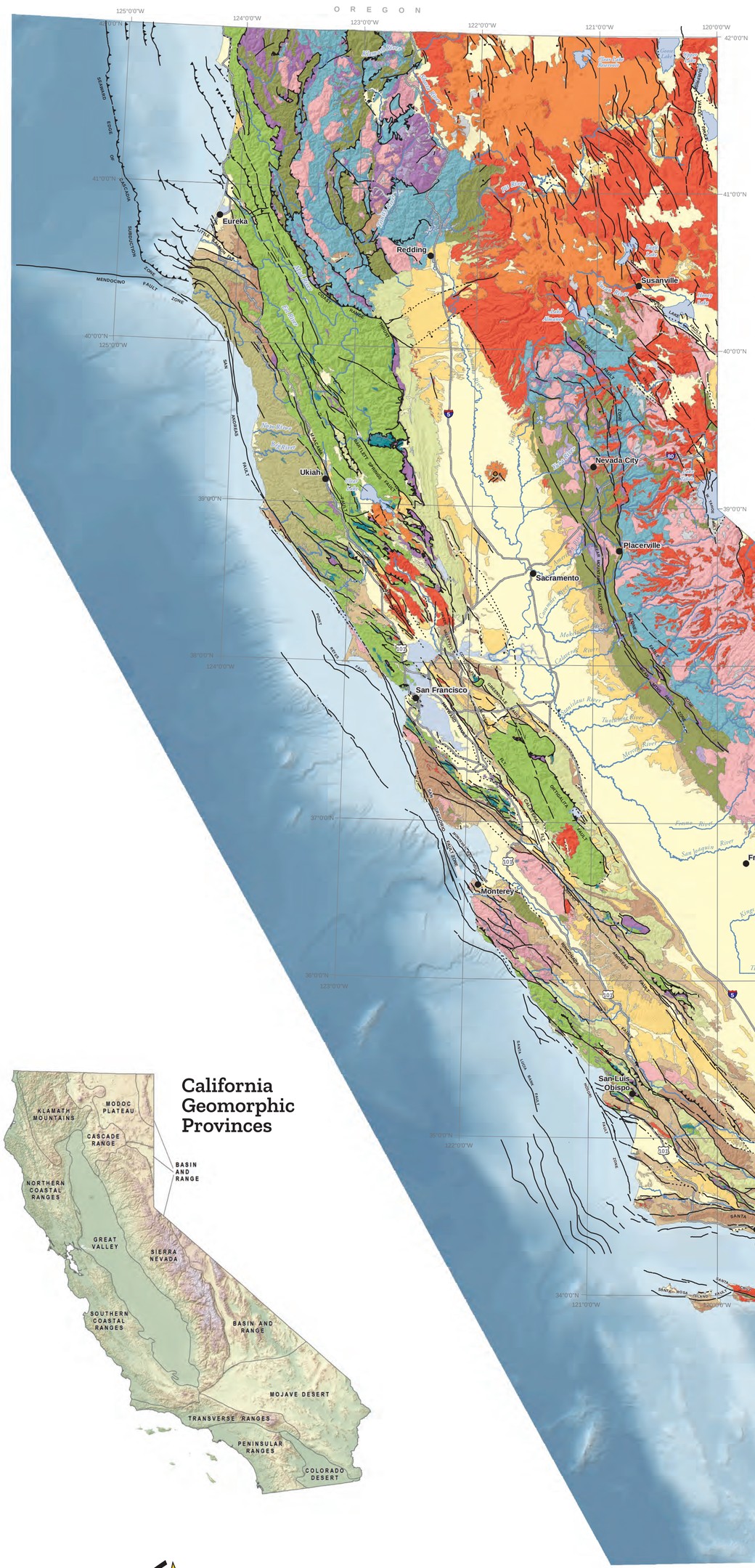
Geology of California

A geologic map shows the distribution, relationship, and composition of earth materials including rocks and surficial deposits—such as sediments and landslides—on the earth's surface. Each color on the map represents a different type or age of rock. Thick black lines represent the locations of faults.

Geologic maps help us understand the geologic history of an area, and to plan for the future. Geologists use the maps to interpret what resources might lie below the surface, such as oil and natural gas, groundwater, and mineral deposits. Geologic maps are also used to identify potential hazards such as landslides, volcanoes, earthquake faults, liquefaction zones, and tsunami hazard zones. Geologic maps are used in environmental and engineering studies to identify areas suitable for agriculture, urban development, and construction. They provide important information needed to build a safer and more sustainable world.



GENERALIZED GEOLOGIC UNITS

MARINE SEDIMENTARY ROCKS

- Quaternary surficial deposits.
- Neogene sandstone and shale.
- Paleogene sandstone and shale.

NONMARINE (CONTINENTAL) SEDIMENTARY ROCKS

- Quaternary glacial deposits.
- Quaternary and Neogene non-marine deposits.

VOLCANIC ROCKS

- Quaternary volcanic flows and ash deposits.
- Neogene and Paleogene volcanic flows and ash deposits.

MARINE SEDIMENTARY AND METASEDIMENTARY ROCKS

- Sandstone, shale, and minor conglomerate in coastal belt of northwestern California.
- Cretaceous sandstone, shale, and conglomerate; minor non-marine rocks in Peninsular Ranges.
- Franciscan Complex: Cretaceous and Jurassic sandstone with shale, chert, limestone, and conglomerate. Includes Franciscan melange.
- Franciscan Complex metavolcanic rock.
- Limestone, dolomite, and marble, probably of Paleozoic or Mesozoic age.
- Paleozoic metasedimentary rocks. Includes slate, sandstone, shale, chert, conglomerate, limestone, dolomite, marble, phyllite, schist, hornfels, and quartzite.

MIXED ROCKS

- Undivided Mesozoic volcanic, meta-volcanic, and metamorphic rocks.
- Granitic and metamorphic rocks; mostly gneiss and other meta-morphic rocks intruded by granitic rocks. Mesozoic to Precambrian.
- Precambrian igneous and metamorphic rocks.

PLUTONIC ROCKS

- Granitic rocks; chiefly Mesozoic.
- Gabbro and dark dioritic rocks; chiefly Mesozoic.
- Ultramafic rocks; mostly serpentine. Minor peridotite, gabbro, and diabase; chiefly Mesozoic.

CENOZOIC: Quaternary; Neogene; Paleogene
MESOZOIC
PALEOZOIC
PRECAMBRIAN

- Contact between geologic units
- Fault – Solid where accurately located; dashed where approximately located; dotted where concealed; queried where uncertain. Arrows along fault indicate relative direction of lateral movement; ball and bar indicates downthrown side of normal fault.
- Thrust fault – Solid where accurately located; dashed where approximately located; dotted where concealed; queried where uncertain. Teeth on upper plate.

California Geomorphic Provinces

N W E S

0 50 100 Miles
0 50 100 Kilometers

Map Scale: 1:2,000,000

www.consrv.ca.gov/cgs

Base Map Sources: U.S. Geological Survey, California Department of Fish and Wildlife, California Department of Transportation