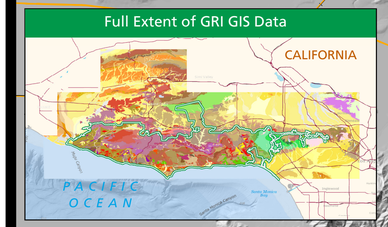
Geologic Map of Santa Monica Mountains National Recreation Area

California

National Park Service
U.S. Department of the Interior

Geologic Resources Inventory
Natural Resource Stewardship and Science



This map displays geologic map data compiled by the National Park Service Geologic Resources Inventory. It is not a substitute for site-specific investigations.

Source Maps

Campbell, R.H., C.J. Wills, P.J. Irvine, and B.J Swanson (digital preparation by C.I. Gutierrez and M.D. O'Neal). 2014. Preliminary geologic map of the Los Angeles 30' x 60' quadrangle, California (scale 1:100,000). Version 2.0. California Geological Survey and the US Geological Survey.

Tan, S.S., K.B. Clahan, C.S. Hitchcock, C.I. Gutierrez, and M.T. Mascorro. 2004. Geologic map of the Camarillo 7.5-minute quadrangle, Ventura County, California (scale 1:24,000). Version 1.0. Preliminary geologic maps. California Geological Survey.

Wills, C.J., R.H. Campbell, and P.J. Irvine. 2012. Geologic map database of the Santa Monica Mountains region, Los Angeles and Ventura Counties, California (scale 1:24,000). Unpublished. California Geological Survey.

Source Scales 1:24,000 &1:100,000

According to US National Map accuracy standards, features are within 25 m (82 ft) of their true location.

Poster Layout
Chase Winters and Georgia Hybels (Colorado State University)

Poster Date
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GRI Data Date
August 2016

All Geologic Resources Inventory geologic map data and publications are available at http://go.nps.gov/gripubs

NPS Boundary

Infrastructure
- Point of interest
- City
- River or stream
- Road/trail
- Railroad

Volcanic Line Features
- Tuff marker bed, known or certain

Folds
- Anticline, known or certain, dashed where approximate, dotted where concealed
- Syncline, known or certain, dashed where approximate, dotted where concealed
- Overturned anticline, concealed

Faults
- Thrust fault, known or certain, dashed where approximate, short dashed where inferred, dotted where concealed
- Thrust fault, approximate and queried
- Reverse fault, approximate
- Unknown offset/displacement, known or certain, dashed where approximate, short dashed where inferred, dotted where concealed
- Unknown offset/displacement, approximate and queried
- Unknown offset/displacement, inferred and queried
- Detachment fault/decollement, known or certain, dashed where approximate, short dashed where inferred, dotted where concealed

Linear Dikes
- Ti - Intrusive rocks, undivided (middle Miocene), known or certain, dashed where approximate

Geologic Contacts
- Known or certain, dashed where approximate, short dashed where inferred, dotted where concealed
- Approximate and queried
- Inferred and queried
- Water or shoreline, dashed where approximate

Geologic Units

	Water
Qaf	Artificial fill (late Holocene)
Qa	Alluvium (late Holocene)
Qw	Wash deposits (late Holocene)
Qb	Beach deposits (late Holocene)
Qe	Eolian deposits (late Holocene)
Qf	Alluvial fan (Holocene)
Qes	Active coastal estuarine deposits (Holocene)
Qw1	Holocene wash deposit of the Oxnard Plain (Holocene)
Qls	Landslide deposits (Holocene and late Pleistocene?)
Qya	Young alluvium, undivided (Holocene and late Pleistocene)
Qya2	Young alluvium, Unit 2 (late Pleistocene)
Qya1	Young alluvium, Unit 1 (late Pleistocene)
Qyf	Young alluvial-fan deposits, undivided (Holocene and late Pleistocene)
Qyf2	Young alluvial-fan deposits, Unit 2 (late Pleistocene to Holocene)
Qoft	Alluvial fan deposits on wave-cut surface (late Pleistocene to Holocene)
Qoa	Old alluvium, undivided (middle to late Pleistocene)
Qof4	Old fan deposits, Unit 4 (late Pleistocene)
Qof2	Old fan deposits, Unit 2 (late Pleistocene)
Qof1	Old fan deposits, Unit 1 (late Pleistocene)
Qom	Old shallow marine deposits on wave-cut surface (late Pleistocene)
QTms	Sedimentary rocks of the Pacific Palisades area (late Pliocene to early Pleistocene)
Tm	Modelo Formation, undivided (late and middle Miocene)
Tmd	Modelo Formation, diatomaceous shale (late and middle Miocene)
Tms	Modelo Formation, sandstone (late and middle Miocene)
Tmb	Modelo Formation, "burnt shale" (late and middle Miocene)
Tmt	Monterey Shale, undivided (late, middle, and early Miocene)
Tmtd	Monterey Shale, deformed (middle and early Miocene)
Tcb	Calabasas Formation, undivided (early late Miocene and late middle Miocene)
Tcbs	Calabasas Formation, Stokes Canyon Breccia Member (late middle Miocene)
Tcbmp	Calabasas Formation, Mesa Peak Breccia Member (late middle Miocene)
Tcbn	Calabasas Formation, Newell Sandstone Member (late middle Miocene)
Tcbd	Calabasas Formation, Dry Canyon Sandstone Member (late middle Miocene)
Tcbl	Calabasas Formation, Latigo Canyon Breccia Member (late middle Miocene)
Tcbe	Calabasas Formation, Escondido Canyon Shale Member (late middle Miocene)
Tr	Trancas Formation, undivided (middle and early Miocene)
Tra	Trancas Formation, quartz-bearing calcarenites (middle and early Miocene)
Tz	Zuma Volcanics (middle and early Miocene)
Tt	Topanga Group, undivided (middle and early Miocene)
Ttb	Topanga Group, intrusive and extrusive volcanic rocks (middle and early Miocene)
Tco	Conejo Volcanics, undivided (middle Miocene)
Tcod	Conejo Volcanics, dacite-bearing upper zone (middle Miocene)
Tcoa	Conejo Volcanics, andesitic central zone (middle Miocene)
Tcoaf	Conejo Volcanics, andesitic central zone, andesitic flows (middle Miocene)
Tcoaa	Conejo Volcanics, andesitic central zone, andesitic agglomerate (middle Miocene)
Tcoab	Conejo volcanics, andesitic central zone, andesite breccia (middle Miocene)
Tcob	Conejo Volcanics, basaltic lower zone, basalt and andesitic basalt (middle Miocene)
Tcoadb	Conejo Volcanics, mixture of andesitic and dacitic flow breccias with some flows (middle middle Miocene)
Tcodb	Conejo Volcanics, dacitic flow breccias with some flows (middle middle Miocene)
Tcobf	Conejo Volcanics, basaltic lower zone, basalt and andestic basalt, basalt flows (middle Miocene)
Tcobb	Conejo Volcanics, basaltic lower zone, basalt and andesitic basalt, basaltic breccia (middle Miocene)
Tcop	Conejo Volcanics, basaltic lower zone, pillow basalt (middle Miocene)
Tcobz	Conejo Volcanics, basaltic lower zone, basaltic sand (middle Miocene)
Tcom	Conejo Volcanics, Malibu Bowl Tongue (middle Miocene)
Tcos	Conejo Volcanics, Solstice Canyon Tongue (middle Miocene)
Tcor	Conejo Volcanics, Ramera Canyon Tongue (middle Miocene)
Ti	Intrusive rocks, undivided (middle Miocene)
Tid	Intrusive rocks, dacite (middle Miocene)
Tia	Intrusive rocks, andesitic (middle Miocene)
Tib	Intrusive rocks, basaltic (middle Miocene)
Tim	Mixed rocks (middle Miocene and early or early middle Miocene)
Ttc	Topanga Canyon Formation, undivided (middle and early Miocene)
Ttcc	Topanga Canyon Formation, Cold Creek Member (middle and early Miocene)
Ttcf	Topanga Canyon Formation, Fernwood Member (middle and early Miocene)
Ttcs	Topanga Canyon Formation, Saddle Peak Member (middle and early Miocene)
Ttcb	Topanga Canyon Formation, Big Sycamore Member (middle and early Miocene)
Ttcbs	Topanga Canyon Formation, Big Sycamore Member, prominent sandstone bed (early middle Miocene)
Ttce	Topanga Canyon Formation, Encinal Member (middle and early Miocene)
Tv	Valqueros Formation, undivided (early Miocene and Oligocene)
Tvn	Vaqueros Formation, San Nicholas Member (early Miocene and Oligocene)
Tvd	Vaqueros Formation, Danielson Member (early Miocene and Oligocene)
Ts	Sespe Formation, undivided (early Miocene, Oligocene, and late Eocene)
Tsp	Sespe Formation, Piuma Member (early Miocene)
Tl	Llajas Formation (early to middle Eocene)
Tss	Santa Susana Formation (late Paleocene to early Eocene)
Tssl	Santa Susana Formation, limestone (late Paleocene to early Eocene)
Tlv	Las Virgenes Sandstone (early(?) Paleocene)
Tsi	Simi Conglomerate, undivided (Paleocene)
Kc	Chatsworth Formation (Late Cretaceous)
Kt	Tuna Canyon Formation, undivided (Late Cretaceous)
Kte	Tuna Canyon Formation, informal member 'e' (Late Cretaceous)
Ktd	Tuna Canyon Formation, informal member 'd' (Late Cretaceous)
Ktc	Tuna Canyon Formation, informal member 'c' (Late Cretaceous)
Ktb	Tuna Canyon Formation, informal member 'b' (Late Cretaceous)
Ktr	Trabuco Formation (Late Cretaceous)
Kgr	Granitic rocks (Late Cretaceous)
Jsm	Santa Monica Slate, undivided (Late Jurassic)
Jsms	Santa Monica Slate, spotted slate (Late Jurassic)
Jsmp	Santa Monica Slate, phyllite (Late Jurassic)