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UNITED STATES GEOLOGICAL SURVEY

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77-169-G

SW part of Southern AK

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CORRELATION OF MAP UNITS

MAP SYMBOLS

Fault, approximately located
Dotted where concealed or inferred

Contact, approximately located
Dashed where concealed or inferred

Volcanic cone or vent

Boundary of Southern Alaska Regional Mineral Resource Assessment Program (RAMRAP) as used in this study

DESCRIPTION OF MAP UNITS

MAINLY MARINE SEDIMENTARY, VOLCANIC, AND METAMORPHIC ROCKS

		PARTIAL LIST OF INCLUDED FORMATIONS
uMT	UPPER AND MIDDLE TERTIARY ROCKS -- Flows, breccias, dikes, sills, and sedimentary rocks on the Alaska Peninsula and nearby islands. On the Alaska Peninsula, includes Pliocene sandstone and conglomerate south of Herendeen Bay and marine clastic rocks of the same age near Cold Bay. Interbedded sandstone and siltstone on Tugidak and Chirikof Islands. Miocene rocks include sandstone and conglomerate on the Alaska Peninsula; sandstone, conglomerate and siltstone on Kodiak, Sitkinak, and Augustine Islands. Rocks of Oligocene age comprise interbedded volcanic sandstone, conglomerate, and siltstone south of Chignik Bay, and coal-bearing siltstone, sandstone, and conglomerate on Sitkalidak, and Chirikof Islands	Tachilni Formation Tugidak Formation Bear Lake Formation Narrow Cape Formation Stepovak Formation Sitkinak Formation
lT	LOWER TERTIARY ROCKS -- Black siltstone with interbedded volcanic sandstone and conglomerate, flows, sills, and volcanic breccia of Paleocene and Eocene age and volcanic sandstone, conglomerate, and breccia of Eocene and Oligocene age on the Alaska Peninsula; zeolite-bearing tuffaceous sandstone, basalt, claystone, sandstone, siltstone, tuff, and graded beds of Paleocene to Oligocene age on Kodiak and adjacent islands; volcaniclastic and pyroclastic deposits and andesite and basalt flows on Amak Island, early Miocene and older Tertiary age coarse and fine sedimentary and pyroclastic rocks intercalated with basaltic, andesitic, and dacitic flows and sills, cut by numerous dikes and small plutons on the southern Kenai Peninsula	Unalaska Formation Belkofski Formation Tolstoi Formation Ghost Rocks Formation
K	CRETACEOUS ROCKS -- Interbedded greywacke and shale of Albian and Cenomanian age in the Kuskokwim Mountains; non-marine clastic rocks, marine sandstone, and black siltstone and shale of Campanian to Maestrichtian age on the Alaska Peninsula; and interbedded sandstone and mudstone on the Shumagin and Sanak Islands	Shumagin Formation Hoodoo Formation Chignik Formation Kuskokwim Group
uMz	CRETACEOUS AND JURASSIC ROCKS -- In the Alaska Range, consists of argillite, sandstone, shale, and greywacke; locally includes a considerable amount of tuffaceous material; locally metamorphosed into schist and slate. On the Alaska Peninsula, includes Kimmeridgian to Valanginian age feldspathic sandstone and arkose, siltstone, and thin conglomerate; and Neocomian arenaceous limestone and calcareous sandstone. On Long Island, comprises interbedded chert, pillow lava, tuff, sandstone, and mudstone	Herendeen Limestone Staniukovich Formation
uMz1	CRETACEOUS AND UPPER JURASSIC (?) ROCKS, IN PART METAMORPHOSED -- Graded beds of sandstone and slate on Kodiak and Afognak Islands. Mainly of Late Cretaceous (Maestrichtian) age, but may include some rocks of Early Cretaceous and Late Jurassic age	Kodiak Formation
uMz2	CRETACEOUS AND UPPER JURASSIC (?) ROCKS, IN PART METAMORPHOSED -- Chaotic melange of grey chert, argillite, arkosic wacke, pillowed and tholeiitic greenstone, radiolarian chert, and minor limestone	Uyak Complex
uMzJ	UPPER AND MIDDLE JURASSIC ROCKS -- Upper Jurassic (Oxfordian and Kimmeridgian) to Middle Jurassic siltstone, sandstone, shale, and conglomerate in the Cook Inlet area. Arkosic to feldspathic sandstone, siltstone, claystone, and locally abundant conglomerate of Oxfordian and Kimmeridgian age, Callovian sandstone, shale, and conglomerate, and Bajocian shale, sandstone, and conglomerate on the Alaska Peninsula	Naknek Formation Chinitna Formation Shelikof Formation Tuxedni Formation Kialagvik Formation
lJ	LOWER JURASSIC ROCKS -- Volcanic flows and pyroclastic rocks interbedded with minor sandstone and argillite	Talkeetna Formation
JTR	JURASSIC AND TRIASSIC ROCKS, IN PART METAMORPHOSED -- Limestone, shale, and chert of Late Triassic age and sandstone, pyroclastic rocks, and lava flows of Early Jurassic age west of Cook Inlet; marine sedimentary and volcanic rocks(shale, tuff, chert, pillow basalt, and limestone) on Kodiak, Raspberry, and Afognak Islands	Talkeetna Formation Kamishak Formation
lMzm	LOWER MESOZOIC METAMORPHIC ROCKS -- Sedimentary, volcanic, and plutonic rocks, largely of pre-Cretaceous age, constituting small masses of metamorphosed country rock scattered throughout the Alaska Range batholith	
TRP	TRIASSIC AND PERMIAN ROCKS, IN PART METAMORPHOSED --Marble, quartzite, greenschist, chloritic schist, garnet schist, subordinate gneisses, mainly Late Triassic in age, in the Aleutian Range batholith	
Ꝑ	PALEOZOIC ROCKS -- Argillite, greywacke, phyllite, quartzite, slate, limestone, and chert of Cambrian to Devonian age in the Alaska Range; also includes some limestone of Permian age and volcanic rocks in the Lime Hills; may include some rocks of Precambrian age	Tonzona Group
MzE	MESOZOIC AND (OR) PALEOZOIC ROCKS, IN PART METAMORPHOSED -- Siltstone, chert, and mafic volcanic rocks, with lesser amounts of calcareous siltstone, greywacke, conglomerate, and limestone, much of it Jurassic in age	Gemuk Group

CONTINENTAL DEPOSITS

Qal	ALLUVIUM -- Quaternary alluvium; also includes lesser amounts of estuarine, beach, dune sand, talus, and other surficial deposits	
Q	OLDER ALLUVIUM -- Older Quaternary deposits of alluvium, dune sand, loess, beach sand, glacial and deltaic material. In areas surrounding major calderas such as Aniakchak, Veniaminof, Pavlof, and Fisher, includes widespread ash-flow sheets; around volcanic centers such as Black Peak and Duna, includes more localized ash-flow deposits	
TKc	TERTIARY AND (OR) CRETACEOUS CONTINENTAL DEPOSITS -- Sandstone, conglomerate, and siltstone, with lesser amounts of claystone and coal in the Cook Inlet area, ranging in age from Pliocene to Paleocene; conglomerate, sandstone, and shale of probable Oligocene age near Farewell	Kenai Group

VOLCANIC ROCKS, MAINLY SUBAERIAL

QTv	QUATERNARY AND TERTIARY VOLCANIC ROCKS -- Holocene basalt flows and pyroclastic deposits on Akutan Island; Quaternary (and some Tertiary) andesitic and basaltic flows and associated pyroclastic deposits on the Alaska Peninsula, Unimak, Augustine, and other Islands; Quaternary and Tertiary interbedded andesite, basalt, and water-laid tuff with local lenses of agglomerate, sandstone, siltstone, and plant-bearing mudstone in northern Aleutian Range; Oligocene-age andesitic volcanic sediments comprising interbedded volcanic conglomerates, sandstone, volcanic breccias, and minor fine siltstone and shale around Chignik Bay on the Alaska Peninsula	Meshik Formation
TKv	TERTIARY AND (OR) UPPER CRETACEOUS VOLCANIC ROCKS -- Basalt and andesite flows, including some rhyolite, trachyte, and latite with a few tuff, breccia, and tuffaceous sandstone beds in Alaska-Aleutian Range; olivine basalt and andesite flows with some water-laid tuff and interbedded basaltic detritus; virtually all rocks are Tertiary age in the area covered by this map	

GRANITIC ROCKS

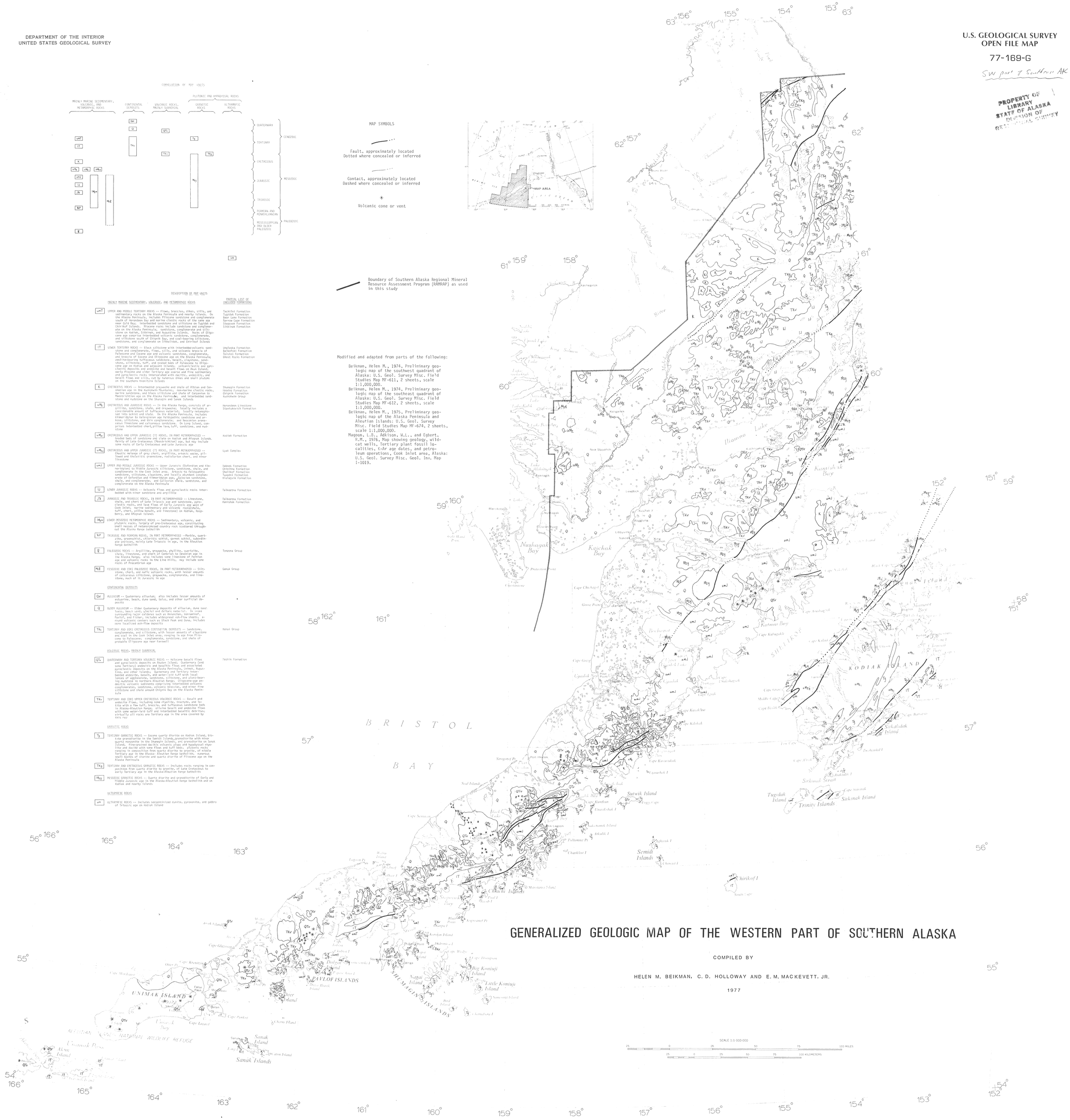
Tg	TERTIARY GRANITIC ROCKS -- Eocene quartz diorite on Kodiak Island, biotite granodiorite in the Semidi Islands, granodiorite with minor quartz monzonite in the Shumagin Islands, and granodiorite on Sanak Island; fine-grained dacitic volcanic plugs and hypabyssal rhyolite and dacite with some flows and tuff beds; plutonic rocks ranging in composition from quartz diorite to granite, of middle Tertiary age in the Alaska-Aleutian Range batholith; numerous small bodies of diorite and quartz diorite of Pliocene age on the Alaska Peninsula	
TKg	TERTIARY AND CRETACEOUS GRANITIC ROCKS -- Includes rocks ranging in composition from quartz diorite to granite, of Late Cretaceous to early Tertiary age in the Alaska-Aleutian Range batholith	
Mzg	MESOZOIC GRANITIC ROCKS -- Quartz diorite and granodiorite of Early and Middle Jurassic age in the Alaska-Aleutian Range batholith and on Kodiak and nearby islands	

ULTRAMAFIC ROCKS

um	ULTRAMAFIC ROCKS -- Includes serpentinized dunite, pyroxenite, and gabbro of Triassic age on Kodiak Island	

Modified and adapted from parts of the following:

Beikman, Helen M., 1974, Preliminary geologic map of the southwest quadrant of Alaska: U.S. Geol. Survey Misc. Field Studies Map MF-611, 2 sheets, scale 1:1,000,000.
Beikman, Helen M., 1974, Preliminary geologic map of the southeast quadrant of Alaska: U.S. Geol. Survey Misc. Field Studies Map MF-612, 2 sheets, scale 1:1,000,000.
Beikman, Helen M., 1975, Preliminary geologic map of the Alaska Peninsula and Aleutian Islands: U.S. Geol. Survey Misc. Field Studies Map MF-674, 2 sheets, scale 1:1,000,000.
Magoon, L.B., Adkison, W.L., and Egbert, R.M., 1976, Map showing geology, wildcat wells, Tertiary plant fossil localities, K-Ar age dates, and petroleum operations, Cook Inlet area, Alaska: U.S. Geol. Survey Misc. Geol. Inv. Map I-1019.


BRISTOL BAY
KODIAK ISLAND
SHELIKOF
UNIMAK ISLAND
PAVLOF ISLANDS
SHUMAGIN ISLANDS
Sanak Islands
Trinity Islands
Semidi Islands
Chirikof I
Sutwik Island
Kamishak Bay
Kaguyak
Nushagak Bay
Koichak Bay
Katmai Bay
Sitkinak Strait
Tugidak Island
Sitkinak Island
Sitkalidak Island
Big Koniuji Island
Little Koniuji Island
Nagai Island
Deer Island
Akun Island
Akutan Island
Unimak Pass
False Pass
Cape Kumlik
Cape Ilnik
Cape Douglas
Cape Greig
Cape Ugashik
Cape Kovalevsky
Cape Kubugakli
Cape Kekurnoi
Cape Kiliuda
Cape Kuliuliak
Cape Ikolik
Cape Chiniak
Cape Barnabas
Cape Alitak
Cape Ivakofski
Cape Nukshak
Cape Nukshak Island
Cape Sitkinak
Cape Kaguyak
Cape Douglas
Cape Chiakagin
Cape Menshikof
Cape Kronotzin
Cape Glazenap
Cape Lazaret
Cape Pankof
Cape Sarichef
Cape Nemetz
Port Heiden
Stepovak Bay
Seal Islands
Chagulak I
Chankliut I
Tolstoi Pt
Kupreanof Pt
Kagalaska I
Amchitka I
Tanaga I
Adakulis I
Tanaga Island
Kanaga Island
Adak Island
Kagalaska Island
Amchitka Island
Tanaga Island
Kanaga Island
Adak Island
Kiska I
Chuchi Islands
Mitrofania Island
Kodiak
Afognak
Raspberry Island
Shuyak Island
Marmot Bay
Kamishak Bay
Kaguyak
Nushagak Bay
Koichak Bay
Katmai Bay
Sitkinak Strait
Tugidak Island
Sitkinak Island
Sitkalidak Island
Big Koniuji Island
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Cape Kekurnoi
Cape Kiliuda