UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

PRELIMINARY BEDROCK GEOLOGIC MAP OF THE CHIWAUKUM 4 SE QUADRANGLE, CHIWAUKUM GRABEN, WASHINGTON

By

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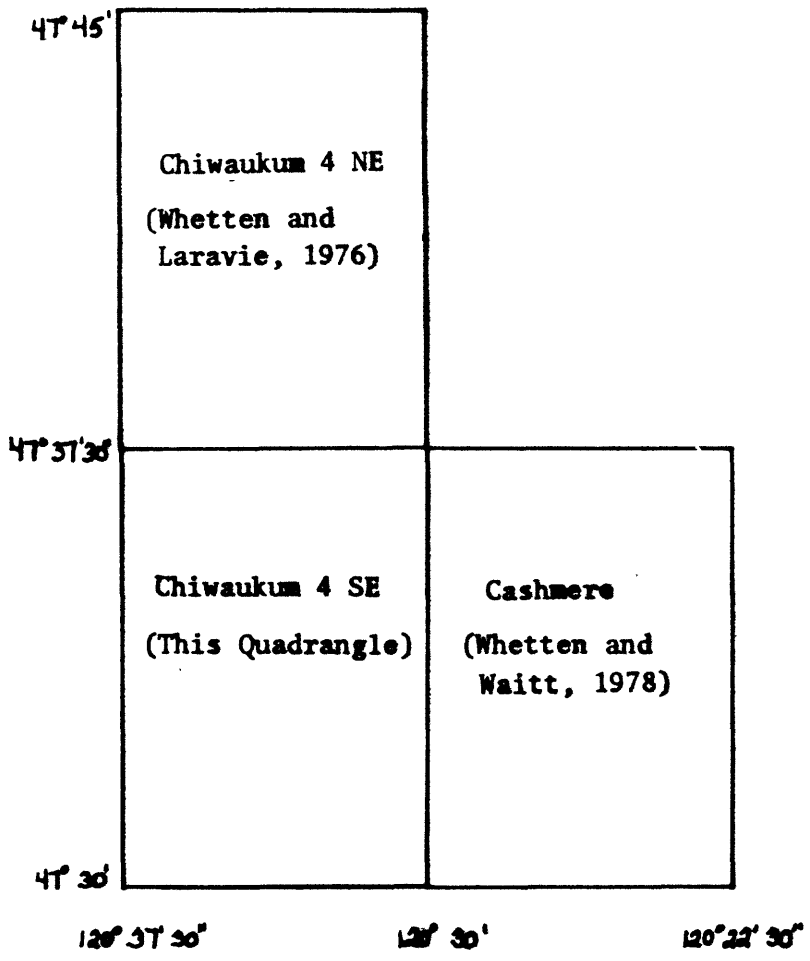
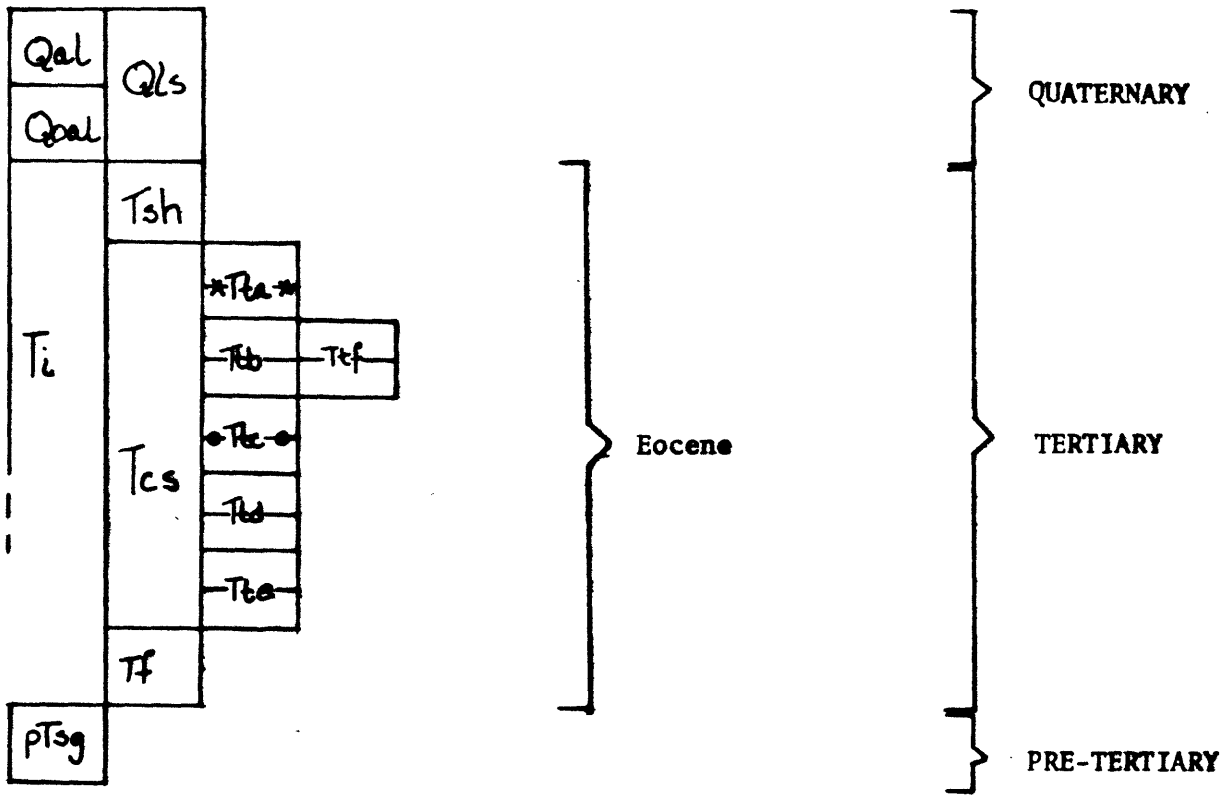
Open-File Report 80-723



INDEX TO GEOLOGIC MAPPING

Geologic mapping available on a scale of 1:24,000 in the Chiwaukum graben, Chelan County, Washington.

CORRELATION OF MAP UNITS



DESCRIPTION OF MAP UNITS

Qal ALLUVIUM - Gravel, sand, and silt composing channels and floodplains of the Wenatchee River and tributaries.

Qoal OLDER ALLUVIUM - Bouldery deposits lithologically similar to unit Qal; found on terraces topographically above the Wenatchee River.

Qls LANDSLIDE DEPOSIT - Locally derived debris downslope from source-area scar. Arrow indicates general direction of movement.

Ti INTRUSIVE ROCK - Commonly basalt or basaltic andesite.

Tsh SANDY SHALE AND SANDSTONE - The Nahahum Canyon Member of the Chumstick Formation of Gresens, and others (in press), consisting of carbonaceous, micaceous, finely laminated fissile shale, interbedded with laminated sandstone. Crossbedding and sole markings present locally. Forms thick soil and is generally poorly exposed; probably of lacustrine origin.

Tcs CONGLOMERATIC SANDSTONE - Main part of the Chumstick Formation of Gresens and others (in press), composed of thick-bedded, light colored sandstone beds, commonly channeled and cross-bedded with minor shale. Pebbles of dacite, Swakane Biotite Gneiss, and rhyolite commonly occur near base of beds. Unit is thousands of meters thick. Tuff beds occur in this unit; some are mappable, as follows:

Tta TUFF - Coarse-grained, containing pumice; probably water-laid and reworked. Zeolitized. Thickness ranges from 2 to 4 m. Fission-track (zircon) ages on three samples have been determined as 48.8 ± 7.2 m.y., 42.7 ± 5.1 m.y., and 41.9 ± 6.8 m.y. (Gresen and others, in press).

Ttb TUFF - Resistant unit ranging from fine-grained vitric tuff to tuffaceous sandstone. About 2 m thick.

Ttf TUFF - Pumiceous, vitric, ridge-forming; about 3 m thick. Stratigraphic position and general appearance suggest this tuff may be the same as unit Ttb.

Ttc TUFF - Coarse-grained tuff containing pumice and carbonized wood; probably deposited as an ash flow. Thickness ranges from 4 to 14 m. Fission-track (zircon) ages on three samples have been determined as 46.2 ± 1.8 m.y., 46.1 ± 1.9 m.y., and 42.7 ± 1.5 m.y. (Gresen and others, in press).

Ttd TUFF - Includes poorly consolidated pumice, dense vitric tuff, and tuffaceous breccia. About 2 m thick.

Tte TUFF - Crystal vitric, dense, fine-grained, 2 to 4 m thick.

Tf FANGLOMERATE - Composed of angular clasts of biotite gneiss (pTsg) in a sandy matrix commonly stained red. Sandstone lenses locally present.

pTsg SWAKANE BIOTITE GNEISS - Fine- to medium-grained biotite-plagioclase-quartz-gneiss; commonly granoblastic and locally cataclastic to mylonitic (Waters, 1932; Laravie, 1976).

Contact - Dashed where inferred; dotted where concealed. Thin tuff beds are shown by a single line

Fault - Dashed where inferred; dotted where concealed. Ball and bar on downthrown side; arrows indicate inferred direction of movement on postulated strike-slip faults

Anticline - Showing crestline; dashed where approximately located, dotted where concealed

Syncline - Showing troughline; dashed where approximately located, dotted where concealed

Strike and dip of beds

Inclined

Overturned

Stike and dip of foliation in metamorphic rocks

SELECTED REFERENCES

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