

Explanation for Aeromagnetic-Interpretation Map

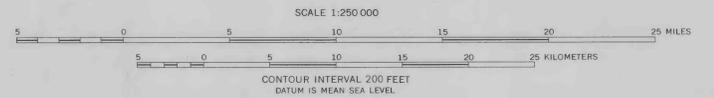
Map-unit labels (for example, Pzms, Pzsm) indicate the mapped rock type that is exposed closest to the crest of a magnetic high and is most likely the cause of the high. In some cases, the only rock types exposed near a magnetic high are the orange dolomitic marble unit or Skagit Limestone, which are unlikely to cause magnetic highs unless they contain skarn. In these cases, the sources of the magnetic highs are probably buried. The map-unit designations are taken from a more detailed geologic map (Nelson and Crybeck, 1980) than that used as a base for the aeromagnetic-interpretation map, because (1) although a simplified geologic base was required so as not to clutter the aeromagnetic map, the aeromagnetic map shows that there are magnetic units, especially within the low-grade schist unit of the simplified map, that are greatly limited in areal extent compared with the lumped-together units of the simplified map; and (2) the inferred magnetic units are not exactly continuous with any subdivisions shown on the detailed geologic map; they cut across unit boundaries, especially within the low-grade schist unit of the simplified map, used as the base of sheet 3. Hence, the unit designations identified with magnetic highs on the aeromagnetic-interpretation map suggest a possible subdivision of the low-grade schist unit, stable subdivision of the low-grade schist unit, based upon magnetic variations, that is different from that used in the detailed geologic map. Table 2 shows the rock-unit symbols taken from the detailed geologic map along with the equivalent lumped unit symbols used on the generalized base of the aeromagnetic-interpretation map.

AEROMAGNETIC SYMBOLS

- AEROMAGNETIC INDEX CONTOURS**—Measured to indicate closed areas of lower magnetic intensity. Contour interval 100 gam mas
- AXIS OF SELECTED HIGH**—Geologic symbol refers to rock type associated with high. Letter(s) with a number refer to numbered high; queried where uncertain high belongs to suite of similarly numbered highs
- AXIS OF SELECTED LOW**—Queried where continuity uncertain. Arrows indicate low occurs at core of overturned anticlinorium. Letter with number refers to numbered low
- BOUNDARY OF INFERRED MAGNETIC ROCK UNIT**—Solid where magnetic rock probably occurs at or near surface; dashed where magnetic rock probably occurs at depth of 1 km or more
- STRIKE AND DIP**—Inferred attitude of magnetic rock unit
- BOUNDARY BETWEEN MAJOR MAGNETIC TERRANES**—Solid where slight is evident at surface; dashed where occurs at depth of 1 km or more. Numbers identify terranes. Queried where uncertain
- AXIS OF BROAD MAGNETIC HIGH**—From basement(?) source. Queried where continuity uncertain
- AXIS OF BROAD MAGNETIC LOW**—Queried where continuity uncertain. Arrows indicate low occurs along axis of a syncline involving magnetic strata
- FAULT INTERPRETED FROM MAGNETIC ANOMALY PATTERNS**—Letters refer to numbered faults
- GROUND TRAVERSE**—Using magnetometer and susceptibility meter. ST, station number refers to sample number, table 1. Magnetometer profiles (1-13) shown in figure 1
- MAGNETIC LOW POSSIBLY CAUSED BY REVERSELY MAGNETIZED ROCK**
- PROFILE FOR MAGNETIC MODEL FIGURES**

- DESCRIPTION OF MAP UNITS**
- Unconsolidated Deposits**
- Qu SURFICIAL DEPOSITS, UNDIVIDED
 - Ku UNDIVIDED CONGLOMERATE—Quartz-pebble and igneous-pebble conglomerate; some interbedded volcanic sandstone
 - Pp SHUBLIK AND SIKSIKPUK FORMATIONS (Triassic and Permian)—Pink-weathering limestone of Shublik Formation (Triassic) and black slate and chert of Siksiikpuk Formation (Permian)
 - ENDICOTT GROUP (Mississippian and Devonian)—In map area includes:
 - Mk KAYAK SHALE AND KEKIKTUK CONGLOMERATE (Lower Mississippian)—As mapped, unit includes related undifferentiated classic rocks and a few outcrops of limestones in lower (?) part of Irburne Group
 - Dk KANAYUT CONGLOMERATE (Upper Devonian)—Non-marine rusty-weathering quartz sandstone, ferruginous mudstone, and black siltstone, and shale. Prominent, resistant layers of black-lichen-covered light-gray quartzite. Rare conglomerate
 - Dhf HUNT FORK SHALE (Upper Devonian)—Dark-gray phyllite with minor quartz mudstone and sandstone. Upper part includes:
 - Dhfs Wacke sandstone member—thick monotonous unit of interbedded rusty-weathering feldspathic sandstone and dark-gray mudstone and shale. Locally includes thin layers of reddish-gray fossiliferous limestone and calcareous sandstone.
 - Dp GRAY PHYLLITE—Mainly gray, calcareous phyllite and muscovite schist; contains limestone beds up to 20 m thick. Locally consists of lenses of quartz-pebble conglomerate interbedded with orange-weathering, fossiliferous limestone, black siliceous phyllite, or micaceous schist
 - Ds SKAGIT LIMESTONE (Devonian and Silurian)—Massive white to light-gray granoblastic marble and orange-weathering dolomitic marble. Some inter-layered chlorite schist
- Metamorphosed Igneous Rocks**
- Dgr GNEISSIC GRANITE—Medium- to coarse-grained biotite-muscovite orthogneiss ranging in composition from granite to alkali-feldspar granite. Commonly well-developed augens; locally cataclastically deformed
 - Df METAFELSITE—Mainly quartz-albite-feldspar schist; locally porphyroblastic muscovite-biotite-quartz-albite-feldspar rocks that retain igneous textures
 - pGr GRANITIC SCHIST—Medium-grained porphyroblastic gray biotite-quartz-feldspar schist
- Mainly Metamorphosed Mafic Igneous Rocks of Uncertain Age**
- MzPz MAFIC VOLCANIC ROCKS, PHYLLITE, SANDSTONE, AND CHERT—Consists mainly of interbeds and fault slivers of Devonian (?) to Jurassic pillow basalt, greenstone, and diabase, gray phyllite, wacke sandstone, minor Triassic radiolarian chert, Mississippian radiolarian chert, and thin beds of Paleozoic limestone. Weakly metamorphosed to unmetamorphosed
 - Pm MAFIC VOLCANIC AND INTRUSIVE ROCKS—Basalt, greenstone, and altered gabbro. Unmetamorphosed to slightly metamorphosed
- Metamorphic Rocks of Uncertain Age**
- MDCp CALCAREOUS PHYLLITE—Black calcareous phyllite with thin dark-gray limestone lenses
 - Pz LOW-GRADE SCHIST—Chloritoid-bearing quartz-muscovite schist, calcareous quartz-albite-muscovite schist, quartzite, and rare thin limestone beds. Schist locally contains glaucophane
 - Pzclq CHLORITIC QUARTZITE—Chlorite quartzite and chloritic quartz schist
 - Pzsgn LOW- TO MEDIUM-GRADE SCHIST AND GNEISS—Inter-layered quartz-muscovite schists and orange-weathering marble. Medium-grade schist and paragneiss with garnet, biotite, and amphibole near plutons
- GEOLOGIC SYMBOLS**
- CONTACT—Dashed where approximately located; dotted where concealed
 - FAULT—Dashed where approximately located or inferred; dotted where concealed; queried where uncertain
 - THRUST FAULT—Dashed where approximately located if inferred; dotted where concealed; queried where uncertain. Sawtooth on upper plate

Base from U.S. Geological Survey, 1956



Geology generalized by D.J. Crybeck and S.W. Nelson, 1980. Detailed geologic map published as part of this folio (Nelson and Crybeck, 1980)

AEROMAGNETIC INTERPRETATION

MAPS SHOWING AEROMAGNETIC SURVEY AND INTERPRETATION OF THE SURVEY PASS QUADRANGLE, BROOKS RANGE, ALASKA

By
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