



NSF Delivers Strong Collaborative Funding Message

(The following is the third in a series on the 2006 Post-Katrina/Rita Research and Education Forum "Science Recovery and Discovery: Role of Higher Education in Securing a Sustainable Future," held April 2-4, 2006 in New Orleans. The Forum, which featured national experts, was sponsored by the Board of Regents and Louisiana EPSCoR.)

The National Science Foundation is emphasizing interdisciplinary and transdisciplinary research projects. Conveying this "strong message" to researchers attending the Post-Katrina/Rita Forum, was Dr. James Gosz, NSF EPSCoR Senior Program Manager, who presented many of the current NSF funding opportunities.

Included were two proposed federal programs that would double FY 2007 investments in innovation-enabling science and engineering research at NSF, the Department of Energy and the Department of Commerce: The *American Competitiveness Initiative*, a 10-year, \$50 billion commitment for research funding and \$86 billion for research and development tax incentives; and The *Protecting Americas Competitive Edge Act*, which implements 20 recommendations in the National Academy of Science report, "Rising Above the Gathering Storm."

"Taken together, their goals are to increase federal investment in critical research, ensure that the United States continues to lead the world in opportunity and innovation, and to provide American children with a strong foundation in math and sciences," said Dr. Gosz. NSF funding opportunities reviewed by Dr. Gosz included:

BIOSCIENCES EMERGING FRONTIERS DIVISION

The Biology Directorate's FY 2007 budget for its Emerging Frontiers Division, which supports multidisciplinary research opportunities and networking activities arising from interdisciplinary research advances, includes a request for a 22.7 percent increase.

Budget priority increases are: Frontiers in Integrative Biological Research (FIBR), + \$5 million; Plant Genome Research, +\$2.5 million; and Long-Term Ecological Research, +\$1.2 million. The new Theoretical Biology and Biology and Society programs are budgeted at \$3.6 million and \$500,000, respectively.

Elaborating on FIBR, Dr. Gosz said that a goal is to support research that identifies a major, unanswered or understudied question in biology. It also involves partnering with minority serving and primarily undergraduate institutions and is not limited by conceptual disciplinary or organizational boundaries. FIBR will solicit new proposals in 2008 for projects up to \$5 million over five years.

ECOLOGY OF INFECTIOUS DISEASES

The Ecology of Infectious Diseases is a joint NSF and NIH initiative aimed at controlling the spread of diseases among humans, animals, and crops. Its interdisciplinary projects study how large-scale environmental events alter the risks of viral, parasitic and bacterial diseases emerging in humans and animals.

ENVIRONMENTAL OBSERVING SYSTEMS

The Environmental Observing Systems is a proposed large infrastructure support and tools program for the environmental sciences in various development stages.

The National Ecological Observatory Network "NEON is a continental research platform to advance ecological theory and



NEON's infrastructure will create a virtual laboratory allowing scientists to develop a predictive understanding of the environmental change and biological processes relationship. Photo courtesy of NSF.

provide a fundamental understanding of the earth's life support system," said Dr. Gosz. Noting that it will transform ecological research, he added: "Its overarching question is how changes in human populations and their behavior, climate variation, altered biogeochemical cycles, and biotic structure interact to affect ecosystem structure and function and their services to society."

EarthScope Unprecedented in its scope and interdisciplinary approach to geosciences, EarthScope is an initiative to explore the North American continent's structure and to understand the physical processes controlling earthquakes and volcanoes.

EarthScope, which started in 2003 and was 39 percent complete as of the end of 2005, offers a centralized forum for Earth science education at all levels and an excellent opportunity to develop cyber infrastructure to integrate, distribute, and analyze diverse data sets. Funded by NSF, it is conducted in partnership with the U.S. Geological Survey and NASA.

Collaborative Large-scale Engineering Analysis Network for Environmental Research A networked infrastructure of environmental field facilities, CLEANER will enable the formulation and development of engineering and policy options for the restoration and protection of environmental resources.

CLEANER will encompass four general aspects: 1) a network of environmental field facilities instrumented to acquire and analyze environmental data; 2) a virtual repository of data and information technology for engineering modeling, analysis and visualization of data; 3) a mechanism for multidisciplinary research and education activities to formulate engineering and policy options on protecting, remedying, and restoring stressed environments and sustaining environmental resources; and 4) collaborations among engineers, natural and social scientists, educators, policy makers, industry, non-governmental organizations, the public, and other stakeholders.

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Dynamics of Coupled Natural & Human Systems This topical area focuses on the complex interactions among human and natural systems at diverse scales. Teams of investigators drawn from natural, social, and mathematical sciences, engineering and education examine the dynamics of natural and human systems and the interactions that link them.

WATERS Network

The Consortium of Universities for the Advancement of Hydrologic Science, representing over 100 U.S. universities, is partnering with CLEANER on a proposal for a Water Environmental Research Systems (WATERS) Network through NSF's Major Research Equipment and Facilities Construction account. The proposed program focuses on integrative modeling efforts in the water cycle, hydrologic and watershed sciences.

Referring to the Network as "a bold initiative in NSF's Engineering and Geosciences Directorates," Dr. Gosz said it "is on the horizon." He added that it will transform understanding of the Earth's water and related cycles, enabling forecasting of critical water-related processes that affect and are affected by human activities.

LONG-TERM ECOLOGICAL RESEARCH NETWORK

Originally designed to conduct ecological research at isolated, completely natural sites, NSF's Long-Term Ecological Research Network (LTER) has evolved to recognize ecosystems ranging from "near-pristine" to "constructed." LTER is joining similar networks in South America, Asia and Australia to track long-term global ecological events. Several NSF EPSCoR jurisdictions participate in LTER, including Alaska, Kansas and Puerto Rico.

"There is no reason why South Louisiana wouldn't be attractive for a proposal to the Long-Term Ecological Research Network," said Dr. Gosz. Noting that "we need to understand and include the social sciences in our planning," he added that the Network is preparing for collaborative and integrative science, education and synthesis, a two year planning process. An all scientists meeting that will influence the Network's strategic planning is being held in September. (*For Meeting and registration information, go to <http://www.lternet.edu/asm/2006/>*)

BIOCOMPLEXITY ENVIRONMENT PRIORITY AREA

Its objective is to develop new approaches for investigating complex environmental systems in which the dynamic behavior of biota is linked to the environment's physical and chemical processes. Funded investigations are highly interdisciplinary. The FY 2007 priority areas of interest discussed by Dr. Gosz include:

Louisiana EPSCoR RFPs Released

Two new RFPs have been released by Louisiana EPSCoR: Travel Grants for Emerging Faculty (TGEF) and Links with Industry, Research Centers, and National Labs (LINK). The TGEF program has an open deadline through May 31, 2007 and the LINK program, through June 30, 2007.

For details, please visit our website at www.laregents.org and scroll down to the EPSCoR Announcements section.

Carbon & Water in Earth Systems This geosciences solicitation invites proposals aimed at closing gaps in our understanding of the complex relationships between and within the global water and carbon cycles. In particular, NSF seeks proposals that span traditional interdisciplinary boundaries and cross the interfaces of land, atmosphere and oceans. Dr. Gosz estimated that, pending the availability of funds, some \$32 million will be awarded to 14 to 25 proposals.

Coupled Biogeochemical Cycles This research focuses on intersections of the hydrological and ecological sciences. The geosciences proposals must be highly interdisciplinary and may be submitted by single investigators or by teams. A maximum of \$2 million will be awarded for up to five-years.

NSF-WIDE LEADERSHIP IN SENSORS

NSF is requesting \$20 million to support leading edge, frontier research on sensors and related topics. An NSF-wide, interagency effort led by the Engineering Directorate, the research will advance fundamental knowledge in sensors and other technologies, focusing on the prediction and detection of explosive materials and related threats. According to Dr. Gosz, there will be a need for interdisciplinary research.

The Engineering Directorate's FY 2007 budget includes \$25 million for its Emerging Frontiers in Research & Innovation Divisions in Biology in Engineering, Complexity in Engineered and Natural Systems, Critical Infrastructure Systems, Manufacturing Frontiers, and New Frontiers in Nanotechnology.

Dr. Gosz closed his presentation with another emphasis on collaborations: "My wish for 2006 is that EPSCoR participants will further utilize high-level collaborative partnerships in their strategies for enhanced competitiveness and progressions."

(*For further information on these and other NSF funding opportunities, go to <http://www.nsf.gov/>*)



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