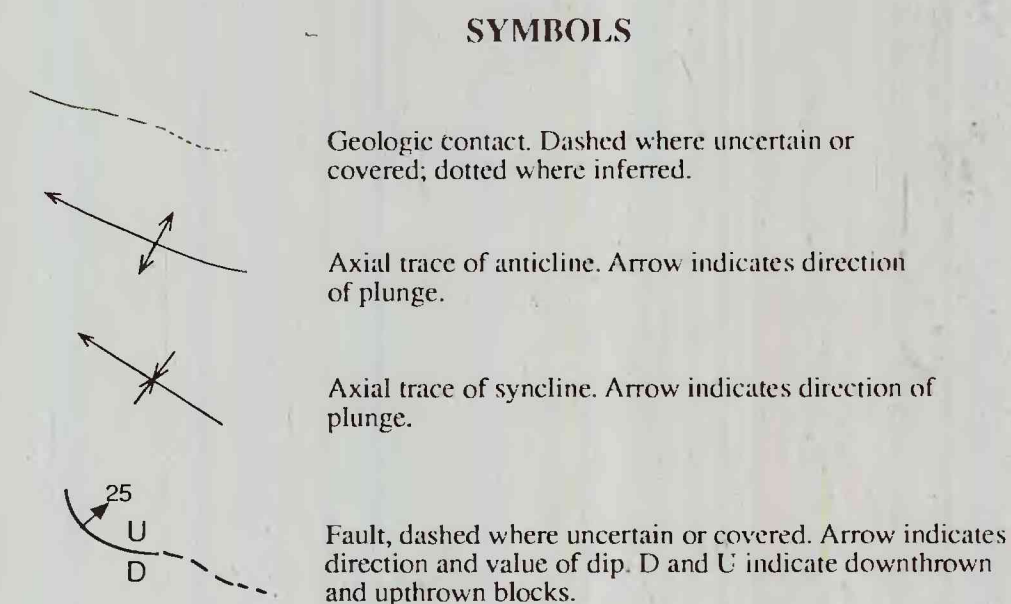
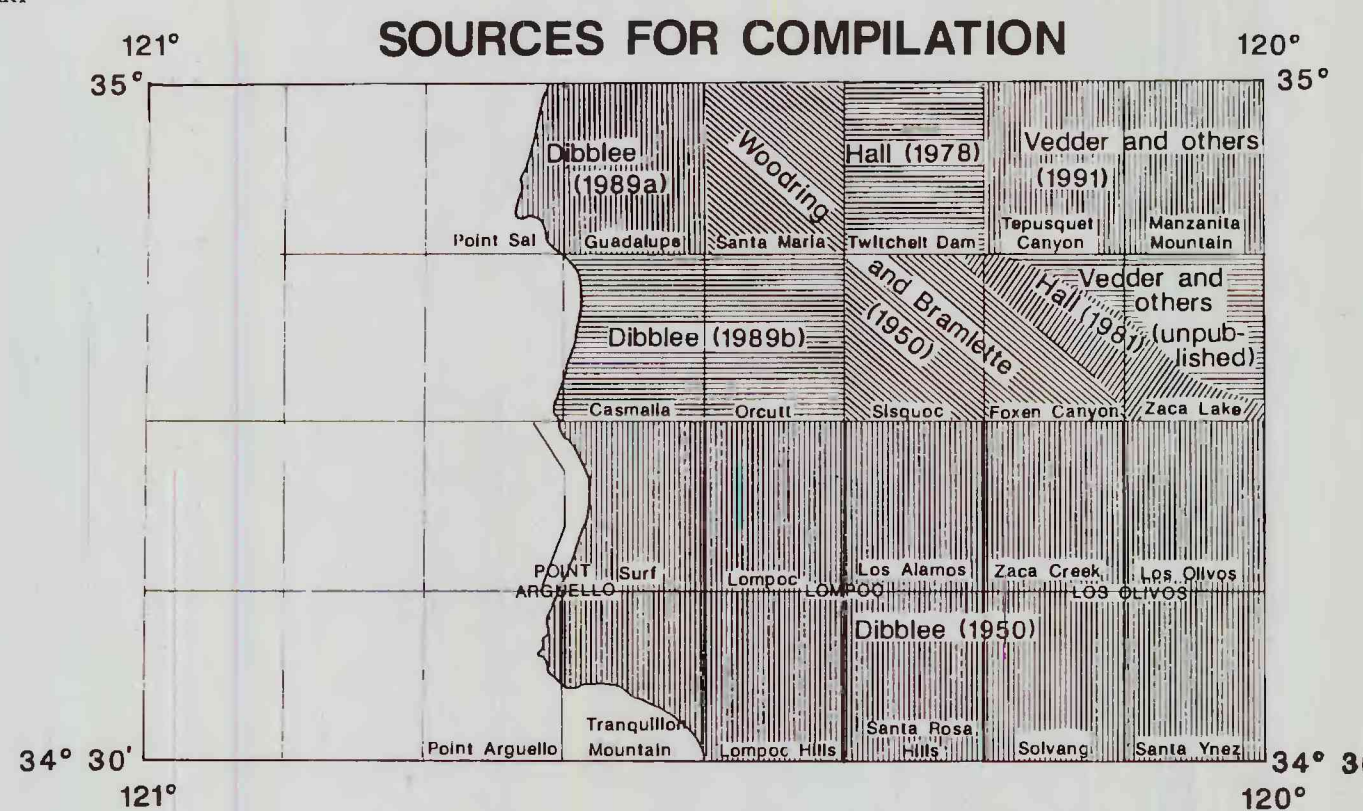
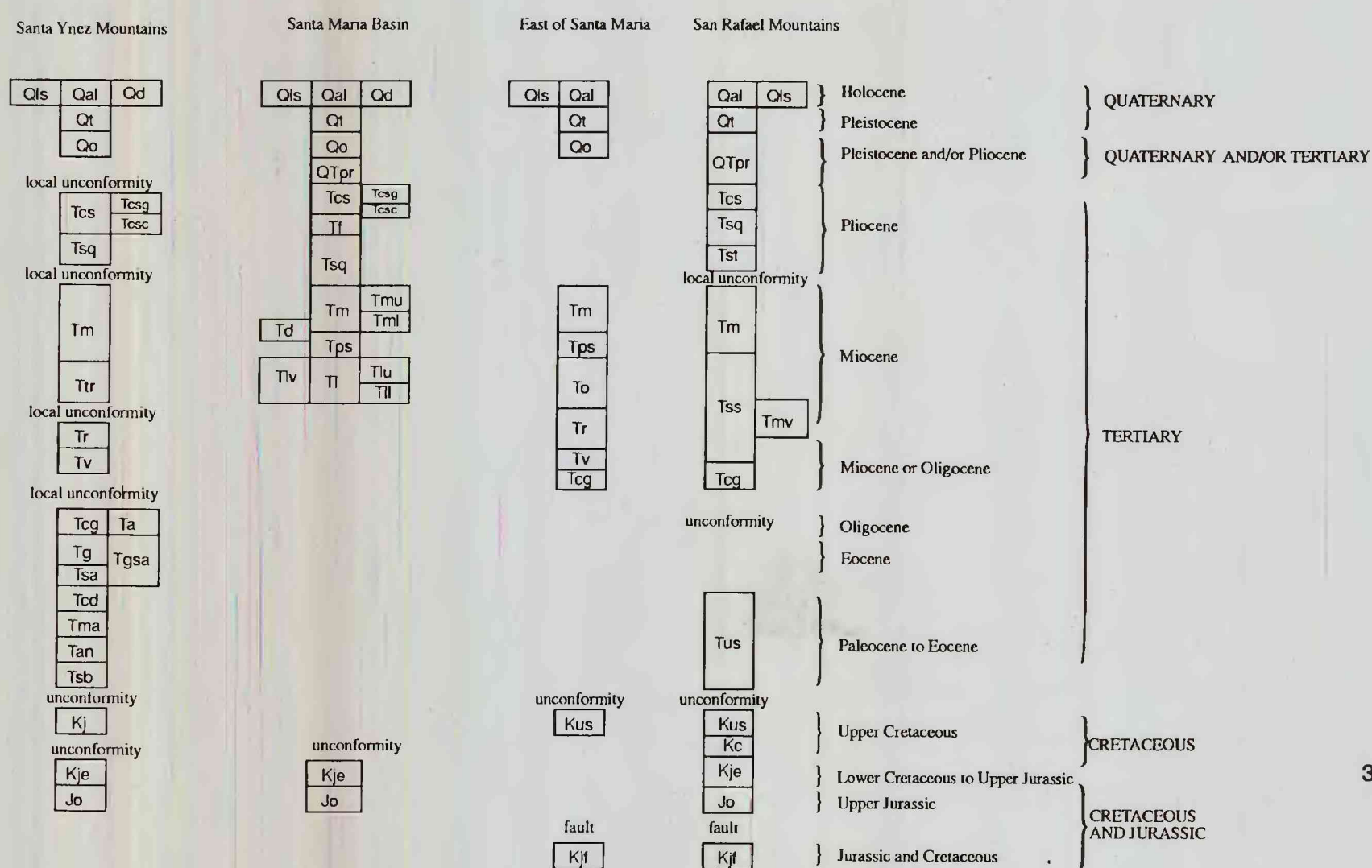


CORRELATION OF MAP UNITS



DESCRIPTION OF MAP UNITS

- Qal** Alluvium (Holocene)-- Gravel, sand, and mud deposits in stream channels, floodplains, and alluvial fans
- Qls** Landslide Deposits (Holocene and Pleistocene)
- Qd** Dune sand (Holocene)
- Qt** Terrace deposits (Holocene and Pleistocene)-- Older alluvium and dune sand in terraces
- Qo** Orcutt Sand (Pleistocene)-- Sand and gravel in slightly deformed terrace deposits
- QTpr** Paso Robles Formation (early Pleistocene and late Pliocene)-- Light greenish-gray to reddish alluvial sandstone, conglomerate, claystone, and minor limestone. Clasts in conglomerate composed mainly of siliceous white shale and chert derived from Monterey Formation, Nonmarine
- Tcs** Careaga Sandstone (late Pliocene)-- Friable, fine- to coarse-grained gray, buff, or white sandstone and conglomerate containing clasts of quartzite, porphyritic igneous rocks, chert derived from Franciscan Complex, and chert and siliceous mudstone derived from Monterey Formation. Abundant shallow marine fossils
- Tcsg** Graciosa Member-- Upper coarse-grained member; coarse-grained buff sandstone and sand; conglomerate and gravel. Locally pebbly; shelly intervals at or near base (Dibblee, 1950)
- Tcsc** Cebada Member-- Lower fine-grained member. Fine-grained buff sandstone and sand. Includes fossiliferous calcareous sandstone in Casmalia Hills (Woodring and Bramlette, 1950)
- Tf** Foxen Mudstone (late and middle Pliocene)-- Gray or tan claystone, siltstone, and fine-grained sandstone. Marine
- Tsq** Sisquoc Formation (middle Pliocene and late Miocene)-- Laminated to massive white diatomite, brown laminated semisiliceous to diatomaceous siltstone, and clay shale with some sandstone. Marine
- Tst** Tinaquaic Sandstone Member-- Fine- to coarse-grained friable buff or gray sandstone with thin layers of chert pebbles and some clayey siltstone. Shallow marine megafossils and foraminifers
- Tm** Monterey Formation (late, middle, and early Miocene)-- Laminated to thin-bedded siliceous shale, calcareous mudstone, dolostone, dolomitic mudstone, marl, diatomaceous shale, diatomite, phosphatic shale, porcelaneous shale, and chert. Includes sandstone locally at base and in eastern part of map area. Bathyal marine. Locally divided into:
 - Tmu** Upper unit of Dibblee (1950)-- Also includes units Tm and Tmch of Dibblee (1989a, 1989b) in northwestern part of map. White-weathering, thin-bedded, hard, platy, porcelaneous siliceous shale and cherty shale in northwestern part of map. Laminated platy siliceous shale, cherty shale, diatomite, phosphatic shale, and limestone in southern half of map (Dibblee, 1950). Lower contact probably a diagenetic boundary in most places. Mostly Mohanian in age. Bathyal marine
 - Tml** Lower unit of Dibblee (1950, 1989a, 1989b)-- Siliceous mudstone, siltstone, thin-bedded sandstone, phosphatic shale, calcareous mudstone, porcelaneous shale, limestone. Upper contact probably a diagenetic boundary in most places. Mostly Relizian and Luisian in age. Bathyal marine
- Tps** Point Sal Formation (early Miocene)-- Mudstone, siltstone, and fine-grained sandstone; mapped in area around Point Sal and Casmalia Hills and in area east of West Huasna fault. Correlative in part with lower Monterey Formation in eastern part of map. Latest Saucian (Stanley and others, 1991) and Relizian in age. Bathyal marine
- Td** Mafic intrusive rocks-- Black, fine- to medium-grained diabasic sills intrusive into Point Sal Formation.

- To** Obispo Formation (middle? or early Miocene)-- Fine- to coarse-grained white crystal-bearing vitric rhyolitic tuff, typically zeolitized. Contains clasts of pumice and perlite. Locally includes basalt, tuffaceous breccia, siltstone, tuffaceous siltstone and claystone. Late Saucian according to Turner (1970); dated as 15.7 ± 0.5 to 16.9 ± 0.9 Ma (Turner, 1970) (corrected to new IUGS constants). Marine
- Tl** Lospe Formation (early Miocene)-- Red and green conglomerate, sandstone, siltstone, and mudstone in Point Sal area. Nonmarine and shallow marine. Locally divided into:
 - Tlu** Upper member-- Greenish-gray sandstone, siltstone, and gypsiferous mudstone. Lacustrine and shallow marine (Stanley and others, 1991)
 - Tll** Lower member-- Red and green conglomerate and sandstone composed mainly of gabbro, diabase, and serpentinite clasts from underlying ophiolite
 - Tlv** Tuff beds in Lospe Formation -- Resistant lenticular beds of rhyolitic vitric tuff. Dated as 17.70 ± 0.03 Ma and 17.39 ± 0.12 by ⁴⁰Ar/³⁹Ar (Stanley and others, 1991).
- Tr** Tranquillon Volcanics of Dibblee (1950) (early Miocene)-- Rhyolite flows and agglomerate, tuff, bentonite, and basalt. Upper Saucian according to Dibblee (1950); dated as 17 ± 1.2 Ma (K/Ar) by Turner (1970) (17.4 ± 1.2 Ma using new IUGS constants), and as 17.79 ± 0.10 Ma (⁴⁰Ar/³⁹Ar) according to Stanley and others (1991)
- Tmv** Mafic volcanic rocks (early Miocene)-- Pillow basalt, interbedded with foraminiferal calcareous siltstone, sandstone, and limestone, intruded by diabase sills (Hall, 1981). Present locally in eastern part of quadrangle. Similar rocks in similar stratigraphic position in nearby Figueroa Mountain area dated as 19.8 ± 1.6 Ma and 16.8 ± 2.5 Ma by Hall (1981), and 18.8 ± 1.5 Ma (preliminary) by Vedder (oral comm., 1991)
- Tr** Rincon Formation (early Miocene)-- Brown, gray, or buff silty claystone or mudstone with orange-weathering dolomite nodules. Locally includes fine-grained sandstone. Bathyal marine
- Tss** Marine sandstone (middle or early Miocene to Oligocene?)-- Gray arkosic fine- to coarse-grained thick-bedded or massive sandstone, locally calcareous, with interbedded siltstone, claystone, and basalt. Shallow marine. Locally contains "Tomblo" Stage mollusks (middle or late early Miocene), but in other areas is probably correlative with Oligocene to lower Miocene Vaqueros Formation
- Tv** Vaqueros Formation (lower Miocene and late Oligocene)-- Gray or buff fine- to coarse-grained quartzofeldspathic sandstone, thin-bedded to massive. Locally calcareous, with abundant mollusks. Includes pebble conglomerate, pebbly sandstone, and shell debris. Shallow marine
- Tcg** Nonmarine sandstone and conglomerate (early Miocene and Oligocene)-- Conglomerate, sandstone, and mudstone deposited in fluvial systems and on alluvial fans. Includes rocks mapped as Sespe Formation in western Transverse Ranges and as Simmler Formation in southern Coast Ranges. Red, green, greenish-yellow, or greenish brown. Age uncertain in many places
- Ta** Alegria Formation of Dibblee (1950) (Oligocene)-- Buff to gray thick-bedded sandstone and green siltstone. Shallow marine. Refugian to Zemorrian. Marine equivalent of Sespe Formation
- Tg** Gaviota Formation of Jenkins (1943) (Oligocene and upper Eocene)-- Sandstone and siltstone. Shallow marine
- Tsa** Sacate Formation (late Eocene)-- Buff sandstone and interbedded silty shale. Marine
- Tgsa** Gaviota Formation of Jenkins (1943) and Sacate Formation of Dibblee (1950), undifferentiated (late Eocene)
- Tcd** Cozy Dell Shale (late Eocene)-- Thin-bedded clay shale with minor thin sandstone interbeds especially in upper part. Marine

- Tma** Matilija Sandstone (early late Eocene)-- Thick-bedded buff arkosic sandstone, with interbeds of shale and local pebble or cobble conglomerate. Marine
- Tan** Anita Shale of Dibblee (1950) (early Eocene and late Paleocene)-- Gray clay shale; as mapped includes red and green foraminiferal claystone beds possibly of the same age as Sierra Blanca Limestone. Marine, bathyal to abyssal
- Tsb** Sierra Blanca Limestone (early Eocene)-- White to light gray algal limestone, locally sandy to clayey, massive to thin-bedded, glauconitic. Contains black chert pebbles and pebbles of chert and green sandstone derived from Franciscan Complex. Shallow marine
- Tus** Sandstone, conglomerate, and mudstone (Eocene and (or) Paleocene)-- Quartzofeldspathic, micaceous sandstone, and conglomerate with abundant siliceous metavolcanic clasts. Base not exposed. Lenticular; submarine fan deposits. Unit contains sparse early Eocene orbitoid foraminifers and mollusks in adjacent areas of Sierra Madre Mountains. Occurs northeast of Sur-Nacimiento fault
- Kj** Jalama Formation of Dibblee (1950) (Upper Cretaceous)-- Argillaceous to silty shale and buff sandstone. Conglomerate lenses near top, with clasts of quartzite, granitic rocks, porphyritic igneous rocks, chert, shale, and sandy limestone. Marine. Campanian-Maastrichtian according to Dibblee (1950). Almgren (1973) reported that rocks in Nojoqui Canyon mapped as Jalama? Formation by Dibblee (1950) are basal Turonian
- Kus** Sandstone, mudstone, and conglomerate of San Rafael Mountains (Late Cretaceous)-- Quartzofeldspathic, micaceous sandstone. Lenticular; submarine fan deposits. Contains rare Late Cretaceous foraminifers and mollusks (Vedder and others, 1991)
- Kc** Conglomerate of San Rafael Mountains (Late Cretaceous)-- Pebble to boulder conglomerate containing clasts of porphyritic siliceous volcanic rocks, granitic rocks, and quartzite; subordinate sandstone. Massive to thick-bedded. Lenticular, indistinctly bedded, poorly sorted, channelled at base and internally. Nonmarine
- KJe** Espada Formation of Dibblee (1950) (Upper Jurassic and Lower Cretaceous)-- Thin-bedded dark shale or claystone and sandstone with some calcareous lenses and some pebble to cobble conglomerate with clasts of quartzite, chert, and volcanic clasts. Tithonian, Valanginian, Hauterivian, Barremian, and Aptian-Albian in age. Submarine fan deposits
- Jo** Coast Range ophiolite (Late and Middle Jurassic)-- Chert, tuffaceous chert, pillow basalt, greenstone, diabase dikes and sills, gabbro, diorite, plagiogranite and ultramafic rocks, including serpentinite, harzburgite, and pyroxenite. Igneous rocks dated as 166-160 Ma; overlying tuffaceous chert is late Oxfordian to Tithonian (Hopson and others 1991)
- KJf** Franciscan Complex (Cretaceous and Jurassic)-- Pervasively sheared shale and sandstone containing tectonic blocks of graywacke, blueschist, chert, metavolcanic rocks or greenstone, serpentinite, and other rock types. Locally, includes:
 - KJfmv** Metamorphosed basalt and diabase; greenstone; commonly associated with chert. Tectonic blocks on or within Franciscan Complex; interpreted by Hall (1981) as probable fragments of upper part of Coast Range ophiolite. (Shown as "v" or "mv" in very small outcrop areas)
 - s** Serpentinite (age uncertain)-- May be either part of Coast Range ophiolite or tectonic blocks in Franciscan Complex

This map is preliminary and has not been reviewed for conformity with U. S. Geological Survey editorial standards or with the North American Stratigraphic Code.