70-271

U.S. GEOLOGICAL SURVEY
OPEN FILE MAP

Base from U.S. Geological Survey 1:250000
Topographic Series: McGrath, Talkeetna, Lime Hills, Tyonek, Alaska, 1958

5 0 5 10 15 MILES
SCALE 1:250000

Geology mapped by B.L. Reed and R.L. Elliott in 1967; B.L. Reed and M.A. Lanphere in 1968; B.L. Reed, R.L. Elliott and R.J. May in 1969

EXPLANATION

SEDIMENTARY AND VOLCANIC ROCKS

Qs — Surficial deposits
Includes alluvium, talus, rock glaciers, and various morainal deposits. Bedrock outcrops are present in ravines and along cut banks of rivers

Tv, Tvt, Tvi — Volcanic rocks
Tv, undifferentiated volcanic rocks; mafic and felsic flows, tuffs and flow breccias; query denotes questionable assignment
Tvt, tuffaceous rocks, shown locally
Tvi, volcanic intrusive centers, shown locally

Km, Kw, Kf — Metasedimentary rocks
Km, undifferentiated metasedimentary rocks; slate, graywacke, siltstone, argillite and phyllite andalusite schist near contact with Hartman River intrusives, medium to dark gray, locally includes red weathering feldspathic wacke (Kw); query denotes questionable assignment
Kw, feldspathic wacke with interbeds of siltstone; locally calcareous; weathers reddish brown

Mzu, Mzv, Mzs — Metavolcanic and metasedimentary rocks
Mzu, undifferentiated metavolcanic and metasedimentary rocks of pre-Cretaceous age; locally may include metasedimentary rocks (Km) of Cretaceous age
Mzv, predominantly metavolcanic rocks of pre-Cretaceous age; chiefly metabasalts and metandesites; may be equivalent to Talkeetna Formation, locally includes subordinate metasedimentary rocks; query denotes questionable assignment
Mzs, predominantly metasedimentary rocks of pre-Cretaceous age locally includes subordinate metavolcanic rocks; locally includes metasedimentary rocks (Km) of Cretaceous age

Pzu — Sedimentary rocks
Undifferentiated shale, siltstone, argillite and limestone fossils (chiefly graptolites) collected from these rocks are Late Cambrian, Ordovician, Silurian and Devonian in age. Locally includes Cretaceous metasedimentary rocks

INTRUSIVE ROCKS

Tw — Windy Fork stock
Biotite- hornblende granite

Tsr — Styx River batholith
Biotite granite and quartz monzonite; weathers light brown to dark yellowish orange; intrudes the Mount Estelle intrusive and granodiorite of the Nagichlamina River; query denotes questionable assignment

Tth, Tthb — Tired Pup batholith
Tt, biotite quartz monzonite with minor biotite granite, coarse- to medium- grained, subporphyritic, with phenocrysts of K-feldspar
Ttb, border facies; fine- to medium-grained leucocratic biotite granite with accessory fluorite; similar in composition to Windy Fork stock

Tmf — Middle Fork stock
Medium- grained biotite quartz monzonite

Kh — Hartman River plutons
Chiefly hornblende- biotite quartz diorite, but includes granodiorite and quartz- bearing gabbro, diorite, and monzonite; granodiorites predominately north of Pass Fork; query denotes questionable assignment

Age relationship uncertain

Tiu — Unassigned felsic intrusive rocks
Undifferentiated medium-grained biotite and/or hornblende quartz monzonite, granodiorite, quartz diorite, and syenite

Td — Dike swarm
Felsic and mafic dikes

Tme — Mount Estelle pluton
Medium- grained hornblende- biotite granodiorite and quartz monzonite; query denotes questionable assignment

Tg — Gabbro
Medium- to fine- grained altered alkali gabbro

Tn — Granodiorite of the Nagichlamina River
Medium- grained hornblende- biotite granodiorite

Tfr — Granodiorite of the Stony River
Medium- grained biotite- hornblende granodiorite; query denotes questionable assignment

Tc — Chilligan River pluton
Medium- grained porphyritic biotite- hornblende quartz monzonite and granodiorite; phenocrysts of K- feldspar

Tbr — Hypabyssal intrusive rocks
Chiefly felsic igneous breccia

TKi, TKu — Unassigned intrusive rocks
TKi, undifferentiated felsic and mafic intrusive rocks
TKu, chiefly granite and quartz monzonite; rocks east of Shwatina River and south of Merrill Pass may be equivalent to Styx River batholith

Mzi — Unassigned intrusive rocks
Chiefly sphene- bearing quartz diorite and diorite

Mzm — Unassigned mafic rocks
Chiefly diorite and olivine and/or hornblende gabbro; occurs as inclusions in Tertiary intrusive rocks; locally may be metamorphosed equivalent of unit Mzi

QUATERNARY
TERTIARY
CENOZOIC
CRETACEOUS OR TERTIARY
MESOZOIC OR CENOZOIC
CRETACEOUS (?)
MESOZOIC
PALEOZOIC

Contact
Dashed where approximately located, queried where doubtful, dotted where concealed

Fault
Dashed where approximately located, queried where doubtful, dotted where concealed; U, upthrown side; D, downthrown side

Thrust or reverse fault
Sawteeth on upper plate, dashed where approximately located, queried where doubtful

Shear zone
Dashed where approximately located, queried where doubtful; dotted where concealed

Overturned anticline
Showing approximate trace of axial plane; queried where doubtful

Syncline
Showing approximate trace of axial plane dotted where concealed

Inclined — vertical
Strike and dip of beds
Dashed symbol indicates attitude estimated from distant field observations or from aerial photographs

Strike and dip of flow banding

PRELIMINARY RECONNAISSANCE GEOLOGIC MAP OF PART OF THE SOUTHERN ALASKA RANGE

By
B.L. Reed and R.L. Elliott

PLATE 1