DEPARTMENT OF THE INTERIOR

U.S. GEOLOGICAL SURVEY

OPEN-FILE REPORT

84-553


Base from U.S. Geological Survey 1:24,000, Clayton, 1953, photorevised 1968 and 1973.

Mapped by K.M. Williams, 1980-1981; western-most Knoxville Formation, Panoche Formation, and Franciscan assemblage (except for the pillow lava) mapped by T.W. Dibblee, Jr., 1980; western-most pyroxenite and Franciscan pillow lava modified from E.H. Pampeyan, 1963.

SCALE 1:24,000

1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 KILOMETER

CONTOUR INTERVAL 200 FEET

17°

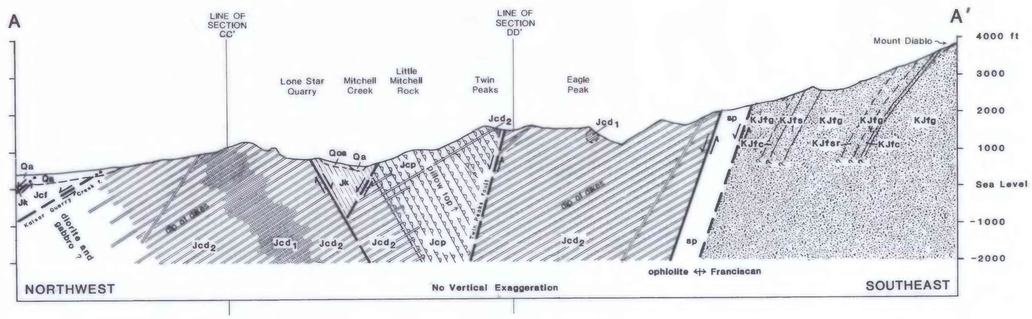
TRUE NORTH

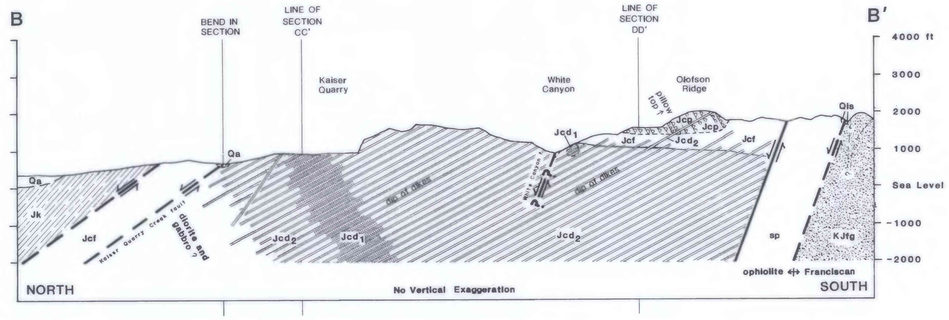
MAGNETIC NORTH

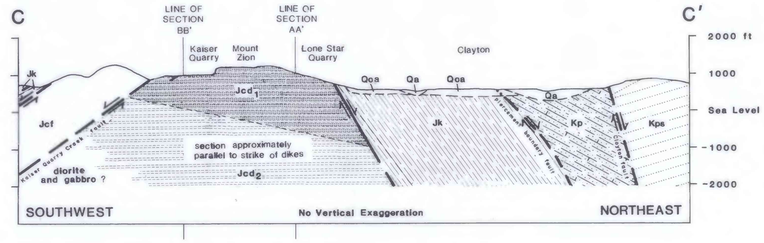
APPROXIMATE MEAN DECLINATION, 1980

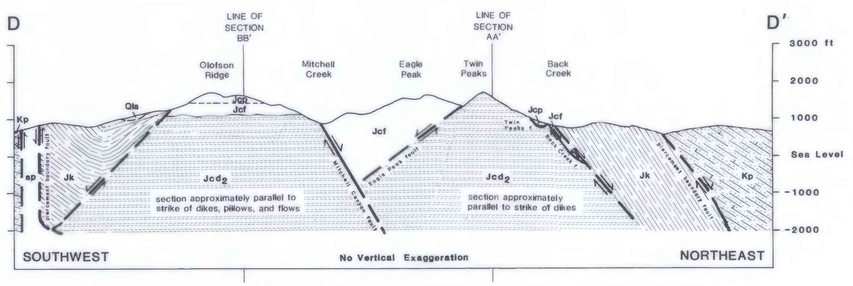
CALIF

QUADRANGLE LOCATION




EXPLANATION

**Qa Qls** — Surficial deposits (Holocene ? – ? Pleistocene; QUATERNARY)

Qa; alluvium

Qls; landslide debris

Unconformity

**Qoa** — Older alluvium (Pleistocene ? – ? Holocene; QUATERNARY)

unconformity

**Kps/Kp** — Panoche Formation (Upper Cretaceous; CRETACEOUS AND (OR) JURASSIC)

Kps; sandstone, tan, arkosic, with large concretions; minor micaceous shale

Kp; micaceous clay shale, minor sandstone

**KJfg | KJfs | KJfc | KJfsr** — Franciscan Complex (Cretaceous and Upper Jurassic; CRETACEOUS AND (OR) JURASSIC)

KJfg; greenstone altered from basalt

KJfs; hard graywacke sandstone and micaceous shale argillite

KJfc; varicolored contorted chert and shale

KJfsr; sheared greenstone, sandstone, chert, and glaucophane schist in a sheared shale matrix

**Jk** — Knoxville Formation (Upper Jurassic; CRETACEOUS AND (OR) JURASSIC)

Micaceous shale, ▲ Buchia elderensis identified by David L. Jones, 1980

**Jcb | Jcp | Jcf | Jcd | Jch | Jcpy** — Coast Range ophiolite (Middle Jurassic; CRETACEOUS AND (OR) JURASSIC)

Jcb; volcanic breccia

Jcp; mainly tholeiitic, subophitic plagioclase-clinopyroxene pillow basalts with some basalt flows, average pillow 1.7 m by 1 m by 0.7 m

Jcf; mainly basalt flows with some pillow basalts, • some flows with amygdules 1-6 mm, ☆ one keratophyre(?) flow with flattened amygdules

Jcd; sheeted diabase dike complex: (1) older diabase (calc-alkalic, subophitic plagioclase-clinopyroxene-hornblende diabase with an average grain size of 1 mm) that is cut by • late-stage leucocratic segregations mainly of plagioclase whose minor zircon gives an U-Pb age of 165 my by James M. Mattinson, 1982, all of which is intruded by diabase dikes (30% by volume), (2) diabase dikes, mainly tholeiitic, subophitic, uralitized plagioclase-clinopyroxene diabase with an average grain size of 0.3 mm

Jch; serpentinized harzburgite: 15% enstatite, 12% forsterite, 70% lizardite and clinochrysotile

Jcpy; serpentinized coarse-grained augite pyroxenite with minor silica carbonate rock

**as | sp | sc** — Ultramafic rocks (TERTIARY AND (OR) MESOZOIC)

as; antigorite schist

sp; serpentinite with parts of Jcb, Jch, Jcpy, as

sc; silica carbonate rock replacing Jcf or Franciscan(?) volcanic rock heavily veined with quartz

Contact

dashed where gradational or approximately located

Fault

U / D

dashed where approximately located, dotted where concealed, queried where inferred, U = upthrown side, D = downthrown side, 55 inclined, + vertical

Strike and dip of sedimentary beds

30 inclined × vertical 70 overturned

Strike and dip of diabase dikes

45 screen intruded by fine-grained diabase

50 medium-grained diabase intruded by fine-grained diabase

34 one fine-grained diabase intruding another

33 fine-grained diabase intruding pillow basalt

47 medium-grained diabase intruding a green amygdaloidal flow

Strike and dip of volcanic rocks

58 layering of pillows in pillow basalt

56 layering of basalt flows

Metamorphic minerals

▫ prehnite ▫ pumpellyite ▫ jadeite ▫ garnet

This map is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards and stratigraphic nomenclature.

# GEOLOGIC MAP AND CROSS SECTIONS OF THE COAST RANGE OPHIOLITE AT MOUNT DIABLO, CONTRA COSTA COUNTY, CALIFORNIA

By

Kathleen M. Williams

1984