee). Members of the committee are being selected based on input from the ODP SCICOM at its March meeting.

As this report is being written, the JOIDES Resolution is drilling in the South China sea in a study of the history of the Asian monsoon. The program has gone well, having survived the threat of pirates in the region of the Spratley Islands while under the watch of Chinese and Vietnamese naval forces (as well as one unidentified submarine). Over the next six months it will move to the western Pacific and then undergo an extended dry-dock period in preparation for the final phase of ODP drilling. Results of recent drilling and upcoming plans are available through the JOI website identified on page 2 in this issue.

Finally, we are happy to announce that Jamie Allan has been extended for an additional year as an Associate Program Director in the Ocean Drilling Program. Any of you who know Jamie, or read his report in the last issue of this newsletter are aware of the boundless energy and new ideas that he brings to the Program and to the Division.

Bruce Malfait (bmalfait@nsf.gov)
Jamie Allan (jallan@nsf.gov)
J. Paul Dauphin (jdauphin@nsf.gov)

Oceanographic Technology and Interdisciplinary Coordination (OTIC)

The Observatory Frenzy

One of the overall objectives of the OTIC Program is to support efforts to develop new tools and techniques for conducting ocean science research. More specifically, tools and techniques that cross disciplinary boundaries that are not tied to any one project or discipline are supported through the Program. Interest in developing long–term observatories as tools for conducting research has exploded during the past year. There is little question that the whole field of ocean sciences is evolving towards increasing requirements for making high precision, long-term measurements *in situ.*

NSF has funded the development and implementation of several installations that might be considered long-term observatories. These include the Bermuda Atlantic time-series station (BATS), Hawaii Ocean time-series (HOTs), the LEO-15 observatory at Rutgers University, RIDGE Observatories, and others. In each case, the capability for making long-term measurements was driven by scientific requirements for the observations. In some cases technology was readily available for making the measurements; funding was required mainly for implementation and installation. In other cases, the necessary technologies had to be developed.

A long-standing challenge has been and remains sensor systems. Reliable, robust sensors for scientifically relevant long–term measurements, especially chemical and biological, are needed for observatory applications. NSF is working with other agencies through the National Ocean Partnership Program (NOPP) to encourage the development of new sensors and other components of observing systems. We also are supporting the planning of the development of the Global Ocean Observing System (GOOS) and other integrated observing and modeling systems.

Also, OCE is underwriting an ocean science community planning initiative on its own. Adequate financial and technical resources have been made available from a wide variety of sources for establishing and maintaining observatories that are currently in operation. They are primarily in relatively shallow water and are operated as a local or regional resource. But a compelling requirement is being developed for deep-sea observatories requiring a much greater investment and community participation. The OCE-sponsored initiative called DEOS (Deep Earth Observatories on the Seafloor) was described more fully in the previous

OCE Newsletter. Since then, reports from two community planning workshops have been posted on the web and are available for reading and comment. The address is: **http://vertigo.rsmas.miami.edu/deos.html.**

The DEOS initiative is primarily aimed at providing the backbone or infrastructure of a distributed system into which sensors and scientific experiments will be installed. Not only are there technological challenges, but managerial ones as well. The envisioned systems of seafloor cables and long-term moorings will have to be managed as a community-wide resource, not unlike the UNOLS ships. But the immediate task is to build the scientific rationale for undertaking the DEOS initiative, whose scientific pay-off is still years into the future. Towards that goal, the DEOS planning committee is seeking statements of interest and community input. Further information is available at the web site indicated above.

Larry Clark (hclark@nsf.gov)
Elizabeth (Lisa) Rom (erom@nsf.gov)

Physical Oceanography

In 1998 we saw a dramatic increase in the number of proposals reviewed by the program, particularly the number of collaborative proposals, both disciplinary and inter-disciplinary. Panels have continued to rise to the challenge of providing excellent advice. We thank the community for their continued support and hard work. Major decisions were accomplished despite continued level funding in the program.

As mentioned in the last newsletter, following the end of the WOCE field campaigns, physical oceanographers are turning their attention to collaborative mid-size process studies. In the past year, our program has been able to support several of them including:

Rings of the North Brazil Current

This multi-institution (RSMAS, WHOI, LDEO, AOML) study involving floats, moorings, hydrography and satellite altimetry is looking at the ring formation process in the retroflection region of the North Brazil Current. A central objective of this project is to quantify the role of these rings on cross-equatorial and cross-gyre transport with the upper limb of the Atlantic Meridional Overturning Circulation. The field work started in the Fall of 1998 and will continue through the Spring of 2000 under the leadership of Bill Johns, Silvia Gagoli, and Phil Richardson.

Dense Water Formation in the Okhotsk Sea

Scientists from Scripps (L. Talley) and the University of Washington (S. Riser and S. Martin) have joined other scientists in a major investigation of the Okhotsk Sea. This region, closed to western scientists for nearly three quarters of a century, is thought to be the major source of North Pacific Intermediate Water. This work will examine the formation of shelf water under sea ice in the northwestern coastal polynya through one winter with moored measurements of water properties and hydrographic surveys of the northern Okhotsk Sea and East Sakhalin Current (outflow from the shelves). Analyses of historical data will be made in collaboration with S. Martin, who will use satellite and NCEP information during the same period to study air-sea fluxes and ice cover. The work is being performed in collaboration with Japanese and Russian scientists, with the work to be performed on a Russian vessel funded by Japan.

Guiana Abyssal Gyre Experiment (GAGE)

WHOI scientists McCartney and Mauritzen, in collaboration with scientists from the Institut fur Meerskunde, Kiel, Germany, will attempt to confirm a hypothesized deep recirculation gyre in the Western Tropical Atlantic. Because of the magnitude of transport in the Deep Western Boundary Current at these latitudes, a major recirculation is required to maintain the heat balance. If it is not there, then our concepts of the mechanisms which control heat transport in the deep North Atlantic will need some major rethinking.

Hawaii Ocean Mixing Experiment (HOME)

Building on recent exciting findings of abyssal mixing over rough topography and the role of tides as a source of mechanical energy for mixing, 25 oceanographers led by Rob Pinkel, SIO, are undertaking an ambitious study of tidal forcing and mixing near the Hawaiian Ridge. Five institutions (SIO, OSU, UH, UW and WHOI) are involved in this seven year project that includes historical analysis, modeling and a series of focused fields campaigns. The goals of HOME are: (1) to determine the importance of mid-ocean ridges for global mixing; (2) to create a quantitative energy budget for tidal mixing near Hawaii and (3) to determine the principal mechanisms which transfer energy from large scale flows to turbulent motions and to determine whether these mechanisms work differently in the abyssal and upper ocean.

Planning continues for major studies of the role of the ocean in climate (CLIVAR: Climate Variability). This program will challenge all those involved because of its scope and complexity. Its collaborators include the Division of Ocean Sciences, the Division of Atmospheric Sciences (the Climate Dynamics Program), other programs within NSF, and several other agencies.

Steve Meacham has joined the program as an Associate Program Director. Steve comes to us from AER (Atmospheric and Environmental Research) in Cambridge, MA. Steve earned a PhD in the WHOI/MIT joint program under Joe Pedlosky, and did post-doctoral study at MIT under Glenn Flierl. Prior to joining AER, Steve was on the faculty of Florida State University. Eric Itsweire was recently promoted to Program Director (from Associate Program Director).

Richard Lambert (rlambert@nsf.gov)
Eric Itsweire (eitsweir@nsf.gov)
Stephen Meacham (smeacham@nsf.gov)

Program Assistants of the Division of Ocean Sciences

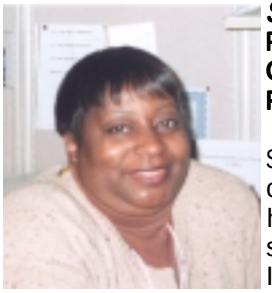
As in most of the Foundation, the Ocean Sciences Division's Program Assistants play a crucial role in processing the massive number of grant proposals received each year. From recording proposal data in the NSF database, to preparing proposal review distribution, to coordinating review panel meetings, Program Assistants help guide each proposal through the channels leading to its recommendation. Essentially, all of the 1400 grant proposals that the Division processes each year passes through the hands of these five individuals pictured here. In addition to the sheer quantity of proposal files they process, the Division Program Assistants face a new challenge with the recent Division reorganization: gaining a closer, more analytical purview of their associated research programs. These individuals continue to provide information and assistance to the research community, despite the steadily increasing workload with which they are faced. In all, they cannot be congratulated enough for the effort they employ on the 'front lines' of the Foundation's mission!

Margaret Weller
Senior Program Assistant
Marine Geology and Geophysics

Margaret Weller is a familiar name to much of the marine science research community. Having been at the NSF for over 29 years, Margaret spent most of those in the Division of Grants and Agreements, where she regularly dealt with OCE principal investigators and their sponsored programs representatives. She relocated to OCE 4 ½ years ago, initially working with the Ocean Centers and Facilities Section. Under the Division reorganization in October 1998, Margaret became the central support to the Marine Geology and Geophysics Program, as well as the Ocean Science Education Program. One can rightfully say her many years of expertise in proposal and award processing have been dedicated to the OCE community!

Joanne McCreary
Senior Program Assistant
Biological Oceanography and Ocean Technology & Interdisciplinary Coordination

In 1988, Joanne McCreary began her career in OCE as a clerk-typist. Her rapidly growing knowledge of proposal processing helped her climb the administrative career ladder and several years ago she was assigned to the Biological Oceanography Program. Many biological oceanographers may remember meeting Joanne at the 'Ocean Ecology: Understanding and Vision for Research' (OEUVRE) conference in Keystone, Colorado, in 1998. Since the Division reorganization, Joanne has remained the key assistant to Biological Oceanography, as well as Ocean Technology and Interdisciplinary Coordination. Though she is sometimes surrounded by towering stacks of proposal jackets, Joanne maintains her cheerful energy, and always urges her 'Bio' principal investigators to contact her with any questions or difficulties.



Sheryl Miller
Program Assistant
Oceanographic Centers and Facilities Section

Sheryl Miller has also spent her NSF career wholly in OCE, though she, too, has had the opportunity to work with several different facets of the Division. In 1989, Sheryl started as a clerk-typist, then spent several years as a secretary to the Administrative Officer. She then ventured into proposal and award processing for Biological Oceanography, and has continued this challenging work for the Oceanographic Centers and Facilities Section (OCFS) since the Division reorganization in October. Sheryl truly enjoys the unique education she's gaining from working with OCFS, and looks forward to meeting members of the associated community.

JoAnn King
Program Assistant
Chemical Oceanography

Since the Division reorganization, JoAnn King has found both the Chemical Oceanography staff and their community a terrific group. JoAnn began her career at NSF in 1992, where she initially worked with the Marine Geology and Geophysics Program. She gained a close knowledge of the NSF proposal processing system in her years with MGG, and was able to meet the community at the 1997 Fall American Geophysical Union meeting in San Francisco. JoAnn is happy with her transition to Chemical Oceanography, and her warmth and friendliness blend well with the group.

Jeannie Belsches
Program Assistant
Physical Oceanography

Jeannie Belsches started her government career as a secretary at Andrews Air Force Base. Luckily for OCE, the Headquarters Air Force Systems Command where Jeannie was employed relocated to Ohio, and she joined the ranks of NSF in February 1989. Jeannie is a well known member of the Physical Oceanography Program staff, as she has spent nearly all of her OCE tenure with the Program, and continues to do so under the Division reorganization. Her close familiarity with the Program's mission, coupled with her quiet poise and good nature, make Jeannie a valued asset to her Unit.

OCE Profile: Veronica (Ronnie) Butler

by Shannon Knauss

M. Veronica (Ronnie) Butler, Division of Ocean Sciences Front Office

"Good morning, Division of Ocean Sciences. This is Ms. Butler speaking; how may I help you?"

This welcoming phone greeting callers hear belongs to Ronnie Butler, a treasured pioneer of the Division and the Foundation. As is inferred from her delightful phone etiquette, Ronnie models a value becoming increasingly rare in the workforce: truly polite, personal service.

Ronnie began her career at NSF in May, 1959, under its first Director, Alan T. Waterman. Then a comparatively small federal operation housed on Constitution Avenue in Washington, the Foundation boasted a total budget of less than $10 million. Ronnie has watched a procession of ten Directors since Waterman's departure in 1963, and moved with the agency's growing momentum to two other sites: 1800 G Street, only two blocks from the White House, and 4201 Wilson Boulevard, in Arlington.

Ronnie's first position, as a secretary for the Summer Institutes Program under Dr. William Morrell, consisted mainly of proposal and award processing. Data entry was a far more time-consuming, tedious chore then, performed using cumbersome keycards that were stored in the vast paper files that comprised the Foundation's database! Ronnie easily met these technology challenges and steadily climbed the administrative ladder.

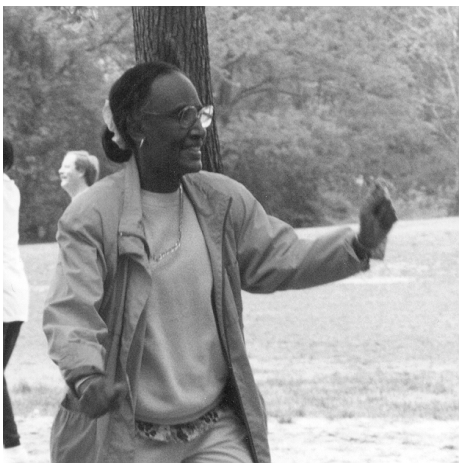
In the mid-1970s, Mary Johrde and Feenan Jennings led the formation of the Division of Ocean Sciences. Ronnie was one of the first members of OCE's administrative staff, and she served as Division Secretary for Mary Johrde, Dirk Frankenberg and M. Grant Gross. Her energy, wit, and unflappable professionalism cemented her valuable role through all the phases of OCE's growth.

Throughout her career, Ronnie has been recognized for her persistence, diligence, and willingness to lend a hand. Not content to wait for assignments, she is always seeking ways to help the daily operations of the Division in a dependably efficient manner. Ronnie also has a wonderful sense of humor, and delights in making others smile with her witticisms.

Ronnie cares about everyone and everything in the office--including all of the plants that wouldn't survive without her!

In addition to helping manage Division operations, Ronnie has been a well-known member of past NSF choir groups and a strong supporter of the NSF Employees' Association. She is notorious for being the first person on the dance floor at NSF Holiday Parties; in fact, rumor has it she once coaxed former Director Erich Bloch into a little two-step boogie!

Though Ronnie retired officially in 1990, she continues to devote a significant part of her time, energy and spirit to the Division several days a week as a Program Assistant. Inarguably one of the Foundation's most well known and revered employees, Ronnie Butler serves as cheerful inspiration to our staff, as well as the ocean sciences community.



Ronnie knows how to liven up any party--start the dancing now!

Proposal Target Dates

Programs	Target Dates/Deadlines
Ocean Sciences Research Section (OSRS)	
Unsolicited Proposals for Biological Oceanography, Chemical Oceanography, Physical Oceanography, Marine Geology & Geophysics, and Instrumentation Development. Proposals for field programs that require the use of University -National Oceanographic Laboratory Systems (UNOLS) ships in the following calendar year (2001) must be submitted by February 15, 2000, target date.	Aug. 15, 1999 Feb. 15, 2000
OSRS Inter-Agency and Special Initiatives	
Climate Variability and Predictability (CLIVAR)	Aug. 15 & Feb. 15
Ecology & Oceanography of Harmful Algal Blooms (ECOHAB), NOAA lead*	June 7, 1999 (deadline)
Large Scientific and Software Data Set Visualization	July 6, 1999 (deadline)
Long-Term Ecological Research (LTER)	July 1, 1999 (deadline)
MARGINS--Focused Experiments	Jan. 15 (deadline)
Methods and Models for Integrated Assessment, Research Opportunity Related to the NSF Global Change Research Program (MMIA)	May 21, 1999 (deadline)
Ridge Inter-Disciplinary Global Experiments (RIDGE)	Aug. 15 & Feb. 15
Synthesis and Modeling Project of the U.S. Joint Global Ocean Flux Study (JGOFS): The Role of Ocean Processes in the Global Carbon Cycle	Aug. 15, 1999 (tentative)
WOCE, Analysis, Interpretation, Modeling, and Synthesis (AIMS)	Aug. 15 & Feb. 15
Oceanographic Centers & Facilities Section	
Ocean Drilling Program	Aug. 15 & Feb. 15
Oceanographic Instrumentation	Sept. 1, 1999
Shipboard Scientific Support Equipment	Sept. 1, 1999
Ship Operations	Oct. 1, 1999
Technical Services	Oct. 1, 1999
Other NSF programs of interest to ocean scientists	
Professional Opportunities for Women in Research and Education (POWRE), NSF 97-91	Dec. 9, 2000 (tentative)
Graduate Teaching Fellows in K-12 Education (GK-12)	May 5, 1999 (deadline)
HBCU (Historically Black Colleges and Universities) Undergraduate Program	May 14, 1999 (deadline)
Research Experiences for Undergraduates (REU) Program, NSF 96-102 (Contact Research Program Regarding REU Supplements)	Sept. 15, 1999 (deadline)
Faculty Early Career Development Program (CAREER)	July 22, 1999(deadline)

**NOAA lead, proposals should be sent to NOAA*

Major Oceanographic Programs (MOP) Report

The Major Oceanographic Programs (MOP) Report, *Global Ocean Science: Toward an Integrated Approach*, has been published by the National Academy Press. This document was written by the National Research Council's Committee on Major U.S. Oceanographic Research Programs, chaired by Rana Fine. It draws upon "the strengths of the ocean science community to provide advice on how major oceanographic research programs should fit into the nation's overall ocean research strategy. The report examines the impact these programs have had on our understanding of the oceans and on the way basic oceanographic research is conducted."* If you would like a copy of the MOP Report, please contact Veronica Marjerison by email vmarjeri@nsf.gov. Please include your full name and address in your email.

From the Preface of **Global Ocean Science: Toward and Integrated Approach.*

NOTICE TO PRINCIPAL INVESTIGATORS SUBMITTING PROPOSALS

The Grant Proposal Guide (GPG, NSF 99-2, located on the web at: **http://www.nsf.gov/cgi-bin/pubsys/browser/refnum.pl**) states on page 5 "It is important that all proposals conform to the instructions provided in the GPG and in the Proposal Forms Kit. **Conformance is required and will be strictly enforced unless a deviation has been approved**." It goes on to note "Proposals that are not consistent with these instructions may not be considered by NSF. Particular attention is given to proposal length, content and formatting, including page limitation on the Project description and other proposal sections, such as the use of Appendices and required content of the biographical sketches".

Program officers have been noticing an increase in deficiencies over the past few months, which not only extend processing time but work against the PIs' best interests. Failure to list past advisors, advisees and recent collaborators risks reducing the potential numbers of usable reviewers, because such people may be asked to review the proposal and only at panel time be disqualified when their conflict is discovered, resulting in fewer reviews for the panel to consider. Some PIs are including their full publication list rather than the 10 mandated by NSF (5 related to the proposal and 5 other significant publications). This is unfair to the many PIs who comply, and such proposals will be returned. See GPG pages 8 and 9 for a clear description of the guidelines.

Use of small fonts and complex, very small figures irritates reviewers and panelists (not a good idea). See GPG page 5. Some PIs do not identify the program announcement when responding to a solicitation (mandatory), or do not avail themselves of the opportunity to identify the Division and Program if responding to the twice-yearly target dates. Such PIs become surprised when they learn that such a proposal may have been assigned to an unintended Program.

Please make sure that ALL proposals to the Division are accompanied by the UNOLS Ship Request Form. This is the only way we can be sure that a UNOLS ship is, or is not, required. The form can be found on the UNOLS web site at **http://www.gso.uri.edu/unols/unols.html#shiptimereq**.

A small number of proposals involve work with vertebrate animals. The "check box" on the cover sheet should be marked and the appropriate institutional documentation must be attached.

A declined proposal may be resubmitted, but only after it has undergone substantial revision. Resubmittals that have not clearly taken into account the major comments or concerns resulting from the prior NSF review may be returned without further review (GPG p.18).

'Group' (collaborative) proposals - those submitted by three or more PIs and possibly involving more than one institution - may exceed 15 pages but are subject to tightly controlled page limitations which are rigorously enforced. The conditions are described on page 14 of the GPG, and it is strongly recommended that the PI contact the cognizant program officer before submission.

Finally, electronic submission of all proposals will become mandatory by October of 2000. It is not too soon to think about using Fastlane electronic submission now, and we invite you to try it. Once you start using the system, subsequent submissions will become easier because, aside from no longer generating and mailing hard copies, you will no longer have to generate all proposal components from scratch, but merely update the cover page, vita, etc. Information to get you started can be found on the NSF web site at: **http://www.fastlane.nsf.gov/**. and from your institutional office of sponsored programs.

Pictures for Web Page

We will be re-designing our web page in the next few months and are searching for exciting, pictures from the ocean sciences community. They can be action pictures of scientists at work, pictures of research vessels, pictures of new technology, or other ocean-related pictures that are eye-catching. Please send captions along with the pictures, as well as any credits. We will accept slides, hard copies of photos, and any electronic images (e.g., jpeg, gif, bitmap, tif) readable using a PC.

Please send slides and hard copies of photos to: **Katie Bowler, NSF Room 725, 4201 Wilson Blvd., Arlington, VA 22230.** Send electronic images to: **cbowler@nsf.gov**. Please note: Only submit images that you have the rights to, and by submitting these images, you are giving NSF rights to post them on our web site.

Guidance to Reviewers of Field Program Proposals

Effective with the February 15, 1999 target date for proposals to OCE, it is no longer necessary to include costs in NSF research proposals for shipboard data acquisition services by institutional Shipboard Technical Support Groups at UNOLS institutions. Previously, costs for such "specialized services", normally in the form of "user fees," were included as part of NSF research proposal budgets. Costs of ship time, basic shipboard technical services, and national facility submersible/ROV use were excluded from research budgets, and funded instead via annual proposals from each ship operating institution. The new procedures provide that funds for all data acquisition services of the Shipboard Technical Support Groups of the UNOLS operating institutions will be provided by NSF directly to the ship operators annually. Support will be determined after operating schedules are complete and requirements known. Costs of data processing, watch standing, data analysis, software development, and other non-acquisition activities, are not included in the facility support, and should be requested via the research proposal.

The change described here recognizes guidance that OCE has received from its advisory committee and reviewers, as well as PI concerns expressed during the ongoing review of the UNOLS fleet. Institutions will continue to maintain rates for use of some specialized shipboard instruments, and the same rate will be charged to all federal sponsors. The source of NSF support will change from the research programs to the OCE Technical Services Program, but costs will be the same as for a non-NSF user of the vessel.

Decisions regarding shipboard instrumentation required to support an NSF-funded research project require the recommendation of the relevant research program at NSF. Hence, it is important that all PIs adequately describe and justify their instrumentation requirements in the research proposals. It is also very important that technical support requirements be clearly indicated to ship operators. This will be necessary for scheduling, and to ensure that needed support is available once a project is scheduled.

Research instrumentation which is not supported through an operating institutions's Shipboard Technical Support Group does not qualify for facility support as described here. Systems which are "PI-owned" or available at a fee from other than an institution's Shipboard Technical Support Group will require funds via the NSF research proposal. In general, it can be assumed that all instruments which are fixed to a vessel (e.g. single- and multi-beam echosounders, acoustic doppler current profilers, winches), "standard" oceanographic systems provided by the ship operator (e.g. CTD systems, GPS units, most plankton nets), and most other "institutional" systems such as seismic reflection systems (single- or multi-channel), corers, etc., will qualify for facility support and need not be included in a research proposal budget.

If there are questions regarding whether an instrument or service qualifies, please contact Alexander Shor at ashor@nsf.gov. Information regarding operators' available instrumentation and technical support capabilities may be found at **http://www.gso.uri.edu/unols/rvtec/rvtec.html**, under "UNOLS Resources".

R/V Maurice Ewing Visits Baltimore at the Inner Harbor

The Week of October 17, 1998, the *MAURICE EWING* docked at the Inner Harbor in Baltimore, MD for the Marine Technology Society Meeting. The EWING is NSF's largest research vessel and is operated by Lamont-Doherty Earth Observatory of Columbia University. While it was docked in Baltimore it was open to the public for tours. During the week, NSF staff and members of the National Science Board visited the ship. Many of the ship's crew and scientists were on-hand to give tours and answer questions.

Vanessa Richardson, Mike Purdy, and Shannon Knauss of NSF stand in front of the multi-channel seismic (MCS) system.

Underway ocean floor swath mapping capability is provided by a 90° multibeam bathymetric mapping system.

(L-R) Lisa Moorman, Katie Bowler, Aliceann Phelps, Ann-Marie Schmoltner, Ann Sutherland, Will Smith, Anjuli Bamzai, and Brian Dawson of NSF listen to John Diebold (L) from LDEO as he explains the Bridge.

The Maurice Ewing was modified in 1990 to accommodate operations as a general purpose oceanographic research vessel with enhanced seismic and seafloor mapping capabilities.

Joanne McCreary and JoAnn King of NSF talk with Joe Stennett from LDEO about ship operations.

Staff Changes

Recently we have had quite a few changes to the Division of Ocean Sciences Staff.

Dick Ou, Physical Oceanography Associate Program Director, has left to go back to the academic community at Lamont Doherty in New York.

Veronica Marjerison is the new clerk in the front office of the Division. She previously worked for a software company in Falls Church, VA.

Steve Meacham from Atmospheric and Environmental Research, Inc. (AER) in Cambridge, MA came to work in the Physical Oceanography Program as a visiting scientist for one year. His research includes large-scale ocean variability and predictability.

Meechi Hawkins is a STEP (Student Temporary Employment Program) student who helps out with various tasks in the Division. She is a junior at Bishop McNamara High School in Forestville, MD.

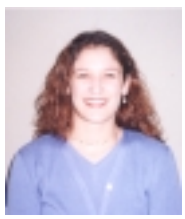
Dave Kadko has joined the Chemical Oceanography Program as an Associate Program Director/Interim Program Associate. Dave comes from the University of Miami, RSMAS in the Marine and Atmospheric Chemistry Department. He studies isotopic tracers of ocean processes.

Kandy Binkley is our new Science Assistant/Assistant Program Director working with Mike Reeve in the Ocean Sciences Research Section. She recently received her Masters in Technical Management at Johns Hopkins University.She previously worked at Bermuda Biological Station for Research, Inc.

Beth Day is a new Sea Grant Fellow specializing in marine education. She is receiving her Ph.D. in Marine Science at the University of South Carolina. She will be working with the Oceanographic Technology and Interdisciplinary Coordination (OTIC) Program.

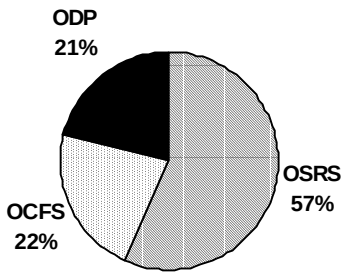
Alison Sipe, is also a new Sea Grant Fellow, who recently received her Masters in Marine Studies at the University of Delaware. She studied the symbiotic biology of shipworms and their cellulolytic bacteria. She will be working with the Biological Program.

Natasha Gray joined the Division as a Science Assistant and is working with both the Biological and the Oceanographic Technology and Interdisciplinary Coordination (OTIC) Programs. She was previously at the National Museum of Natural History.



Budget Numbers

FY 1999 Current Plan for Funding in the Division of Ocean Sciences



Ocean Drilling Program (ODP): $45.6M
Oceanographic Centers and Facilities Section (OCFS): $47.3M
Ocean Sciences Research Section (OSRS): $121.7

$ in Millions

	FY 1999 Current Plan	FY 2000 Request	% Change
National Science Foundation	$3,737	$3,954	5.8%
Directorate of Geosciences	$473	$485	2.6%
Division of Ocean Sciences	$215	$220	2.6%

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 (FASED) 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) 306-1636.

The National Science Foundation has Telephonic Device for the Deaf (TDD) and Federal Information Relay Service (FIRS) 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) 306-0090 or through FIRS on 1-800-877-8339.

This newsletter is published and distributed by the Division of Ocean Sciences, National Science Foundation, 4201 Wilson Boulevard, Arlington, VA 22230.

For additional copies, call (703)306-1580 or visit our web site at www.geo.nsf.gov/oce.htm.

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