Mission Area 6: Building a Landscape-level Understanding of Our Resources

Goal #3: Provide Scientific Data to Protect, Instruct, and Inform Communities

Strategy #1: Monitor and assess natural hazards risk and resilience

Program Performance Overview: In FY 2015, 13 of 14 performance measures on natural hazards met or exceeded their targets due to an increase in funding. Specifically: the Volcano Hazards Program purchased and installed new monitoring equipment; the Earthquake Hazards Program increased work on induced seismicity and analyzed data from new, low-cost seismic instrumentation; the Geomagnetism Program improved observatory equipment which resulted in more and higher reliability data being collected; and the Landslide Hazards Program increased work on post-fire debris flows delivering hazard assessments for 29 wildfires. This level of performance indicates that critical natural hazard knowledge and tools are being developed and provided to land managers and policy makers to inform decision making.

The only measure that did not meet its target was the amount of Light Detection and Ranging (Lidar) data collected for the Coastal and Marine Geology Program. No data was collected in FY 2015 because the USGS Experimental Advanced Airborne Research Lidar (EAARL-B) instrument was not operable due to coolant leaks and a lack of spare parts.

Over FY 2016 and 2017, the Earthquake Hazards Program will assume operations of the Central and Eastern U.S. Seismic Network as well as expanding coverage through upgrades of stations in the West Coast to support earthquake early warning development. The Geomagnetism Program will expand magnetic field monitoring by installing new observatories. The Volcano Hazards program will substantially revise the national volcano threat level assessment, provide a multi-agency Statewide Volcanic Hazard Vulnerability Report for the state of California, and revise the Mount Baker hazards assessment. Deferred maintenance of networks on Alaska volcanoes will be addressed, along with upgrading the lahar warning system on Mt. Rainier; acquisition of Lidar data over Mt. Adams; and upgrades to the monitoring instrumentation on Mt. Hood, Glacier Peak, Mt. Adams, Lassen Volcanic Center and Mt. Shasta.

Public Benefit: The USGS works with its many partners to characterize the potential impact and consequences of natural hazard events on human activity, health, the economy, and the environment. The USGS supports national and global monitoring capabilities and long-term investigations of earthquakes, volcanic eruptions, landslides and geomagnetic storms. Timely and relevant data, maps and assessments are provided to support emergency response and decrease loss of life and property due to a wide range of natural hazards.

Strategic Plan Performance Measures

Strategic Plan Performance Measures	Bureau	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Target	2015 Actual	2016 Target	2017 Target	2011-2017 Trend
Strategy: Monitor and assess natural hazard risk and resilience										
Percent completion of earthquake and volcano hazard assessments for moderate to high hazard areas.	USGS	34.0%	36.8%	38.0%	40.0%	40.5%	41.4%	40.0%	45.2%	
		68	74	76	80	81	83	80	90	
		200	200	200	200	200	200	200	200	
Percent implementation of optimal earthquake and volcano monitoring for moderate to high hazard areas.	USGS	29.5%	32.9%	34.0%	36.0%	34.5%	36.6%	33.5%	38.7%	
		59	66	68	72	69	73	67	77	
		200	200	200	200	200	200	200	200	
Percent of regional and topical ocean and coastal studies that cite USGS products within three years of study completion.	USGS	81.2%	78.6%	80.0%	81.8%	90.9%	90.9%	89.5%	94.1%	
		26	22	20	18	20	20	17	16	
		32	28	25	22	22	22	19	17	

Supporting Performance Measures

Supporting Performance Measures	Bureau	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Target	2015 Actual	2016 Target	2017 Target
Strategy: Monitor and assess natural hazard risk and resilience									
Number of monitoring stations operated by Volcanoes Hazard Program (VHP)	USGS	765	785	848	789	779	804	775	779
Number of systematic analyses and investigations completed (EHP)	USGS	146	101	130	144	135	165	120	120
Number of systematic analyses and investigations completed (VHP)	USGS	124	80	119	63	70	84	68	70
Number of systematic analyses and investigations completed (Landslide Hazard Program)	USGS	15	15	15	14	14	14	15	15

Supporting Performance Measures	Bureau	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Target	2015 Actual	2016 Target	2017 Target
Percent completion of optimal monitoring (EHP)	USGS	30.4%	36.1%	38.7%	41.9%	39.4%	41.1%	41.2%	44.9%
		2,158	2,563	2,746	2,977	2,796	2,922	2,922	3,185
		7,100	7,100	7,100	7,100	7,101	7,101	7,100	7,100
Percent completion of optimal monitoring (VHP)	USGS	28.6%	29.7%	29.6%	29.6%	29.6%	32.2%	29.1%	32.1%
		2,520	2,614	2,604	2,608	2,609	2,834	2,560	2,829
		8,800	8,800	8,800	8,800	8,800	8,800	8,800	8,800
Percent completion of optimal monitoring (GSN)	USGS	88.6%	89.8%	86.3%	85.3%	86.3%	89.4%	86.3%	86.3%
		90	92	88	87	88	91	88	88
		102	102	102	102	102	102	102	102
Percent completion of optimal monitoring (Geomagnetism)	USGS	84.7%	85.8%	86.0%	86.7%	83.3%	85.7%	90.0%	90.0%
		25	26	26	26	25	26	27	27
		30	30	30	30	30	30	30	30
Cost of collection and processing of Light Detecting and Ranging (LIDAR) data for coastal characterization and impact assessments (per megabyte of data collected) (CMGP)	USGS	$0.34	$0.53	$0.31	$0.27	$0.25	$0.25	N/A	N/A
Number of gigabytes of LIDAR data collected annually (CMGP)	USGS	300	100	1,471	2,000	12,000	0	N/A	N/A
Number of systematic analyses and investigations completed (CMGP)	USGS	152	190	186	185	190	190	175	197