Department of the Interior

U.S. Geological Survey

Open - File Report

80-82

BASE FROM

U.S. GEOLOGICAL SURVEY

1971

GEOLOGY MAPPED

1978-1980

EXPLANATION

Quaternary

Qal — Alluvium (sand and gravel)

Qc — Colluvium and debris flows (sand, silt, and rock fragments)

KT_f — Older alluvium (poorly sorted, bouldery alluvium with distinctive granite (K_{cm}) and gabbro (K_c) clasts, possibly debris flow deposit; dissected remnants of once more extensive deposit)

Cretaceous

Kmd — Fine-grained and porphyritic mafic dikes (quartz diorite, diorite and gabbro forming dikes in all units; too small to be shown at map scale)

Kcm — Granite of Corte Madera (hornblende-biotite leucogranite and lesser granodiorite)

Kl — Pegmatite, alaskite and aplite (leucocratic dikes)

Kt_1 — Felsic tonalite (idiomorphic biotite tonalite and hornblende-biotite tonalite with color index of 8-14 percent, "La Posta tonalite")

Kcp — Granite of Chiquito Peak (hornblende-biotite granite and granodiorite)

Kgm — Tonalite of Granite Mountain (idiomorphic biotite-hornblende tonalite)

Kjv — Tonalite of Japatul Valley (hornblende-biotite tonalite; stipple pattern is tonalite grading to granodiorite, flattened ellipses indicate abundant wall rock inclusions; inclined dashes indicate up to 50 percent gabbro inclusions)

Ka — Tonalite of Alpine (biotite-hornblende tonalite; fine-grained tonalite dikes associated with tonalite of Alpine indicated by Kad)

Klb — Tonalite of Las Bancas (pyroxene-biotite tonalite and quartz norite)

Kc — Cuyamaca Gabbro (peridotite, olivine gabbro, hornblende gabbro, norite; pattern indicates fine-grained gabbro blocks in contaminated tonalite matrix (intrusion breccia) and/or heterogeneous gabbro with large tonalite dikes)

Jurassic (?)

Jm — Metamorphic rocks (quartzo-feldspathic, micaceous semischistose rock and schist; micaceous feldspathic quartzite; black amphibolite and meta-basalt; calc-silicate rock and metaconglomerate; metamorphosed felsic tuffs, tuff-breccias and flows; flattened ellipses indicate concordant granitic gneiss bodies)

Contact, long-dashed where approximately located, queried where indefinite, dotted where concealed, open circles indicate gradational contact

High-angle fault, long-dashed where approximately located or inferred, queried where probable, dotted where concealed; U, upthrown side; D, downthrown side; arrows indicate sense of lateral displacement

Fault or lineament from aerial photographs, not checked or identified on ground

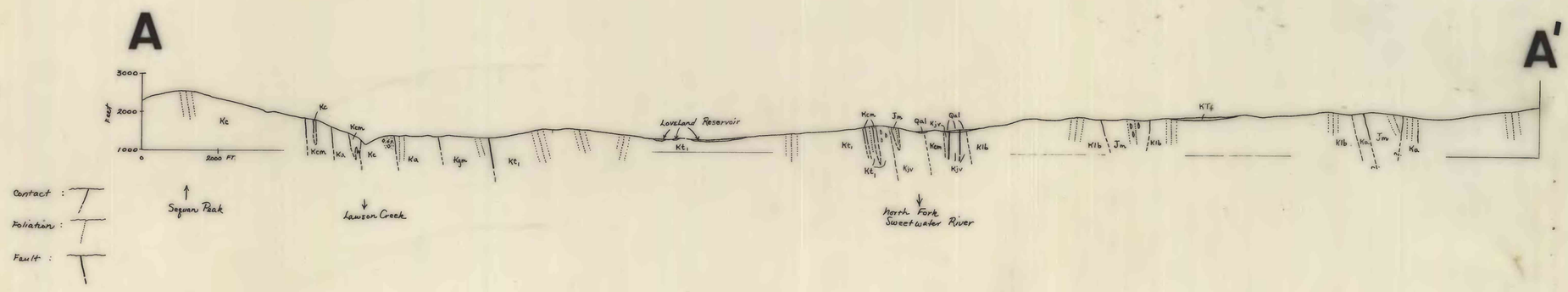
Strike and dip of inclined foliation in crystalline rocks

Where vertical

Where two foliations are present at single locality

Strike and dip of compositional layering (double line) in gabbro (Kc) concordant with mineral recrystallization foliation (single line)

Where dip of compositional layering dip of mineral foliation



GEOLOGIC MAP OF THE ALPINE QUADRANGLE, SAN DIEGO COUNTY, CALIFORNIA

VICTORIA R. TODD

1980

This report is preliminary and has not been edited or reviewed for conformity with Geological Survey standards and nomenclature.