

USGS California Water Science Center

STREAMGAGE PROGRAM

The U.S. Geological Survey (USGS) California Water Science Center streamgage program is part of the nationwide program that provides streamflow information for a variety of purposes—from flood and landslide forecasting to detecting changes in streamflow caused by human activities or climate change. This information is critical to resource managers, farmers, fishermen, kayakers, land-use planners, engineers, environmentalists, and flood forecasters. The program relies on a network of streamgaging stations to accurately and reliably measure stream height and flow and to accumulate data over long periods for many locations. One such gage is the Happy Isles streamgage in Yosemite National Park, which has been continuously measuring water flowing in the Merced River since 1915. The long-term record for this gage is providing scientists the clearest picture yet of the effects of long-term climate change. The USGS operates nearly 7,000 streamgages nationwide of which more than 500 gages are operated by the USGS California Water Science Center. The gages provide daily streamflow records that are accessible to the public.

Water Information Critical to California

The availability of fresh water is central to the health of the citizens and the environment of the United States and to the growth of the Nation's economy. This is especially true in California, where water resources are in high demand and water-resource managers often must contend with satisfying conflicting water-use needs. Water-resource managers face human-induced problems, such as long-term ground-water over use and water pollution, and thus must do complex operational planning and meet strict water-quality standards. In addition, they must prepare for natural disasters, such as floods, landslides, droughts, and fires. The effects of these problems will continue to increase as California's population grows. Reliable, accurate, and timely information from the USGS streamgage program is crucial to State and local water-resource managers and to Federal agencies, such as the U.S. Bureau of Reclamation and the U.S. Army Corps of Engineers.



Flood Warning and Forecasting

Floods are among the most frequent and costly natural disasters. Flood warnings and river-level forecasts are essential tools for reducing loss of life and property. USGS streamgage information includes historical and up-to-date flow data needed to calibrate National Weather Service (NWS) models to assure timely and accurate NWS forecasts.



Landslides and Debris Flow

The USGS also measures rainfall and ground-water levels. These measurements provide critical information for issuing timely public warnings of landslide and debris-flow hazards. Following the southern California wildfires in October 2003, USGS scientists and technicians rapidly deployed instruments to prepare for the upcoming storm season. When the State was hit with a "pineapple express," USGS scientists issued landslide advisories to the NWS, the California Office of Emergency Services, and other State and Federal agencies.



Real-Time Information

USGS streamgaging stations equipped with real-time telemetry are integral components of reservoir operations and river-forecast and flood-warning systems. One of the strengths of the USGS streamgage real-time network is the ability to provide, at any time, a snapshot of the current hydrologic conditions in California and across the country. This real-time information, available on the Internet at <http://water.usgs.gov/>, benefits not only engineers and resource, emergency, and disaster managers, but also those who enjoy recreational activities such as kayaking and fishing.



Cooperative Support for the Streamgage Program

The USGS California Water Science Center streamgaging network is supported by two programs. The Cooperative Water Program funds more than 70 percent of the USGS streamgages using funds from nearly 130 State or local agencies. The National Streamflow Information Program funds the remainder of the program and supports the on-going modernization and improvement of the streamgaging network.

California Water Science Center Streamgage Network

The USGS California Water Science Center operates about 500 streamgages in California to provide daily streamflow records accessible to the public. These streamgages are maintained by experienced staff from field offices located in Eureka, Redding, Ukiah, Carnelian Bay, Sacramento, Hayward, Marina, Santa Maria, Apple Valley, San Diego, and Poway.

For more than 100 years, California has depended on the USGS to provide streamflow information. Today the USGS California Water Science Center streamgage program, as part of the national program, continues to provide information needed to monitor changes in streamflow owing to changes in agricultural practices, urbanization, ground-water development, and climate change.

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