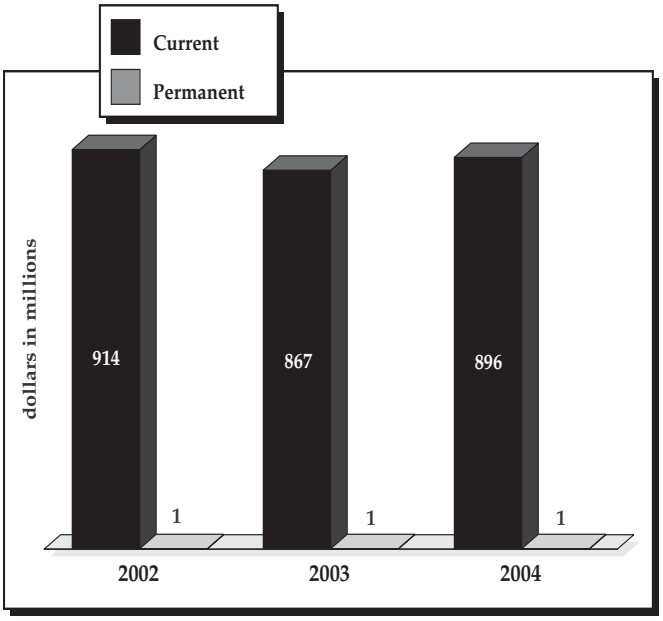
# U.S. GEOLOGICAL SURVEY

**Mission** – The mission of the U.S. Geological Survey is to provide reliable scientific information to: describe and understand the Earth; minimize loss of life and property from natural disasters; assist others in managing water, biological, and mineral resources; and enhance and protect quality of life.

**Program Overview** – The USGS provides a broad range of national expertise in mapping, geology, hydrology, and biology. The USGS places a special emphasis on providing science to the land and resource management bureaus of the Department of the Interior. The USGS hazards programs produce information and understanding that reduce the impact of natural hazards and disasters on human life and the economy. The USGS information on the availability and extraction of mineral, oil, gas, and alternative energy resources is a primary Federal source of objective resource assessments and unbiased research on mineral, oil, gas, and alternative energy potential, production, consumption, and environmental effects. These investigations enable the Nation to make sound decisions regarding significant increases in domestic energy production with an understanding of potential impacts on the environment. The USGS analyses of the availability and quality of water resources help to develop, regulate, and monitor management practices to ensure the continued availability of water resources for human consumption, agriculture, business, recreation, and environmental stability. The USGS biological studies assist in maintaining healthy ecosystems and natural resources so that these habitats can continue to provide food, energy, medicine, transportation, and recreation. The USGS mapping program is expanding its partnerships with Federal agencies and State and local governments to develop and promote use of the geographic data and mapping products that are essential for economic and community development, land and natural resource management, and health and safety services.

To deliver the most accurate, timely, and impartial science possible, USGS is seeking ways to integrate its diverse programs, capabilities, and talents to address those issues that require a multidisciplinary solution. The USGS also places great value on partnerships and is increasing customer involvement to work collaboratively on issue identification, resource needs, and science solutions. The USGS information about natural and biological science supports informed decisionmaking by land and resource managers at Federal, State, and local levels; by government program managers; by industrial and agricultural corporations; by scientists and academia; and by the American public.

## USGS Funding




**Management Excellence** – The USGS continues to follow the President's management agenda for improving management and performance of the Federal government, practicing the Secretary's vision for citizen-centered management excellence. This budget proposal supports the Department's new unified strategic plan, specifically in relation to informed decisions through the application of science and to advance knowledge through scientific leadership. The proposal assists in sustaining biological communities on lands managed or influenced by Interior, and improving the health of watersheds, landscapes, and marine resources through research into areas such as chronic wasting disease and invasive species. Base en-

ergy and minerals programs will continue to generate information to help manage and influence resource use to enhance public benefit and promote responsible use. The USGS hazards program will continue to generate information and assistance to protect lives and property.

The USGS is committed to budget and performance integration. The USGS has consolidated the planning, evaluation, and budget staffs within one office. In 2003, USGS made a major system commitment to ensure planning and budget integration through the implementation of the Budget and Science Information System – Plus. This project management system is interfaced with the financial system and is used by planning, budget, and program staffs to manage programs and funding appropriately and uniformly at local, regional, and national levels. The USGS has committed to studying 327 positions for competitive sourcing between 2002 and 2004.

**Budget Overview** – The 2004 USGS budget request is $895.5 million in current appropriations, an increase of $28.2 million over the 2003 request. Funding increases will allow USGS to enhance and continue partnership opportunities with States in science areas such as chronic wasting disease, invasive species, mapping, water resources investigations, and science for Interior bureaus. These increases are partially offset by a completion of projects and reprioritization of USGS science during 2004.

Partnerships are a crucial part of USGS science. The USGS works in close cooperation with more then 2,000 Federal, State, tribal, and local governmental agencies, private sector companies, and non-profit organizations across the country. Partnerships provide highly effective means for leveraging resources among many contributors and for bringing a greater wealth of knowledge, expertise, and capability to bear on important land and resource management issues. The majority of USGS programs receiving increases in the 2004 President's budget are partnership oriented.

**Science for Interior Bureaus** – The 2004 President's budget request continues the Administration's commitment to strengthen science support to land and resource management bureaus by proposing a $3.0 million increase for science on the Interior landscape. This program will provide dedicated funds for enhanced earth and biological sciences support to meet regional priorities designated by the Interior Department's bureaus, with an emphasis on cost-sharing and other partnership opportunities to leverage funds. Priority needs have been identified through consultations with theInterior bureaus. Criteria for funding will be based on the identified needs of the bureaus, funding availability, and partnership opportunities.

The budget continues a $4.0 million proposal for the Everglades critical ecosystem science initiative so USGS can continue to provide the long-term science, analysis, monitoring, modeling, and decision support systems needed for adaptive management and implementation of the Comprehensive Everglades Restoration Plan. Total USGS Everglades-related funding is $12.6 million.

**Mapping** – The 2004 budget supports the transition of the National Mapping program toward leadership in geospatial data standards, data consistency, data integration, and partnerships for data collection, maintenance, and dissemination. The budget proposes an increase of $3.8 million for America View partnerships and urban dynamics studies. America View was a successful pilot project that increased the ability of a State-user community to quickly access and apply geographical data. This initiative currently includes USGS and an 11-State consortium. The urban dynamics program conducts studies to document and analyze data to understand and forecast urban land transformations to better predict future resource challenges before they occur.

Program increases are offset by an $8.6 million reduction. A combined program and management review has found that the concentrated efforts of the Center for Integration of Natural Disaster Information are not required and that CINDI's functions could be carried out in other parts of USGS, bringing about a $1.4 million savings. Additionally, $2.8 million in lower-priority mapping research is ending in order to address higher priority needs within the Survey. Finally, $4.4 million of the reduction is associated with transition from actual data collection of geographical information associated with the National Map. The Administration's review of the effectiveness of the Mapping program with its Program Assessment Rating Tool, found that the program was not optimally designed. The USGS is currently working to address these concerns through program evaluation, workforce planning, and modification of business practices. The role of the USGS Mapping program will be more focused on the development of data and software standards that enable partnerships among Federal, State, and local government agencies to collect and maintain geospatial data.

**Geology** – The USGS produces objective and reliable earth science information on geologic hazards, resources, and processes in an efficient manner that does not compete with the roles and responsibilities of universities and the private sector. The USGS provides a unique source of multi-purpose geologic maps depicting the Nation's sediment and rocks, which are vital to the exploration and development of mineral, energy, and water resources. The 2004 President's budget provides a $5.8 million increase for high priority science that supports

decisionmaking. This includes $500,000 to continue three-dimensional mapping of the glacial material that characterizes the surface deposits and shallow aquifers of the central Great Lakes Region. An increase of $4.5 million is provided for the National Cooperative Geologic Mapping program to continue geologic mapping that depict the distribution of the Nation's sediment, rocks, resources. To continue efforts in cooperation with the University of New Orleans to better understand the natural subsidence and how it contributes to storm vulnerability and wetland loss in the Louisiana coastal areas, $500,000 is provided. Finally, the budget provides $300,000 for the additional acquisition of interferometric synthetic aperture radar satellite data to allow additional monitoring of earthquake, volcanic, and flood activity at volcanically and seismically active sites on a more regular basis.

The budget includes an $11.0 million reduction in lower priority efforts, $9.1 million of which is for minerals research and assessments. The overall reduction also includes $1.9 million for the Advanced National Seismic System. The USGS will fix identified system weaknesses in the areas of information technology management and security in 2004 before requesting funding for new investments in ANSS. Finally, through base funding, USGS will work collaboratively with the Minerals Management Service to provide the scientific information that is an important component to the President's vision for improved energy security by focusing research on emerging energy sources, specifically methane hydrates.

**Water Resources** – The 2004 budget proposes $200.1 million to continue the water resources work performed by USGS. This includes a $6.3 million increase to continue the long-term, nationwide studies on the quality of streams, ground water, and aquatic ecosystems through the National Water-Quality Assessment program. The Toxic Substances Hydrology program receives $11.0 million under the proposed budget to provide scientific information and tools that explain the occurrence, behavior, and effects of toxic substances in the Nation's hydrologic environments. A $2.1 million increase is proposed for the National Streamflow Information program to continue to operate and maintain approximately 7,000 streamgages nationwide that provide long-term, accurate, and unbiased information that meet the needs of many diverse users. Finally, a $1.8 million increase is proposed for the National Water Information System to assure the collection, long-term storage, and near-real-time delivery of water information by making the NWIS interface more effective for a wider range of users.

**Biological Research** – Finding solutions and assisting in the mitigation of biological resource problems facing Federal agencies, as well as State, local, and tribal governments, is a high priority of the Administration. The 2004 budget requests a $4.6 million increase for invasive species, chronic wasting disease, and amphibian research. To meet the goals of the National Invasive Species Management Plan, USGS, through a partnership consortium, provides management-oriented research and delivers information needed to prevent, detect, control, and eradicate invasive species and to restore impaired ecosystems. The 2004 request for invasives includes an increase of $3.0 million for research related to ballast water, and the control and management of tamarisk and nutria. The USGS, along with the Fish and Wildlife Service, National Park Service, U.S. Department of Agriculture, and other Federal agencies, is partnering with States to provide critical research and information dissemination regarding chronic wasting disease. An increase of $1.0 million is requested in 2004 for USGS to study disease pathways of chronic wasting disease and $500,000 is requested for research into amphibian declines and malformations that have been occurring in recent years.

**Information Dissemination** – The USGS recognizes the importance of communicating science results. Results need to be shared and made available in a comprehensible manner for use by decisionmakers and other stakeholders. To assist in this effort, $2.2 million is requested in 2004 for the enhancement and development of nodes in the National Biological Information Infrastructure. This increase includes $1.0 million for strengthening the California information node and initiating a mid-Atlantic node, $250,000 to increase the amount of chronic wasting disease information on the wildlife disease - human health node, and $1.0 million to increase invasive species information on the NBII. The budget also includes $1.5 million for the development of a Geospatial One-Stop grant program to support the involvement of State, local, and tribal governments, as well as private industry and academia in the design, development, and implementation of Geospatial One-Stop.

**Science Support** – The 2004 USGS budget includes $1.5 million for development of an enterprise geographic information system. This initiative is in direct support of the President's management goal of expanding electronic government to make it easier for the public to access and use the USGS vast spatial data holdings and other Interior bureau data. The budget also includes an increase of $4.0 million to complete the conversion of existing radio equipment from wideband to narrowband to meet the statutory December 2004 deadline.

**Administrative Initiatives and Uncontrollable Costs** – The 2004 budget request provides $11.7 million to cover a portion of the 2004 uncontrollable costs. The Interior Department is undertaking significant information tech-

nology reforms to improve the management of IT investments, to improve the security of systems and information, and to realize short- and long-term efficiencies and savings. The Interior Department's corporate approach includes consolidated purchases of hardware and software; consolidation of support functions including help desks, e-mail support, and web services; and coordination of training. The USGS budget request includes a reduction of $10.4 million in 2004 to reflect these management reforms.

## SUMMARY OF BUREAU APPROPRIATIONS
**(all dollar amounts in thousands)**

***Comparison of 2004 Request with 2003 President's Budget:***

| | 2003 Budget | | 2004 Request | | Change from 2003 | |
|---|---|---|---|---|---|---|
| | FTE | Amount | FTE | Amount | FTE | Amount |
| Appropriations | | | | | | |
| Surveys, Investigations, & Research | 6,736 | 867,338 | 6,756 | 895,505 | 20 | +28,167 |
| Permanents, Trust Funds, & Others | | | | | | |
| Operations & Maintenance of Quarters | 0 | 50 | 0 | 48 | 0 | -2 |
| Contributed Funds | 0 | 738 | 0 | 737 | 0 | -1 |
| Working Capital Fund | 229 | 0 | 229 | 0 | 0 | 0 |
| Subtotal, Permanents, Trust Funds, & Others | 229 | 788 | 229 | 785 | 0 | -3 |
| Transfers & Reimbursables | 2,432 | 0 | 2,432 | 0 | 0 | 0 |
| **TOTAL, U. S. GEOLOGICAL SURVEY** | **9,397** | **868,126** | **9,417** | **896,290** | **20** | **+28,164** |

**APPROPRIATION: Surveys, Investigations, and Research**

| | 2002 Actual | 2003 Budget | 2004 Request | Change from 2003 Budget |
|---|---|---|---|---|
| Mapping, Remote Sensing, & Geographic Investigations | | | | |
| Cooperative Topographic Mapping .. | 80,983 | 80,940 | 74,108 | -6,832 |
| Land Remote Sensing ..... | 35,809 | 32,828 | 34,039 | +1,211 |
| Geographic Analysis/Monitoring ..... | 16,338 | 15,526 | 12,335 | -3,191 |
| Subtotal, Mapping ..... | 133,130 | 129,294 | 120,482 | -8,812 |
| Geologic Hazards, Resource, & Processes | | | | |
| Geologic Hazards Assessments ..... | 74,932 | 73,971 | 72,776 | -1,195 |
| Geologic Landscape/Coastal Assess . | 77,887 | 73,217 | 79,430 | +6,213 |
| Geologic Resource Assessments ..... | 79,732 | 77,468 | 69,369 | -8,099 |
| Subtotal, Geologic Hazards ..... | 232,551 | 224,656 | 221,575 | -3,081 |
| Water Resources Investigations | | | | |
| Hydrologic Monitor., Assess, & Rsch | 136,106 | 113,489 | 135,560 | +22,071 |
| Cooperative Water Program ..... | 64,318 | 64,339 | 64,536 | +197 |
| Water Resources Rsch Act Program ... | 6,000 | 0 | 0 | 0 |
| Subtotal, Water Resources ..... | 206,424 | 177,828 | 200,096 | +22,268 |
| Biological Research | | | | |
| Biological Research/Monitoring ..... | 133,354 | 127,619 | 134,036 | +6,417 |
| Biological Info Mgmt/Delivery ..... | 18,896 | 18,893 | 20,700 | +1,807 |
| Cooperative Research Units ..... | 13,954 | 13,969 | 14,139 | +170 |
| Subtotal, Biological Research ..... | 166,204 | 160,481 | 168,875 | +8,394 |
| Science Support ..... | 86,159 | 86,104 | 91,529 | +5,425 |
| Facilities ..... | 89,445 | 88,975 | 92,948 | +3,973 |
| TOTAL APPROPRIATION ..... | 913,913 | 867,338 | 895,505 | +28,167 |

***Highlights of Budget Changes***

| | Amount |
|---|---|
| Uncontrollable Cost Net Increase (non-add) | [+19,412] |

Mapping, Remote Sensing, and Geographic Investigations

Cooperative Topographic Mapping -6,832

The budget proposes an increase (+$1,500) for the development of a grant program to support the involvement of non-Federal entities in the design, development and implementation of Geospatial One-Stop. The proposed decrease (-$4,444) reduces funding for data collection associated with the National Map as the Survey is moving away from actual data collection. The budget includes a reduction of $4,715 in information technology investments, to reflect reduced data acquisition activities as well as streamlining and management improvements in this area. Uncontrollable cost increases total $1,610, of which $827 are budgeted and $783 are absorbed.

Land Remote Sensing +1,211

The proposed increase (+$3,000) funds public access to remotely sensed data through the America View consortium. The budget includes a reduction of -$1,925 in information technology investments, to reflect streamlining and management improvements in this area. Uncontrollable cost increases total $264, of which $136 are budgeted and $128 are absorbed.

| | Amount |
|---|---|
| Geographic Analysis and Monitoring | -3,191 |
| The proposed increase (+$809) provides funding to provide better understanding and forecast urban land transformations. This is offset by a proposed reduction (-$1,400) to move functions from the Center to Integrate Natural Disaster Information to other areas within USGS and to end lower priority mapping research (-$2,770) in order to fund higher priorities elsewhere within the Survey. Uncontrollable costs total $331, of which $170 are budgeted and $161 are absorbed. | |
| Geologic Hazards, Resources and Processes | |
| Geologic Hazard Assessments | -1,195 |
| The budget proposes an increase (+$300) to the Volcano Hazards program that will allow additional acquisition of interferometric synthetic aperture radar data to be used to provide essential ground-based monitoring for volcanoes and earthquakes and limited InSAR research and development. A decrease (-$1,900) is also proposed for the Advanced National Seismic System, due to IT management and security issues. The budget includes a reduction of -$190 in information technology investments to reflect streamlining savings and management improvements in this area. Uncontrollable costs total $1,195, of which $595 are budgeted and $600 are absorbed. | |
| Geologic Landscape and Coastal Assessments | +6,213 |
| The proposed increase to the Earth Surface Dynamics program includes the following: restoration of funding to the Central Great Lakes Geologic Mapping Coalition (+$500) and support for the science on the Interior landscape initiative to meet regional priorities designated by the Interior bureaus, such as ecosystem sustainability studies in the Great Basin, energy resource and predictive landscape changes in Alaska, and restoration ecology for selected landscapes in the Central Region (+$250). The proposed increase (+$4,500) to the National Cooperative Geologic Mapping program restores funding to continue its STATEMAP, EDMAP, and FEDMAP efforts. The proposed increase to the Coastal and Marine Geology program includes the following: additional funding to expand Louisiana subsidence studies (+$500) and support for the science on the Interior landscape initiative to meet regional priorities designated by the Interior bureaus, such as impacts of sea-level rise on coastal habitats and impacts of altered freshwater flow on bays in the Eastern Region (+$200). The budget includes a reduction of -$397 in information technology investments specifically to reflect streamlining and management improvements in this area. Uncontrollable costs total $1,331, of which $660 are budgeted and $671 are absorbed. | |
| Geologic Resource Assessments | -8,099 |
| The proposed decrease (-$9,122) to the Mineral Resources program will discontinue funding for lower priority assessments of industrial minerals and aggregates. The proposed increase to the Energy Resources program (+$500) will support the science on the Interior landscape initiative to meet regional priorities designated by the Interior bureaus, such as energy development-related physical and biological issues on the North Slope, AK, and effects of coalbed methane production on public lands in the Rocky Mountains. The budget includes a reduction of -$363 in information technology investments to reflect streamlining and management improvements in this area. Uncontrollable costs total $1,779, of which $886 are budgeted and $893 are absorbed. | |
| Water Resources Investigations | |
| Hydrologic Monitoring, Assessments & Research | +22,071 |
| The budget proposes an increase for the National Water-Quality Assessment program (+$6,310) to continue all 42 study units. An increase is also proposed for Toxic Substances Hydrology program (+$11,000) to assess the primacy of the studies within the program and to continue funding higher priority studies while brining lower priority studies to a close. The increase proposed for the National Streamflow Information program (+$2,098) will enable USGS to maintain streamgaging operations at the 2002 level. An increase is also proposed to ensure continued support for the National Water Information System (+$1,800). The proposed increase for science on the Interior landscape includes increases for the Ground-Water Resources program (+$100) and Hydrologic Networks Analysis (+$650). These increases will allow USGS to meet regional priorities designated by the Interior bureaus, such as assessments of ground-water resources in the Central Region for land management decisions on sustainability and ecosystem health and studies of groundwater and hydrologic networks to expand understanding of arctic hydrology on the North Slope, AK. Other priorities include instream flow methods for | |

| | Amount |
|---|---|
| aquatic systems in the arid west, hydrologic processes related to ecsosystem sustainability in the Great Basin, and restoration ecology and coalbed methane production in the Central Region. A technical adjustment of -$300 is proposed to move funding for vessel operations from Hydrologic Monitoring, Assessments, and Research to Facilities. The budget includes a reduction of $1,070 in information technology investments to reflect streamlining and management improvements in this area. Uncontrollable cost increases for this subactivity total $2,798, of which $1,483 will be budgeted and $1,315 will be absorbed through reductions in other program activities. | |
| Cooperative Water Program | +197 |
| The budget includes a reduction of $510 in information technology investments to reflect streamlining and management improvements in this area. Uncontrollable cost increases for this subactivity total $1,335, of which $707 will be budgeted and $628 will be absorbed through reductions in other program activities. | |
| Biological Research | |
| Biological Research & Monitoring | +6,417 |
| Proposed increases include +$500 to continue efforts to expand amphibian research and monitoring on various potential causes of amphibian declines and deformities; +$1,000 for chronic wasting disease research, building on a multi-year comprehensive research effort that prioritizes the urgent needs of State and Federal managers in their efforts to control the disease and minimize its impacts; +$3,050 for invasive species research related to control and eradication of nutria, control and management of tamarisk, and ballast water research. The budget proposes +$1,300 to provide support for the Science on the Interior Landscape Initiative to meet regional priorities designated by the Interior bureaus, such as the effects of urban dynamics on the health and sustainability of natural ecosystems within public lands in the Eastern Region, effects and controls of invasive species in riparian and aquatic habitats and other restoration ecology activities in the Central Region, and interaction of wildfire and plant communities in the Great Basin and effects of species invasions on ecosystem functions in Hawaii. A technical adjustment of -$600 is proposed to move funding for vessel operations from Biological Research and Monitoring to Facilities. The budget also includes a reduction of $100 for information technology investments to reflect streamlining and management improvements in this area. Uncontrollable costs total $2,495, of which $1,267 are budgeted and $1,228 are absorbed. | |
| Biological Information Management & Delivery | +1,807 |
| Proposed increases include +$1,000 for the National Biologic Information Infrastructure to strengthen the resources of the existing NBII California information node and to initiate a mid-Atlantic information node; +$250 to increase the amount of geospatial information on chronic wasting disease available on the NBII wildlife disease - human health node; and +$1,000 to begin developing a prototype model for a national early detection network for invasive species in U.S. terrestrial and aquatic ecosystems. The budget also includes a reduction of $550 for information technology investments to reflect streamlining and management improvements in this area. Uncontrollable costs total $214, of which $107 are budgeted and $107 are absorbed. | |
| Science Support | +5,425 |
| The proposed change provides an increase (+$3,990) to replace existing wideband radios with digital narrowband land mobile radios and a reduction (-$1,200) for accessible data transfer. The budget also includes an increase of $1,380 for IT Security. Uncontrollable costs total $2,610, of which $1,605 are budgeted and $1,005 are absorbed. This subactivity also includes a decrease of $350 in information technology investments, specifically to reflect streamlining and management improvements in this area. | |
| Facilities | +3,973 |
| The budget proposes an increase (+$900) provided through a technical adjustment transferring associated funding and expenses for the operation and maintenance of large vessels to the Facilities Budget Activity. Uncontrollable cost total $3,116, of which $3,073 are budgeted and $43 are absorbed. | |