U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

MISCELLANEOUS FIELD STUDIES MAP MF- 2403
Version 1.0
Pamphlet accompanies map

Geologic Map and Map Database of Northeastern San Francisco Bay Region, California

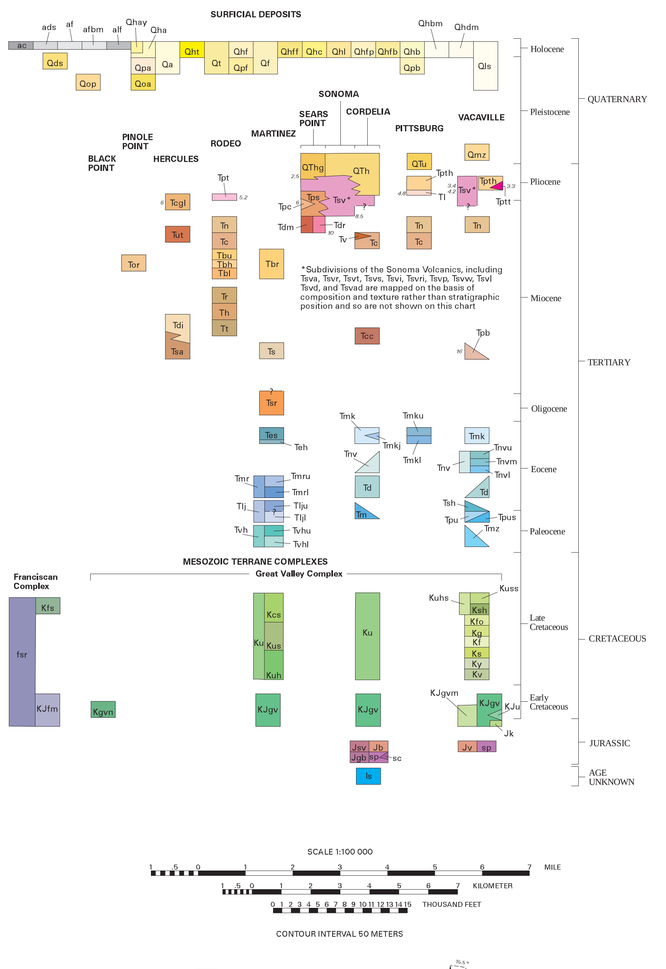
Most of Solano County and Parts of Napa, Marin, Contra Costa, San Joaquin, Sacramento, Yolo, and Sonoma Counties

By

R.W. Graymer, D.L. Jones, and E.E. Brabb

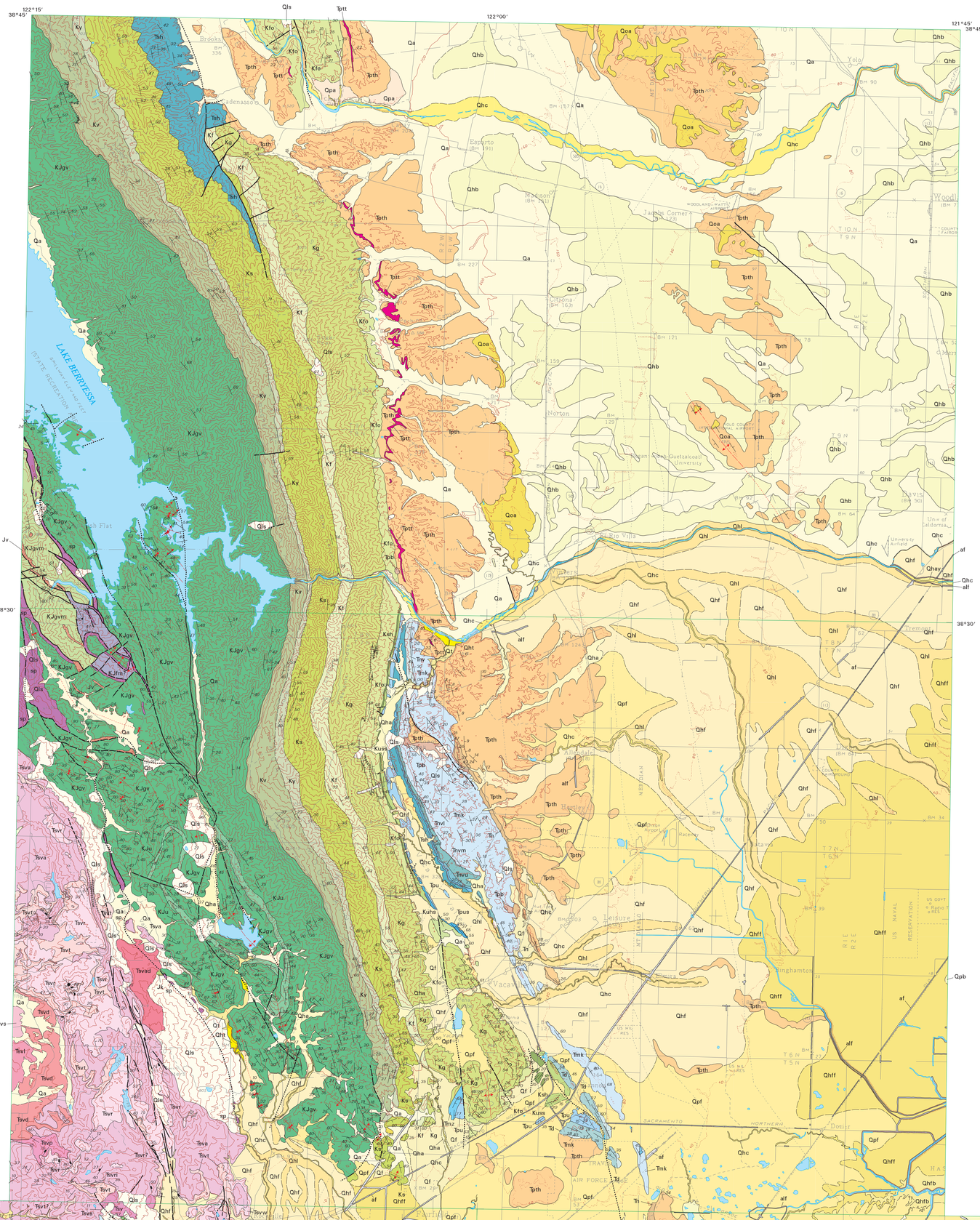
2002

CORRELATION OF MAP UNITS
[numbers, radiometric ages (Ma); see Description of Map Units in pamphlet for specific age data]



SCALE 1:100 000

CONTOUR INTERVAL 50 METERS



Base from Aitken, 1997, A digital version of the 1970 U.S. Geological Survey San Francisco Bay Region 1:125,000 scale topographic map

Stateplane projection, Zone 3

MAP LOCATION

APPROXIMATE MEAN DECLINATION AT CENTER OF MAP, 2002

Digital Cartography by R.W. Graymer, 2001

Edited by Jan Zigler

Manuscript approved for publication, August 8, 2002

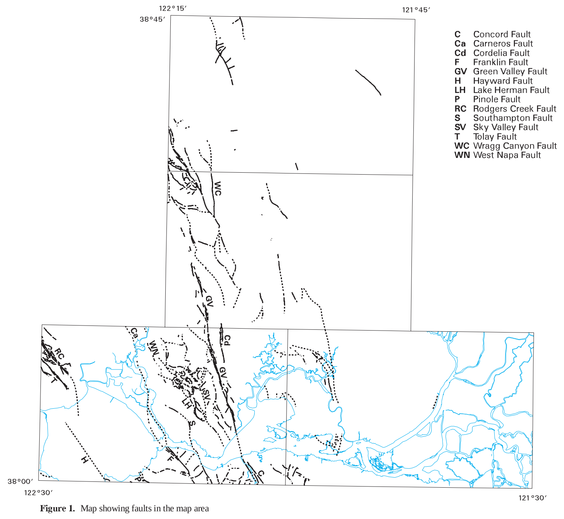


Figure 1. Map showing faults in the map area

C	Concord Fault
Ca	Carneros Fault
Cd	Cordelia Fault
F	Franklin Fault
GV	Green Valley Fault
H	Hayward Fault
LH	Lake Herman Fault
P	Pinole Fault
RC	Rodgers Creek Fault
S	Southampton Fault
SV	Sky Valley Fault
T	Tolay Fault
WC	Wragg Canyon Fault
WN	West Napa Fault

SOURCES OF DATA

(See the accompanying pamphlet (or digital file solmf.txt or solmf.pdf) for references cited)

1. Modified from Blake and others (2000)

2. Modified from Fox and others (1985b)

3. Modified from Youngman (1989)

4. Modified from Knudsen and others (2000), some buried faults from Unruh and Hector (1999)

5. Mostly based on new mapping by authors, 1998-2000, some Quaternary geology from Knudsen and others (2000), some additions from Weaver (1949), active faults from California Division of Mines and Geology (1983)

6. Modified from Graymer and others (1999)

7. Modified from Graymer and others (1994) and Helley and Graymer (1997), buried faults from Unruh and Hector (1999)

8. Modified from Weaver (1949), unpublished mapping by Sonneman and Switzer, 1961-62, and Sims and others (1973), buried faults from Unruh and Hector (1999)

9. Modified from Atwater (1982)

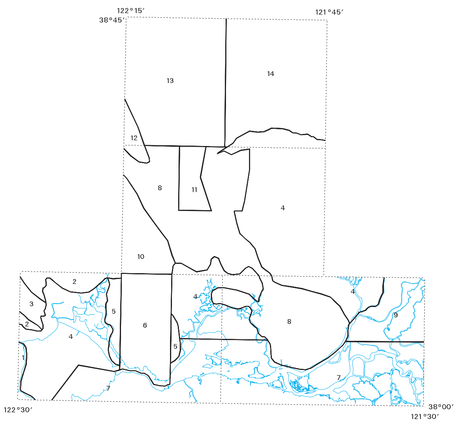
10. Modified from Sims and others (1973) which was based on unpublished mapping by Fox, 1971

11. Modified from Emerson and Roberts (1962), Sims and others (1973)

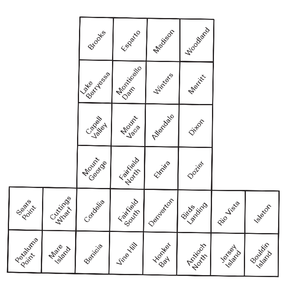
12. Modified from Sims and others (1973) which was based on unpublished mapping by Moiseyev, 1967, and Telaferro, undated

13. Modified from Boyd (1956) and Sims and others (1973)

14. Modified from Helley and Barker (1979)



INDEX MAP OF SOURCES OF DATA



INDEX MAP OF 7.5-MINUTE QUADRANGLES

INDEX MAP OF ASSEMBLAGES

LIST OF MAP UNITS

SURFICIAL DEPOSITS

- ac — Artificial channel deposits (Holocene, historic)
- ads — Dredge spoils (Holocene, historic)
- af — Artificial fill (Holocene, historic)
- afbm — Artificial fill over bay mud (Holocene, historic)
- alf — Artificial levee fill (Holocene, historic)
- Qhay — Younger alluvium (late Holocene)
- Qha — Alluvium (Holocene)
- Qht — Terrace deposits (Holocene)
- Qhf — Alluvial fan deposits (Holocene)
- Qhff — Fine-grained alluvial fan deposits (Holocene)
- Qhc — Stream channel deposits (Holocene)
- Qhl — Natural levee deposits (Holocene)
- Qhfp — Floodplain deposits (Holocene)
- Qhfb — Floodbasin deposits (Holocene)
- Qhb — Basin deposits (Holocene)
- Qhbm — Bay mud deposits (Holocene)
- Qhdm — Delta mud deposits (Holocene)
- Qa — Alluvium (Holocene and late Pleistocene)
- Qt — Terrace deposits (Holocene and late Pleistocene)
- Qf — Alluvial fan deposits (Holocene and late Pleistocene)
- Qls — Landslide deposits (Holocene and Pleistocene)
- Qds — Dune sands (early Holocene and latest Pleistocene)
- Qpa — Alluvium (late Pleistocene)
- Qpf — Alluvial fan deposits (late Pleistocene)
- Qpb — Basin deposits (late Pleistocene)
- Qop — Pediment deposits (late and early Pleistocene)
- Qoa — Alluvium (late and early Pleistocene)

BLACK POINT ASSEMBLAGE
Great Valley Complex

- Kgvn — Novato Conglomerate (Early Cretaceous)

PINOLE POINT ASSEMBLAGE

- Tor — Orinda Formation (late Miocene)

HERCULES ASSEMBLAGE

- Tcgl — Conglomerate (late Miocene)
- Tut — Tuffaceous sandstone (late Miocene)
- Tdi — Diatomite (middle to early Miocene)
- Tsa — Sandstone (middle to early Miocene)

RODEO ASSEMBLAGE

- Tpt — Pinole Tuff (Pliocene)
- Tn — Neroly Sandstone (late Miocene)
- Tc — Cierbo Sandstone (late Miocene)
- Briones Sandstone (late and middle Miocene)
  - Tbu — Upper member
  - Tbh — Hercules Shale Member
  - Tbl — Lower member
- Tb — Rodeo Shale (middle Miocene)
- Th — Hambre Sandstone (middle Miocene)
- Tt — Tice Shale (middle Miocene)

MARTINEZ ASSEMBLAGE

- Tbr — Briones Sandstone (late and middle Miocene)
- Ts — Sobrante Sandstone (early Miocene)
- Tsr — San Ramon Sandstone (early Miocene and (or) Oligocene)
- Tes — Escobar Sandstone of Weaver (1953) (Eocene)
- Tsh — Basal shale member
- Tmr — Muir Sandstone of Weaver (1953) (Eocene)
  - Tmru — Upper member
  - Tmrl — Lower member
- Tlj — Las Juntas Shale of Weaver (1953) (Eocene and Paleocene)
  - Tlju — Upper member
  - Tllj — Lower member
- Tvh — Vine Hill Sandstone of Weaver (1953) (Paleocene)
  - Tvhu — Upper member
  - Tvhl — Lower member

Great Valley Complex

- Ku — Undivided sandstone, siltstone, and shale (Late Cretaceous)
- Kcs — Massive sandstone
- Kus — Sandstone, siltstone, and shale
- Ksh — Massive sandstone
- KJgv — Massive sandstone and shale (Early Cretaceous and Late Jurassic)

SEARS POINT ASSEMBLAGE

- QThg — Huichica and Glen Ellen Formations, undivided (early Pleistocene and Pliocene)
- Tsv — Sonoma Volcanics (Pliocene and late Miocene)
  - Tsva — Andesite to basalt flows
  - Tsvr — Rhyolite flows
  - Tsvt — Ash-flow tuff
  - Tsvs — Volcanic sand and gravel
  - Petaluma Formation (early Pliocene and late Miocene)
    - Tps — Mudrock, sandstone, and conglomerate
    - Tpc — Claystone
  - Donall Ranch volcanics of Youngman (1989) (late Miocene)
    - Tdm — Mafic member
    - Tdr — Rhyolite member

SONOMA ASSEMBLAGE

- QTh — Huichica Formation (early Pleistocene and Pliocene)
- Sonoma Volcanics (Pliocene and late Miocene)
  - Tsvt — Ash-flow tuff

CORDELIA ASSEMBLAGE

- QTh — Huichica Formation (early Pleistocene and Pliocene)
- Tsv — Sonoma Volcanics (Pliocene and late Miocene)
  - Tsva — Andesite to basalt flows
  - Tsvi — Andesite to dacite plugs and dikes
  - Tsvr — Rhyolite flows
  - Tsvri — Rhyolite plugs and dikes
  - Tsvp — Rhyolite and perlitic flows and plugs
  - Tsvt — Ash-flow tuff
  - Tsvw — Welded ash-flow tuff
  - Tsvl — Lithic tuff
  - Tsvs — Volcanic sandstone, siltstone, and conglomerate
  - Tsvd — Diatomite
  - Tc — Cierbo Sandstone (late Miocene)
  - Ts — Intercalated basalt
  - Tcc — Claremont Shale (Miocene)
  - Tmk — Markley Sandstone (Eocene)
  - Tmkj — Jameson Shale Member
  - Tnv — Nortonville Shale Member of Kreyenhagen Formation (Eocene)
  - Td — Domengine Sandstone (Eocene)
  - Tm — Meganos Formation (Eocene and (or) Paleocene)

Great Valley Complex

- Ku — Sandstone and shale (Late Cretaceous)
- KJgv — Sandstone and shale (Early Cretaceous and Late Jurassic)
- Jsv — Keratophyre (Jurassic)
- Jb — Massive and pillow basalt (Jurassic)
- Jgb — Gabbro (Jurassic)
- sp — Serpentinite (Jurassic)
- sc — Silica-carbonate rock
- ls — Limestone (age unknown)

PITTSBURG ASSEMBLAGE

- QTu — Sandstone, siltstone, and gravel (early Pleistocene and late Pliocene)
- Tpth — Tehama Formation (Pliocene)
- Tl — Lawlor Tuff (Pliocene)
- Tn — Neroly Sandstone (late Miocene)
- Tc — Cierbo Sandstone (late Miocene)
- Markley Sandstone (Eocene)
  - Tmku — Upper member
  - Tmkl — Lower member

VACAVILLE ASSEMBLAGE

- Qmz — Montezuma Formation (early Pleistocene)
- Tpth — Tehama Formation (Pliocene)
  - Tpth — Putah Tuff member
- Tsv — Sonoma Volcanics (Pliocene and late Miocene)
  - Tsva — Andesite to basalt flows
  - Tsvad — Andesite to dacite flows
  - Tsvr — Rhyolite flows
  - Tsvt — Ash-flow tuff
  - Tsvs — Volcanic sandstone, siltstone, and conglomerate
- Tn — Neroly Sandstone (late Miocene)
- Tpb — Putnam Peak Basalt (Miocene)
- Tmk — Markley Sandstone (Eocene)
- Tnv — Nortonville Shale Member of Kreyenhagen Formation (Eocene)
  - Tnvu — Upper member
  - Tnvm — Middle member
  - Tnvl — Lower member
- Td — Domengine Sandstone (Eocene)
- Tsh — Shale (Eocene)
- Tpu — Shale and sandstone (Paleocene)
  - Tpus — Basal sandstone member
- Tmz — Martinez Formation (Paleocene)

Great Valley Complex

- Kuhs — Sandstone and shale (Late Cretaceous)
- Kuss — Sandstone
- Ksh — Siliceous shale
- Kfo — Forbes Formation (Late Cretaceous)
- Kg — Guinda Formation (Late Cretaceous)
- Kf — Funks Formation (Late Cretaceous)
- Ks — Sites Formation (Late Cretaceous)
- Kv — Yolo Formation (Late Cretaceous)
- Kv — Venado Formation (Late Cretaceous)
- KJgv — Sandstone and shale (Early Cretaceous and Late Jurassic)
- KJu — Sandstone member
- KJgvm — Mélange
- Jk — Knoxville Formation (Late Jurassic)
- Jv — Basalt and keratophyre (Jurassic)
- sp — Serpentinite (Jurassic)

Franciscan Complex

- Kfs — Sandstone (Late Cretaceous)
- KJfm — Metagraywacke (Early Cretaceous and Late Jurassic)
- fsr — Mélange

Contact—Depositional or intrusive contact, dashed where approximately located, dotted where concealed, hachured where gradational

Fault—Dashed where approximately located, short dashed where inferred, dotted where concealed, queried where location is uncertain

Reverse or thrust fault—Dashed where approximately located, dotted where concealed. Sawteeth on upper plate

Anticline—Shows fold axis, dashed where approximately located, dotted where concealed

Syncline

Strike and dip of bedding

Strike and dip of bedding, top indicator observed

Strike and dip of bedding, approximate

Overturned bedding

Overturned bedding, top indicator observed

Vertical bedding

General strike and dip direction of bedding

Strike and dip of foliation

Strike and dip of joints

Horizontal joint

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