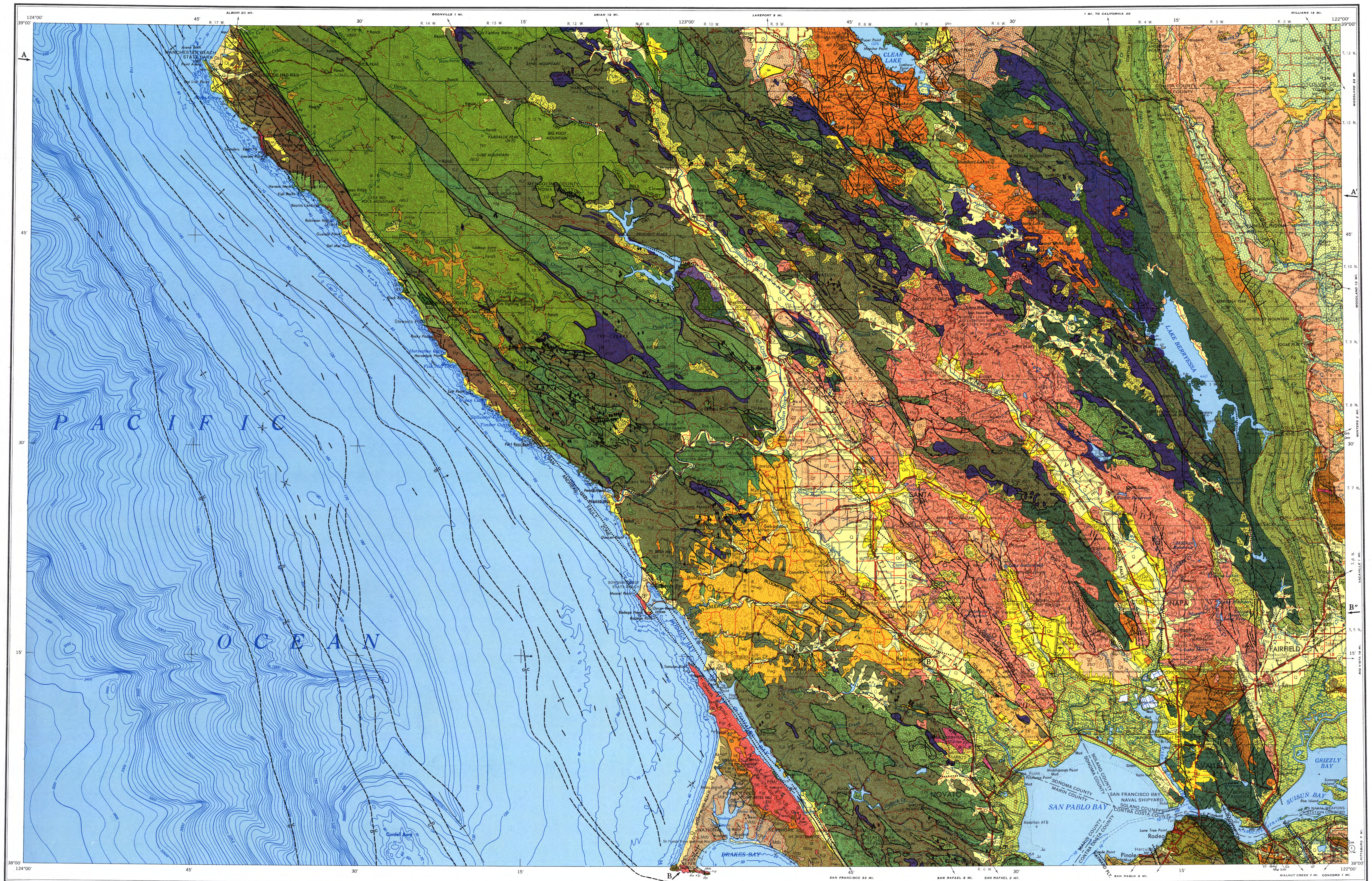


Geology compiled 1979-80

Graphics by Eleanor Taylor

Williams & Heintz Map Corporation, Capitol Heights, Md. 20743

ABBREVIATED EXPLANATION

Approximate stratigraphic relationships only; see Geologic Map Explanation for more accurate stratigraphic relationships and unit descriptions.

CENOZOIC

QUATERNARY

Holocene

- Q — Alluvium
- Qa — Natural levee and channel deposits
- Qb — Basin deposits *(Alluvium)*
- Qls — Landslide deposits
- Qs — Dune and beach sand
- Qi — Intertidal deposits *(Peaty-mud)*

Pleistocene

- Qo — Older alluvium
- Qmr — Modesto-Riverbank Formations *(Arkosic alluvium)*
- Qt — Terrace deposits
- Qml — Millerton Formation *(Marine and nonmarine clay, silt, sand and conglomerate)*
- Qrb — Red Bluff Formation *(Gravel in reddish silty or sandy matrix)*
- QT — Huichica and Glen Ellen Formations; Includes undifferentiated continental deposits. *(Fluvial gravel, silt, sand, and clay)*
- QTc — "Cache Formation" *(Pebbly sandstone, conglomerate, siltstone and tuff)*

TERTIARY

Pliocene

- Pt, Ppt — Tehama Formation *(Sand, silt, and volcaniclastic rocks)* Putah Tuff Member *(Ppt)*
- Por — Ohlson Ranch Formation *(Marine sandstone, siltstone, and conglomerate)*
- Pwg — Wilson Grove Formation *(Marine sandstone, conglomerate, and tuff)*
- Puc — Unnamed continental deposits *(Poorly sorted sandstone and conglomerate)*
- Pp — Petaluma Formation *(Claystone, siltstone, mudstone; mostly nonmarine)*
- MPo — Orinda (?) Formation *(Pebbly sandstone and conglomerate)*

Miocene

- Mdb — Drakes Bay Formation *Marine siltstone and mudstone)*
- Msp — San Pablo Group *(Marine sandstone and shale)*
- Mmy — Monterey Group *(Marine sandstone and shale)*
- Mgs — Gallaway - Skooner Gulch Formations *(Marine sandstone and mudstone)*
- Ml — Laird Sandstone *(Marine quartzose feldspathic sandstone)*

Eocene

- Emk — Markley Sandstone *(Marine)*
- En — Nortonville Shale *(Marine)*
- Ed — Domengine Sandstone *(Marine)*
- Ec — Capay Formation *(Marine sandstone)*
- Eum — Unnamed Eocene marine rocks

Paleocene

- Pgr — German Rancho Formation *(Marine sandstone and mudstone)*
- Pmz — Martinez Formation *(Marine quartzose sandstone)*
- Ppr — Point Reyes Formation *(Marine conglomerate and sandstone)*
- TKf — Coastal Belt Franciscan *(Marine sandstone, shale, and conglomerate)*

MESOZOIC

CRETACEOUS

- Kga — Gualala Formation *(Marine sandstone, mudstone, and conglomerate)*

Upper Cretaceous Great Valley Sequence:

- Ku — Upper Cretaceous *(Undifferentiated marine rocks)*
- Kfo — Forbes Formation *(Marine shale and siltstone)*
- Kg — Guinda Formation *(Marine sandstone and mudstone)*
- Kf — Funks Formation *(Marine shale and sandstone)*
- Ks — Sites Formation *(Marine sandstone)*
- Ky — Yolo Formation *(Marine shale and sandstone)*
- Kv — Venado Formation *(Marine sandstone and conglomerate)*

- Kl, Klsp — Lower Cretaceous Great Valley Sequence *(Marine mudstone, sandstone, and conglomerate) (Klsp - detrital serpentine)*
- KJu, KJsp — Lower Cretaceous-Upper Jurassic Great Valley Sequence *(Marine mudstone, siltstone, sandstone, and conglomerate) (KJsp - detrital serpentine)*

JURASSIC

- KJf, ss, ch, gs, mg — Franciscan Complex* *(ss-sandstone, shale, conglomerate; ch-chert; gs-greenstone; mg-metagraywacke)*
- um — Serpentinized ultramafic rocks*

PALEOZOIC

- PzMz, ls — Metamorphic rocks of uncertain age. ls - limestone and marble *(Biotite schist and quartzite)*

*Horizontal pattern denotes melange terrane

Volcanic and intrusive units:

- QTcv — Clear Lake Volcanics *(d-dacite; a-andesite to basaltic rock; b-basalt; r-rhyolite; t-tuff and other pyroclastic rocks)* ✲ *Quaternary cinder cone or volcano.*
- Psv — Sonoma Volcanics *(b-basalt; a-andesite; r-rhyolite; t-tuff and other pyroclastic rocks)*
- Mpt — Pinole Tuff
- Mbm — Volcanic rocks of Burdell Mtn. *(Andesitic mudflow breccias and flows)*
- Mpp — Putnam Peak Basalt
- Mib — Iversen Basalt
- Kgr — Granitic rocks
- sbp — Spilite near Black Point

Coast Range Ophiolite:

- Jv — Volcanic rocks, mainly basalt
- Jgd — Gabbro and diabase
- um — Ultramafic rocks (Peridotite)-partly to completely serpentinized

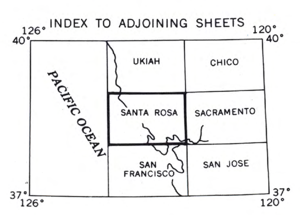
BASE MAP

PRODUCED BY THE U. S. GEOLOGICAL SURVEY AND THE NATIONAL OCEAN SURVEY

Base map prepared by Defense Mapping Agency from 1:24,000, 1:25,000, and 1:50,000-scale maps dated 1942-1955. Field checked 1958. Revised by the U. S. Geological Survey 1970.

Bathymetry compiled by the National Ocean Survey from tide-coordinated hydrographic surveys. Bathymetric survey data comply with International Hydrographic Organization (IHO) Special Publication 44 accuracy standards and/or standards used at the date of the survey. This information is not intended for navigational purposes

INDEX TO ADJOINING SHEETS



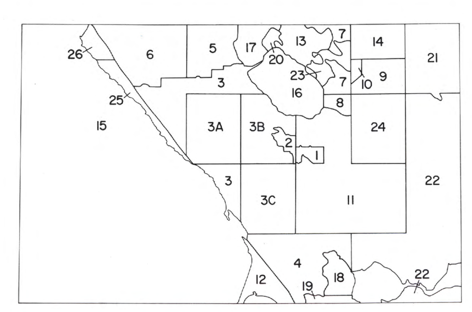
Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 200 FEET
WITH SUPPLEMENTARY CONTOURS AT 100 FOOT INTERVALS
NATIONAL GEODETIC VERTICAL DATUM OF 1929
BATHYMETRIC CONTOUR INTERVAL 10 METERS TO THE 200 METER DEPTH,
50 METERS TO MAXIMUM DEPTH
TRANSVERSE MERCATOR PROJECTION



ABBREVIATED INDEX TO GEOLOGIC SOURCE DATA
(Complete Index on Sheet 3)

1. Armstrong, C.F., and Wagner, D.L., 1977
2. Armstrong, C.F., and Wagner, D.L., 1978
3. Blake, M.C., Jr., Smith, J.T., Wentworth, C.M., and Wright, R.H., 1971
3A. Bailey, E.H., 1961
3B. Gealey, W.K., 1950
3C. Travis, R.B., 1952
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5. Bortugno, E.J., 1980
6. Bortugno, E.J., and Wagner, D.L., 1980
7. Brice, J.C., 1953
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9. Conrey, B.L., 1948
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16. McLaughlin, R.J., 1978
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20. Rymer, M.J., 1980
21. Saucedo, G.J., and Wagner, D.L., 1980
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22. Sims, J.D., Fox, K.F., Jr., Bartow, J.A., and Helley, E.J., 1973
23. Swe, W., and Dickinson, W.R., 1970
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24. Wagner, D.L., 1980
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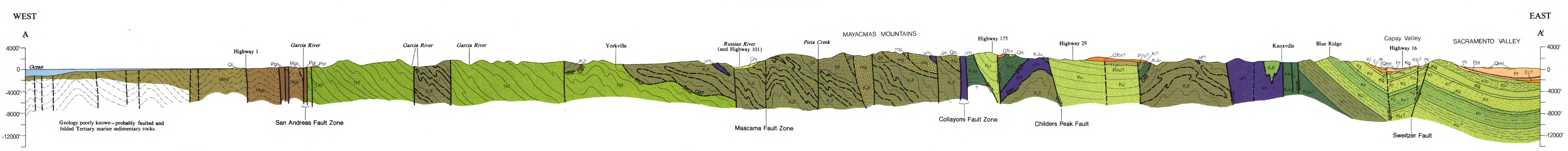
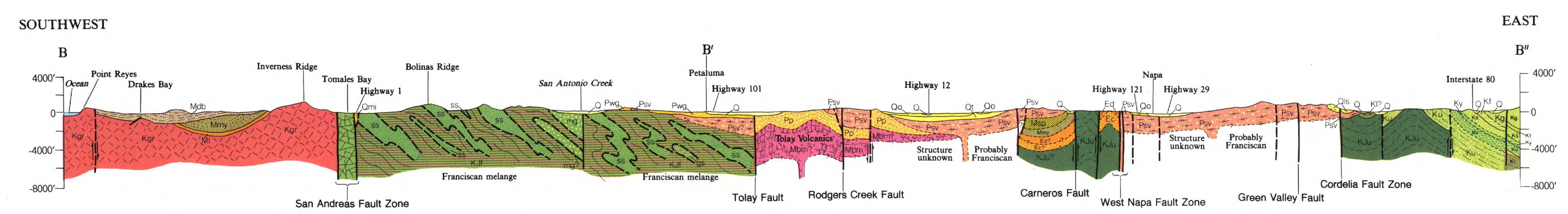
25. Wentworth, C.M., Jr., 1966
Blake, M.C., Jr., Smith, J.S., Wentworth, C.M., and Wright, R.H., 1971
Huffman, M.E., 1972
26. Wentworth, C.M., 1972

CROSS SECTIONS ACROSS THE SANTA ROSA QUADRANGLE

Vertical Exag. = Approximately 2X Horizontal





MAP SYMBOLS

Contact

Observed or approximately located; queried where gradational or inferred.

Fault

Solid where well located; dashed where approximately located or inferred and in the offshore area; queried where continuation or existence is uncertain; except for the offshore area, faults are dotted where concealed by younger rocks or water. Arrows show relative or apparent direction of movement. U, upthrown side and D, downthrown side (relative or apparent).

Thrust fault—barbs on the upper plate. Generally dips less than 45°, but locally may have been subsequently steepened. Dashed where approximately located or inferred; dotted where concealed by younger rocks or water; queried where continuation or existence is uncertain.

CRT

Coast Range thrust (CRT)—the upper boundary of a long inactive, late Mesozoic subduction zone (barbs on upper plate); has discontinuous outcrop owing to modification by younger faults and concealment by overlying deposits; locally the Coast Range thrust is very steep.

CBT

Coastal belt thrust (CBT)—an inferred boundary between the Coastal Belt Franciscan and older parts of the Franciscan Complex (barbs on upper plate); has discontinuous outcrop owing to younger faulting; locally the Coastal Belt thrust is very steep.

Anticlinal fold

Dashed where inferred; dotted where concealed by younger rocks, lakes or bays.

Synclinal fold

Dashed where inferred; dotted where concealed by younger rocks, lakes or bays.

Strike and dip of beds

General strike and dip of stratified rocks.

Blueschist blocks

GEOLOGIC MAP OF THE SANTA ROSA QUADRANGLE, CALIFORNIA, 1:250,000

Compilation by
D.L. Wagner and E.J. Bortugno
Published 1982