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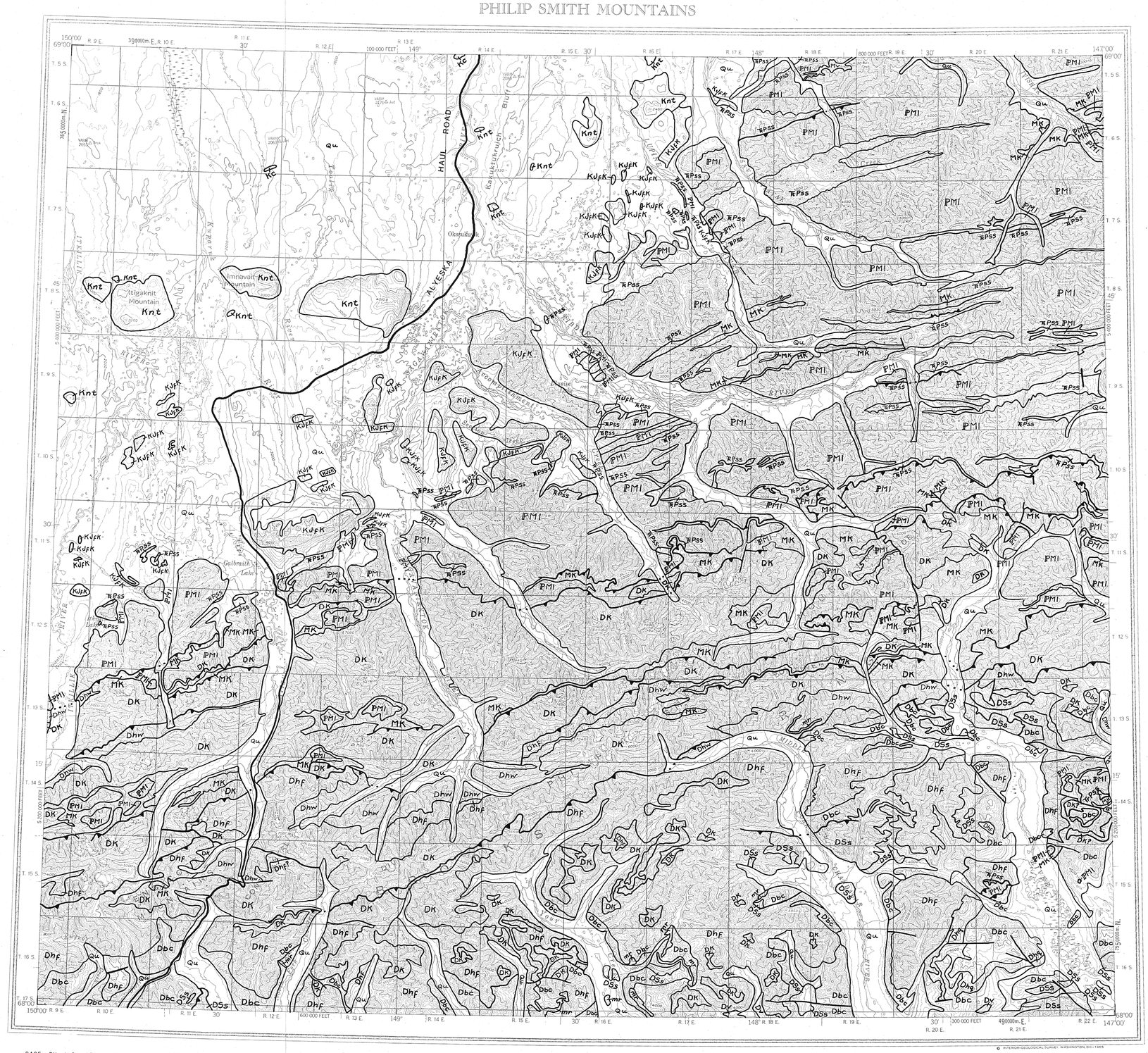
U.S. GEOLOGICAL SURVEY
OPEN FILE MAP
OF 77-430

PHILIP SMITH MOUNTAINS



BASE BY U.S. GEOLOGICAL SURVEY, 1956.

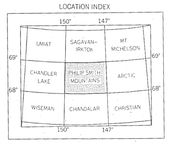
SCALE 1:200000

5 0 5 10 15 20 25 MILES

5 0 5 10 15 20 25 KILOMETERS

CONTOUR INTERVAL 200 FEET
DATUM IS MEAN SEA LEVEL

LOCATION INDEX



GENERALIZED GEOLOGIC MAP OF PHILIP SMITH MOUNTAINS QUADRANGLE, ALASKA

by W.P. Brosge, H.N. Reiser, J.T. Dutro Jr. and R.L. Detterman

1977

GEOLOGY BY: A.L. BOWSHER, J.T. DUTRO JR., 1949; W.P. BROSGE, H.N. REISER, 1950, 1952, 1960; A.S. KELLER, R.L. DETTERMAN, 1951; W.P. BROSGE, H.N. REISER, C.L. WHITTINGTON, 1958; I.L. TAILLEUR, 1965; R.L. DETTERMAN, 1969, 1972; H.N. REISER, J.T. DUTRO JR., 1974; H.N. REISER, W.P. BROSGE, J.T. DUTRO JR., R.L. DETTERMAN, 1975, 1976; N.J. SILBERLING, 1976.

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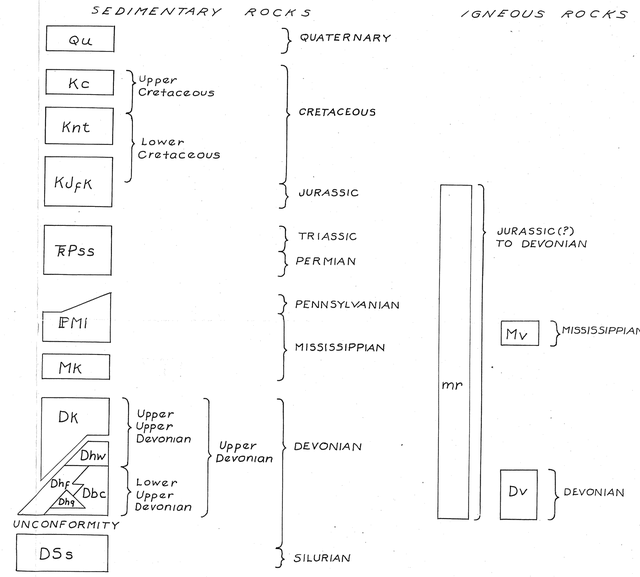
CORRELATION OF MAP UNITS



DESCRIPTION OF MAP UNITS

The area of each map unit includes some areas underlain by rocks of the adjacent map units.

SEDIMENTARY ROCKS

Qu SURFICIAL DEPOSITS, UNDIVIDED --- Alluvium, glacial deposits, colluvium, and talus.

Kc COLVILLE GROUP (Upper Cretaceous) --- Tuff, tuffaceous siltstone, and sandstone.

Knt NANUSHUK GROUP (Upper and Lower Cretaceous) AND TOROK FORMATION (Lower Cretaceous) --- Nanushuk Group: upper part non-marine sandstone, conglomerate, shale and minor coal; lower part marine siltstone, shale, minor sandstone. Torok Formation: dark gray shale and siltstone.

KJfk FORTRESS MOUNTAIN, OKPIKRUAK, AND KONGAKUT FORMATIONS (Lower Cretaceous) AND KINGAK SHALE (Jurassic) --- Fortress Mountain Formation: graywacke, conglomerate, and siltstone. Okpikruak Formation: rhythmically bedded dark gray siltstone, shale, and graywacke; minor coquina. Kongakut Formation: black manganiferous shale and siltstone; minor graywacke. Kingak Shale: dark gray siltstone and shale.

TRPss SHUBLIK FORMATION (Upper and Middle Triassic) AND SADLEROCHIT GROUP (Lower Triassic and Permian) --- Shublik Formation: black phosphatic shale and limestone; local varicolored chert. Sadlerochit Group: upper part (Ivishak Formation, Lower Triassic), laminated siltstone and shale; minor sandstone; lower part (Echooka Formation, Permian), calcareous siltstone and shale; limestone; sandstone; barite concretions locally.

PMl LISBURNE GROUP (Pennsylvanian and Mississippian) --- Gray limestone and dolomite; nodular chert. Upper part mostly light gray, lower part mostly dark gray.

Mk KAYAK SHALE (Mississippian) --- Black shale; interbedded limestone in upper part and sandstone in lower part.

Dk KANAYUT CONGLOMERATE (Upper Devonian) --- Mostly non-marine, cyclically interbedded quartzite, rusty-weathering conglomerate, sandstone, and red, green and black shale. Basal marine transgressive brown-weathering, thin-bedded, partly calcareous sandstone.

Dhw WACKE MEMBER OF HUNT FORK SHALE (Upper Devonian) --- Gray-green manganiferous shale and siltstone; thin-bedded, orange-weathering subgraywacke; coquina lenses.

Dhf SHALE OF HUNT FORK SHALE (Upper Devonian) --- Dark gray shale and and slate; interbedded quartzite; thin zone of reef limestone in lower part. A calcareous sandstone member laterally equivalent to the limestone is included in unit Dbc on this generalized map. A few mafic sills and flows.

Dhq QUARTZITE MEMBER OF HUNT FORK SHALE (Upper Devonian) --- Quartzite, black siltstone and slate.

Dbc CALCAREOUS SANDSTONE MEMBER OF HUNT FORK SHALE (Upper Devonian) AND UNNAMED BROWN CALCAREOUS CLASTIC ROCKS --- Tongue of orange-weathering calcareous sandstone, siltstone and shale within Hunt Fork Shale. Unnamed, partly calcareous, partly brown- or orange-weathering gray and black shale, sandstone, siltstone and conglomerate beneath Hunt Fork contains reef limestones at several horizons in upper part, and locally includes shaly limestone, conglomeratic limestone, red and green shale, and phyllite.

DSs SKAJIT LIMESTONE (Devonian and Silurian) --- Gray limestone, dolomite, and marble, with gray recrystallized chert locally at top. A few small mafic dikes.

IGNEOUS ROCKS

mr MAFIC ROCKS --- Gabbro, diorite, and greenstone. Thin, but extensive sill in Hunt Fork Shale in T14S, R20E not shown on map.

Mv VOLCANIC ROCKS --- Diorite sill; crops out only in north part of quadrangle. Correlated with dikes, sills, and andesitic flow and tuff in Mississippian part of Lisburne Group about 10 km farther north.

Dv VOLCANIC ROCKS --- Partly chloritized pillow basalt flows.

EXPLANATION OF SYMBOLS

Geologic contact

Fault, dashed where approximately located

Thrust fault. Saw teeth on upper plate. Dotted where concealed.

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