



Jeremy Lancaster, PG, CEG

A NOTE FROM THE STATE GEOLOGIST

GREETINGS!

We live in one of the most seismically active and geologically diverse states in the country. While the state has experienced many damaging earthquakes and other natural hazard events in the past, our challenges are evolving with our changing climate, including hazards from landslides, sea level rise and coastal erosion, post-wildfire debris flows and flash flooding, demands on groundwater resources, and demands on critical minerals needed to transition toward a decarbonized economy. The California Geological Survey (CGS) has a mandate to address these challenges and to communicate actionable information to scientists, engineers, emergency workers, and planners to protect life-safety and property and to build resilient communities.

As such, I am pleased to reintroduce *California Geology* magazine. At its peak, *California Geology* had more than 10,000 subscribers, including teachers, students, professionals, and the general public. Although dormant since 2001, it has not been forgotten. Former readers of the magazine have maintained a steady, quiet chorus of requests for its return.

A NEW CGS AND A LOOK BACK AT ACCOMPLISHMENTS IN 2024

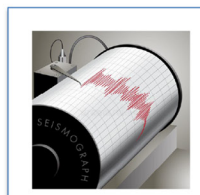
To meet the state's evolving challenges, the CGS has brought in new experts and reorganized into two principal branches, Watershed Hazards and Climate Adaptation, and Seismic Hazards and Earthquake Engineering. The CGS is revitalizing its public outreach and science communication with support from the Geographic Information Systems and Publications Program. This and

future issues of *California Geology* will be an avenue for all to learn how geoscience-focused professionals benefit both the state's and the public's needs.

The watershed branch's newest group, the **Burned Watershed Geohazards Program (BWGP)**, was established in 2023 with the intent to help communities prepare for debris flows and flash floods before and after wildfire. In 2024, the BWGP performed eight watershed emergency response team assessments and seven post-fire reconnaissance surveys with CAL FIRE from Tehama to Riverside counties. In addition, the BWGP performed pre-fire modeling of postfire hazards as part of a pilot project to support fuel reduction and advanced mitigation planning by providing maps, data and analyses to two tribes, three county flood control agencies, two NGOs, and the U.S. Forest Service. This work is now expanded to a statewide model that will be published in a peer-reviewed journal in 2025.

The **Regional Geologic and Landslides Mapping Program (RGLMP)** completed three Preliminary Geologic Maps: the Columbia 7.5' Quadrangle in Calaveras and Tuolumne counties, the Liebre Mountain 7.5' Quadrangle in Los Angeles County, and a revision of the Black Mountain 7.5' Quadrangle in Los Angeles and Ventura counties. A preliminary 3D model for the southern San Joaquin Valley is nearing completion by the program's Geologic Carbon Sequestration Group, which will be released as a new Subsurface Geologic Model publication by the CGS. Soon the CGS will also complete the Sierra Nevada Earth

SEISMIC HAZARDS & EARTHQUAKE ENGINEERING



CSMIP



SHP

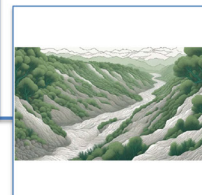
WATERSHED HAZARDS & CLIMATE ADAPTATION



MRP



RGLMP



FWGP



BWGP

CGS technical branches and programs. For more information see: <https://www.conservation.ca.gov/cgs/about>

Science Atlas. This Atlas will cover the entire Sierra Nevada range at 1:400,000 scale, and will include geology, geophysics, neotectonic features, geochronology, metallogenic belts, and carbonate deposits. Landslide inventory mapping continued in Sonoma County with nine 24,000-scale quadrangles in progress or completed, with mapping also started in the Felton 7.5' quadrangle in Santa Cruz County.

The **Mineral Resources Program** completed the 2022 Nonfuel Mineral Production Report as CGS Bulletin 232, and conducted mineral identification, classification and mapping of potential critical mineral deposits. As part of the USGS Earth Mapping Resources Initiative (Earth MRI), the program completed Preliminary Geologic Maps of the Hedges, Ogilby, and Picacho Peak 7.5' Quadrangles in Imperial County. The program also published a data release for the Nickel-Cobalt Laterite Geochemical Reconnaissance Project in Del Norte County.

To support California's economy and watershed ecosystem health, the **Forest and Watershed Geology Program** conducted geologic hazards

review in areas of proposed timber harvest including office reviews of 214 timber harvesting plans, 111 field reviews of timber harvesting plans, and 347 office reviews of documents for removal of burned and drought affected timber.

“To meet the state’s evolving challenges, the CGS has brought in new experts and reorganized into two principal branches”

The **California Strong Motion Instrumentation Program** (CSMIP) operates the largest number of seismometers in the state, with about 10,000 sensors and more than 1,375 stations, including 124

sensors on San Francisco’s Golden Gate Bridge. These sensors detect, record, and transmit earthquake shaking information to the CGS, with 270 stations supporting earthquake early warning. To better support earthquake response and recovery, the California legislature approved the upgrade of the CSMIP network to real-time reporting stations in 2022. Since August of 2022, the CSMIP has completed 390 of 823 station upgrades.

The **Seismic Hazards Program** received funding in 2022 to complete seismic hazard zonation efforts throughout the state. The program released 22 earthquake zones of required investigation maps in November, the highest production of maps in 30 years. In addition, the Essential Facilities Review unit completed geologic and seismologic reviews for 526 K-12 schools and 40 hospitals.

We hope that the new look of *California Geology* meets your approval and we look forward to working with you in 2025.

— *Jeremy Lancaster,*
Director and State Geologist