

# California Geological Survey Celebrates 150th Anniversary with New Geologic, Fault Maps of the State

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SACRAMENTO – The California Geological Survey (CGS), as part of its 150th anniversary celebration in April, today is unveiling new maps of the state's geology and faults. Given recent seismic activity around the world, the release of these maps is timely. The geology map was last updated in 1977, the fault map in 1994.

"These maps are a matched pair, containing updated geological and seismological information and assembled using the most current GIS (Geographic Information System) technology," said Dr. John Parrish, State Geologist of California and head of CGS. "There have been a number of damaging earthquakes lately, including one very close to home. It's a matter of time until one occurs in California. Up-to-date knowledge of the faults that generate earthquakes and the state's underlying geology are important to preparation.

"Our goal is to distribute these new maps to all the schools, universities, consulting firms, and government entities throughout the state. The detail and quality of these maps is a point of pride, showing how far we've come as a geologic survey in the last 150 years."

Like California itself, CGS owes its existence to the gold rush. After appointing an honorary state geologist in 1851, the Legislature in 1860 passed an act establishing the Office of State Geologist and hiring Josiah Whitney, for whom Mt. Whitney was named.

Initially, the State Geologist and the State Mining Bureau (created in 1880) had one mission: provide detailed information about mining – particularly gold mining. But the job description grew in time. In 1891, the Bureau published the first geologic map of the state, with numerous blank areas where information was lacking. The newest map is the fifth update of the original.

"Although there had been numerous large, damaging earthquakes in California over the years – notably the Great San Francisco Earthquake of 1906 and the 1933 Long Beach earthquake – it wasn't until a 1952 magnitude 7.3 earthquake in Kern County that killed a dozen people that our predecessors became involved in public safety," Parrish noted. "Today, helping to protect public safety and property by identifying and zoning earthquake and other geologic hazards is a large part of CGS' mission."

Through the Alquist-Priolo and Seismic Hazards Mapping Programs, CGS helps other agencies regulate development on areas subject to surface fault rupture, liquefaction and landslides. CGS has created nearly 550 Alquist-Priolo zone maps and 118 Seismic Hazard Zone maps. CGS also creates maps non-regulatory maps that inform local governments and others where geologic hazards may exist, important tools for land-use planning.

The CGS Strong Motion Instrumentation Program has installed and maintains more than 5,000 recording instruments at more than 1,100 locations statewide, including many major bridges and hospitals. The instruments collect data on how structures react to shaking; the data is used to influence building codes and practices, and can be helpful in guiding emergency response to the hardest-hit areas after a large earthquake.

CGS provides local governments and state agencies with advice on forecasting losses from future earthquakes, and reviews geologic reports for proposed public schools, hospitals and emergency operation facilities to help ensure they will remain operational during future disasters. CGS reviews timber harvesting proposals to reduce landslides, erosion and stream sedimentation. And, of course, it maintains ties to its original mission, analyzing

and distributing information about minerals. This includes classifying land by its mineral resource potential as well as creating maps of naturally occurring mineral hazards, such as mercury, asbestos and radon.

"Gold is a relatively minor commodity in California these days," Parrish said. "Land-use planners and decision-makers are much more concerned about resources such as sand and gravel, which are essential to construction.

"The mining industry has evolved from a single prospector with a pick and shovel to a big industry with massive and complicated machinery. Likewise, the California Geological Survey has evolved to meet changing needs. We've taken on new and diverse challenges, constantly incorporate new technology and data, and work cooperatively with international, federal, state and local partners to keep Californians safe and informed, promote the state's economic well-being, and provide stewardship of the state's working landscape."

The new state geologic map is available at <http://www.quake.ca.gov/gmaps/GMC/stategeologicmap.html>.

The new state fault activity map is available at <http://www.quake.ca.gov/gmaps/FAM/faultactivitymap.html>.