

# GEOLOGIC LEGEND

## (GENERALIZED DESCRIPTION OF ROCK TYPES)

		MARINE SEDIMENTARY ROCKS	NONMARINE (CONTINENTAL) SEDIMENTARY ROCKS	VOLCANIC ROCKS	PLUTONIC ROCKS	
CENOZOIC	QUATERNARY - Holocene	Qs Extensive marine and nonmarine sand deposits, generally near the coast or desert playas.	Qls Selected large landslides, such as the Blackhawk Slide on the north side of San Gabriel Mountains; early to late Quaternary.	Qrv Qrv <sup>p</sup> Qrv: Recent (Holocene) volcanic flow rocks; minor pyroclastic deposits. Qrv <sup>p</sup> : Recent (Holocene) pyroclastic and volcanic mudflow deposits.		
	Pleistocene - Pleistocene	Q Alluvium, lake, playa, and terrace deposits; unconsolidated and semi-consolidated. Mostly nonmarine, but includes marine deposits near the coast.	Qg Glacial till and moraines. Found at high elevations mostly in the Sierra Nevada and Klamath Mountains.	Qv Qv <sup>p</sup> Qv: Quaternary volcanic flow rocks; minor pyroclastic deposits. Qv <sup>p</sup> : Quaternary pyroclastic and volcanic mudflow deposits.		
	Pliocene	P Sandstone, siltstone, shale, and conglomerate; mostly moderately consolidated.	QPc Older alluvium, lake, playa, and terrace deposits Pliocene and/or Pleistocene sandstone, shale, and gravel deposits; mostly loosely consolidated.			
	Miocene	M Sandstone, shale, siltstone, conglomerate, and breccia; moderately to well consolidated.	Mc Sandstone, shale, conglomerate, and fanglomerate; moderately to well consolidated.			
	Oligocene	O <sub>a</sub> Sandstone, shale, conglomerate; mostly well consolidated.	O <sub>ec</sub> Undivided Tertiary sandstone, shale, conglomerate, breccia, and ancient lake deposits.	Tv Tv <sup>p</sup> Tv: Tertiary volcanic flow rocks; minor pyroclastic deposits. Tv <sup>p</sup> : Tertiary pyroclastic and volcanic mudflow deposits.		
	Eocene	E Shale, sandstone, conglomerate, minor limestone; mostly well consolidated.	Ec Sandstone, shale, conglomerate; moderately to well consolidated.	Ti Tertiary intrusive rocks; mostly shallow (hypabyssal) plugs and dikes.	gr <sup>ca</sup> Cenozoic (Tertiary) granitic rocks - quartz monzonite, quartz latite, and minor monzonite, granodiorite, and granite, found in the Kingston, Panamint, Amargosa, and Greenwater Ranges in southeastern California.	
	Paleocene	Ep Sandstone, shale, and conglomerate; mostly well consolidated.				
MESOZOIC	TERTIARY - CRETACEOUS	TK Sandstone, shale, and minor conglomerate in coastal belt of northwestern California; included by some in Franciscan Complex. Previously considered Cretaceous, but now known to contain early Tertiary microfossils in places.				
	CRETACEOUS	Ku Upper Cretaceous sandstone, shale, and conglomerate.	K Undivided Cretaceous sandstone, shale, and conglomerate; minor non-marine rocks in Peninsular Ranges.		gr <sup>ca</sup> Mesozoic granite, quartz monzonite, granodiorite, and quartz diorite.	
	JURASSIC	Kl Lower Cretaceous sandstone, shale, and conglomerate.	KJf KJf <sub>m</sub> KJf <sub>s</sub> KJf: Franciscan Complex: Cretaceous and Jurassic sandstone with smaller amounts of shale, chert, limestone, and conglomerate. Includes Franciscan melange, except where separated - see KJf <sub>m</sub> . KJf <sub>m</sub> : Melange of fragmented and sheared Franciscan Complex rocks. KJf <sub>s</sub> : Blueschist and semi-schist of Franciscan Complex.		Mzv Undivided Mesozoic volcanic and metavolcanic rocks. Andesite and rhyolite flow rocks, greenstone, volcanic breccia and other pyroclastic rocks; in part strongly metamorphosed. Includes volcanic rocks of Franciscan Complex: basaltic pillow lava, diabase, greenstone, and minor pyroclastic rocks.	
	TRASSIC	J Shale, sandstone, minor conglomerate, chert, slate, limestone; minor pyroclastic rocks	sch Schists of various types; mostly Paleozoic or Mesozoic age; some Precambrian.	gr-m Granitic and metamorphic rocks, mostly gneiss and other metamorphic rocks injected by granitic rocks. Mesozoic to Precambrian.	um Ultramafic rocks, mostly serpentine. Minor peridotite, gabbro, and diabase; chiefly Mesozoic.	
	PERMIAN	Tr Shale, conglomerate, limestone and dolomite, sandstone, slate, hornfels, quartzite; minor pyroclastic rocks.	ls Limestone, dolomite, and marble whose age is uncertain but probably Paleozoic or Mesozoic.	m Undivided pre-Cenozoic metasedimentary and metavolcanic rocks of great variety. Mostly slate, quartzite, hornfels, chert, phyllite, mylonite, schist, gneiss, and minor marble.	gb Gabbro and dark dioritic rocks; chiefly Mesozoic.	
	CARBONIFEROUS	Pm Shale, conglomerate, limestone and dolomite, sandstone, slate, hornfels, quartzite; minor pyroclastic rocks.			mv Undivided pre-Cenozoic metavolcanic rocks. Includes latite, dacite, tuff, and greenstone; commonly schistose.	
	DEVONIAN	C Shale, sandstone, conglomerate, limestone, dolomite, chert, hornfels, marble, quartzite; in part pyroclastic rocks.	Pz Undivided Paleozoic metasedimentary rocks. Includes slate, sandstone, shale, chert, conglomerate, limestone, dolomite, marble, phyllite, schist, hornfels, and quartzite.		gr Undated granitic rocks.	
	SILURIAN - ORDOVICIAN	D Limestone and dolomite, sandstone and shale; in part tuffaceous.			Pzv Undivided Paleozoic metavolcanic rocks. Mostly flows, breccia, and tuff, including greenstone, diabase and pillow lavas; minor interbedded sedimentary rocks.	
	CAMBRIAN	SO Sandstone, shale, conglomerate, chert, slate, quartzite, hornfels, marble, dolomite, phyllite; some greenstone.				
	PRECAMBRIAN	c Sandstone, shale, limestone, dolomite, chert, quartzite, and phyllite; includes some rocks that are possibly Precambrian.				
	pC Conglomerate, shale, sandstone, limestone, dolomite, marble, gneiss, hornfels, and quartzite; may be Paleozoic in part.		pCc Complex of Precambrian igneous and metamorphic rocks. Mostly gneiss and schist intruded by igneous rocks; may be Mesozoic in part.	gr <sup>ca</sup> Precambrian granite, syenite, anorthosite, and gabbroic rocks in the San Gabriel Mountains; also various Precambrian plutonic rocks elsewhere in southeastern California.		

## SYMBOLS

	Geologic boundary
	Fault traces, solid where well located; dashed where approximately located or inferred; and dotted where concealed by younger rocks or by lakes or bays. Fault traces are queried where continuation or existence is uncertain. Many concealed faults in the Great Valley are based on maps of selected subsurface horizons, so locations shown are approximate and may indicate structural trends only. For faults color-coded according to recency of movement, see FAULT ACTIVITY MAP OF CALIFORNIA, GEOLOGIC DATA MAP SERIES, MAP NO. 6 (2010).
	Ball and bar on downthrown side (relative or apparent).
	Arrows indicate direction of lateral movement (relative or apparent).
	Thrust fault (barbs on upper plate), solid where well located; dashed where approximately located or inferred; and dotted where concealed by younger rocks or by lakes or bays. Fault surface generally dips less than 45 degrees, but locally may have been subsequently steepened.
	Regional strike and dip of stratified rocks.
	Regional strike and dip of stratified rocks (overturned).
	Anticlinal fold. Dotted offshore and where concealed under alluvium in the Great Valley and elsewhere. Arrow indicates direction of plunge. Concealed folds may be confined to certain units, and their location may be approximate.
	Synclinal fold.
	Monoclinical fold.
	Structural discontinuity in the offshore region.
	Volcano or cinder cone.