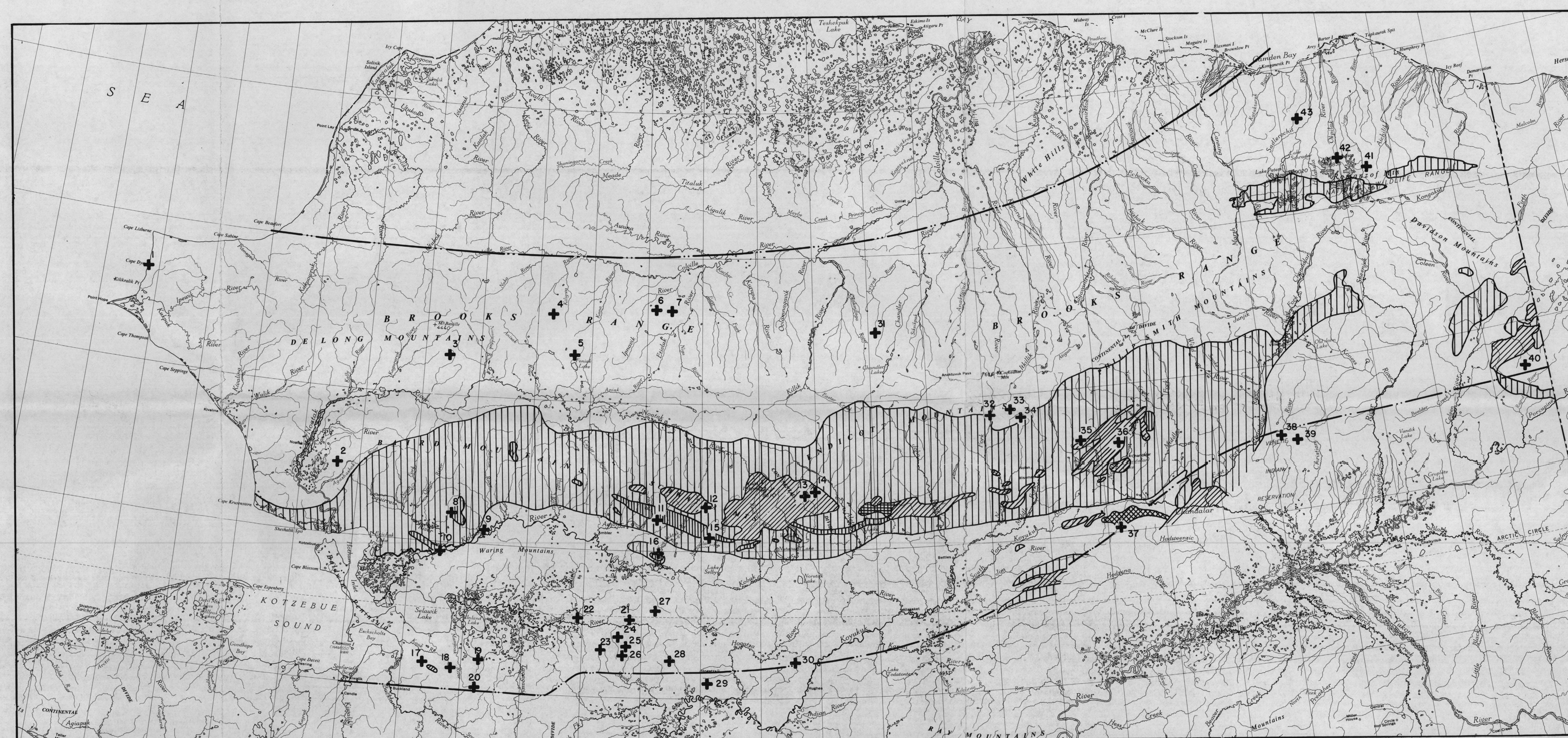
DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

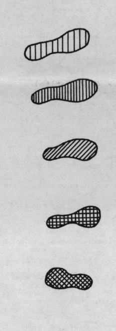
U.S. GEOLOGICAL SURVEY
OPEN FILE MAP
OF 77-166B
Sheet 2 of 2



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

LOCATION OF RADIOMETRIC DATES AND DISTRIBUTION OF METAMORPHIC ROCKS

EXPLANATION OF SYMBOLS FOR RADIOMETRIC-METAMORPHIC ROCK MAP



Greenschist facies metamorphic rocks

Glaucophane schist facies metamorphic rocks

Epidote-amphibolite and amphibolite facies metamorphic rocks; low to intermediate pressure

Epidote-amphibolite and amphibolite facies metamorphic rocks; high pressure with kyanite

Migmatite

Distribution of metamorphic rocks from an unpublished compilation by William P. Brosgė, Charles F. Mayfield, and Thomas P. Miller.

21 + Location of radiometric date(s) cited in table

Boundary of Brooks Range Regional Mineral Resource Assessment Program (RAMRAP)

TABLE OF RADIOMETRIC DATES

Map No.	Location Lat. and Long.	Rock Type	Dating Method	Age	References
1	68°39'N, 166°16'W	pre-Mississippian metawacke	K-Ar (muscovite)	435±13.0 m.y.	Tailleur (1972)
2	67°24'N, 162°23'W	Hornblendite	K-Ar (hornblende)	315.4±110.4 m.y.	Tailleur (1973)
3	68°17'N, 160°32'W	Hornblende gabbro	K-Ar (hornblende)	159.8±14.4 m.y.	Tailleur (1973) Tailleur and Brosgė (1970)
4	68°34.37'N, 158°40.9'W	Rhyolite porphyry	K-Ar (biotite)	39.0±10.0 m.y.	Tailleur and Brosgė (1970)
5	68°21'N, 158°15'W	Hornblende pegmatite	K-Ar (hornblende)	147.8±29.6 m.y.	Tailleur (1973) Tailleur and Brosgė (1970)
6	68°38.5'N, 156°51.0'W	Diabase sill into upper Triassic rocks	K-Ar (biotite)	199±6 m.y.	Tailleur and Brosgė (1970)
7	68°36.91'N, 156°36.0'W	Diabase sill	K-Ar (biotite) (hornblende)	197±6.0 m.y. 187±6.0 m.y.	Tailleur and Brosgė (1970) Tailleur and Brosgė (1970)
8	67°12'N, 160°20'W	Schist	K-Ar (muscovite)	122.0±3.7 m.y.	Tailleur, written comm. (1977)
9	67°07'N, 159°45'W	Ash-fall tuff	K-Ar (biotite)	83.4±2.2 m.y.	Patton and Miller (1968)
10	66°58'N, 160°28'W	Schist	K-Ar (muscovite)	108.5±3.3 m.y.	Tailleur, written comm. (1977)
11	67°12.2'N, 156°46.5'W	Schist	K-Ar (glaucophane) K-Ar (paragonite) K-Ar isochron (glaucophane) K-Ar isochron (paragonite)	1270±38 m.y. 213±6.4 m.y. 1290 m.y. 213 m.y.	Hartman (1974)
	67°13.5'N, 156°44.0'W	Schist	K-Ar (glaucophane) K-Ar (paragonite) K-Ar isochron (glaucophane) K-Ar isochron (paragonite)	2547±60 m.y. 2549±76 m.y. 2571±77 m.y. 234.4±7.0 m.y. 1290 m.y. 213 m.y.	
		Schist	K-Ar (glaucophane) K-Ar (paragonite) K-Ar isochron (glaucophane) K-Ar isochron (paragonte)	1429±43 m.y. 216.8±6.5 m.y. 1290 m.y. 213 m.y.	
		Schist	K-Ar (glaucophane) K-Ar isochron (glaucophane)	1333±40 m.y. 1290 m.y.	
12	67°17.7'N, 155°56.5'W	Schist in contact zone, Shishakshinovik pluton	K-Ar (biotite)	96.4±29 m.y.	Hartman (1974)
13	67°22'N, 154°11'W	Quartz monzonite, Arrigetch Peaks pluton	K-Ar (biotite)	86±4 m.y.	Brosgė and Reiser (1971)
14	67°23.1'N, 154°01'W	Granite, Arrigetch Peaks pluton	K-Ar (biotite) K-Ar (muscovite)	88±4 m.y. 92±5 m.y.	Brosgė and Reiser (1971)
15	67°05'N, 155°55'W	Schist	K-Ar (actinolite) K-Ar isochron	287.1±45.9 m.y. 289.1±46.2 m.y. 213 m.y.	Hartman (1974)
16	66°59'N, 156°42'W	Granite in Cosmos Hills	K-Ar (hornblende)	121±3.8 m.y.	Patton, Miller and Tailleur (1968)
17	66°11'N, 160°38'W	Metapelite in Selawik Hills pluton	K-Ar (biotite)	110±3.0 m.y.	Patton and Miller (1968)
18	66°08'N, 160°09'W	Syenite from Selawik Hills pluton	K-Ar (hornblende)	100±5 m.y.	Miller, Patton, and Lanphere (1966) Miller (1970)
19	66°13'N, 159°42'W	Malignite from Hunt Creek complex	K-Ar (biotite)	107±3 m.y.	Miller (1970, 1972)
		Nepheline syenite	K-Ar (biotite)	107±2.8 m.y.	Patton and Miller (1968)
20	66°02'N, 159°45'W	Quartz monzonite from Selawik Hills pluton	K-Ar (biotite)	97±3.0 m.y.	Miller (1970)
21	66°31'N, 157°15'W	Andesite	K-Ar (hornblende)	125±3.3 m.y.	Patton, Miller and Tailleur (1968)
22	66°32'N, 158°06'W	Latite	K-Ar (hornblende)	122±3.0 m.y.	Patton, Miller and Tailleur (1968)
23	66°20'N, 157°37.5'W	Quartz monzonite, Wheeler Creek pluton	K-Ar (biotite)	80.6±20 m.y.	Miller, Patton and Lanphere (1966) Miller (1970)
24	66°24'N, 157°21'W	Tuff	K-Ar (biotite)	85.2±2.2 m.y.	Patton, Miller and Tailleur (1968)
25	66°21'N, 157°16'W	Syenodiorite from Shiniliaok Creek pluton	K-Ar (biotite)	99.4±2.4 m.y.	Patton, Miller and Tailleur (1968) Miller (1970)
26	66°18'N, 157°16'W	Alaskite from Wheeler Creek pluton	K-Ar (biotite)	77.9±2.3 m.y.	Miller (1970)
27	66°35'N, 156°43'W	Quartz latite	K-Ar (hornblende)	117±4.3 m.y.	Patton, Miller, and Tailleur (1968)
28	66°15.5'N, 156°30'W	Quartz monzonite, Purcell Mtn. pluton	K-Ar (biotite)	98.6±2.9 m.y.	Miller, Patton, and Lanphere (1966) Miller (1970)
29	66°07.5'N, 155°55'W	Quartz monzonite Zane Hills pluton	K-Ar (hornblende)	81.9±3.0 m.y.	Miller, Patton, and Lanphere (1966) Patton and Miller (1966) Miller (1970)
30	66°14'N, 154°25'W	Andesite	K-Ar (biotite)	134±5 m.y.	Patton and Miller (1966)
31	68°28.2'N, 152°45.0'W	Diabase	K-Ar (plagioclase)	182±24.0 m.y.	Tailleur, written comm. (1977)
32	67°51'N, 150°49'W	Dike rock	K-Ar (hornblende)	373±15 m.y.	Brosgė and Reiser (1971)
	67°51.3'N, 150°51.0'W	Mafic dike rock	K-Ar (hornblende)	373±17 m.y.	Dutro and others (1976)
33	67°54.7'N, 150°32.6'W	Mafic dike rock	(a) K-Ar (whole rock) $^{40}Ar/^{39}Ar$ (whole rock) (b) K-Ar (whole rock) $^{40}Ar/^{39}Ar$ (whole rock)	470±47 m.y. 520±17 m.y. 380±11 m.y. 384±12 m.y.	Dutro and others (1976)
	67°54.8'N, 150°24.1'W	Mafic dike rock	K-Ar (whole rock) $^{40}Ar/^{39}Ar$ (whole rock)	470±24 m.y. 478±20 m.y. 465±14 m.y.	Dutro and others (1976)
34	67°50.3'N, 150°17.6'W	Mafic dike rock	K-Ar (hornblende)	388±12 m.y.	Dutro and others (1976)
35	67°38'N, 149°20'W	Hornblende granodiorite	K-Ar (hornblende)	Conflicting ages on same(?) sample: (a) 297±9 m.y. (b) 495±15 m.y.	M. A. Wiltse (unpubl. data)
36	67°36.5'N, 148°37'W	Granite	K-Ar (biotite) Pb-Alpha (zircon)	125±6 m.y. 380±40 m.y.	Brosgė and Reiser (1964)
	67°35'N, 148°38'W	Schist in contact zone of granite	K-Ar (biotite) K-Ar (muscovite)	103±5 m.y. 100±5 m.y.	Brosgė and Reiser (1964)
37	67°01'N, 149°49'W	Monzonite Monzonite	K-Ar (biotite) Pb-Alpha (zircon)	101±5 m.y. 140±20 m.y.	Brosgė and Reiser (1964)
38	67°30'N, 145°45'W	Diorite in mafic igneous complex	K-Ar (plagioclase)	155±6 m.y.	Reiser, Lanphere, and Brosgė (1965)
39	67°28'N, 145°31'W	Leucogabbro in mafic igneous complex	K-Ar (hornblende)	168±8 m.y.	Reiser, Lanphere, and Brosgė (1965)
40	Coleen quadrangle	Granite	K-Ar	335 m.y.	Brosgė and Tailleur (1970)
41	Romanzof Mountains	Granite	K-Ar (hornblende)	431±13 m.y.	Reiser (1970)
42	69°21.1'N, 144°01.1'W	Granite	K-Ar (biotite) Pb-Alpha (zircon)	128 m.y. 310±35 m.y.	Sable (1965)
	69°21'N, 144°04.1'W	Granite	K-Ar (biotite) Pb-Alpha (zircon)	125 m.y. 405±45 m.y.	
43	69°38'N, 144°37'W	Diabase	K-Ar (plagioclase)	160±5 m.y.	Tailleur, written comm. (1977)

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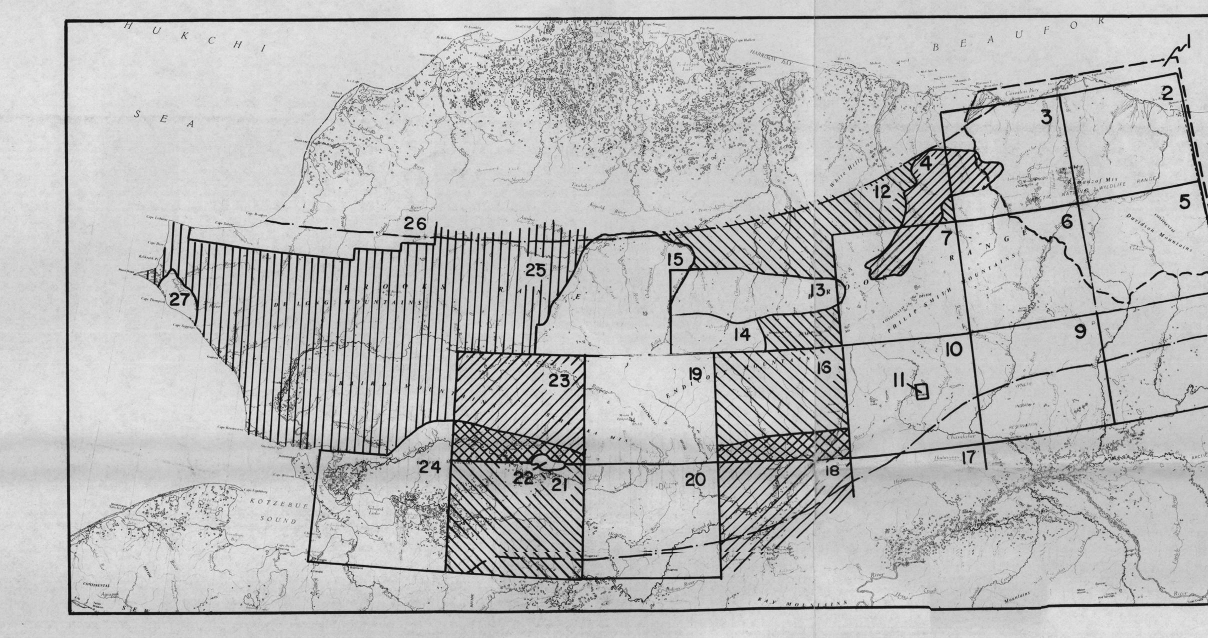

INDEX MAP SHOWING PRINCIPAL SOURCES OF GEOLOGIC DATA

SOURCES OF GEOLOGIC DATA

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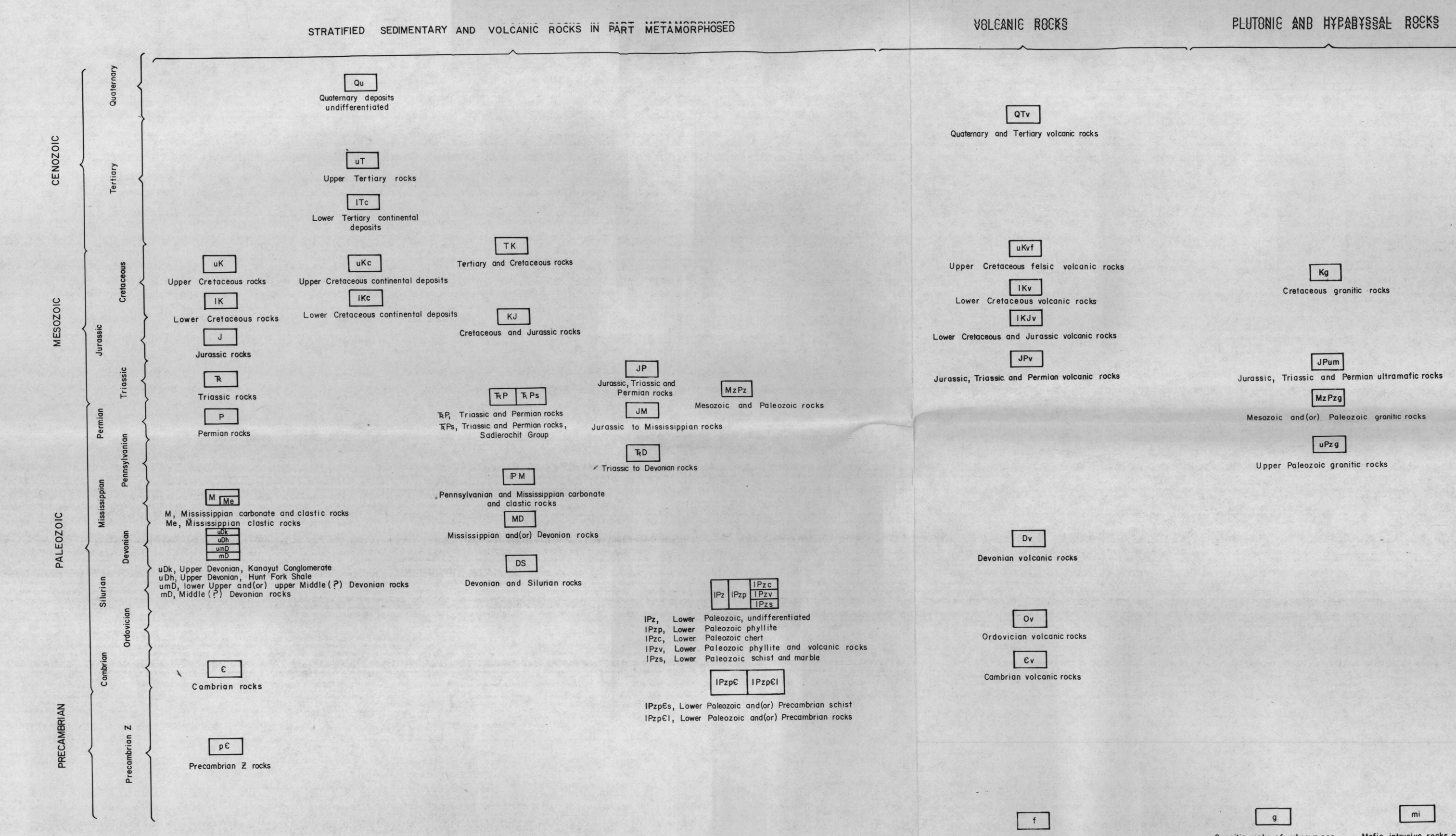
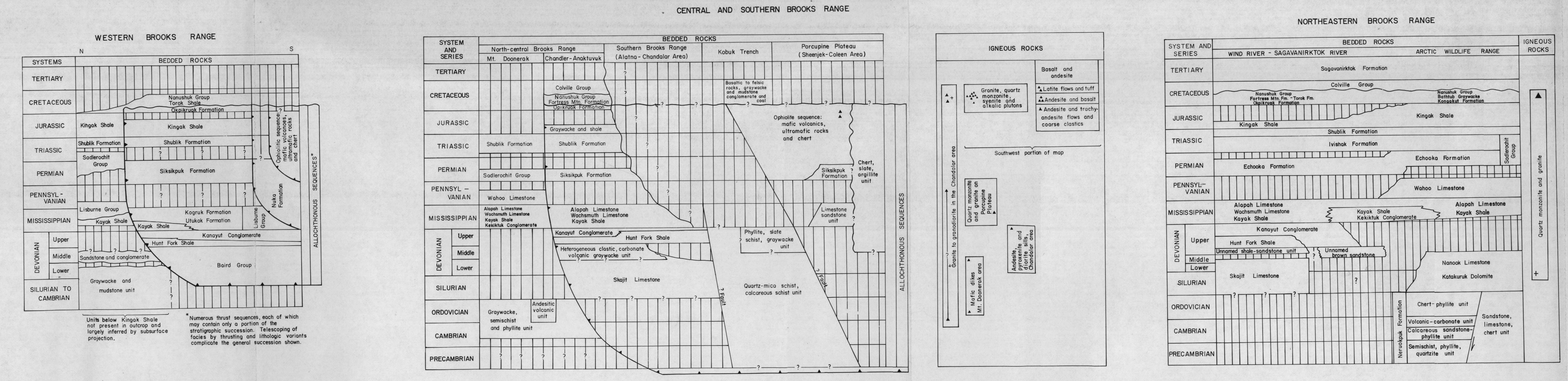
EXPLANATION





GENERALIZED STRATIGRAPHIC SEQUENCES, BROOKS RANGE, ALASKA

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