



## *Summary of NSF Accounts*

### **Research and Related Activities**

The Research and Related Activities (R&RA) Account supports activities that enable the U.S. to provide leadership and promote progress across the expanding frontiers of scientific and engineering research and education. These activities support areas of inquiry critical to long-term U.S. economic strength, security, and quality of life. Research activities spur new knowledge, ideas, tools and approaches that open doors to understanding and solving problems and offer increased opportunities for economic growth. Moreover, as students work alongside senior staff performing research activities, there is a natural integration of research and education as students acquire the skills necessary to perform world-class research and become members of the next generation's workforce of scientists and engineers. NSF investments in R&RA reflect the Foundation's three strategic goals: People, Ideas and Tools.

The FY 2003 Request for R&RA totals \$3.78 billion, a \$184.57 million, or 5.1 percent, increase over FY 2002. In FY 2003, support is provided for research and education efforts related to broad, Foundation-wide priority areas in Biocomplexity in the Environment; Information Technology Research; Nanoscale Science and Engineering; Learning for the 21<sup>st</sup> Century Workforce; Mathematical Sciences; and Social, Behavioral and Economic Sciences. NSF will also emphasize increasing the average annualized award size. Within R&RA:

- The **Biological Sciences (BIO)** Activity provides support for research to advance understanding of the underlying principles and mechanisms governing life. Research ranges from the study of the structure and dynamics of biological molecules, such as proteins and nucleic acids, through cells, organs and organisms, to studies of populations and ecosystems. It encompasses both internal and external processes of organisms, and includes temporal frameworks ranging from measurements in real-time through individual life spans, to the full scope of evolutionary time. The biological sciences are undergoing a profound transformation. Recent advances in genomics, informatics, computer science, mathematics, physics, chemistry, engineering, and the Earth and social sciences have spawned the 21<sup>st</sup> Century Biology, which is multidimensional, multidisciplinary, data driven and education-oriented. The FY 2003 Request for BIO totals \$525.62 million, a \$17.21 million, or 3.4 percent, increase over FY 2002. BIO will continue to support fundamental academic research on biodiversity, environmental biology, and plant biology, including providing leadership for the Multinational Coordinated *Arabidopsis* Genome Project.
- The **Computer and Information Science and Engineering (CISE)** Activity supports research on the theory and foundations of computing, system software and computer system design, human-computer interaction, as well as prototyping, testing and development of cutting-edge computing and communications systems to address complex research problems. CISE also provides the advanced computing and networking capabilities needed by academic researchers for cutting-edge research in all science and engineering fields. The FY 2003 request for CISE totals \$526.94 million, a \$12.06

million, or 2.3 percent, increase over FY 2002. This includes \$190.67 million as part of NSF's Information Technology Research priority area.

- The **Engineering** (ENG) Activity seeks to enhance the quality of life and national prosperity by investing in research and education activities that spur new technological innovations and create new products and services and more productive enterprises. ENG also makes critical investments in facilities, networks, and people to assure diversity and quality in the nation's infrastructure for engineering education and research. The FY 2003 Request for ENG totals \$487.98 million, a \$15.66 million, or 3.3 percent, increase over FY 2002. ENG will support research in areas including information technology, nanotechnology, biotechnology, and microelectronics. Funds are included to meet the mandated level for the Foundation-wide Small Business Innovation Research (SBIR) program.
- The **Geosciences** (GEO) Activity supports research in the atmospheric, Earth, and ocean sciences. Basic research in the geosciences advances our scientific knowledge of the Earth and advances our ability to predict natural phenomena of economic and human significance, such as climate change, earthquakes, weather, fish-stock fluctuations, and disruptive events in the solar-terrestrial environment. The FY 2003 Request of \$691.07 million, an \$81.6 million, or 13.4 percent, increase over FY 2002, will support the operation and enhancement of national user facilities as well as fundamental research across the geosciences, including emphases on the U.S. Weather Research Program and National Space Weather Program; the U.S. Global Change Research Program; the Biocomplexity in the Environment priority area, and research on the key physical, chemical and geologic cycles within the Earth System. Approximately \$74.0 million of the increase is attributable to programs proposed to be transferred from other agencies: EPA, NOAA, and USGS.
- The **Mathematical and Physical Sciences** (MPS) Activity supports research and education in astronomical sciences, chemistry, materials research, mathematical sciences and physics. Major equipment and instrumentation such as telescopes, particle accelerators, synchrotron light sources and neutron facilities are provided to support the needs of individual investigators. The FY 2003 Request of \$941.57 million, a \$21.12 million, or 2.3 percent increase over FY 2002, will support fundamental research, state-of-the-art instrumentation, facilities, groups and centers, and the education and training of the future workforce, including bringing scientific discovery to the public. Support will also be provided for the Mathematical Sciences priority area. Progress in science and engineering is fundamentally linked with advances across the mathematical sciences; investments in the Mathematical Sciences priority area focuses on interdisciplinary efforts between mathematics and all areas of science, engineering and science education.
- The **Social, Behavioral and Economic Sciences** (SBE) Activity supports research to build fundamental scientific knowledge about human behavior, interaction, and social and economic systems, organizations and institutions. SBE also facilitates NSF's international activities by promoting partnerships between U.S. and foreign researchers, enhancing access to critical research conducted outside the U.S. and increasing knowledge of mutually beneficial research opportunities abroad. To improve understanding of the science and engineering enterprise, SBE supports science resources studies which are the nation's primary source of data on the science and engineering enterprise. In FY 2003, SBE's Request of \$195.61 million, a 15.9 percent increase from FY 2002, includes funding for initiation of a new SBE Priority Area. This investment aims to lift the social, behavioral and economic sciences to a new dimension by supporting basic research that is primed for major advances because of new research tools or new data. Support will also be provided for research on the processes through which technology and society advance through continual

interactions. As part of the Climate Change Research Initiative, support will be provided for research on decision-making under uncertainty.

- **Polar Programs**, which includes the U.S. Polar Research Programs and U.S. Antarctic Logistical Support Activities, supports multidisciplinary research in Arctic and Antarctic regions. These geographic frontiers – premier natural laboratories – are the areas predicted to be first affected by global change. They are vital to understanding past, present, and future responses of Earth systems to natural and man-made changes. Polar Programs support provides unique research opportunities ranging from studies of the Earth, ice and oceans to research in atmospheric sciences and astronomy. In FY 2003, Polar Programs is proposed at \$303.81 million, a \$6.0 million, or 2.0 percent increase over FY 2002. FY 2003 priorities include support for interdisciplinary studies of Arctic environmental changes; preliminary investigation of Antarctic subglacial lakes; and polar genomics. Support is also provided to sustain the science facilities and operations that make Arctic and Antarctic research possible, with FY 2003 emphases including expanded access to Arctic oceans using the U.S. Coast Guard Cutter *Healy* and improvements in Antarctic communications capabilities and bandwidth.
- **Integrative Activities (IA)** supports emerging cross-disciplinary research and education efforts and major research instrumentation, and provides support for the Science and Technology Policy Institute (STPI). The FY 2003 Request of \$110.61 million for IA, a \$4.10 million, or 3.8 percent, increase over FY 2002, includes \$54.0 million for Major Research Instrumentation, \$26.61 million in support of Science and Technology Centers, \$20.0 million for Science of Learning Centers, \$5.0 million for Partnerships for Innovation, \$4.0 million for STPI, and \$1.0 million for Disaster Response Research Teams.

## Education and Human Resources

The FY 2003 Request for Education and Human Resources (EHR) is \$908.08 million, a \$33.08 million, or 3.8 percent, increase over FY 2002. In addition, \$92.5 million is projected in FY 2003 from H-1B Nonimmigrant Petitioner Receipts for scholarships and K-12 education activities. In FY 2003, NSF's highest priorities in the Education and Human Resources (EHR) Activity are increases in funding for the Math and Science Partnership (MSP), graduate student support, and the Centers for Learning and Teaching (CLT). MSP addresses critical concerns of the Administration and the Congress that math and science learning and teaching must be improved for all preK-12 students in the U.S. Graduate stipends are no longer considered to be attractive by many students because they are viewed as inadequate to compensate for the cost of education and mounting student debt, and to offset opportunities for higher salaries offered by employers to STEM baccalaureate degree holders. CLT is designed to meet major national needs to strengthen the human infrastructure for science, technology and math education, to increase the number of well-qualified K-16 educators, and to provide research opportunities in science and math education and education reform.

## Major Research Equipment and Facilities Construction

The FY 2003 Request for Major Research Equipment and Facilities Construction (MREFC) is \$126.28 million, a decrease of \$12.52 million, or 9.0 percent from FY 2002. The MREFC Account supports the acquisition, construction and commissioning of major research facilities and equipment that provide unique capabilities at the frontiers of science and engineering. Projects supported by this account are intended to extend the boundaries of technology and open new avenues for discovery for the science and

engineering community. Early planning, research and development costs, and operations, management and maintenance costs of the facilities are provided through R&RA.

In FY 2003, funding for seven projects is requested through the MREFC Account. Five projects initiated in FY 2002 and prior years include: construction of the Atacama Large Millimeter Array (ALMA), the Large Hadron Collider (LHC), the Network for Earthquake Engineering Simulation (NEES), the South Pole Station Modernization Project (SPSM), and Terascale Computing Systems. Two new projects are proposed: EarthScope and the National Ecological Observatory Network (NEON) Phase I.

### **Salaries and Expenses**

The FY 2003 Request for Salaries and Expenses (S&E) is \$210.16 million, a \$33.76 million, or 19.1 percent, increase over FY 2002. The Salaries and Expenses Appropriation provides funds for staff salaries and benefits, and general operating expenses necessary to manage and administer the NSF. The requested level supports 1,217 full-time equivalents (FTE), an increase of 67 FTE, and will support a focused set of investments that foster NSF's continuing commitment to customer service.

### **Office of Inspector General**

The Office of Inspector General (OIG) was established to promote economy, efficiency, and effectiveness in administering the Foundation's programs; to detect and prevent fraud, waste, or abuse within NSF or by individuals that request or receive NSF funding; and to identify and resolve cases of misconduct in science. The FY 2003 Request for OIG is \$8.06 million, a \$1.02 million, or 14.5 percent, increase over FY 2002. The requested level supports 53 FTE.