



# Division of Ocean Sciences

Fall 1998 Newsletter

## Planning for Basic Research

The Division of Ocean Sciences is in the middle of an extremely active phase of community-based planning. It is therefore an appropriate time to discuss this process, and describe the goals and motivations for this considerable effort.

During the past 18 months, we supported four separate community-based efforts to identify the most promising future opportunities for progress and discovery in each of the primary disciplines of ocean sciences: Physical Oceanography, Chemical Oceanography, Biological Oceanography and Marine Geology and Geophysics. All the participants in this process, especially the Workshop Steering Committees and their respective Chairs, deserve wide recognition for their hard work and effort. The resulting four substantial reports can be found at [http://www.joss.ucar.edu/joss\\_psg/project/oce\\_workshop/](http://www.joss.ucar.edu/joss_psg/project/oce_workshop/).

Recently, we formed a fifth working group (Table 1), co-chaired by Peter Brewer of MBARI and Ted Moore of the University of Michigan; they will integrate these reports with other major planning documents from the community. Their product will be a succinct and integrated description of research topics that have the most potential for significant impact on the understanding of the ocean system and which feasibly can be tackled during the next decade or so. The document will be written at a high level, targeted at community and agency readership. It will synthesize the results of previous planning activities; identify and fill any gaps in previous deliberations; place priority upon the identification of cross-disciplinary research opportunities that may have received insufficient emphasis in the disciplinary reports; and describe, in broad terms, the types of new capabilities for



President Clinton speaks at the National Ocean Conference, in Monterey, CA last June. Photo courtesy of R. Bell, DOC.

observation, analysis, or experimentation that are needed to achieve the stated scientific goals. It will not describe program plans or budgetary implications: this document will focus on the science. As such, we anticipate it will have a useful life of several years.

**These three documents — the science plan, the implementation plan and the public outreach document — each have an important but distinct role to play in the development of the best ocean sciences research and education activity.**

Following completion of this activity, a separate process will be initiated that will build upon the intellectual foundation provided by this science document and produce an implementation plan that does address programmatic and budgetary issues. Finally, we will produce a third document targeted specifically at communicating the excitement and

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**Table 1.**

**The OCE Synthesis Group**

**Co-chairs:**

Peter Brewer, Monterey Bay Aquarium Research Inst.  
 Ted Moore, University of Michigan

**Committee Members:**

Bob Beardsley, Woods Hole Oceanographic Institution  
 Rainer Bleck, University of Miami  
 Ken Bruland, University of California, Santa Cruz  
 Russ Davis, Scripps Institution of Oceanography  
 Jody Deming, University of Washington  
 Bob Detrick, Woods Hole Oceanographic Institution  
 Stan Hart, Woods Hole Oceanographic Institution  
 Mark Hay, University of North Carolina  
 Peter Jumars, University of Washington  
 David Karl, University of Hawaii  
 Cindy Lee, State University of New York, Stony Brook  
 Susan Lozier, Duke University  
 Donal Manahan, University of Southern California  
 Larry Mayer, University of Maine  
 Marcia McNutt, Monterey Bay Aquarium Research Inst.  
 Frank Millero, University of Miami  
 Mark Ohman, Scripps Institution of Oceanography  
 Peter Rhines, University of Washington  
 Eli Silver, University of California, Santa Cruz  
 Sharon Smith, University of Miami  
 Karl Turekian, Yale University  
 Francisco Werner, University of North Carolina

significance of ocean sciences to the general public. This document will again be based on the intellectual foundation of the science document, but where appropriate may include select key components of the implementation plan. This public outreach document will be short, well illustrated, and written for the non-expert, comparable to articles in, for example, Scientific American.

These three documents — the science plan, the implementation plan and the public outreach document — each have an important but distinct role to play in the development of the best ocean sciences research and education activity. Throughout this process, we will keep our colleagues at the other ocean agencies informed of our progress.

The input from these planning activities will also feed into the broader planning activities of the directorate for Geosciences that include a facilities long-range plan and a decadal view of the geosciences beyond the year 2000.

Why are we expending so much effort on planning? The utility of planning to the enterprise of basic research, where

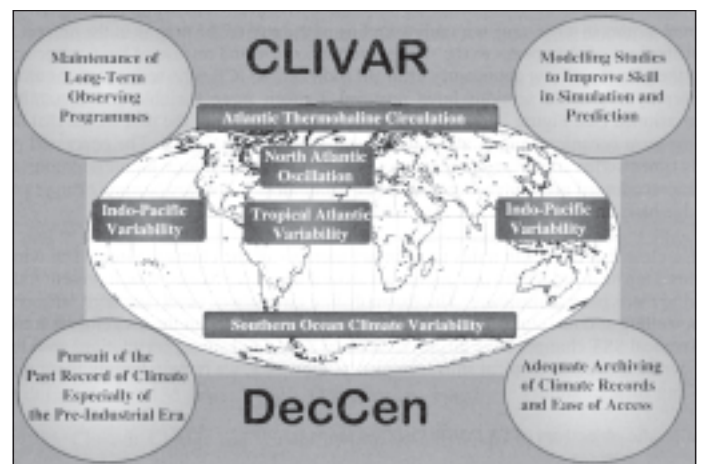
the nature of progress is so frequently unpredictable, is often questioned. These concerns cannot be resolved satisfactorily in a short article, but it is useful in the following paragraphs, to identify a few foci for discussion.

The National Academy of Sciences publishes an excellent pamphlet, entitled “Beyond Discovery”. Each edition identifies and describes the societal relevance of a major research accomplishment in the natural sciences, and traces it back to its origins, frequently centuries into the past. This publication documents several excellent examples of the serendipitous nature of progress in basic research. It also importantly establishes the fundamentally hierarchical nature of basic research — that major new discoveries that change a discipline are enabled by a host of small steps in understanding that occurred over many decades.

**One of the lessons learned from the recent round of disciplinary planning activities is the substantial value of bringing together leading researchers to talk about future directions.**

At the bottom of the hierarchy there are scientific goals that can be achieved in a day — the determination of the magnetisation distribution of a seamount, for example. At the top of the hierarchy there are grand objectives that require a century or more to achieve — the understanding of the source of the earth's magnetic field, for example. Comprehending the source of the magnetic field requires the insight, provided by the magnetisation distribution of the seamount, that the polarity of the field changes. In reality a continuum of problems and challenges lie in between the hierarchical extremes To relate this important characteristic of basic

*(continued on page 9)*



*CLIVAR is a major second-generation global change program and is an excellent example of a large scale project (LSP) that will take more than a decade to complete.*

## New Director at NSF



Rita Rossi Colwell was sworn into office as the new Director of the National Science Foundation in August of this year. Her predecessor, Dr. Neal Lane, was appointed as Assistant to the President for Science and Technology in February. Dr. Colwell is a distinguished scientist who most recently held positions at the University of Maryland as President of the University of Maryland Biotechnology Institute and as Professor of Microbiology. She has also held faculty positions at Georgetown University and the University of Washington.

Born in Beverly, Massachusetts, Dr. Colwell holds a B.S. in Bacteriology and an M.S. in Genetics from Purdue University, and a Ph.D. in Marine Microbiology from the University of Washington. Dr. Colwell has held various advisory positions including membership on the National Science Board. The Medal of Distinction from Columbia University is one of numerous awards that she has received throughout her career. In addition, she has authored or co-authored over 500 scientific publications and 16 books. She also produced the award winning film, *Invisible Seas*.

In July of this year, Dr. Colwell gave testimony to the Congressional Subcommittee on Fisheries Conservation, Wildlife and Oceans on "The Status of Oceanographic Monitoring and Assessment Efforts on Global and Local Scales." In her statement she told the committee members that "the contribution that NSF-supported researchers make to ocean monitoring is fundamental." She added, "clearly, monitoring the ocean must be a multidisciplinary activity because of the interconnected physical, chemical and biological processes that control the health of the oceans." Dr. Colwell finished her testimony by stating, "U.S. investigators in our nation's universities and oceanographic institutions are the world leaders. We do not lack for talent, or ideas or plans. If NSF can provide its community of researchers with adequate resources . . . then a spectacular future of continuing new discovery and understanding is assured . . ."

Additional information about Dr. Colwell may be found at <http://www.nsf.gov/od/start.htm>.

### Sites of Interest

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

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

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

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

RIDGE <http://ridge.oce.orst.edu> — *new address*

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

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

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

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

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

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

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

LEXEN <http://www.nsf.gov/home/crssprgm/lexen/start.htm>

LTER <http://lternet.edu/>

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

GLOBEC <http://www.usglobec.berkeley.edu/usglobec/globec.homepage.html>



*IMET Buoy deployed in the Western Equatorial Pacific during TOGA COARE. Photo courtesy of R. Weller, WHOI.*

## Special Focus on the Ocean Drilling Program

As the new “rotator,” or “IPA,” on the Ocean Drilling Program staff, we thought it would be useful for me to share some of my early thoughts and impressions of NSF. “IPA” stands for Intergovernmental Personnel Act, and IPA’s and Visiting Scientists make up about a third of the Program Managers at NSF. They share program manager oversight of the proposal review processes, and management of expenditures on academic facilities and international programs. IPA’s also serve as a critical “two-way street” between the customer science community and the permanent staff at the NSF, helping keep the NSF “up to date” regarding hot research topics. They also serve to carry back to their home institutions (and to their community at large) both appreciation for the peer-review process and valuable information on funding trends in NSF programs.

I’ve learned a great deal about how NSF and other Federal science agencies operate, as well as gained much-needed skills in learning how to write more effective proposals. I would certainly recommend the positive career development that results from serving as an IPA to any of my scientific colleagues! What is more surprising is that, even as an ODP “insider,” with nearly nine years of employment at the Science Operator, Texas A&M University, I’ve learned an enormous amount about the responsibilities and role of the NSF in regards to management of the Ocean Drilling Program. I thought that I’d share with you a few of my lessons regarding NSF/ODP.

NSF’s role in the Ocean Drilling Program reflects all three general missions of the NSF — award administration (covering the United States Scientific Support Program award and other ODP-related investigator science proposals submitted directly to the NSF), facilities management, and international programs. Fundamentally, NSF does not actively manage the operational ODP (this is performed by JOI with input from JOIDES), but instead ensures that these ODP funds are wisely spent and that innovative, revolutionary science results. This oversight is in many ways similar to that employed by the NSF in ensuring that research grant money or analytical facilities constructed with NSF funds are being effectively utilized, and recognizes that there are often several different, but viable, ways of organizationally and managerially achieving the same operational and scientific results. In this regard, I hadn’t appreciated NSF’s dual role in managing the responsible expenditure of operational program funds — it is not only looking after US taxpayer dollars, but also looking after the financial interests of the other member partners. As a result, NSF must be careful to ensure its actions reflect the interests of all ODP members. This is especially true regarding the planning of a future program of ocean drilling after the current program ends in 2003.



*The drilling vessel, JOIDES Resolution*

The Integrated Ocean Drilling Program (IODP) represents an initial response to scientific community needs as laid out in the JOIDES ODP Long Range Plan. Japan and the NSF jointly lead the International Working Group (IWG), which consists of interested governmental and industry funding agencies that wish to join the NSF and Japan in seeking support for this new drilling program. While the IWG serves as a key instrument for determining the funding level required by the new drilling program and for coordinating attempts to secure this funding, it is not responsible for determining the nature of this new program nor for planning its timetable for development. Planning for this new phase of ocean drilling is the responsibility of the user scientific community, and is a vital task of the Ocean Drilling Program.

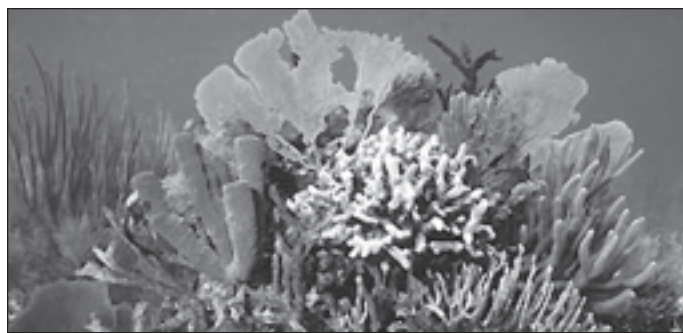
The NSF is dependent on the U.S. user community to determine the level of funds required for the IODP. After over a dozen international and U.S. scientific user community meetings over the past five years, and with the development of a comprehensive plan for scientific ocean drilling well into the next century (the JOIDES ODP Long Range Plan), a coherent plan for the IODP is being developed. This plan recognizes

the need for both a highly mobile and flexible drillship in the class of the current JOIDES Resolution, and for a larger, riser-equipped vessel that would allow for wellhead control, return circulation, and deeper penetration in both unstable and hydrocarbon-prone formations. Initial usage of this riser-equipped vessel is currently envisioned in the seismogenic zone surrounding Japan. Future international, U.S. national, and member partner meetings will provide NSF and other IWG members with essential guidance regarding the IODP over the next several years. An example of these meetings is the upcoming Conference on the Scientific Objectives of Ocean Drilling in the 21st Century, scheduled to meet in Vancouver in May 1999, that will examine more closely the drilling platform requirements for the new program. Your participation in these meetings is strongly encouraged. Reports from these meetings, and other input from the U.S. and member partner communities, will further refine the current IODP model.

By Jamie Allan



*The ODP Rig Crew are connecting pipe.*



## New Staffing Plan for the Division

The Division is just beginning a process of reorganizing its support staff. We plan to devote a major section of our next Newsletter to introduce you to all the folks in the Division that the community rarely has contact with, but who are essential to our work in the processing of the community's proposals. The Division currently handles approximately 1500 actions (awards and declines) per year. To date, the principal source of administrative support for the Program Officers has been a team of Program Assistants that has been operated as a central support group with responsibilities across the whole Division. We plan to change this, and rearrange the Program Assistants into a set of Program Units so that individuals have more clearly defined responsibilities to specific programs. These changes will not impact the program organization familiar to the user community outside of NSF. In addition, we plan to hire three new Science Assistants to work directly with Program Officers.

The Science Assistant position represents a level of expertise within the Division which is intermediate between the experienced Program Officers who are central to the proposal decision-making process, and the support staff who provide secretarial and technical expertise in managing the flow of paperwork and the mechanics of proposal management.

These are temporary government positions of up to three years in duration with full government benefits. They may appeal to individuals interested in spending time in the Washington DC area, learning about federal management of science in general, and NSF support for ocean sciences in particular. This is a great opportunity before going on to a higher degree or a research and/or teaching career. For more information on Science Assistant positions please see the following web site: <http://www.usajobs.opm.gov>. Look under Current Job Openings and then under Agencies for the National Science Foundation. It may be helpful to keep a bookmark of this site since it is updated daily.

## Program News

### Biological Oceanography

In August of 1998, the program lost two valued colleagues. Dr. Jim Ammerman has returned to his position at Texas A&M University after serving as an Associate Program Director for over two years. We miss Jim and his great contributions to the program, and will be searching hard for his replacement. If you have an interest, please contact us.

Dr. Sean Powers has taken a post doctoral research position at the University of North Carolina, working with Pete Peterson. Sean worked with the Biological Oceanography Program and the Oceanographic Technology and Interdisciplinary Coordination Program on a Sea Grant Fellowship for a year and then remained at NSF as a Science Assistant for Ocean Sciences Research Section. Throughout his NSF service, Sean worked closely with the Biological Oceanography Program.

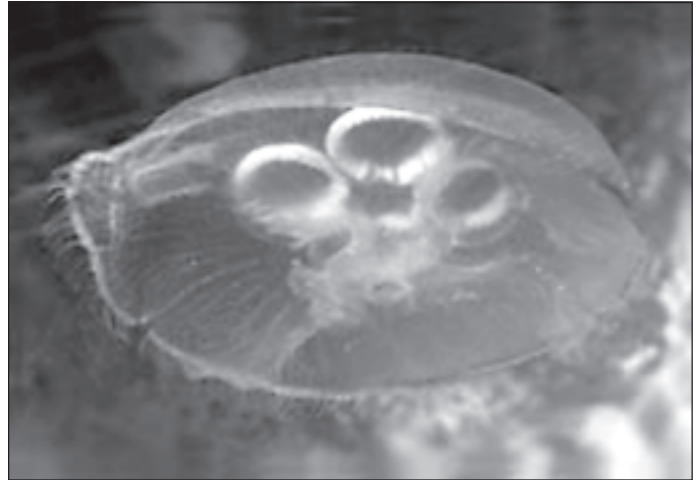
The inter-agency ECOHAB (Ecology and Oceanography of Harmful Algal Blooms) Program convened an advisory panel in the spring to evaluate proposals received for the second ECOHAB competition. Approximately 69 projects (regional, interdisciplinary, as well as individual) were submitted. About 14 projects will be recommended for funding by the participating agencies. This year the participating agencies, in addition to NSF included, NOAA, EPA, ONR, NASA and USDA. A list of funded projects will be added to the Red Tide and Harmful Algal Bloom web page at Woods Hole (<http://www.redtide.whoi.edu/hab/nationplan/ECOHABprojects.html>) when all aspects of the award process have been completed.

LIFE IN EXTREME ENVIRONMENTS (LEExEn) had its second competition at NSF this year and the Biological Oceanography Program led the administration of this exciting new Program. This activity involved the Directorates for Biological Sciences (BIO), Engineering (ENG), Geosciences (GEO), Mathematical and Physical Sciences (MPS), and the Office of Polar Programs (OPP). Of the 83 proposals (68 projects) submitted, NSF is recommending 18 projects and 21 awards for regular research awards. In addition, a few Small Grants for Exploratory Research (SGER) will be awarded.

Finally, the U.S. GLOBEC Northwest Atlantic Program's (NWA) Phase III, looking at cross-frontal exchange processes and the impacts on zooplankton populations, will get underway this fall with the continuing, cooperative support of NSF Ocean Sciences and NOAA (both the Coastal Oceans Program and the National Marine Fisheries Service). Approximately 24 projects (with about 40 individual awards) will be made from the NSF and NOAA for this final field stage of NWA as

U.S. GLOBEC begins to shift its attention to the Northeast Pacific Program.

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*Aurelia*

### Chemical Oceanography

After his two-year term as Associate Program Director of the Chemical Oceanography Program, Dr. Ken Buesseler returned in late August to Woods Hole, resuming his pre-NSF life stalking Th-234 and other radioisotopes in the sea. In addition to the admirable proposal review and funding service he provided the Program and the marine chemistry community, Ken brought innovation. He had fresh ideas on policy and management for the Program, as well as for the entire Division. We miss daily interaction with Ken, and send him warm wishes.

Coming only a few months after Rodger Baier's retirement from NSF, Ken's departure further underscores the sparse staffing of the Chemical Oceanography Program, at least for the next several months. Consequently, we ask your indulgence if we cannot respond to email and telephone messages with our usual breath-taking efficiency! Negotiations are underway to bring in a replacement for Ken in early 1999, and we continue the search for a temporary or permanent person to fill Rodger's vacancy. We encourage you to contact the Chemical Oceanography Program (drice@nsf.gov) if you have an interest in trying your hand at this rewarding line of work.

Donald Rice (drice@nsf.gov)

## Marine Geology & Geophysics

In conjunction with the Division of Earth Sciences and the Ocean Drilling Program, the MGG program expects to issue a program announcement for the MARGINS initiative during the Fall of 1998. The Initial Science Plan for MARGINS was issued in 1996 and detailed science plans for the first two major MARGINS experiments, the Seismogenic Zone Experiment and the Subduction Factory Experiment, are now available on the MARGINS web site (<http://www.soest.hawaii.edu/margins>). Competition for MARGINS funding will take place once a year and proposals will be evaluated by a joint Earth and Ocean Sciences panel, in addition to the standard mail reviews. The deadline for proposal submittal is January 15th.

An Announcement of Opportunity for Ocean-Bottom Seismic Instrument Centers is also expected to be issued by the MGG program this fall. Science questions being addressed at present and in the near future require short- and long-term deployments of a large number of ocean-bottom seismometers and/or ocean-bottom hydrophones. The rationale for the Instrument Centers is to provide the large number of instruments needed, to maintain the necessary technical capability, and to provide access to the capability for the broad user community. Background information is contained in the report of the 1997 OBS meeting available on the JOI home page (<http://joi-odp.org/default.html>). The target date for submission of proposals will be February 15, 1999.

The MGG and ODP programs recognize that other disciplines within the community might have instrumentation needs similar to those of the ocean-bottom seismic community, and welcome proposals for workshops to explore these needs.

The RIDGE program has published a new science plan that is available on the RIDGE home page ([ridge.oce.orst.edu](http://ridge.oce.orst.edu)). After three years of exemplary leadership, Karen Von Damm has passed the chair of the RIDGE Steering Committee to Dave Christie, and on September 1 the RIDGE office moved to Oregon State University. Carol Chin and Randy Kelley will share the scientific coordinator position at OSU, and Ellen O'Shea will be the office assistant. We thank Chris Keeley and Laureen Caddick for their service in those positions at New Hampshire and wish them well in their new endeavors.

Don Elthon, who has provided the program with expertise in petrology and geochemistry (in addition to many other things), will be leaving the program next summer. We encourage members of the community who might be interested in filling Don's squeaky shoes to contact us.

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 Dave Epp ([depp@nsf.gov](mailto:depp@nsf.gov))  
 Connie Sancetta ([csancett@nsf.gov](mailto:csancett@nsf.gov))  
 Don Elthon ([delthon@nsf.gov](mailto:delthon@nsf.gov))

## Ocean Drilling Program

Please see the article on page 4 for an update on the ODP.

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## Oceanographic Technology and Interdisciplinary Coordination (OTIC)

There are at least three noteworthy items in the Coastal Ocean Processes (CoOP) program area:

1. Pls working on the joint NSF/CoOP and NOAA/COP project in the Great Lakes just finished their first year of field studies in Lake Michigan and Lake Superior. The CoOP/COP Great Lakes initiative has two major programs: Episodic Events: Great Lakes Experiment (EEGLE), studies the impact of episodic plume events on sediment and constituent transport and subsequent ecological effects in Lake Michigan. EEGLE will include three field years and two years of subsequent interpretation and product development. The Keweenaw Interdisciplinary Transport Experiment in Superior (KITES) project focuses on the Keweenaw Current, a coastal jet that flows northeast along the peninsula. KITES's goal is to study the current dynamics and its impact on the nearshore and offshore ecosystems. A special session on the EEGLE project is being organized for the ASLO Meeting, in Santa Fe, Feb 1-5, 1999.
2. Planning for the next CoOP initiative is well underway. An NSF Announcement of Opportunity for CoOP's Wind-Driven Transport Processes Study should be released this fall. This new study builds upon a CoOP open scientific workshop, "Wind-driven transport processes on the U.S. west coast" in Portland, Oregon, July 14-16, 1993. The workshop report (CoOp Report No. 4) defines a CoOP process study involving cross-margin transport processes centering on the predominantly wind-driven currents of the United States west coast continental shelf and slope and includes the recommendations of working groups as well as a science plan based on the recommendations. The CoOP Scientific Steering Committee updated the Science Plan to include relevant findings since the 1993 workshop and revised the important research objectives of a CoOP study. The revised CoOP Wind-Driven Transport Science Plan (CoOP Report No. 6) was published this summer. The two reports that form the basis for the NSF Announcement of Opportunity are available from the CoOP website: [www.hpl.umces.edu/coop](http://www.hpl.umces.edu/coop).
3. In early October 1998, CoOP sponsored a widely publicized community workshop to define a possible successor

CoOP process study on buoyancy-driven transport. The envisioned field study will be fully interdisciplinary and focus on the CoOP program goals of obtaining a new level of quantitative understanding of the processes that dominate the transports, transformations and fates of biogeochemically important matter over the continental margins. The workshop report will address needed modeling, specific choices (and motivations) for geographic locations and planned observations, and it will delineate the important CoOP relevant scientific problems to be addressed, develop a cohesive interdisciplinary approach to these problems, and establish priorities. Depending on a variety of factors, funding should be available for a CoOP process study on buoyancy-driven transport processes in FY 2003. Further information will be posted on the CoOP website: <http://www.hpl.umces.edu/coop/>.

The OTIC program continues to receive increasing numbers of proposals covering a wide range of topics and disciplines. With available funding levels remaining fairly static, proposal pressure is high.

The OTIC Program is working with a group of scientists interested in developing a major new capability for the ocean science community. A planning effort has been initiated for establishment of Deep Earth Observatories on the Seafloor (DEOS). A steering committee has been formed, co-chaired by Keir Becker at RSMAS and Alan Chave at WHOI, and efforts are underway to gather community input to the planning process for long-term seafloor observatories.

The concept of long-term observatories is not new. Land-based observatories directed at understanding particular Earth properties and processes have been in operation for centuries. Since two-thirds of the Earth's surface lies under the oceans, one can argue that understanding whole-earth processes and structure requires time-series observations from the seafloor as well. A compelling case has been made that a global program of seafloor observatories will provide dramatic increases in our knowledge of the Earth, given how incompletely we understand our inner planet, plate tectonics, and biogeochemical fluxes between crust and the ocean.

With the range of time and space scales involved, current and planned efforts on seafloor geo-observatories fall into two classes:

1. "active process" observatories located where the particular systems are presently most active, e.g. mid-ocean ridge and subduction zone observatories as in the examples above, and
2. "global network" observatories (principally, but not exclusively, seismic), often located where surficial processes are least active, sited to geometrically complete the global coverage necessary to fully image the interior of the Earth. With 70% of the Earth's surface under the oceans, the global networks will never be complete without seafloor observatories.

Further information on DEOS and developments will be posted on the DEOS website: <http://vertigo.rsmas.miami.edu/deos/>.

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*Oceanus, an intermediate-size ship of the US academic fleet.  
Photo by C. Griner.*

## Physical Oceanography

The physical oceanography program is receiving a significant number of intermediate-size proposals for multiple-PI, multiple institution studies of a variety of phenomena. It appears that programs such as these will continue to grow in size and number as the community gears up for further major programs to follow WOCE and TOGA. Support for WOCE AIMS (Analysis, Interpretation, Modeling, and Synthesis) continues, but proposal pressure has lagged expectations. Further studies using this unprecedented data set are encouraged.

In addition, PO continues to participate with Atmospheric Sciences (Climate Dynamics) and programs in several other agencies in the quest to assemble a viable CLIVAR program. Eric Itsweire has the lead for CLIVAR in the PO program, and serves as the point of contact for NSF. Jay Fein and Anjali Bamzai are the Climate Dynamics Program Directors. It is anticipated that CLIVAR will eventually encompass a number of other disciplines as it seeks to support studies most likely to lead to further understanding of climate variability, particularly the role of the ocean.

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research to the practical issue of planning, it is useful to consider some hierarchical steps in terms of the processes of implementation of research.

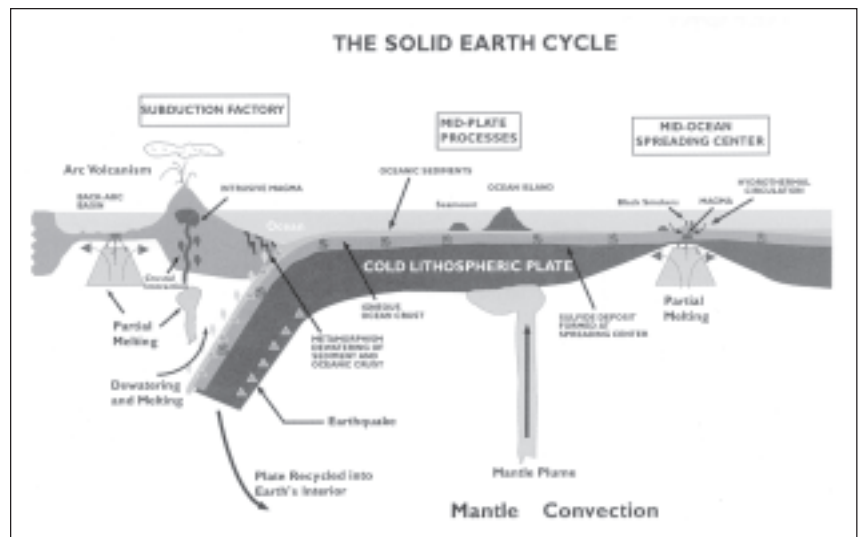
One of the lower rungs on the ladder that all investigators are familiar with is the individual research proposal (IRP) that involves several months of effort by an investigator, or group of investigators, distributed over two or three years. To survive the peer review system, generally, the objectives must be clear and achievable. A second level that is very familiar is that of a decadal scale project (DSP) — a problem sufficiently complex for a number of challenging questions to be tackled in sequence before a solution can be determined. Each decadal scale project involves, perhaps, the careers of several graduate students and is built from a set of IRPs. The careers of many successful investigators consist of two or three DSPs. A third level is the large scale project (LSP) which tackles a problem, or set of problems, sufficiently large and/or diverse to require a substantial team of investigators and/or an organized program of data collection or modeling. A fourth level is that of the Grand Objective (e.g. a source of the earth's magnetic field as referred to earlier), though clearly defined, a step-wise path towards its solution could not be mapped out — this is the class of goals that take several generations of research to be achieved.

**The messages here are simple:  
Basic research cannot be micro-  
managed and remain healthy, but  
planning at the level of decadal  
objectives is important.**

It must be emphasized that, in reality, the research enterprise consists of a continuum of problems and research efforts — the discretized description above is grossly simplified for the purposes of this explanation.

This definitional paragraph provides background for the central statements of this article:

Science plans for basic research activities must be written at the upper levels of the hierarchy of research problems. They should not be concerned with IRPs, nor with the details of how DSPs are carried out. They should be concerned with the questions that DSPs and LSPs can answer, and these should be posed in the framework of clearly defined grand objectives. Individual investigators must retain flexibility to follow their best ideas. However, it is useful to map out paths towards the achievement of grand objectives even though we



*Understanding the solid earth cycle is an excellent example of a Grand Objective that will take many decades of research to attain. Important components of this cycle are the subject of investigations within the MARGINS and RIDGE research programs.*

know that these paths will change with an increase in understanding. Plans must not be rigid in time, but must evolve.

One of the lessons learned from the recent round of disciplinary planning activities is the substantial value of bringing together leading researchers to talk about future directions. This process of high-level debate has stimulated new ideas and directions for thinking that are as important, if not more important, than the workshop reports themselves.

The messages here are simple:

Basic research cannot be micro-managed and remain healthy, but planning at the level of decadal objectives is important.

Plans have different functions and this should be clear. Research plans should describe the compelling science that is within the community's reach over the next decade or so. Implementation plans should describe the resources and programmatic tools needed to achieve the science goals. Public outreach documents should imbue the widest possible audience with excitement and enthusiasm for understanding the dynamic ocean.

If the process by which the planning is carried out is well constructed and thorough, then the process itself is an important contribution to the intellectual vitality of the community.

As Peter Brewer, Ted Moore, and their team commence their challenging task to produce a coherent vision of the future of ocean sciences, it is important for all of us to recognize and take full advantage of this opportunity to express the nature and significance of modern oceanography.

## 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 (2000) must be submitted by February 15, 1999, target date.

Feb. 15, 1999

Aug. 15, 1999

#### OSRS Inter-Agency and Special Initiatives

Awards to Facilitate Geosciences Education (AFGE) (TBA)  
 Climate Variability and Predictability (CLIVAR) Feb. 15 & Aug. 15  
 Ecology & Oceanography of Harmful Algal Bloom (ECOHAB), NOAA lead\* mid-Feb., 1999 (tentative)  
 Earth System History (ESH) Jan. 15, 1999 (deadline)  
 Environmental Geochemistry & Biogeochemistry Program (EGB) Jan. 20, 1999 (deadline)  
 Global Ocean Ecosystems Dynamics (GLOBEC), NOAA lead\* Mar. 15, 1999 (deadline)  
 Joint Global Ocean Flux Study (JGOFS)/Synthesis and Modeling Aug. 15, 1999 (deadline)  
 Life in Extreme Environments (LExEn) March 1, 1999 (tentative)  
 Major Research Instrumentation (MRI) Feb. 16, 1999 (deadline)  
 National Ocean Partnership Program (NOPP) — Feb. 9, 1999 (deadline)  
[http://www.onr.navy.mil/sci\\_tech/ocean](http://www.onr.navy.mil/sci_tech/ocean)  
 Ocean Bottom Seismic Instrument Centers (OBSIC) Feb. 15, 1999 (tentative)  
 Ridge Inter-Disciplinary Global Experiments (RIDGE) Feb. 15 & Aug. 15  
 WOCE, Analysis, Interpretation, Modeling, and Synthesis (AIMS) Feb. 15 & Aug. 15  
 MARGINS (Joint OCE-EAR Review) Jan. 15, 1999 (deadline)  
 Wind-Driven Transport Processes in the Northeast Pacific (CoOp) Mar. 15, 1999 (deadline)

#### Oceanographic Centers & Facilities Section

Ocean Drilling Program Feb. 15 & Aug. 15  
 Oceanographic Instrumentation Sept. 1, 1999  
 Shipboard Scientific Support Equipment Sept. 1, 1999  
 Ship Operations Oct. 1, 1999  
 Technical Services Oct. 1, 1999  
 Ship Construction/Conversion contact the program manager

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

Professional Opportunities for Women in Research and Education (POWRE), NSF 97-91 Dec. 9, 1998 (new)  
 Research Planning Grants (MRPG) and Career Advancement Awards (MCAA) for Minority Scientists and Engineers, NSF 94-147 Feb. 17, 1999 (supp.)  
 Research Experiences for Undergraduates (REU) Program, NSF 96-102 Sept. 15, 1999 (deadline)  
 Faculty Early Career Development Program (CAREER) ([www.nsf.gov/pubs/1998/nsf9787/nsf9787.txt](http://www.nsf.gov/pubs/1998/nsf9787/nsf9787.txt)) July 22, 1999 (tentative)

\*NOAA lead, proposals should be sent to NOAA

## OCE Profile- Don Heinrichs

*by Dolly Dieter and  
Paul Dauphin*



Don recently celebrated 25 years of exemplary service with the federal government, in which he has consistently promoted marine scientific research and state-of-the-art facilities. In 1996, he received the American Geophysical Union's Ocean Sciences Award for outstanding and long-standing service to the ocean sciences. Among his current responsibilities as Head of the Ocean Centers and Facilities Section of the Ocean Sciences Division at NSF are the international Ocean Drilling Program (ODP) and the academic research vessel operations.

Don began his geology career at a young age, "getting a feel for the land" on the family farm in Bakersfield, California. His interest in geology took him to Stanford University, where he received a BS and Ph.D. in Geophysics. His desire to do 'wet' geology and geophysics took him north to Oregon State University, where he traded hoe and clevis for oar and shackle. As an Assistant Professor at OSU, he focused on regional geophysical research in the Northwest, and off the West Coast of South and Central America, including 12 research cruises. Rumor has it, Don preferred land-based research to sea-going investigations.

From the chilly Northwest, Don moved his family to the Washington, DC area. He started his federal career as a Scientific Officer with the Office of Naval Research, reviewing and evaluating proposals in geology and geophysics directed toward Naval concerns. Three years later, he became the Program Director for the Submarine Geology and Geophysics Program (SGG) in the Division of Ocean Sciences (OCE) at NSF. Don's leadership skills were immediately tested, when the day after arriving at NSF, he was faced with conflict over transfer-

ring SGG from OCE to the Division of Earth Sciences (EAR). Through his insight and scientific understanding, SGG remained in OCE and later became today's Marine Geology and Geophysics (MGG) Program.

Don chairs the Ocean Drilling Program Council, the consultative body representing various international funding entities of the Program, providing a forum for the exchange of views among member nations and the overall support for ODP. Also, the needed infrastructure to support marine science has resulted in his participation on various committees of the National Research Council; Ocean Studies Board, Marine Board, Board on Earth Sciences and Resources, and the Polar Research Board. He actively supports the continued upgrade of the academic research fleet through such accomplishments as developing innovative financing for the procurement of a specialized vessel for the MGG community, support of the development of an Arctic Research Vessel, the development and upgrade to maintain quality of research vessels through the NSF inspection process, and the upgrade of on-board instrumentation and technician program.

Through his long service to the community, Don's interest in the land has remained vigorous. He is a prolific gardener, and manages to keep most of the office staff supplied with goodies from his garden. His recipe for chili with hot peppers (grown in his garden), annually entered in the NSF Chili Cook-Off, is a special treat.



# FastLane Update

[www.fastlane.nsf.gov](http://www.fastlane.nsf.gov)

The NSF FastLane project is designed to provide an interactive electronic interface to NSF's external community. There are many functions included in the FastLane project that are designed to be used by our Principal Investigators (PI's). This article describes several of these functions and provides guidance on using them.

## Registering as a FastLane User

In order for an individual to use the PI related functions of FastLane, the person must be a registered FastLane user. It is the responsibility of each institution's Sponsored Research (Projects) Office (SRO) to register FastLane users from the institution. If you are not sure about being a registered FastLane user, please contact your SRO. If you are a registered FastLane user, you will have a Personal Identification Number (PIN) that will give you access to the PI related functions of FastLane. If you do not know what your PIN is or want to change it, please contact your SRO.

## Proposal Status Inquiry

The Proposal Status Inquiry program provides status information about proposals submitted to NSF. Proposals are available for lookup from the time they are received by NSF until one year after the final status has been determined. You must be either the PI or a Co-PI on the proposal to use this function. To access a proposal in the Proposal Status Inquiry function, you must provide a proposal number, your last name, and your PIN. If all three items are valid, the system will display the most recent status information about the proposal.

The following statuses are currently available:

### *Awarded*

Award [Proposal Number] was made on [Date] for \$ [Amount] with an effective date of [Start Date]. This is a [Award Type] award. Duration of the award in months : [Duration].

### *Declined*

This proposal has been declined by NSF. The Principal Investigator has been sent information about the review process and anonymous verbatim copies of reviewers' comments. The program contains a ten-day delay in notifica-

tion of proposal declination to allow time for the receipt of the official declination letter and proposal reviews by the PI.

### *Pending*

This proposal is currently being considered by the above Program. Consideration of proposals usually requires up to six months.

### *Recommended*

Optional paragraph: Our records indicate that a Final Project Report (NSF Form 98A) is due on Award Number [Number] for [PI Name]. Please submit it immediately to the cognizant Program Officer to avoid delay in processing this proposal.

A program recommendation for award was concurred with by the cognizant Division/Directorate on [Date]. However, no award is ensured and the recommended amount (\$ [Amount]), duration (XX months) and effective date ([Start Date]) are subject to change. The grantee institution assumes any pre-award costs at its own risk. NSF may request additional information. This recommendation was received in the Division of Grants and Agreements on [Date]. The

NSF Grants Officer issuance of an award may require 4 weeks or more from the receipt of the recommendation in Division of Grants and Agreements.

### *Withdrawn*

This proposal has been withdrawn from further consideration by the proposer.

## Annual and Final Project Reports

For all multi-year grants (including both standard and continuing grants), the PI must submit an annual project report to the cognizant Program Officer at least 90 days before the end of the current budget period. Within 90 days after expiration of a grant, the PI also is required to submit a final project report.

Effective October 1, 1998, PIs are required to use the new reporting format for annual and final project reports. The NSF Form 1328, Annual NSF Grant Progress Report, and NSF Form 98A, Final Project Report, therefore, have been eliminated.



PIs are strongly encouraged to submit reports electronically via the new project reporting system in FastLane. This system permits electronic submission and updating of project reports, including information on: project participants (individual and organizational); activities and findings; publications; and other specific products and contributions. Reports will continue to be required annually in the form of updates and after the expiration of the grant. PI's will not need to re-enter information previously provided, either with the proposal or in earlier updates using the electronic system. The NSF goal is to receive 70% of all reports via FastLane in FY 1998 and we need your help in achieving this goal. NSF expects to require electronic submission of all annual and final project reports via FastLane beginning in October 1999.

### Notifications and Requests

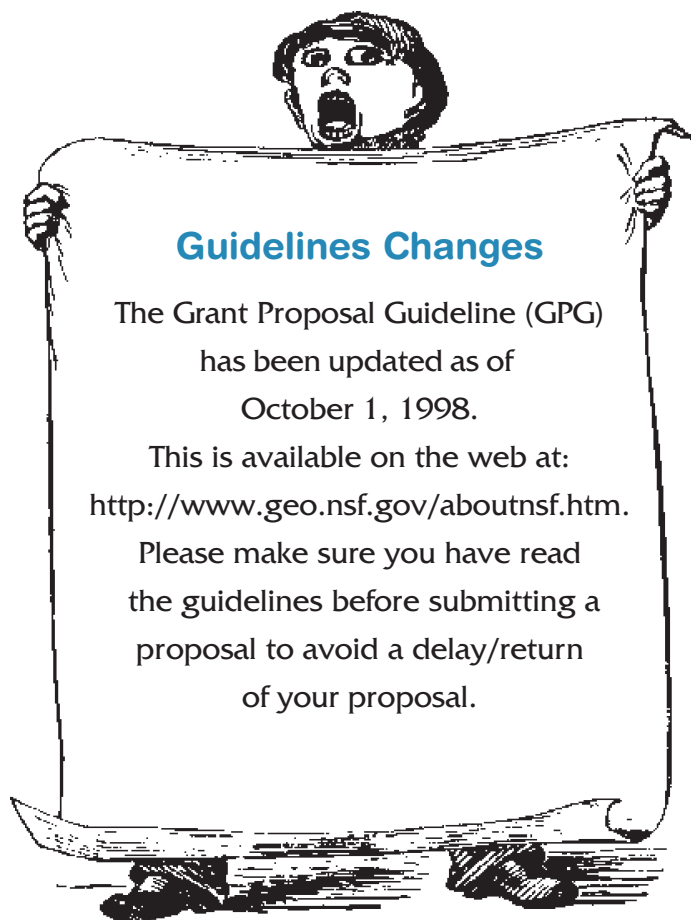
As a PI on an active award, you may submit to NSF certain administrative actions, typically referred to as notifications and requests. Specific policy guidance on when, why, and what to submit for a notification or request is contained in the NSF Grant Policy Manual (GPM). The GPM is available from the NSF homepage ([www.nsf.gov](http://www.nsf.gov)) and from your institution. You may use FastLane to initiate some of these notifications and requests. Examples of these include Grantee Approve No Cost Extension, Significant Changes/Delays, NSF

Approved No Cost Extension, and Changes in Objective or Scope. Notifications and Requests can be accessed by selecting the Notifications and Requests icon from the FastLane homepage. To submit a notification or request using FastLane, you must provide your award number, your last name, and your FastLane PIN. Once you have been validated for that award, you can select the desired notification or request and follow the guidance in completing your selection. All notifications and requests received by FastLane will become an official part of your award documentation

### Proposal Review Module

For several years, the OCE community has been a leader in the electronic submission of review via FastLane. Thanks in large part to your efforts and patience, we are currently receiving about 80% of our reviews on Fastlane. The review application has undergone several sets of improvements in response to comments from the community. As an example, an enhancement has been added to allow reviewers to check and update critical information about themselves (mailing address, phone numbers and e-mail address) on-line when submitting a review via FastLane.

By Eric Itsweire



*Profiling Autonomous Lagrangian Circulation Explorer (PALACE) float. Photo is courtesy of R. Davis, SIO.*

## Other Noteworthy News...

### Dick West Retires

Dr. Richard West retired in October as Program Director of Ocean Facilities after 27 years of service to the National Science Foundation. During his career at NSF, he served in many different positions including: Associate Program Director of the College Science Improvement Program, Project Director of Experimental Projects and Problem Assessment Group, Project Manager of NSF Chautaugua-Type Short Course Program, Program Director of Research in Science Education Program and Program Director of Comprehensive Assistance to Undergraduate Science Education Program.

In April 1982, Dr. West became Program Manager for the Ship Facilities Program, Division of Ocean Sciences (OCE/AAEO). Prior to joining NSF, Dr. West was Associate Director of the Commission on College Physics. Dr. West received his Ph.D in Nuclear Physics from the University of Washington.

Dr. West has also been an immense help to the Ocean Science Division with his computer knowledge. He will be missed by the Division, as we wish him happiness and relaxation in the years to come!

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**For additional copies, call (703)306-1580 or visit our web site at [www.geo.nsf.gov/oce/ocenew.htm](http://www.geo.nsf.gov/oce/ocenew.htm). Editor: Katie Bowler ([cbowler@nsf.gov](mailto:cbowler@nsf.gov))**

### Staff Changes

Joan Mitchell retired from the Ocean Sciences Division following 23 years of service to NSF, during which she contributed substantially to the development of the Division's minority and undergraduate education programs.

Ken Buesseler, a Program Director in Chemical Oceanography, has left us to go back to Woods Hole Oceanographic Institution. There he will continue his own research as well as continue to educate the community about NSF.

Jim Ammermann, a Program Director in Biological Oceanography, has left us after two years of dutiful service at NSF returning to Texas A&M University where he teaches Oceanography courses and is continuing his research.

Peggy Booth and Sean Powers, Science Assistants, went on to further pursue their careers. Peggy started veterinary school at Virginia Tech, while Sean started a postdoc at the University of North Carolina.



Shannon Knauss is the new Division Director Secretary. She joins us from the Atmospheric Sciences Division of the Geosciences Directorate where she worked as a Program Assistant. She is a familiar face around NSF, working for the Foundation for over nine years.



Replacing Peggy Booth as Science Assistant to the Division Director is Katie Bowler. Katie comes from the University of Maryland where she is in the process of receiving her Masters in zoology.

## Attention!

The National Science Foundation will have a booth set up at the American Geophysical Union (AGU) Meeting in San Francisco, California scheduled December 6–10, 1998. Division Directors, Section Heads and Program Managers will be available to talk to you about NSF programs. Please stop by and gain valuable information from our posters as well!

NSF will also have a booth at the upcoming American Society of Limnology and Oceanography (ASLO) Meeting held January 31-February 5, 1999 in Santa Fe, New Mexico. In addition, we will be at The Oceanography Society (TOS) Meeting held April 26–30, 1999 in Reno, Nevada. We hope to see you at these meetings where you can learn more about our programs.



*From left to right: Don Rice, Program Director of Chemical Oceanography, catches up with Brian Popp from the University of Hawaii, while Eric Itsweire, Associate Program Director, gives valuable information to Jeffrey Koseff from Stanford University.*

The Foundation provides awards for research and education in the sciences and engineering. The awardee is wholly responsible for the conduct of such research and preparation of the results for publication. The Foundation, therefore, does not assume responsibility for the research findings or their interpretation.

The Foundation welcomes proposals from all qualified scientists and engineers and strongly encourages women, minorities, and persons with disabilities to compete fully in any of the research and education related programs described here. 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 subject to discrimination under any program or activity receiving financial assistance from the National Science Foundation.

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 projects. See the program announcement or contact the program coordinator at (703) 306-1636.

The National Science Foundation has TDD (Telephonic Device for the Deaf) capability, which enables individuals with hearing impairment to communicate with the Foundation about NSF programs, employment, or general information. To access NSF TDD dial (703) 306-0090; for FIRS, 1-800-877-8339.

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