



Base map from the National Atlas of the United States of America, U. S. Geological Survey, 1970.

EXPLANATION FOR GEOLOGIC MAP AND SECTIONS

- Anticline
- Syncline
- Overturbed anticline
- High-angle Fault or Fault whose attitude is unknown—dashed where inferred
- Thrust Fault—dashed where inferred, Sawtooth on upthrown block
- Contact—dashed where inferred
- Boundary of Brooks Range National Mineral Resource Assessment Program (BRMAP) as used in this study
- Outline of area selected under sec. 17(a)(2) of the Alaska Native Claims Settlement Act. Numbers refer to the four National Claims Settlements of the United States of America, Dec. 18, 1973. Compiled from maps prepared by the U. S. Bureau of Land Management, December 1973 and March 1974.
  1. State of the Arctic National Park
  2. State of the National Petroleum Reserve
  3. Arctic National Wildlife Refuge Additions
  4. Arctic National Wildlife Refuge
  5. Arctic National Wildlife Refuge
- Approximate location of Alaska pipeline
- On Section
- Stratigraphic position of 4-Na age date
- Stratigraphic position of P-4Na age date

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

Albers Equal Area Projection  
SCALE 1:1,000,000  
0 20 40 60 80 100 MILES  
0 20 40 60 80 100 KILOMETERS

### GEOLOGIC MAP OF THE BROOKS RANGE, ALASKA

Compiled by Donald Grybeck, Helen M. Beikman, William P. Brosgé, Irving L. Tailleux and Charles G. Mull  
1977

### DESCRIPTION OF ROCK UNITS

<p>STRATIFIED SEDIMENTARY AND VOLCANIC ROCKS IN EAST METAMORPHIC</p> <p><b>Qd</b> QUATERNARY DEPOSITS, UNDIFFERENTIATED.— Includes flood plain, river, lacustrine, estuarine, deltaic, beach, and sandstone deposits.</p> <p><b>WT</b> UPPER TERTIARY ROCKS.— Marine and non-marine deposits of shale, sandstone, conglomerate, limestone, chert, and other rocks deposited in the western part of the Brooks Range.</p> <p><b>ITc</b> LOWER TERTIARY CONTINENTAL DEPOSITS.— Coal-bearing sequence and other clastic clay and silt, including lower (Eocene through Oligocene) part of the uppermost formation in the northern portion of the area.</p> <p><b>TK</b> TERTIARY AND CRETACEOUS.— Shale, sandstone, and conglomerate. Marine and non-marine rocks that occur only on Cape Bar.</p> <p><b>UK</b> UPPER CRETACEOUS ROCKS.— Shale, sandstone, conglomerate, limestone, chert, and other rocks deposited in the Brooks Range.</p> <p><b>UKc</b> UPPER CRETACEOUS COASTAL DEPOSITS.— Includes the lower part of the Chadler Formation of the Manokan Group and the Chadler Formation of the Chadler Group.</p> <p><b>IK</b> LOWER CRETACEOUS ROCKS.— Sandstone, shale, siltstone, and conglomerate. Includes part of the Chadler Formation of the Manokan Group and the Chadler Formation of the Chadler Group.</p> <p><b>IKc</b> LOWER CRETACEOUS COASTAL DEPOSITS.— Includes the lower part of the Chadler Formation of the Manokan Group and the Chadler Formation of the Chadler Group.</p> <p><b>JK</b> CRETACEOUS AND JURASSIC ROCKS.— Sandstone, shale, siltstone, and conglomerate. Includes the lower part of the Chadler Formation of the Manokan Group and the Chadler Formation of the Chadler Group.</p> <p><b>J</b> JURASSIC ROCKS.— Shale, siltstone, and conglomerate of the Kingak shale.</p> <p><b>T</b> TRIASSIC ROCKS.— Shale, chert, and limestone of the Chadler Formation and quartzitic sandstone of the Arakoo Sandstone.</p> <p><b>Ta</b> TRIASSIC AND PERMIAN SANDSTONE GROUP ROCKS.— Sandstone, siltstone, and chert of the Chadler Formation in the lower part of the Brooks Range.</p> <p><b>Tb</b> TRIASSIC AND PERMIAN SANDSTONE GROUP ROCKS.— Sandstone, siltstone, and chert of the Chadler Formation in the lower part of the Brooks Range.</p>	<p><b>UP</b> UPPER AND (OR) UPPER MIDDLE DEVONIAN ROCKS.— Conglomerate, quartzite, and other rocks deposited in the western Brooks Range.</p> <p><b>Jp</b> JURASSIC, TRIASSIC, AND PERMIAN ROCKS.— Shale, siltstone, and chert in upper part of the Chadler Formation. Includes Chadler, Kingak, and other rocks.</p> <p><b>Mps</b> MESOZOIC AND PALAEOZOIC ROCKS.— Includes the lower part of the Chadler Formation of the Manokan Group and the Chadler Formation of the Chadler Group.</p> <p><b>P</b> PERMIAN ROCKS.— Includes the lower part of the Chadler Formation of the Manokan Group and the Chadler Formation of the Chadler Group.</p> <p><b>PM</b> PERMIAN AND MISSISSIPPIAN CARBONATE AND CLASTIC ROCKS.— Includes the lower part of the Chadler Formation of the Manokan Group and the Chadler Formation of the Chadler Group.</p> <p><b>M</b> MISSISSIPPIAN CARBONATE AND CLASTIC ROCKS.— Includes the lower part of the Chadler Formation of the Manokan Group and the Chadler Formation of the Chadler Group.</p> <p><b>MA</b> MISSISSIPPIAN ELASTIC ROCKS.— Includes the lower part of the Chadler Formation of the Manokan Group and the Chadler Formation of the Chadler Group.</p> <p><b>AM</b> MISSISSIPPIAN ELASTIC ROCKS.— Includes the lower part of the Chadler Formation of the Manokan Group and the Chadler Formation of the Chadler Group.</p> <p><b>ND</b> MISSISSIPPIAN ELASTIC ROCKS.— Includes the lower part of the Chadler Formation of the Manokan Group and the Chadler Formation of the Chadler Group.</p> <p><b>Ua</b> UPPER DEVONIAN CARBONATE.— Consists of a clastic sequence of shale and sandstone of the Chadler Formation in the lower part of the Brooks Range.</p> <p><b>Ub</b> UPPER DEVONIAN CARBONATE.— Consists of a clastic sequence of shale and sandstone of the Chadler Formation in the lower part of the Brooks Range.</p>	<p><b>Ud</b> UPPER AND (OR) UPPER MIDDLE DEVONIAN ROCKS.— Conglomerate, quartzite, and other rocks deposited in the western Brooks Range.</p> <p><b>Ue</b> UPPER AND (OR) UPPER MIDDLE DEVONIAN ROCKS.— Conglomerate, quartzite, and other rocks deposited in the western Brooks Range.</p> <p><b>Uf</b> UPPER AND (OR) UPPER MIDDLE DEVONIAN ROCKS.— Conglomerate, quartzite, and other rocks deposited in the western Brooks Range.</p> <p><b>Ug</b> UPPER AND (OR) UPPER MIDDLE DEVONIAN ROCKS.— Conglomerate, quartzite, and other rocks deposited in the western Brooks Range.</p> <p><b>Uh</b> UPPER AND (OR) UPPER MIDDLE DEVONIAN ROCKS.— Conglomerate, quartzite, and other rocks deposited in the western Brooks Range.</p> <p><b>Ui</b> UPPER AND (OR) UPPER MIDDLE DEVONIAN ROCKS.— Conglomerate, quartzite, and other rocks deposited in the western Brooks Range.</p> <p><b>Uj</b> UPPER AND (OR) UPPER MIDDLE DEVONIAN ROCKS.— Conglomerate, quartzite, and other rocks deposited in the western Brooks Range.</p> <p><b>Uk</b> UPPER AND (OR) UPPER MIDDLE DEVONIAN ROCKS.— Conglomerate, quartzite, and other rocks deposited in the western Brooks Range.</p> <p><b>Ul</b> UPPER AND (OR) UPPER MIDDLE DEVONIAN ROCKS.— Conglomerate, quartzite, and other rocks deposited in the western Brooks Range.</p> <p><b>Um</b> UPPER AND (OR) UPPER MIDDLE DEVONIAN ROCKS.— Conglomerate, quartzite, and other rocks deposited in the western Brooks Range.</p> <p><b>Un</b> UPPER AND (OR) UPPER MIDDLE DEVONIAN ROCKS.— Conglomerate, quartzite, and other rocks deposited in the western Brooks Range.</p> <p><b>Uo</b> UPPER AND (OR) UPPER MIDDLE DEVONIAN ROCKS.— Conglomerate, quartzite, and other rocks deposited in the western Brooks Range.</p>
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