FY 2017 USGS Budget Request

Protecting life, health, and property by delivering Natural Hazards Science

The FY 2017 Budget Request for Natural Hazards is $149,701,000, a net change of +$10,688,000 from the 2016 Enacted level.

USGS science reduces the impacts of natural hazards and improves our nation's safety, resilience and quality of life.

Dollars in Thousands	2015	2016	2017			
	Base	Enacted	Fixed Costs	Program Changes	Request	Change from 2016 Enacted
Natural Hazards	**$135,186**	**$139,013**	**$519**	**$10,169**	**$149,701**	**$10,688**
Earthquake Hazards Program	**$59,503**	**$60,503**	**$193**	**$1,500**	**$62,196**	**$1,693**
Unconventional Oil and Gas Research - Induced Seismicity Earthquake Risk Assessments	*[$2,500]*	*[$2,500]*		*[+$700]*	*[$3,200]*	*[+$700]*
Central/Eastern U.S. Seismic Network Adoption	*[$0]*	*[$0]*		*[+$800]*	*[$800]*	*[+$800]*
Volcano Hazards Program	**$25,121**	**$26,121**	**$117**	**$0**	**$26,238**	**$117**
Landslide Hazards Program	**$3,485**	**$3,538**	**$16**	**$500**	**$4,054**	**$516**
Natural Hazard Science for Disaster Response: Landslide Response	*[$1,100]*	*[$1,100]*		*[+$500]*	*[$1,600]*	*[+$500]*
Global Seismographic Network	**$4,853**	**$6,453**	**$9**	**$860**	**$7,322**	**$869**
GSN Primary Sensor Deployment	*[$0]*	*[$1,600]*		*[+$860]*	*[$2,460]*	*[+$860]*
Geomagnetism Program	**$1,888**	**$1,888**	**$10**	**$1,700**	**$3,598**	**$1,710**
Improved Geomagnetic Monitoring	*[$0]*	*[$0]*		*[+$1,700]*	*[$1,700]*	*[+$1,700]*
Coastal and Marine Geology Program	**$40,336**	**$40,510**	**$174**	**$5,609**	**$46,293**	**$5,783**
Scenarios for Arctic Actions to Address Imminent Coastal Impacts	*[$1,425]*	*[$1,425]*		*[+$3,500]*	*[$4,925]*	*[+$3,500]*
Building Landscape-Level Resilience to Coastal Hazards	*[$4,126]*	*[$4,126]*		*[+$2,109]*	*[$6,235]*	*[+$2,109]*

The USGS provides scientific information to emergency responders, policy makers, and the public to reduce losses from a wide range of natural hazards, including earthquakes, floods, hurricanes, landslides, magnetic storms, tsunamis, volcanic eruptions, and wildfires. Working with its partners, cooperators, and customers, the USGS delivers actionable assessments of these hazards and helps to develop effective strategies for achieving more-resilient communities. The USGS is the Federal agency responsible for monitoring and notification of earthquakes, volcanic activity, and landslides in the United States. For many other hazards, the USGS directly supports the warning responsibility of the National Oceanic and Atmospheric Administration. The Natural Hazards Mission Area also is the primary source of support for USGS activities that characterize and assess coastal and marine processes, conditions, change and vulnerability.

Highlights of the 2017 President's Budget for Natural Hazards include:

Earthquake Early Warning (EEW) System – The 2017 Request funds EEW at $8.2 million. This amount sustains the 2016 Enacted Level, which saw an increase of $1.7 million over the 2015 Enacted Level. EEW has the capability to quickly identify and characterize an earthquake after fault rupture begins, calculate the intensity of ground shaking that is expected to occur, and deliver warnings to people and systems that may experience damaging shaking within seconds or minutes. In 2017, funds will be used to work with the States of California, Washington, and Oregon to implement a limited EEW system.

Unconventional Oil and Gas Research: Induced Seismicity Earthquake Risk Assessments +$700,000 for a total of $3,200,000: The 2017 increase would fund a project aimed at reducing the risk posed by induced seismicity through the improvement of short-term earthquake hazard forecasts by issuing annual forecasts of earthquake probabilities for areas of induced seismicity. This product would also further USGS efforts toward short-term earthquake probability forecasts, which would be useful for all earthquake sequences.

Central/Eastern U.S. Seismic Network Adoption +$800,000 for a total of +$800,000: The 2017 increase would allow the USGS to significantly improve earthquake monitoring in the Central and Eastern U.S. by assuming operations of 159 seismic stations in the Central and Eastern U.S. Seismic Network (CEUSN), which was constructed with NSF funding that ends in 2017. In 2012, the USGS and NSF worked with OSTP, NRC, DOE, and OMB to develop a plan for the CEUSN under which the USGS would assume long-term operation of the network. This increase is needed to assume the operations of the network according to the interagency plan.

Landslide Response +$500,000 for a total of $1,600,000: The 2017 increase would expand post-wildfire debris flow hazard assessments and grow capability to respond to landslide crises. The USGS products are comprised of debris-flow hazard assessments and debris-flow warnings issued by the NWS, based on rainfall criteria developed by the USGS. Additional funding would be used to monitor rainfall and post-fire debris-flow activity and would support rainfall studies and to develop early-warning criteria. The increase would be used to develop a system to monitor landslide movement and processes and would be deployed in response to a landslide crisis.

Global Seismographic Network (GSN) Primary Sensor Deployment +$860,000 for a total of $2,460,000: The requested increase would allow the GSN to continue a five-year effort to install over 40 borehole seismic sensors and to improve the infrastructure of some deteriorated GSN sites to improve data quality. These improvements will help ensure the GSN remains the core global system for earthquake and tsunami monitoring, nuclear treaty research and verification, and Earth science and research and education.

Improved Geomagnetic Monitoring +$1,700,000 for a total of $ 1,700,000: The USGS Geomagnetism Program conducts research to better understand geomagnetic hazards; monitors and analyzes the Earth's magnetic field to understand and mitigate geomagnetic hazards; and provides data to the National Space Weather Program agencies, private companies, international agencies and the electric-power industry to evaluate geomagnetic storm risk. The USGS is developing methods for estimating storm- induced electric fields in the Earth's crust. The 2017 increase would support the Administration's new National Space Weather Strategy by improving geomagnetic monitoring, expanding international cooperation and data exchange, and assessing geomagnetic storm risk to the national power grid and electronic systems due to storm-induced electric fields in the Earth's crust.

Arctic Coastal Communities: **+$3,500,000 for a total of $4,925,000 (USGS Total: $38,991,000)**: The Arctic is being altered by climate change faster than any other region on Earth. The USGS is focused on landscape-scale climate, ecosystem, and resource issues to provide a scientific foundation for understanding the physical processes that shape the Arctic. The 2017 increase would allow USGS to work with communities in the Arctic and selected Pacific Islands dealing with sea level rise, severe storms and/or melting permafrost to provide information needed in planning efforts.

Building Landscape-Level Resilience to Coastal Hazards +$2,109,000 for a total of $6,235,000: USGS brings together multidisciplinary expertise focused on developing tools and models to improve understanding of how healthy ecosystems function as well as how they respond to environmental changes and human impacts including regional ecosystem restoration. The 2017 increase would be used to apply research and modeling findings in the Hurricane Sandy (2012) affected areas to other parts of the U.S. coastline.