



## **Statement on Federal Investment in Earthquake Science**

A strong, sustained investment in federal geoscience programs, specifically earthquake science, enhances national security, strengthens our global and economic competitiveness, supports resilient communities and cultivates a highly skilled workforce. Basic geoscience and earth science research help the nation monitor and prepare for earthquakes and other natural disasters, understand and protect the environmental health of the planet, and locate and use natural resources like oil and natural gas effectively.

The Federal Government supports geoscience, seismology and earthquake engineering programs in several agencies:

### **The United States Geological Survey**

- Produces national and urban seismic hazard maps that inform building codes, assess risk and shape public policy through the Earthquake Hazards Program.
- Provides near-real-time ground shaking assessments (ShakeMaps) that are used by federal, state and local organizations and private institutions for post-earthquake damage assessment, response and recovery.
- Maintains global data collection systems that serve a wide range of national and international needs, including the Global Seismographic Network, operated jointly by the National Science Foundation (NSF) and the USGS, and the Landsat satellite missions which provide multispectral imagery of the Earth's surface used in assessing natural hazards.
- Manages the Advanced National Seismic System (ANSS), which includes a national backbone network and regional networks operated by USGS and its partners. Data from the ANSS inform emergency response actions with real-time earthquake information, provide key input into the creation of seismic hazard maps, and data for ShakeMap generation.
- Provides grants for earthquake research to provide earth science data and information essential to mitigating earthquake losses, better characterize

earthquake sources and better inform the public about earthquakes and earthquake safety.

**The National Science Foundation (NSF) Geosciences Directorate:**

- Provides more than half of all funding for geoscience research at U.S. universities.
- Supports research programs and grants aimed at comprehending and mitigating the effects of geologic hazards, such as earthquakes, landslides, volcanic eruptions, floods and drought.
- Supports the *Seismological Facility for the Advancement of Geoscience* (SAGE), a multi-user, national facility that provides state-of-the-art seismic and related geophysical instrumentation and services to support research and education in geoscience.
- Supports the *Geodetic Facility for the Advancement of Geoscience* (GAGE), operated with support from USGS and NASA, fostering cutting edge geoscience discoveries, applications and education for societal benefit.

**National Aeronautics and Space Administration's (NASA) Earth Science Program:**

- Administers NASA's Earth Surface and Interior program, which characterizes the dynamics of Earth's surface and interior, improving the capability to assess and respond to natural hazards and extreme events.  
(<https://science.nasa.gov/earth-science/science-questions/>).
- Conducts and sponsors research in fundamental science to better understand the entirety of the Earth's environment using long-term global observations via satellite and airborne missions.

**National Oceanic and Atmospheric Administration (NOAA), the National Institute of Standards and Technology (NIST), the Federal Emergency Management Agency (FEMA), and the Nuclear Regulatory Commission:**

- Support research and applications related to Earth sciences and the interconnections between the solid earth, oceans and atmosphere.
- Support additional earthquake recording and analysis assets with a specific focus on tsunami warning, through NOAA's National Weather Service.
- Contribute estimates of potential earthquake losses (both property and lives) through FEMA's HAZUS and RiskMap programs.
- Undertake a variety of activities to integrate natural hazard and risk information and performance measures into NRC regulations, regulatory guidance, and oversight processes.

### **Department of Energy (DOE):**

- Geothermal Technologies office - Uses seismic data analysis to improve the quality and quantity of plausible drilling targets for the exploration and extraction of geothermal resources.
- National Nuclear Security Administration (NNSA) – Engages in seismic research, as part of efforts to enhance national and international capabilities for monitoring nuclear weapons development and testing, as well as compliance with nuclear testing treaties.

### **Department of Defense (DOD):**

- Manages a seismic research program supporting national security requirements for monitoring nuclear explosions and nuclear testing treaty compliance.
- Operates the components of the GPS global navigation satellite system, which provides critical data for natural hazards monitoring and assessment.
- Maintains the Air Force Research Laboratories seismic technologies program.

The Seismological Society of America urges Congress to bolster the nation's preparedness for natural disasters, promote the study of natural resources and enhance our national security by ensuring full funding for these geoscience and seismic science programs across the Federal Government.

*Approved by the SSA Board of Directors, January 2024*