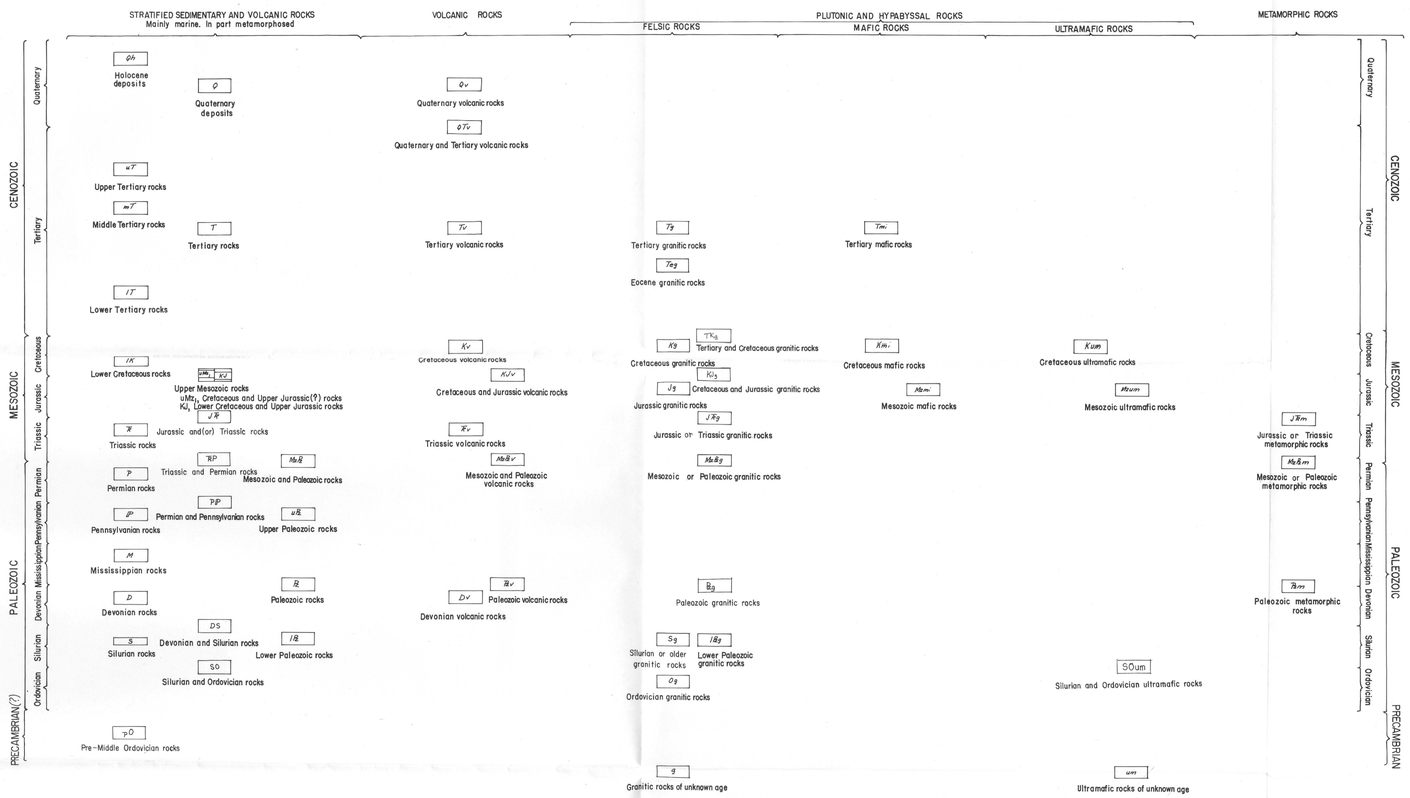
PREPARED IN COOPERATION WITH
THE STATE OF ALASKA DEPARTMENT OF NATURAL RESOURCES

EXPLANATION

CORRELATION OF MAP UNITS



DESCRIPTION OF MAP UNITS

STRATIFIED SEDIMENTARY AND VOLCANIC ROCKS.
MAINLY MARINE. IN PART METAMORPHOSED

Qh HOLOCENE DEPOSITS.--Alluvial, glacial, lacustrine, and beach deposits

Q QUATERNARY DEPOSITS.--Alluvial, colluvial, glacial, lake, and beach deposits

uT UPPER TERTIARY ROCKS.--Siltstone, sandstone, and conglomeratic sandy mudstone (marine tillite) of Miocene and Pliocene age. Consists of Yakataga Formation in Gulf of Alaska area

mT MIDDLE TERTIARY ROCKS.--Calcareous siltstone and sandstone of Oligocene to early Miocene age. Consists of Topsy Formation in the Gulf of Alaska area

T TERTIARY ROCKS.--Nonmarine sandstone, coal, conglomerate, and shale of Paleocene through Miocene age. Consists of the Kootznahoo Formation on Admiralty, Kuiu, Kupreanof, and Zarembo Islands

lT LOWER TERTIARY ROCKS.--Nonmarine sandstone and conglomerate with thin coal seams of Eocene and early Oligocene age south of Kassan Bay on Prince of Wales Island and arkose, siltstone, and coal of Paleocene and Eocene age in the Kulthieth Formation north of Yakataga Bay

lK LOWER CRETACEOUS ROCKS.--Graywacke, argillite, and minor andesite on Etolin Island

UPPER MESOZOIC ROCKS: INCLUDES:

uMzJ CRETACEOUS AND UPPER JURASSIC(?) ROCKS.--Graywacke, argillite, and slate with minor conglomerate and, locally, melange ranging in age from Late Jurassic(?) to Late Cretaceous (Campanian). Consists mainly of the Yakutat Group in the Gulf of Alaska area

KJ LOWER CRETACEOUS AND UPPER JURASSIC ROCKS.--Graywacke, argillite, slate, and minor conglomerate and limestone ranging in age from Late Jurassic (Oxfordian and Kimmeridgian) to Early Cretaceous (Albian). Includes the Sitka Graywacke on Chichagof and Baranof Islands, the Seymour Canal Formation on Admiralty and northern Kupreanof Islands, slaty detrital rocks of Late Jurassic age on Gravina and Annette Islands, and related unnamed rocks

JR JURASSIC AND(OR) TRIASSIC ROCKS.--Greenstone, schist, phyllite, graywacke, amphibolite, gneiss, and limestone of Triassic and(or) Jurassic age. Consists of Khaz Formation on Chichagof, Kruzof, and Baranof Islands

R TRIASSIC ROCKS.--Chert, limestone, sandstone, and greenstone of Triassic age and the Whitestripe Marble and Pinnacle Peak Phyllite of Triassic(?) age on Chichagof and Baranof Islands; volcanic rocks, limestone, shale, chert, and conglomerate of the Hyd Group of Late Triassic age on Admiralty Island and Keku Straits area; altered basaltic flows, conglomerate, grit, sandstone, and limestone of the Nehenta and Chapin Peak Formations of Late Triassic age on Gravina Island; and unnamed limestone, siltstone, and sandstone on Etolin, Annette, and Revillagigedo Islands

RP TRIASSIC AND PERMIAN ROCKS.--Schist, schistose graywacke, slate, conglomerate and phyllite with minor volcanic flow breccia and andesite flows at the northern tip of Admiralty Island. Includes the Barlow Cove Formation of Permian and Triassic(?) age. On the southern part of Admiralty Island, includes an unnamed series of andesitic flows and tuffs, minor chert, and micaceous schist

MzPz MESOZOIC AND PALEOZOIC ROCKS.--Slate, phyllite, quartzite, schist and phyllite with interlayered beds of marble, layered gneiss with interlayered beds of marble, and minor amphibolite. Includes rocks that may range in age from Ordovician to Jurassic or Cretaceous along the west flank of the Coast Mountains

P PERMIAN ROCKS.--Tuffaceous volcanic argillite and graywacke with local chert, pillow flows and limestone, and dolomite, limestone, and chert of the Cannery and Pybus Formations on Admiralty, Kuiu, and Kupreanof Islands

PP PERMIAN AND PENNSYLVANIAN ROCKS.--Phyllite, slate, schist, greenschist, amphibolite, gneiss, and migmatite in the St. Elias Mountains

IP PENNSYLVANIAN ROCKS.--Calcareous siltstone and sandstone or silty arenaceous limestone of the Klawak Formation (Early and Middle Pennsylvanian) and thick to indistinctly bedded oolitic limestone of the Ladrones Limestone (Early and Middle Pennsylvanian) on Prince of Wales Island

uPz UPPER PALEOZOIC ROCKS.--Near Wright Glacier east of Juneau, includes greenstone, limestone, shale, clastic sedimentary rocks, schist, gneiss, and undifferentiated metamorphic rocks. On northern Kuiu Island, includes limestone, chert, and volcanic rocks of the Saginaw Bay Formation (Mississippian and Pennsylvanian); siltstone, sandstone, limestone, and conglomerate of the Halleck Formation (Early Permian); and tuffaceous volcanic argillite and tuffaceous volcanic graywacke of the Cannery Formation (Early Permian)

M MISSISSIPPIAN ROCKS.--Limestone and dolomite with interbedded chert of Early and Late Mississippian age. Consists of the Iyoukeen Formation on Chichagof Island and the Peratrovich Formation on Prince of Wales Island

Pz PALEOZOIC ROCKS.--Argillite, conglomerate, graywacke, chert, limestone, marble, and minor hornfels in the Chilkat Range west of the Lynn Canal; hornfels, schist, and marble on Chichagof Island; and marble and metavolcanic rocks on western Etolin Island

D DEVONIAN ROCKS.--Unmetamorphosed argillite, chert, and limestone of the Hood Bay Formation (Devonian?) on western Admiralty Island and possible equivalent rocks in the Chilkat Range west of Lynn Canal; schist phyllite, marble, and amphibolite of the Retreat Group and Gambier Bay Formation (Middle? Devonian) on Admiralty and Kupreanof Islands and possible equivalent rocks to the south; basaltic submarine flows, tuff, breccia, and conglomerate (St. Joseph Island Volcanics of Devonian(?) age), basaltic rocks with interlayered limestone (Coronados Volcanics of Middle Devonian age), limestone breccia and shale (Wadleigh Limestone of Middle and Late Devonian age), and graywacke and conglomerate (lower part of the Port Refugio Formation of Middle and Late Devonian and Mississippian age) on Prince of Wales Island

DS DEVONIAN AND SILURIAN ROCKS.--Siltstone, mudstone, limestone, conglomerate, sandstone, graywacke and minor red beds and volcanic rocks. Includes the Rendu Formation and Willoughby Limestone in the Glacier Bay area; the Kennel Creek Limestone on Chichagof Island; the Karheen Formation on Prince of Wales Island; and related rocks on Dall Island

S SILURIAN ROCKS.--Includes unnamed graywacke, shale, siltstone, and calcarenite north of the Glacier Bay and in the Chilkat Range; graywacke, slate, limestone, and conglomerate of the Point Augusta Formation on Chichagof Island, calcareous sandstone and argillite of the Bay of Pillars Formation on Admiralty, Kuiu, and Prince of Wales Islands (also includes the overlying Kuiu Limestone and unnamed arkose, volcanic graywacke, and argillite on Kuiu Island); and massive limestone of the Heceta Limestone on Prince of Wales, Kosciusko, and Coronation Islands

lPz LOWER PALEOZOIC ROCKS.--Includes Puppets Formation and unnamed greenstone, phyllite, schist, limestone, and dolomite of Devonian and Silurian or older age on Gravina and Annette Islands. Metamorphosed in places to greenschist facies and to amphibolite facies

SO SILURIAN AND ORDOVICIAN ROCKS.--Graywacke, conglomerate, cherty shale and siltstone, basaltic tuff and lava, and local limestone. Includes the Descon Formation of Early Ordovician through Early Silurian age on Prince of Wales Island

pO PRE-MIDDLE ORDOVICIAN ROCKS.--Heterogeneous, mainly volcanogenic greenschist and semischist, with locally interstratified marble. Includes the Wales Group, which may be at least as old as Cambrian, and probably Precambrian

VOLCANIC ROCKS

Qv QUATERNARY VOLCANIC ROCKS.--Andesitic and basaltic flows of the Edgecumbe Volcanics on Kruzof Island, on western Revillagigedo Island and nearby areas, and on the Unuk River northeast of the island

QTv QUATERNARY AND TERTIARY VOLCANIC ROCKS.--Tlevak Basalt (Tertiary or Quaternary) on Prince of Wales Island and unnamed basalt flows on Suomez and Dall Islands

Tv TERTIARY VOLCANIC ROCKS.--Andesitic volcanic breccia, tuff, and flows of the Cenotaph Volcanics (post-early Oligocene? to pre-middle Miocene) in the Gulf of Alaska area; andesitic, dacitic, and rhyodacitic flows on Pleasant Island; andesitic basalt flows of the Admiralty Island Volcanics (Eocene and Oligocene) on Admiralty Island; and felsic flow rock on Kupreanof Island

Kv CRETACEOUS VOLCANIC ROCKS.--Meta-andesitic breccia on Etolin Island

KJv CRETACEOUS AND JURASSIC VOLCANIC ROCKS.--Augite-bearing flow breccia of the Douglas Island and Brothers Volcanics (Late Jurassic and Early Cretaceous) on Douglas Island, Glass Peninsula, and The Brothers Islands; and related unnamed volcanic rocks along the mainland and other islands to the northwest and southeast. Includes the Gravina Island Formation of Middle or Late Jurassic age on Gravina and Annette Islands

Rv TRIASSIC VOLCANIC ROCKS.--Includes Goon Dip and Waterfall Greenstones (Triassic?) on Chichagof Island and unnamed greenstone, tuff, and slate with minor limestone near Juneau

MzPzv MESOZOIC AND PALEOZOIC VOLCANIC ROCKS.--Metamorphosed mafic lavas at the north end of Lynn Canal and schistose greenstone and chloritic phyllite east of Stephens Passage

Pzv PALEOZOIC VOLCANIC ROCKS.--Volcanic and metavolcanic rocks with minor marble northeast of Glacier Bay

Dv DEVONIAN VOLCANIC ROCKS.--Andesitic, basaltic, minor rhyolitic volcanic rocks, and associated minor sedimentary rocks of the Freshwater Bay Formation (Upper Devonian) on Chichagof Island

FELSIC ROCKS

Tg TERTIARY GRANITIC ROCKS.--Quartz diorite and granodiorite with minor quartz monzonite and mafic intrusive rocks in the Gulf of Alaska area; quartz diorite and subordinate granodiorite north of Lynn Canal; granodiorite and tonalite on Chichagof Island; and granodiorite and granite east of Juneau

Teg EOCENE GRANITIC ROCKS.--Granodiorite, tonalite, trondhjemite, and granite on Chichagof, Kruzof, and Baranof Islands, and Hyder Quartz Monzonite and unnamed quartz monzonite and granodiorite near Hyder

TKg TERTIARY AND CRETACEOUS GRANITIC ROCKS.--Granodiorite, quartz monzonite, and granite in the Fairweather Range; quartz diorite and subordinate granodiorite north of Lynn Canal; quartz monzonite west of Juneau; and granodiorite and quartz diorite southwest of Hyder

Kg CRETACEOUS GRANITIC ROCKS.--Diorite, tonalite, and granodiorite near Glacier Bay; quartz diorite and subordinate granodiorite near Haines; quartz monzonite, granodiorite, tonalite, and diorite on Chichagof Island, quartz diorite and granodiorite with small bodies of gabbro on Admiralty Island; granodiorite, quartz monzonite, and diorite on Kuiu Island; and rocks ranging in composition from granodiorite to diorite in the Coast Range Mountains and on Prince of Wales Island

KJg CRETACEOUS AND JURASSIC GRANITIC ROCKS.--Quartz diorite on Dall and Forrester Islands

Jg JURASSIC GRANITIC ROCKS.--Granodiorite in the Alaska Range and in the Chilkat Range; quartz monzonite, alaskite, monzonite, diorite, and tonalite on Chichagof Island and Baranof Island; and granite on southern Prince of Wales Island

JRg JURASSIC OR TRIASSIC GRANITIC ROCKS.--Texas Creek Granodiorite north of Hyder

MzPzg MESOZOIC OR PALEOZOIC GRANITIC ROCKS.--Metadiorite of late Paleozoic or early Mesozoic age on Cape Fox and at the southern tip of Gravina Island

Pzg PALEOZOIC GRANITIC ROCKS.--Granodiorite and related intrusive rocks on Prince of Wales Island

Sg SILURIAN OR OLDER GRANITIC ROCKS.--Syenite, monzonite, granodiorite, and trondhjemite on Chichagof Island; leucotrondhjemite with subordinate trondhjemite, quartz diorite, diorite, granite, quartz monzonite, and granodiorite on central Annette Island; quartz diorite on western Annette Island; and trondhjemitic rocks on Gravina Island

lPzg LOWER PALEOZOIC GRANITIC ROCKS.--Quartz diorite and diorite on Annette Island

Og ORDOVICIAN GRANITIC ROCKS.--Quartz monzonite and quartz diorite on Prince of Wales Island

g GRANITIC ROCKS OF UNKNOWN AGE.--On Prince of Wales and Revillagigedo Islands and nearby areas

MAFIC ROCKS

Tm TERTIARY MAFIC ROCKS.--Gabbro and hornblende diorite on Chichagof Island; gabbro on Yakobi Island; gabbro and microgabbro along Keku Straits; and gabbro southwest of Hyder

Km CRETACEOUS MAFIC ROCKS.--Gabbro on Chichagof Island; hornblendite, gabbro, and subordinate diorite on Admiralty Island, and gabbro on Kuiu Island

Mzm MESOZOIC MAFIC ROCKS.--Gabbro in Gulf of Alaska area

ULTRAMAFIC ROCKS

Kum CRETACEOUS ULTRAMAFIC ROCKS.--Pyroxenite near Haines and south of Ernest Sound; dunite and minor pyroxenite on Annette Island. Serpentinite on Admiralty Island; hornblendite to the east of Stephens Passage, near Petersburg, and near Wrangell; and peridotite, pyroxenite, and gabbro on Duke Island

Mzum MESOZOIC ULTRAMAFIC ROCKS.--Serpentinized dunite, peridotite, and minor gabbro south of Mount Fairweather and serpentinite and serpentinized peridotite on Baranof Island

SOum SILURIAN AND ORDOVICIAN ULTRAMAFIC ROCKS.--Hornblendite and pyroxenite on Prince of Wales Island

um ULTRAMAFIC ROCKS OF UNKNOWN AGE.--On Prince of Wales Island

METAMORPHIC ROCKS

JRm JURASSIC OR TRIASSIC METAMORPHIC ROCKS.--Hornfels, phyllite, and fine-grained schist of the Hazelton(?) Group of Late Triassic or Early Jurassic age north of Hyder

MzPzm MESOZOIC OR PALEOZOIC METAMORPHIC ROCKS.--Amphibolite, gneiss, schist, and phyllite of Mesozoic or late(?) Paleozoic age south of Hyder

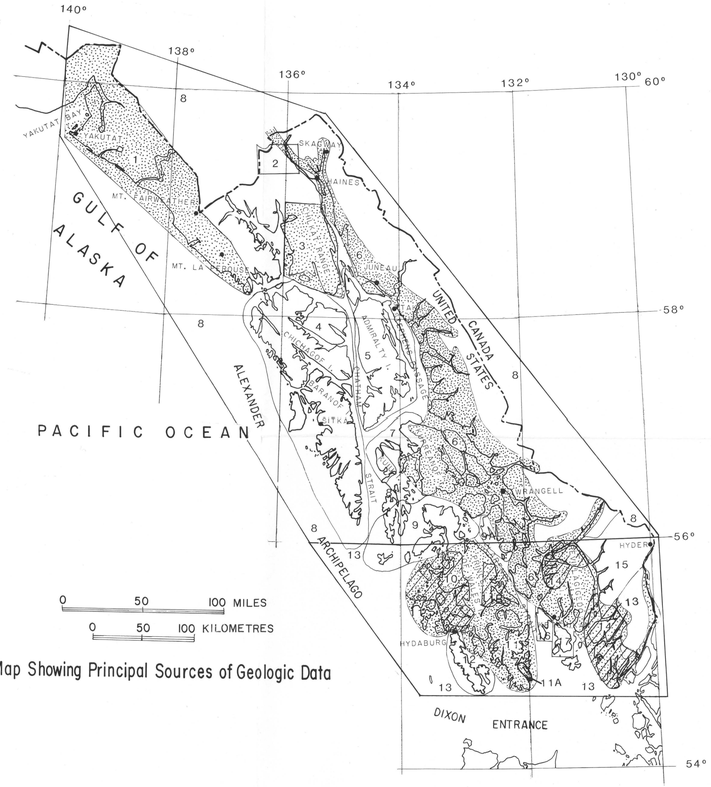
Pzm PALEOZOIC METAMORPHIC ROCKS.--Hornfels, schist, amphibolite, minor marble, and undivided metamorphic rocks

MAP SYMBOLS

Contact, approximately located
Dotted where concealed or inferred

Fault, approximately located
Dotted where concealed or inferred

Volcanic vent or cone

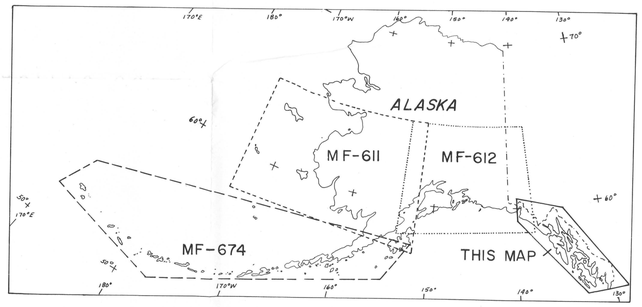


Index Map Showing Principal Sources of Geologic Data

SOURCES OF DATA

[Unless otherwise indicated, all publications are those of the U.S. Geological Survey]

1. Misc. Geol. Inv. Map I-484, 1:500,000, 1967. Modified by the author.
2. Prof. Paper 832, pl. 1, 1:63,360, 1974.
3. Misc. Geol. Inv. Map I-303, 1:250,000, 1959.
4. Prof. Paper 792, pl. 1, 1:250,000, 1975. [In press]
5. Bull. 1181-R, pl. 1, 1:250,000, 1965.
6. Bull. 800, pl. 1, 1:500,000, 1929.
7. Bull. 1241-C, pl. 1, 1:63,360, 1967.
8. Canada Geol. Survey open-file rept. 214, 1:1,000,000, 1974.
9. Ovenshine, A. T., unpublished compilation.
9a. Berg, H. C., unpublished data.
10. Bull. 1284, pl. 1, 1:125,000, 1970.
11. Eberlein, G. D., and Churkin, Michael, Jr., unpublished compilation.
11a. Bull. 1154, pl. 1, 1:24,000, 1963.
11b. Bull. 1058-H, pl. 33, 1:63,360, 1961.
12. Clark, A. L., unpublished compilation.
13. Canada Geol. Survey open-file rept. 166, 1:1,000,000, 1973.
14. Smith, J. G., unpublished compilation.
15. Berg, H. C., unpublished compilation.
16. Bull. 1373, pl. 1, 1:63,360, 1973.
17. Misc. Geol. Inv. Map I-684, 1:63,360, 1972.



INDEX MAP OF ALASKA SHOWING OTHER PRELIMINARY GEOLOGIC MAPS IN THIS SERIES (SCALE 1:1,000,000)

Explanation for PRELIMINARY GEOLOGIC MAP OF SOUTHEASTERN ALASKA

Compiled by Helen M. Beikman

1975

☆U.S. GOVERNMENT PRINTING OFFICE: 1975-0-690-036/27