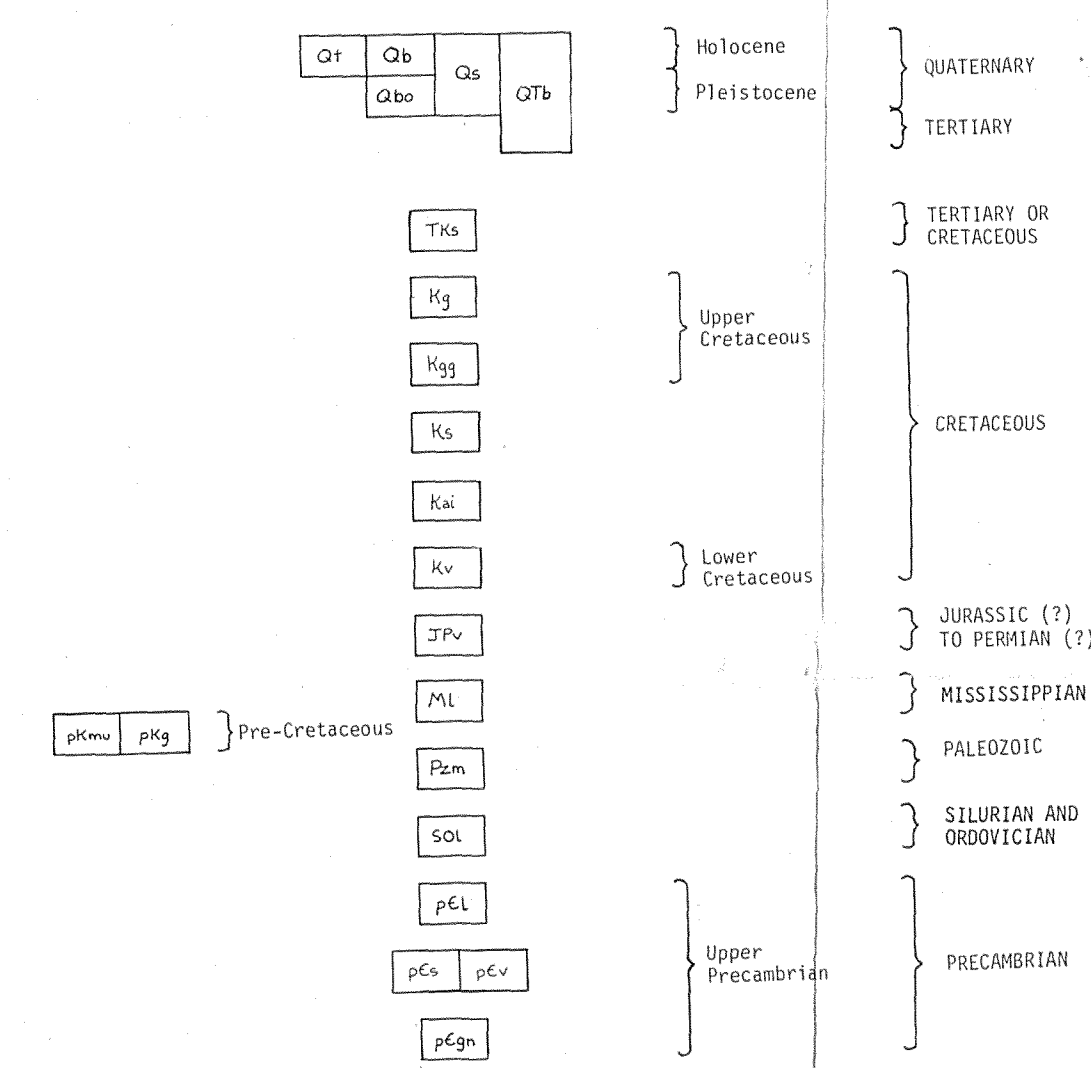


This map is one of several data components prepared as a foundation for evaluating the mineral resource potential of Seward Peninsula. In addition to the sources of geologic data credited in the index map, Sainsbury's (1975) summary of his extensive geologic studies on Seward Peninsula has been particularly helpful. The map, unit descriptions, and correlations reflect as closely as possible the geology as published in the principal sources of geologic data. Important sources of additional and more detailed descriptive data are referenced in the description of map units.

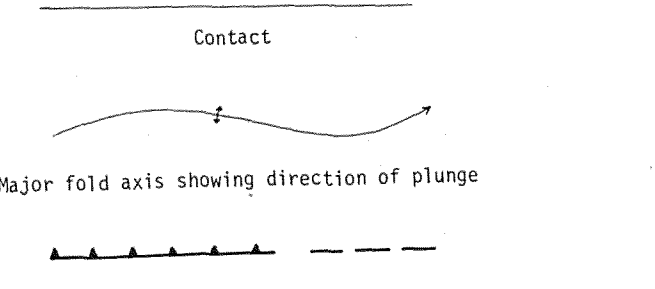
CORRELATION OF MAP UNITS



DESCRIPTION OF MAP UNITS

- Qt** TUNDRA (Holocene) Dense vegetation mat consisting of herbaceous and shrubby plants. Shows only in areas where it forms an extensive and essentially continuous mantle on bedrock or other surficial materials. (Sigheff, 1958)
- Ob** YOUNGER BEACH DEPOSITS (Holocene) Sand and gravel deposits related to present beach environments.
- Qbo** OLDER BEACH DEPOSITS (Pleistocene) Sand and gravel deposits shown only in Port Clarence and Cape Wodley areas. Commonly covered by tundra (Qt) and other surficial deposits (Qs).
- QTB** SURFICIAL DEPOSITS UNDIVIDED (Holocene and Pleistocene) Silt, sand, gravel, and glacial drift. Commonly covered by tundra (Qt) and other surficial deposits (Qs).
- TXs** BASALT (Quaternary and Upper Tertiary) Dominantly vesicular olivine basalt but includes breccia, agglomerate, scoria, tuff, and cinder deposits. Present locally throughout the Seward Peninsula but forms extensive subaerial accumulations to a few hundred meters thick in the Imuruk lake area, in major drainages of the northeastern map area, and southwest of Cape Espenberg (K/Ar ages as old as 5.7 m.y. (Hopkins and others, 1971)). (Hopkins, 1963)
- Kg** BIOTITE GRANITE (Upper Cretaceous) Equigranular to porphyritic and generally non-foliate. Forms several epizonal, composite plutons in a 175 km belt from Cape Prince of Wales northeast to Healy Mountains of Serpentine River. Reported K/Ar ages range from 69 to 79 m.y. (Sainsbury, 1969; 1975; Hudson, 1977). (Knopf, 1908; Stilleman and Callahan, 1922; Sainsbury, 1969, 1975; Sainsbury, Hudson, Kachadoorian, and Richards, 1970; Hudson, 1977)
- Kgg** BIOTITE GRANITE AND GRANODIORITE (Cretaceous) Fine- to coarse-grained equigranular to porphyritic, and massive to foliate; hornblende and garnet occur locally as accessory minerals. Forms main plutons of Bendeleben and occur locally as accessory minerals. A large pluton mostly covered by younger rocks (Ks) in the northern Bendeleben Mountains, and many smaller plutons (mostly unroofed) north of the Bendeleben Mountains. K/Ar ages of the northern Bendeleben pluton range from 80-94 m.y., and the Bendeleben pluton has a K/Ar age of 80 m.y. (Miller and Bunker, 1976). Some unroofed plutons could be younger.
- Ks** SEDIMENTARY ROCKS (Cretaceous) Dominantly marine clastic rocks including graywacke, calcareous graywacke, conglomerate, and mudstone. Derived mostly from older Mesozoic volcanic and plutonic rocks that border Seward Peninsula, along its eastern margin. (Patton, 1973)
- Kai** ALKALIC AND ASSOCIATED INTRUSIVE ROCKS (Cretaceous) Quartz monzonite, monzonite, syenite, and nepheline syenite. Fine- to coarse-grained, equigranular to porphyritic, generally non-foliate, locally trachytic, and potassium-rich dikes. Forms several epizonal and composite plutons in a 200 km north-south trending belt from Golovin Bay to northeast of the Buckland River. Reported K/Ar ages range from 93 to 108 m.y. (Miller and others, 1966; Miller, 1972; Miller and Bunker, 1976)
- Kv** ANDESITIC VOLCANIC ROCKS (Lower Cretaceous) Flows, tuff, breccia, agglomerate, and volcanogenic sedimentary rocks. Principally exposed east of Kluwiltz River where they are intruded by mid-Cretaceous plutons (Ks). (Patton, 1973)
- JFV** MAFIC METAVOLCANIC ROCKS (Jurassic (?) to Permian (?) Metabasalt with minor serpenitine in a thin northerly trending belt near the southeast boundary of the peninsula. Age unknown but lithologically correlated with rocks of a Permian to Jurassic (?) ophiolite assemblage present along part of the Yukon-Koyukuk province margin. (Patton, 1973)
- ML** LIMESTONE (Mississippian) Dark limestone, marble, and subordinate shale near Tin City and north of the Inukjuak River. Area north of the Inukjuak River probably includes rocks of several other units.
- Pzm** MARBLE (Paleozoic) Chiefly light- to dark-gray calcareous and dolomitic marble but with lesser limestone, dolomitic limestone, dolomite, and calcitic sedimentary rocks. Widely distributed and sparsely fossiliferous; fossils commonly suggestive or definitive of a Devonian age but in part probably includes older rocks.
- SOL** LIMESTONE (Silurian and Ordovician) Fossiliferous limestone, argillaceous limestone, and shales, locally with chert lenses and nodules. Forms a complexly faulted and in large part allochthonous terrane in the western map area. Stratigraphic thickness probably exceeds 3000 m. Locally includes Devonian and possibly Cambrian and late Precambrian rocks. (Sainsbury, 1969)

MAP SYMBOLS



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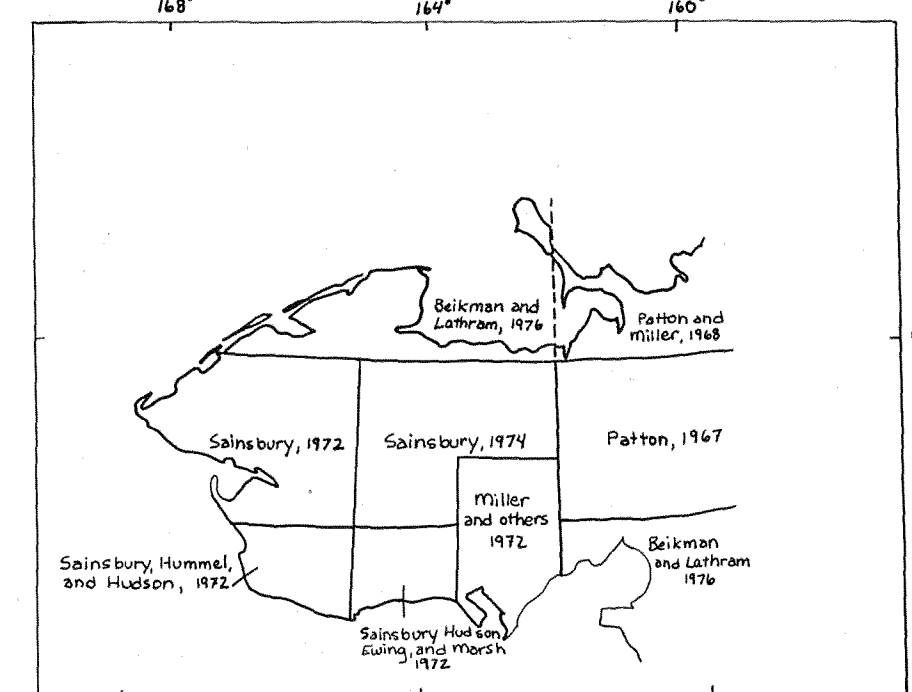
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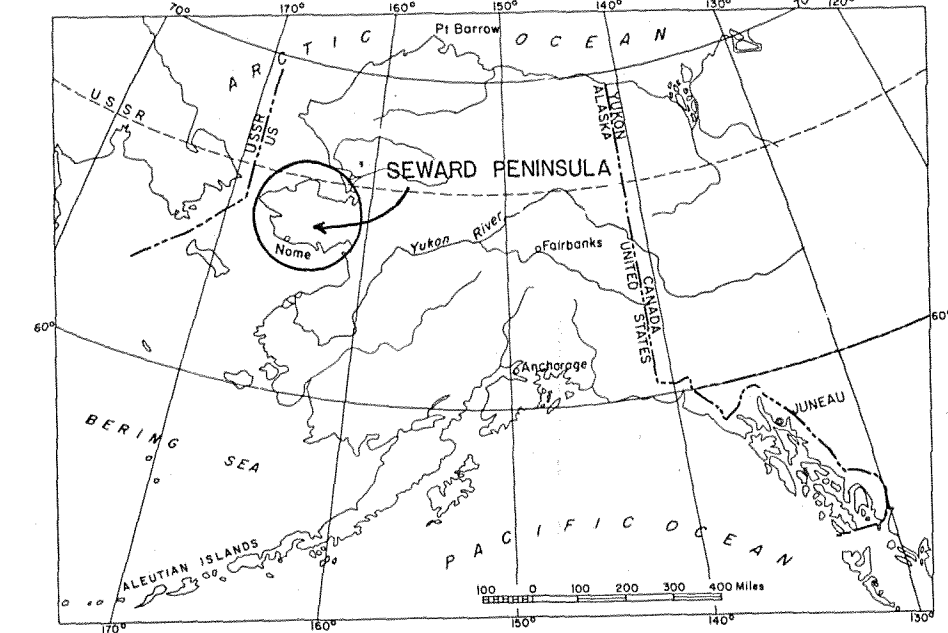
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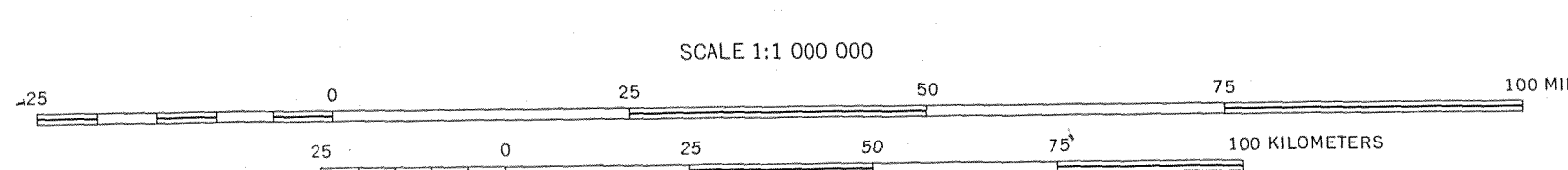


INDEX MAP SHOWING PRINCIPAL SOURCES OF GEOLOGIC DATA



LOCATION OF SEWARD PENINSULA, ALASKA

GEOLOGIC MAP OF SEWARD PENINSULA, ALASKA



Compiled by
Travis Hudson

1977

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

Supersedes Open File Report 77-767A