

Innovation in Earth Science

FY 2014 President's Proposed Budget

Total request is \$20,201,000 (+\$18,000,000 above FY 2012 enacted level)

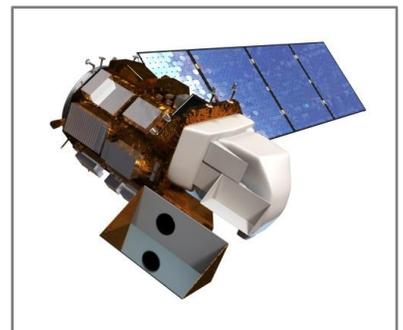
The Federal Government invests several billion dollars annually to collect information about the Earth from satellite, airborne, terrestrial, and ocean-based systems. These Earth observations are essential to describing and understanding Earth systems and to enhancing and protecting our quality of life. These data are fundamental to decisionmaking, scientific discovery, and technological innovation.

The proposed budget increase in 2014 would support two programs under the Core Science Systems Mission Area: (1) Earth and Environment Observation Innovation and Applications and (2) the 3D Elevation Program.

Earth and Environmental Observations Innovation and Applications — Interior's contribution to the President's Big Data Research and Development Initiative

In 2012, the President announced a \$200 million Big Data R&D Initiative, and Earth observations are an important source of such data. The USGS John Wesley Powell Center for Analysis and Synthesis will contribute to an effort to standardize data from Federal Earth observations systems and improve data management. The U.S. Group on Earth Observation (USGEO) Subcommittee of the National Science and Technology Council (NSTC), led by the Office of Science and Technology Policy (OSTP), will provide interagency coordination for the initiative; the USGS will lead the Department of the Interior's contribution. The initiative is an Administration priority, and USGS data sets are widely recognized by both scientists and resource managers as essential components.

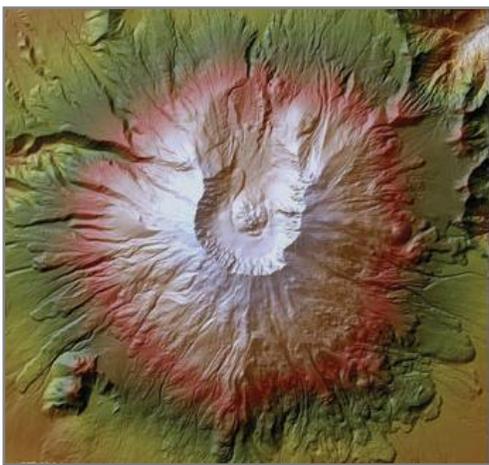
The proposed increase would allow development of a Department-wide framework for managing and curating Earth observations. The framework would (1) maximize the availability and timeliness of the data; (2) broaden the potential uses of observations and data through the use of open, machine readable formats and Application Programming Interfaces (APIs); and (3) increase interoperability by encouraging the development and use of uniform tools and practices across Federal agencies. Funding would be focused on high-value data sets, particularly those derived from observing systems and surveys most highly ranked by Interior stakeholders, such as seamless map database and web service for the Nation's coastal areas that is easy to access and apply. Funding for this initiative would dramatically advance this work and provide society with improved information to respond to coastal storms and sea level rise.



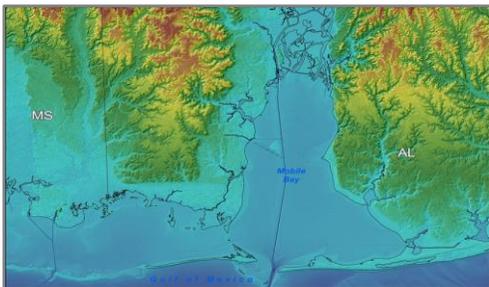
In coordination with the OSTP, the USGS would work with Interior bureaus, other Federal agencies, Tribes, and States to develop a cohesive strategy for government-wide interoperability improvements. For example, investments under this initiative would enable access to and integration of data from State Wildlife Management Plans, the U.S. Fish and Wildlife Service Wetland Inventory, and USGS habitat and water-quality databases to inform management strategies to restore the Gulf Coast Ecosystem.

Within the USGS, efforts would focus on expanding scientific discoverability, access to, and integration of critical Earth observations across the USGS. Significant data sets would be identified, prioritized, and made available using web services and standards. Results would include expanded, sustainable delivery of high-value scientific monitoring. For example, water use information is now managed by many entities across the country. The USGS is working to develop standards for water-use databases to ensure the States have consistent, standardized information available to manage an increasingly scarce resource. Funding from this initiative would provide an infusion of resources to rapidly advance this effort.

3D Elevation Program (3DEP) — Enhanced Elevation for the Nation



In 2012, the USGS and partners identified 602 mission-critical activities across government that would benefit from enhanced elevation data. A separate study sponsored by the OSTP, the National Earth Observations Strategy, identified enhanced elevation data as one of the Nation's top ten needed data sets. The USGS worked with partners to design an optimal program to meet those needs. The current approach, in which multiple agencies and States acquire data as needed and as funding partnerships allow, addresses only 10 percent of the needs identified and will not lead to national data coverage. Through the 3DEP initiative, more economical project design and economies of scale would reduce the unit costs of data acquisition by 25 percent.



The 3DEP initiative would systematically collect enhanced elevation data using Light Detection and Ranging (LiDAR) and other technologies over the United States, through contracts with the private sector. If funded appropriately, this initiative would yield national coverage in eight years. The National Geospatial Advisory Committee, the National States Geographic Information Council, and the Management Association for Private Photogrammetric Surveyors have endorsed the 3DEP plan.

In the initial phase, data acquisition will focus on coastal areas. Accurate, precise, and up-to-date elevation data are the foundation for efforts to quantify current and future coastal vulnerability to storms, flooding, tsunamis, and climate-driven change. The proposed activity would advance 3DEP objectives through collection of bathymetric and topographic “near shoreline” elevation data, and integration of elevation data from other sources, to provide seamless elevation coverage across coastal settings. The USGS would coordinate data collection with NOAA and other agencies. Resources would focus on addressing priority data gaps and newly arising needs identified by regional ocean alliances and coastal-zone resource and emergency management agencies.

To learn more, visit the USGS Office of Budget, Planning and Integration website: www.usgs.gov/budget