



Division of Ocean Sciences

Spring 1997 Newsletter

New Initiatives:

The Division of Ocean Sciences is actively participating in two new NSF-wide initiatives intended to support research in exciting fields: Life in Extreme Environments (LExEn) and Knowledge and Distributed Intelligence (KDI). Both activities are new in fiscal year 1997 and are expected to continue in the coming years.

Life in Extreme Environments

Capitalizing on recent research advances in the understanding of how life survives in extreme environments, the Division

of Ocean Sciences expects to support a number of new interdisciplinary proposals as part of the Foundation-wide initiative **LExEn**. This program highlights the study of environments at the extremes of conditions on Earth (e.g. extremes in temperature, pH, salinity, and pressure), whether they be polar ice caps, deep ocean vents, or volcanic environments. Research on how life survives, and even flourishes in these extreme environments will highlight fundamental biological processes that are critical to understanding evolution of life on earth, as well as possible conditions that might support life on other planets.



9°50'N on the East Pacific Rise. Organic matter and bacteria vented from the sea-floor immediately following volcanic eruptions in 1991. Next to the plume are sulfide chimneys partially covered by bacterial mats.

photo provided by R. Haymon, UCSB, Dan Fornari & the ALVIN Group, WHOI

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In conjunction with nine other NSF divisions, OCE is participating in an agency-wide interdisciplinary review process to identify successful proposals from a pool of approximately 100 submissions that arrived for the April 14 deadline. NSF expects to award approximately \$6 million to successful investigators in the first year of the competition.

Dr. Michael Purdy, Director for the Division of Ocean Sciences, is serving as coordinator for the NSF agency-wide team responsible for planning and development of the LExEn program. He is hopeful that the LExEn group will be successful in their bid for increased support in the coming years and is actively communicating with science managers at DOE, NASA, and NOAA to explore possibilities for

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Knowledge and Distributed Intelligence (KDI): A New Initiative at the National Science Foundation

Earlier this year, Vice President Gore in a series of speeches introduced the metaphor “distributed intelligence” to describe an emerging era of communication, access to information, and data accumulation and manipulation that is unprecedented. Following up on these ideas, Dr. Joseph Bordogna, Acting Deputy Director of NSF said: “To pursue these kinds of emerging opportunities, NSF is exploring frameworks for the development and deployment of new ideas and technologies for research, education and for society as a whole...”. In order to fulfill this goal, NSF has requested funding for an agency-wide initiative called “Knowledge and Distributed Intelligence.”

“The vision of the Knowledge and Distributed Intelligence (KDI) initiative is to achieve, across the scientific community, the next generation of human capability to:

- Gather and represent more complex and cross-disciplinary scientific data and information from new sources, and at enormously larger scales;
- Transform this information into knowledge by combining, classifying, and analyzing it in new ways; and
- Collaborate in groups and organizations, sharing this knowledge and working together interactively across space, time, disciplines, and scientific cultures to multiply results.

The KDI strategy is to support research that:

- Generates greater understanding of phenomena of distributed intelligence and collective behavior, automated and natural systems;
- Creates the next generation of mathematical, computational, data-oriented, and organizational methods and infrastructure, which will exploit multidisciplinary distributed intelligence to advance science and engineering;
- Enhances human ability to use knowledge in groups, organizations, and communities through advances in human infrastructure, technology, and education.

This initiative is an intellectual focus for collaborative, multidisciplinary thinking on three complimentary aspects of knowledge and distributed intelligence:

- Increasing interaction, knowledge/tool integration, collaboration, and understanding within communities and across disciplines through Knowledge Networking (KN);
- Extending the power of tools, models, and simulations to present and manage complex systems through New Challenges in Computation (NCC); and
- Extending our ability to learn and create through Learning and Intelligent Systems (LIS).”

As a complementary component of the KDI initiative, NSF is also seeking funds to participate in an interagency initiative to develop the Next Generation Internet (NGI) (<http://www.hpcc.gov/whats-new>). Approximately \$58 million is in the Fiscal 1998 request to Congress for new KDI activities including approximately \$10 million for NGI.

The Division of Ocean Sciences is committed to ensuring full participation by the ocean sciences research community in the planned KDI activities in order that they may share in the opportunity and the challenge before us. Information on the development of this initiative should be appearing soon on NSF’s home page at <http://www.nsf.gov>. Stay tuned.

How Budgets Are Developed In OCE

In the past thirty years there have been two major one-time funding increases in the ocean sciences area at NSF. The first increase was the establishment in 1968, of the Deep Sea Drilling Program, the fore-runner of the International Ocean Drilling Program, which was incorporated into OCE in 1984. The second was the establishment of the International Decade of Ocean Exploration (IDOE) by President Johnson in 1970. IDOE funds did not disappear after the decade, but were incorporated into the ongoing programs of the Division of Ocean Sciences in 1980.

The other significant period of real growth in the OCE budget occurred during a period from 1987 through 1993 as a result of Presidential and Congressional interest in Global Change research. Since 1993, OCE’s budget, in constant dollars, has remained stable.

Aside from these major events, the budget evolves incrementally year by year. Historically, and averaged over a long period, OCE budgets have increased at a rate slightly above inflation. Annual increases are not assured. A major driver for budget increases are the powerful scientific arguments advanced by the community for exciting new initiatives, such as global change research. Otherwise, periods of high inflation can erode purchasing power. General arguments based on proposal pressure and low success rates rarely fare well in the competitive environments of NSF, the Office of Management and Budget (OMB), or Congress itself. Scientific ideas which broadly capture the imagination attract investment.

Continued on page 4.



Dear Colleagues,

Perhaps the most appropriate word to describe predictions for our budget in 1998 and 1999 is "stable." But this stability does not make our job easier -- the decisions that we have to make about how to distribute our resources become more difficult as the pressure from outstanding proposals and good ideas for new research directions continues to grow.

From a fiscal point of view here at NSF, 1997 is practically over. Most of the decisions have been made; the majority of the funds are committed. So I find myself relapsing into an end-of-year commentary! The academic research vessel fleet "dodged a bullet" in 1997. While being very happy that funds from NAVOCEANO and other non-traditional sources of support for the UNOLS fleet allowed all the vessels to operate, we wait with significant concern to learn if, with similar good fortune, we can survive 1998 without the requirement for vessel lay-ups. We started a couple of programs in 1997 -- notably LExEn and ECOHAB (for details see elsewhere in this Newsletter) - and continue to discuss with community groups the potential rewards of initiating other new efforts.

This year is presenting a number of high-profile opportunities to spotlight the importance and excitement of basic research in the ocean sciences before the general public. In February, the cores recovered by the Ocean Drilling Program from the Blake Nose off Florida provided such a spectacularly clear and continuous record of the impact event at the Cretaceous-Tertiary Boundary that the news media instantaneously developed an insatiable appetite for knowledge and information about marine earth sciences. Our Assistant Director for Geosciences, Bob Corell, appeared on TV so often we suggested he get an agent! In May the newest member of the UNOLS research vessel fleet, ATLANTIS, visited Washington DC, and attracted substantial interest and attention. And in July ODP's flagship, JOIDES Resolution, will come alongside in Manhattan, and play host to a number of events designed to highlight the achievements and future potential of ocean drilling.

Activities such as these are sometimes criticized as frivolous and wasteful of resources, but when well-planned and executed, on the contrary, they are an important part of our growing efforts to educate our nation about how much our health and security depends upon the understanding of the earth and its oceans. The United Nations has declared 1998 The Year of the Ocean, so we are looking forward to further appropriate opportunities to highlight the importance of your work in the ocean sciences research community.

I hope you find this second Newsletter informative and useful. Please send us your ideas about what you would like to read in future issues. And please do not forget to keep an eye on our Web Page -- we try to keep that updated with new program announcements and other information that is important for you to receive.

Have a good summer,



*G. Michael Purdy
Division Director*

Budget cont...

THE PLAYERS AND ISSUES. Efforts to increase the budget for OCE and its community occur on many levels, and involve major expenditures of time and energy. These efforts include on the official side: Program Managers, Section Heads, and the Division Director in OCE; consortia of program managers in ocean-related federal agencies; and international organizations. Within the "official" academic community, there is the Ocean Studies Board of the National Academy of Sciences and national organizations such as the Consortium for Oceanographic Research and Education (CORE). There are also entities specifically constituted to interact with and/or advise OCE. These include the University National Oceanographic Laboratories System (UNOLS) for management and policy relating to the academic fleet, and the international Ocean Drilling Program Executive Committee (ODP ExCom) for the Ocean Drilling Program managed by NSF on behalf of 20 international partners. The NSF also mandates advisory committees for general issues and for specific proposal groups. Then there are the scientific societies, particularly AGU, ASLO, and TOS, which facilitate communication, planning and political advocacy. Central to all these planning and advocacy activities are the individual members of the academic science community.

In addition to planning and promoting new scientific directions and discoveries, ocean sciences requires expensive platforms (e.g. general and special purpose surface and submersible vessels), facilities (e.g. the National Ocean Sciences Accelerator Mass Spectrometry Facility) and maintenance programs (e.g. multi-million dollar mid-life refits to extend vessel serviceability for up to 30 years). Programs of all sizes, but particularly large ones, require cooperation between governments and international academic communities.

Many members of the community become involved in developing new scientific concepts or facilities; and devote many hours to organizing, writing, presenting seminars, and chairing meetings. These activities take time away from research and education to serve the common cause, but with absolutely no guarantee of appreciation, success in the endeavor, or advancement of the scientific career of such "heroes."

THE BUDGET CYCLE. Given the complexity of needs and the multiplicity of players, the reader can hopefully excuse any lack of clarity in the following explanation of how the budget is developed.

Ultimately, the President of the United States, through OMB, has responsibility to propose the budget of the NSF and request an appropriation from Congress to provide it. Congress, through its various committees, holds hearings and requests information directly from NSF in determining its position regarding appropriating funds.

The new fiscal year (FY 1997) began on October 1, 1996, and the NSF had an enacted budget for Fiscal Year 1997 (this is not always the case). The Division Director, in consultation with the Section Heads, apportioned the available funds on the basis of priorities and other statements made in the Budget request to Congress almost a year ago. There were no major surprises for the program managers who were well aware of such priorities.

Meanwhile, the proposed budget for FY 1998 was provided to OMB (the President's Office of Management and Budget) in the summer of 1996. Negotiations ensued between the NSF Director and OMB, and by late December the Division had an idea what would be requested within the NSF budget to Congress for FY 1998. This budget, along with budgets for all the other agencies, was submitted as the President's Budget to the Congress in February 1997. Now (Spring through early Summer 1997), the FY 1998 Budget to Congress is under consideration within various committees and sub-committees of the Congress. Hopefully it will be voted upon by both Houses before October 1, the start of the FY 1998 fiscal year.

During this same period, internal discussions take place about the structure and size of the FY 1999 budget, leading to its first submission to OMB in September 1997. The discussions are driven in part top down, with the NSF Office of the Director issuing guidelines based on discussions with the National Science Board and the Director's vision of the NSF strategic plan; and in part bottom up, with program managers in discussion with the Division Director establishing priorities, based on their own and communities ongoing desires and planning. Within several months, realities and desires push and shove and meld into the budget to OMB, which examines it in detail, and issues its own guidelines based upon the Administration's intentions for the agency. The NSF may have the opportunity to negotiate this "passback" before the final form of the budget for FY 1999 is submitted to the Congress early in 1998.

FROM IDEA TO BUDGET INITIATIVE. How do the Program Managers and Division Director determine the content of the budget they submit to the Directorate within the context of external constraints placed on them? Within OCE many factors enter in, including the need to maintain the base or core buying power for individual (unsolicited) proposals, the need to augment existing initiatives to bring them to full development, the need to complete analysis and synthesis of the results of large field programs, the need to promote exciting new research thrusts based on discoveries, the need for new facilities, and major upgrades and ideas and planning activities within the community.

Further aids to internal budget decision-making include (1) annual program-by-program reviews within the Division; (2) regular meetings with GEO senior management where program plans and budgets are discussed; (3)

Program News

Biological Oceanography

recommendations contained in triennial reports of Committees of Visitors who analyze program performance; and (4) feedback from the external GEO Advisory Committee meeting twice each year.

Not all increases in the OCE budget are driven through lengthy development of consensus through community workshops, steering committees planning documents and public discussions, as was the case for familiar programs like WOCE and JGOFS. Potential opportunities arise from other directions. For instance, the NSF Director maintains an "Opportunity Fund" designed to stimulate new interdisciplinary interactions at emerging cutting edges of science, for which NSF organizational units can compete, usually in a consortium. The almost simultaneous discovery of potential signs of fossil life in a Mars meteorite, and strong indications of water (perhaps an ocean) on Europa, a moon of Jupiter, prompted a rapid response within NSF.

Mike Purdy discussed the possibility of capitalizing on this discovery with senior representatives of the Biological Sciences, Mathematical and Physical Sciences, and Engineering Directorates, and Office of Polar Programs. Within days the idea for Life in Extreme Environments, a new initiative crossing no less than 10 Divisions of NSF, was born. The LExEn concept met the criteria for the Director's Opportunity Fund and was awarded \$3 million for FY 1997. The Divisions were challenged to match this number for a total of \$6 million from existing budgets, promise to spend a full \$6 million in FY 1998, and to continue the program beyond that.

Some budget initiatives are developed at the highest levels of policy-making within NSF, and developed as NSF-wide programs to address themes cutting across all the directorates and divisions. One such example is "Knowledge and Distributed Intelligence" or KDI. The present articulation of this initiative, which is embodied in a \$58 million request in the President's FY 1998 budget request to Congress, rapidly crystallized from three separate but interrelated themes under discussion over the past year. The National Science Board approved KDI as a Foundation-wide thrust in which OCE is participating. Another example involves the important themes embodied in the "Integration of Research and Education," which is espoused as one of three major principles to which the NSF is committed in its Strategic Plan.

If the account of the budget process given above seems highly non-linear, complex, and with multiple sources of influence, this is all true. Never forget, however, that no matter how funds are allocated for programs and initiatives, all proposals resulting from announcement of opportunities are treated similarly. The long-standing and highly-regarded process of merit and peer review is used to identify the most worthy amongst that group.

The Biological Oceanography Program is joining NOAA (Coastal Oceans Programs), EPA (Office of Research and Development, National Center for Environmental Research and Quality Assurance), and ONR in mounting the ECOHAB Program – Ecology and Oceanography of Harmful Algal Blooms. Evidence suggests that over the last few decades, the frequency and duration of harmful algal blooms (HABs) have been increasing both nationally and worldwide. The limited scope of past HAB studies has precluded a fundamental examination of the many factors that regulate the distribution and abundance of species involved in HABs. This interagency ECOHAB program represents a major response to address the need for long-term, large-scale, interdisciplinary studies on the environmental processes that facilitate and regulate HABs in the coastal ocean. The general goal is to develop a predictive understanding of how physical and biological processes interact to promote bloom development, affect bloom dominance, and contribute to bloom maintenance or decline.

Research activities in the coastal Northeast Pacific Ocean are in the forefront of the attentions of the US GLOBEC and Coastal Ocean Processes (CoOP) Programs. An announcement of opportunity supported by NSF and NOAA has solicited proposals for preliminary modeling, monitoring and retrospective analyses to form the framework for US GLOBEC Northeast Pacific Program and CoOP's California Current studies. CoOP's goal in studying the California Current System of the Northeast Pacific is to understand the processes which contribute to cross-shelf transport processes where the circulation is strongly wind-driven. US GLOBEC seeks to examine the close connection between the ecosystem dynamics in both gyres in the northeast Pacific Ocean - the California Current System (CCS) and the Coastal Gulf of Alaska (CGOA). The Biological Oceanography Program is working with Ocean Technology and Interdisciplinary Coordination (Larry Clark's bailiwick here at NSF/OCE) and the Coastal Oceans Program at NOAA (Don Scavia and Judy Gray) in administering these programs. Awards for the initial phases of the CoOP and US GLOBEC programs in the Pacific will be made in the middle of 1997 and will be followed by integrated process studies starting in the year 2000.

The Divisions of Ocean Sciences and Environmental Biology have cooperatively supported the LMER (Land Margin Ecosystems Research) Program for the past eight years. The two Divisions, following substantial interaction with the scientific community, decided to discontinue this Program with the completion of extant projects, and replace it with an augmentation of the LTER Program with focus on Land/Ocean Margin Ecosystems (LOME). A June 1997

deadline was established for proposals to LTER:LOME that emphasize major ecological questions on the linkages between terrestrial and coastal ecosystems including seeking to understand the causes of major ecological and environmental changes that influence land/ocean-margin environments, and how the populations, communities, and ecosystems of the land/ocean-margin environment respond to these changes. Both Divisions anticipate additional augmentations to LTER with research on Land/Ocean Margin Ecosystems. The Biological Oceanography Program is administering this initial LTER:LOME competition.

The Division of Ocean Sciences has been the lead office for the US JGOFS Program from the start, yet many offices of other Federal agencies have cooperated in the overall dimensions of US JGOFS to date. As the last major activity of US JGOFS, Biological and Chemical Oceanography, along with NASA (its Earth Observing System Interdisciplinary Science and Biological Oceanography Programs) are supporting the Synthesis and Modeling Project.

Biological Oceanography has been busy working within the Division and with the many other parts of NSF on the LExEn initiative (see page 1). Our primary OCE interests lie in the prospective microbial biomes deep within ocean crusts and ocean sediments.

We are also kept active in the Biological Oceanography Program with the ongoing activities in: US JGOFS and the Southern Ocean Program: Antarctic Ecosystems - Southern Ocean Program; US GLOBEC and the second phase of the Northwest Atlantic Program in and around Georges Bank; and the RIDGE Program's LARVE (Larvae at Vents Ecosystems) research focus.

DIALOG II: Dissertations Initiative for the Advancement of Limnology and Oceanography will be held October 12-17, 1997, at the Bermuda Biological Station for Research. The Dissertations Initiative for the Advancement of Limnology and Oceanography Program is run by ASLO. DIALOG II is currently supported by the NSF, NOAA, NASA and ONR. DIALOG seeks to reduce the historical, institutional and philosophical barriers that limit the exchange of information among aquatic scientists, and to expedite the transition from Ph.D. student to independent researcher.

While the deadline for participation in DIALOG II has passed, please contact Dr. Susan Weiler, ASLO for information about the program and future participation at:

OMB 317, Whitman College
Walla Walla, WA 99362, USA
509-527-5948, fax: 509-527-5961
or aslo.dialog@whitman.edu.

Chemical Oceanography Program

With the end of the decade fast approaching and the end of US JGOFS in sight, the staff of the Chemical Oceanography Program believes that it is time to gather representatives from the marine chemistry community to assess where the field is now, where it is heading, and how it might get there. To this end, we intend to establish a steering committee to design and convene a community workshop on the "Future of Chemical Oceanography in the U.S." something like last year's FUMAGES workshop initiated by the Marine Geology and Geophysics Program.

While the idea has originated here at NSF, articulation of its design and substance must be a grassroots activity if the workshop is to vocalize effectively and accurately the outlook of the chemical oceanography community. What do you think about this? What needs to be done, who among our colleagues would you especially like to see involved? Please let us know.

U.S.JGOFS SYNTHESIS AND MODELING PROJECT (SMP): The Implementation Plan and a joint NSF/NASA Announcement of Opportunity (NSF-97-79) for the last phase of the U.S.JGOFS Program have been released. Both documents may be accessed at the U.S.JGOFS Office WWW site (see sites of interest section). To view the Announcement from the NSF Homepage, go to 'Geosciences' and scroll down.

REU Supplements: The CO Program now considers REU supplements for funding after both Panels (May and November) rather than only after the May Panel as in past years. This new arrangement should allow principal investigators more flexibility in planning opportunities for undergraduate students to participate in marine chemistry research projects during the academic year as well as during the summer break.

DISCO XIV: The fourteenth Dissertations Symposium in Chemical Oceanography will convene October 6-10 at the East-West Center, University of Hawaii. Applications should already be available at your institution; if not, contact Marilyn Maury, American Institute of Biological Sciences (AIBS), at 202-628-1500 ext.254.

GEOSECS Atlases Available: Rodger Baier has retrieved copies of volumes 1, 3, 4, 5, and 7 of the GEOSECS Atlas from storage for distribution to anyone who can put them to use.

If you have questions about the Program, please contact us by phone at 703-306-1589 or (preferably) by email: Rodger Baier (rbaier@nsf.gov)
Ken Buesseler (kbuessel@nsf.gov)
Don Rice (drice@nsf.gov)

Marine Geology & Geophysics

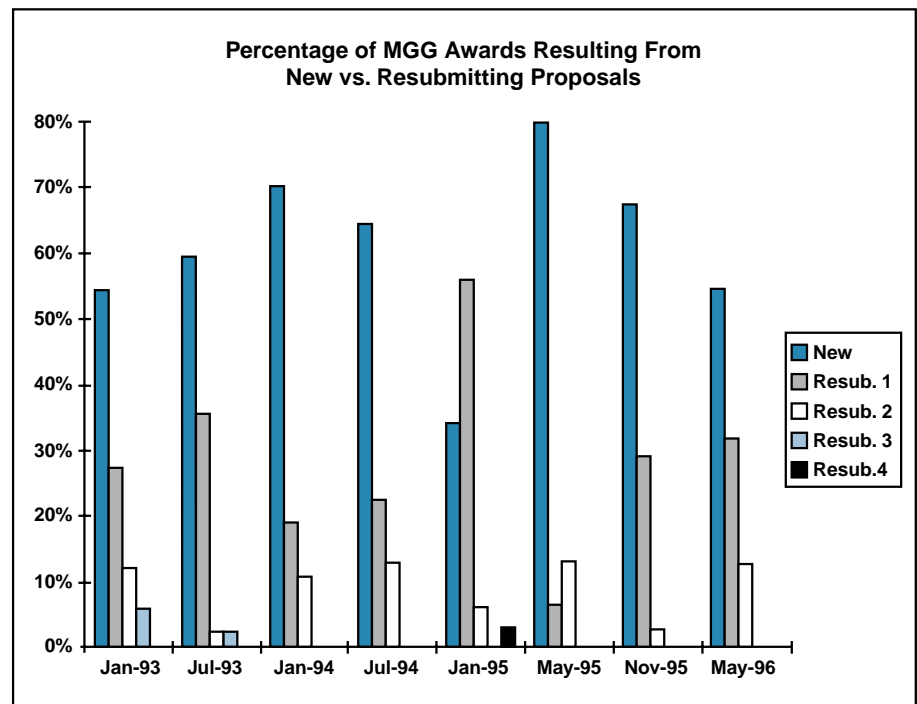
The Future of Marine Geosciences Workshop, sponsored by MGG and the Ocean Drilling Program, took place in Ashland Oregon, last December. State-of-the-science papers were presented on ridges, convergent and divergent margins, sediment processes, climate change, fluids, and lithosphere aging. Thematic group breakouts on solid earth, climate, sediments, and fluids were interspersed with plenary sessions to explore the interrelations among the thematic topics. The workshop report is nearing completion (available on the JOI homepage). It will be distributed widely and continued community input is solicited.

MGG continues to participate in the Earth System History (ESH) initiative through its MESH component. In addition to the original OCE, EAR, and ATM program participants, two other programs have joined ESH -- paleoclimate components of ARCSS (Arctic System Science) and the NOAA Paleoclimate Program. The combined budget for ESH is approximately \$9 million per year, with just over \$2 million coming from the MGG program. More than 130 proposals were submitted to ESH for the last deadline; a dramatic increase from the previous target.

Because of the continuing discussions of the effects of resubmitted proposals on reviewer and program work loads, we compiled the statistics on resubmitted proposals from the past eight proposal cycles.

During the eight cycles from January 1993 to May 1996, about 30% of the proposals received by the MGG program had been submitted, and declined, previously. During this time the success rate of resubmitted proposals was nearly the same as the overall success rate. Interesting patterns emerge, however, when the resubmittals are considered as a function of awards, as shown in the figure. For these cycles, the largest percentage of awards is for proposals submitted only once, and the success rate falls off dramatically after the first resubmission.

It is apparent from the figure that compelling proposals are recognized by the peer review community, and funded by the MGG program, the first time they are submitted. It may be worthwhile resubmitting a proposal once, but, without major changes, the success of further resubmissions is very small. Resubmissions are always competing against



new proposals, not just against other resubmitted proposals, and the majority of awards (50-70%) are drawn from those new proposals.

Ocean Drilling Program

It has been a busy and productive period for the Ocean Drilling Program. The drillship, *JOIDES Resolution*, is presently completing a six-leg drilling program in the North Atlantic before heading for the Southern Ocean later this Fall. Drilling in the North Atlantic is concentrated on completing studies of the Barbados accretionary complex and the early rifting of the Iberian margin, examining the paleocirculation and sea level history of the western North Atlantic, and deploying a long-term borehole observatory near the mid-Atlantic ridge to study hydrogeologic processes in young crust.

At Barbados the program has continued its successful use of logging-while-drilling (LWD) techniques developed in the commercial drilling business. In this technique, formation physical properties are measured and recorded by instruments at the drill bit, rather than by instruments lowered into the hole after drilling. Accretionary complexes such as Barbados are notoriously unstable and difficult to examine with standard coring and logging operations. The LWD technique produces a better picture of the formation with much less risk of instrument loss. The drilling in Barbados has been concentrating on process of fluid flow along faults in the accreted sediments and the relation to sediment deformation and faulting.

Drilling on the Blake Nose off northeastern Florida was designed to examine the Paleogene and Cretaceous deep-water circulation and its impact on low-latitude climate. Although deep waters are presently formed in high latitude northern and southern oceans, previous evidence has indicated that deep water in the Cretaceous and Paleogene may have formed near the equator. The sediments recovered during the cruise should provide a detailed record of these circulation changes. Most spectacularly, three cores returned an incredibly detailed record of the impact event at the Cretaceous-Tertiary boundary. The sediments record both the conditions of the pre-impact ocean and the actual impact event. Recovery of the biota of the oceans is also well recorded in the overlying sediments. The results were widely reported in the national and international press.

In June and July, the Resolution will continue a drilling program on the continental shelf off New Jersey to examine the history of sea level and sediment accumulation. This program will drill at some of the shallowest sites ever attempted in ODP and will again be benefitted by the use of LWD techniques. The drillship will also make its last U.S. port call for a number of years following the leg. An open house and other activities are planned for New York City on July 20 if you happen to be in the Big Apple and want to see the vessel. In addition to the exciting science of recent months, the program has also completed a major reorganization in its science planning structure. Now, overall scientific direction will be provided by a new Science Committee (SCICOM) with operational matters devolved to a subcommittee (OPCOM). U.S. membership on the SCICOM is open to scientists at any U.S. organization.

On the international scene, planning for phase III of the LRP (1999-2003) is well underway. The program has been structured to allow our international partners to reevaluate their desire to continue in the program during this phase. To date, all indications appear positive and, in fact, the program has recently added two new participants as South Korea and the National Taiwan University joined the Consortium of Canada and Australia. Negotiations are continuing over membership of the People's Republic of China in the program.

On the longer term, the ODP as it is presently structured will end in 2003. The Long Range Plan calls for extending ocean drilling beyond that point in a new program that would have two drilling vessels - one with the capability of the present JOIDES Resolution and one capable of deep water well control through the deployment of a riser or similar system. For several years, scientists and administrators in Japan have been formulating plans for a next generation drilling program based on a riser-equipped ship. At the recent ODP Council meeting, the Japanese plans and those identified in the ODP LRP

merged into what has temporarily been named the Integrated Ocean Drilling Program (IODP) for the post-2003 period.

Implementation of the IODP is in no way assured - we'll keep you updated in future issues of our newsletter. If you wish additional information on the Program, scientific results, participation, drilling results or other matters, visit the Program's home pages (see sites of interest, page 10).

Physical Oceanography

The final field phase of WOCE in the Atlantic is now well underway, and a program announcement for analysis, interpretation, modeling and synthesis (AIMS) for WOCE has been issued, with target dates coinciding with the usual dates for OSRS, August 15 and February 15, through the year 2002. Planning continues, in collaboration with other programs, for Ocean-CLIVAR, to include long-term observations that will be important both to physical oceanography and to the OCE community at large. Planning is also underway for a workshop to explore priorities for physical oceanography in general over the next 5-15 years. For further information, contact Dr. Richard Lambert or Dr. Eric Itsweire.

Oceanographic Technology & Interdisciplinary Coordination

The OTIC Program has three main components:

1) Technology Development: The intent of this program area is to provide support for developing new instrumentation or technology that have broad applicability to ocean science research projects. Successful proposals are usually those that aim to enhance the observational, experimental, or analytical capabilities of the ocean science research community. Instruments proposed for development must have direct relevance to research activities that are normally sponsored by OSRS.

FY 1997 marks the 15th anniversary for this program area. In FY 1982, three proposals were received and three awards were made totaling \$425,000. In FY 1997, over 40 proposals have been received to date and slightly over \$4 million are available for technology development.

Although the Program is open to all types of instrument and technology development areas that are related to ocean science research, a substantial portion of effort and resources in recent years has gone into improving the capability to make in situ long-term observations.

The OTIC Program will again be convening a special session at the AGU Ocean Sciences Meeting, to take place in February 1998 in San Diego.

2) Coastal Ocean Processes (CoOP): CoOP is an OCE initiative to focus interdisciplinary research and interagency cooperation on the coastal zone. Both NSF and NOAA regard the Great Lakes as part of the U.S. coastal zone and recognize that many features of the Great Lakes may best be studied using oceanographic methods. In response to a one-time NSF/NOAA Announcement of Opportunity, a major 5-year initiative will start this fall for interdisciplinary, collaborative research projects to address the broad intersection of basic and applied research interests of NSF and NOAA.

Following the recommendations of the CoOP Science Steering Committee, plans are underway for developing the next CoOP research initiative on wind-driven transport processes. Copies of a relevant workshop report and other details concerning the CoOP program are available through the CoOP Office at <http://www.coop.hpel.umd.edu>.

3) Arctic System Science (ARCSS): The OTIC program co-sponsors the Ocean-Atmosphere-Ice Interactions (OAI) component of the ARCSS global change research program. A major research project under ARCSS also gets underway this summer called SHEBA (Surface Heat Balance of the Arctic) Ocean. The SHEBA program (<http://sheba.apl.washington.edu/>) will simultaneously measure, over an annual cycle, the various fluxes and properties of the atmosphere, ice pack, and upper ocean that determine the aggregate mass and energy budgets of Arctic sea ice. Its goal is improved understanding of how and to what extent, the ice covered Arctic Ocean affects climate variability in lower latitudes and in global climate models (GCMs). The research program will be conducted for 14 months from a Canadian icebreaker frozen into the Beaufort Sea ice pack.

In cooperation with Canadian scientists, an ancillary research program will be conducted during SHEBA's 14-month deployment of the drifting icebreaker. Planned projects include studies of physical oceanography, carbon cycling, contaminants, marine fish, marine mammals, and polar bears.

OCE Staff Changes

The following changes have taken place within the programs:



Sean Powers

Biological Oceanography/OTIC: **Sean Powers**, a Sea Grant Fellow, joined us in February for a year. Sean is working with Phil Taylor and Larry Clark on various projects including GLOBEC, ECOHAB, LExEn, CoOp Great Lakes Studies, as well

as the core proposals for both programs. Sean will finish up his Ph.D. this summer at Texas A&M University where he is researching larval recruitment in benthic communities. Our newest IPA, **Kendra Daly**, arrived in late March initiating a two-year stint as a Visiting Scientist and Assistant Program Director in the Biological Oceanography Program. Dr. Daly is from the Department of Ecology and Evolutionary Biology at the University of Tennessee, Knoxville. Her research interests include zooplankton ecology, particularly in polar regions, the influence of physical-biological interactions on marine production, and the role of phytoplankton-zooplankton interactions in biogeochemical cycles. **Marsh Youngbluth** is leaving us in July to return to Harbor Branch Oceanographic Institution after serving two years as a Visiting Scientist and Associate Program Director. He will resume his own research in ecological and behavioral studies of midwater zooplankton, especially predatory-prey relationships, particle consumption-production rates, and mate-seeking repertoires.



Kendra Daly

Marine Geology and Geophysics: **Bilal Haq** returned, refreshed and invigorated, after 10 months on sabbatical at Oxford University. He will continue to serve as the NSF lead for the MARGINS initiative.

Physical Oceanography: **Al Plueddemann**, Visiting Scientist and Associate Program Director, returned to the Department of Physical Oceanography at Woods Hole Oceanographic Institution to continue his research in upper-ocean physical processes, internal waves in the Arctic region, and oceanographic instrumentation. **Hsien-Wang (Dick) Ou**, a senior research scientist at the Lamont-Doherty Earth Observatory of Columbia University, is presently visiting as an Associate Program Director in the Physical Oceanography Program. His research interests are in climate theory and dynamical oceanography. **Dick Lambert** will be away from NSF for eight months, starting June, 1997, returning in February, 1998. He will be visiting both oceanographic institutions and agency labs, researching the general problem of managing large oceanographic programs. He expects to document the history of TOGA and WOCE management in particular, and write up the history from the point of view of an NSF program director coordinating with other agencies and other countries. The documentary will be published and available sometime in 1998. During Dick's absence, Eric Itsweire will be acting for the program.



Dick Ou

For further information on OCE staff members, including phone numbers and email addresses, as well as vacancy announcements please check the OCE home page at (<http://www.geo.nsf.gov/oce/ocegenl.htm>).

OCE Profile - Dolly Dieter

Hello Dolly!

Dolly Dieter arrived at NSF in June 1989 for a temporary stint as Program Manager for Ship Operations. She is still here and continuing her excellent work in managing and planning ship operations for vessels in the academic fleet supporting NSF-supported research.

Dolly started her academic life with a double major in biology and chemistry at DePaul University; spent a couple of years as a research associate at MIT; then migrated to Alaska. There she found her true home and niche. (She stills views her stay in Washington, DC, as temporary!) At the University of Alaska, she began as a research associate in marine biology; became chief marine technician for the Institute of Marine Science regularly spending over 200 days at sea; moved on to become the marine superintendent (responsible first for the R/V Acona, and then for the R/V Alpha Helix), and finished her career at UAK as the Assistant Director for Marine and Shore facilities. At this point, she was lured to NSF before she could become University President.

Dolly works hard but plays equally well. She loves to walk, especially along canals and woodlands. We have the following tale from one of her friends:

“Dolly is definitely a marathon walker. However, she has a special twist — she doesn’t have a good sense of the distance involved! It was an unusually gorgeous summer day in Seward, so we decided to walk a short distance on the trail system near town. After about a six-mile walk, we discussed turning back since we hadn’t brought water or snacks, and it was a warm day.



But Dolly convinced us that we should just continue on to her house since it was ‘just over the hill.’ Well — checking maps later, the last part of the forced march was another 10 miles. 16 miles total! We still talk about that day.”

Other colleagues suggest you ask Dolly when (and how) she is going to install her hot tub in Alaska or remove the bathtub from her living room in Washington. Not me! Several tales also exist about the use and maintenance of her old red truck in Seward — including the time she was found sitting on the truck roof in dress clothes and high heels in a pond. Dry! She also has Model T’s in Illinois!

To round out her life, she acquired a Masters Degree in Marine Policy a few years ago from the University of Rhode Island and currently is Secretary of the Marine Technology Society. We are enjoying her “temporary” stay at NSF and looking forward to finding out more about her marvelous adventures.

- Don Heinrichs

Sites of Interest:

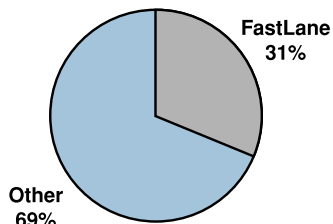
JGOFS <http://www1.whoi.edu/jgofs.html>
 WOCE <http://www-ocean.tamu.edu/WOCE/uswoce.html>
 ODP <http://www-odp.tamu.edu/>
 JOI <http://www.joi-odp.org>
 JOIDES <http://www.whoi.edu/joides>
 GLOBEC <http://www.usglobec.berkeley.edu/usglobec/globec.homepage.html>
 LMER <http://www.mbl.edu/html/ECOSYSTEMS/lmer/lmer.html>
 CoOP <http://www.coop.hpel.cees.edu/>
 ECOHAB <http://www.redtide.whoi.edu/hab/>
 RIDGE <http://ridge.unh.edu/>

The Next Phase of FASTLANE

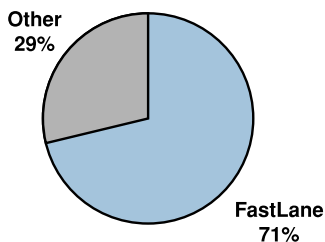
Fastlane is designed to improve and automate the NSF's interactions with the research and educational communities. The *Fastlane* project uses the World Wide Web to facilitate exchange of information between the NSF and its client community. These interactions include proposal and project report submission, proposal review, processing status of proposals, cash transactions with the institutions, and information regarding NSF funding actions. Much information included in proposal submissions is repetitive. *Fastlane* allows us to collect this information once, permitting the user to change it as necessary, and have the information available for all subsequent proposals and reports.

OCE is committed to our role in making this project a success. Our first step was to encourage our reviewer community to utilize *Fastlane* as the primary means to return reviews. This has been a successful learning experience for the *Fastlane* developers, OCE, and our reviewers. As you can see, the experiment caused greater than a doubling of the reviews submitted via *Fastlane*.

Feb. 1996 Target Date



Aug. 1996 Target Date



The next step toward the integration of *Fastlane* with our community is the electronic cover-page submission. This function allows the Principal Investigator to prepare and submit the cover-page to the NSF with "smart forms" capability. This function pulls in all individual and institutional information available in the NSF mainframe database thereby minimizing the amount of information that must be typed in.

Benefits to you:

- update your mailing & email address on-line;
- quick routing of your proposal to the correct division and program;
- reduction in the amount of repetitive data preparation and submission for NSF proposals;
- reduction in amount of time needed for institutional approval; and
- insurance that your proposal will utilize the most recent versions of NSF forms;

Benefits to NSF:

- timely and accurate transfer of your proposal data to our corporate database;
- reduction in staff time performing redundant data entry; and
- more rapid review response.

Currently, electronic submission of the cover-page is optional for the unsolicited programs. However, several special programs require this function as part of the announcement of opportunity. Of relevance to ocean sciences community is the upcoming Faculty Early Career Development (CAREER) Program. We encourage you to experiment and utilize this function of *Fastlane*.

It is hoped that the oceanographic community will support OCE in this effort to improved efficiencies within the system. Please contact Mike Reeve, Head of the Ocean Sciences Research Section, with any concerns or comments you may have.

LExEn cont...

engaging in joint activities related to LExEn goals.

For the first year of the LExEn competition, proposals were invited that focused on one or more of the following:

- methods to isolate and culture microbes found in extreme environments,
- methods to study these microbes in their natural habitats,
- technologies for non-contaminating sample recovery,
- sensors capable of probing extreme environments,
- methods to study ancient microbial life and paleoenvironmental conditions on Earth; and
- techniques for studying other planets.

Mike Purdy and other managers at NSF are in the process of developing plans for LExEn in 1998 and beyond. If you have questions or would like further information on OCE participation in LExEn, contact Mike Reeve, (703) 306 1582, mreeve@nsf.gov.

Proposal Target Dates

Ocean Sciences Research Section Unsolicited Proposal target dates: August 15, 1997 & February 15, 1998. Proposals that require the use of UNOLS ships in the following calendar year (1999) must be submitted by February 15, 1998.

OSRS Inter-Agency & Special Initiatives:

JGOFS	June 6, 1997
LTER	June 16, 1997
RIDGE	Aug. 15 & Feb. 15
WOCE	Aug. 15 & Feb. 15
ESH	January 15, 1998
EGB	TBA (~ Jan. 1998)
GLOBEC	TBA (~ Jan. 1998)
ECOHAB	TBA

Oceanographic Centers & Facilities Section:

Oceanographic Instrumentation	Sept. 1
Shipboard Scientific Support Equipment	Sept. 1
Ship Operations	Oct. 1
Technical Services	Oct. 1
Ship Construction/Conversion	contact the program

Ocean Drilling Program: Aug 15, 1997, & Feb 15, 1998.

Ocean Sciences Special Programs: CAREER. Deadline: July 22, 1997 & July 22, 1998. The announcement is available electronically at <http://www.nsf.gov/pubs/1997/nsf9787/nsf9787.txt>. The following special program announcements are available at <http://www.nsf.gov/cgi-bin/pubsys/browser/odbrowse.pl> and have target dates of August 15, 1997 & February 15, 1998: 1.) NSF 94-147, Research Planning Grants (MRPG) & Career Advancement Awards (MCAA) for Minority Scientists & Engineers 2.) NSF 93-130, Research Planning Grants (RPG) & Career Advancement Awards (CAA) for Women Scientists & Engineers 3.) NSF 96-102, REU Program Site Deadline: September 15, 1997 & September 15, 1998.

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 (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 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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