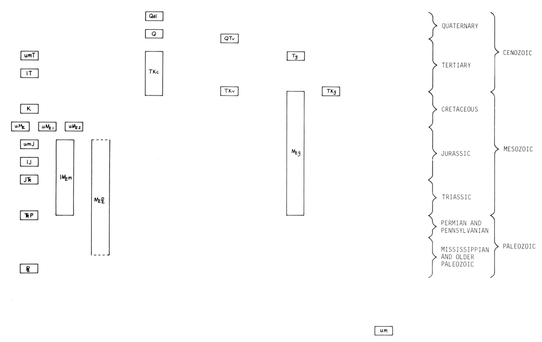
DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

U.S. GEOLOGICAL SURVEY
OPEN FILE MAP
77-169-G

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 Akun Island, early Miocene and older Tertiary age coarse and fine sedimentary and pyroclastic rocks intercalated with dacitic, andesitic, and basalt flows and sills, cut by numerous dikes and small plutons on the southern Krenitzin Islands	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
uMz1	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
uMz2	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
uMz3	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
uMJ	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. Bajocian sandstone, shale, and conglomerate; and Callovian 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	
P	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
MzP	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 Dana, 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	
MzTg	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	

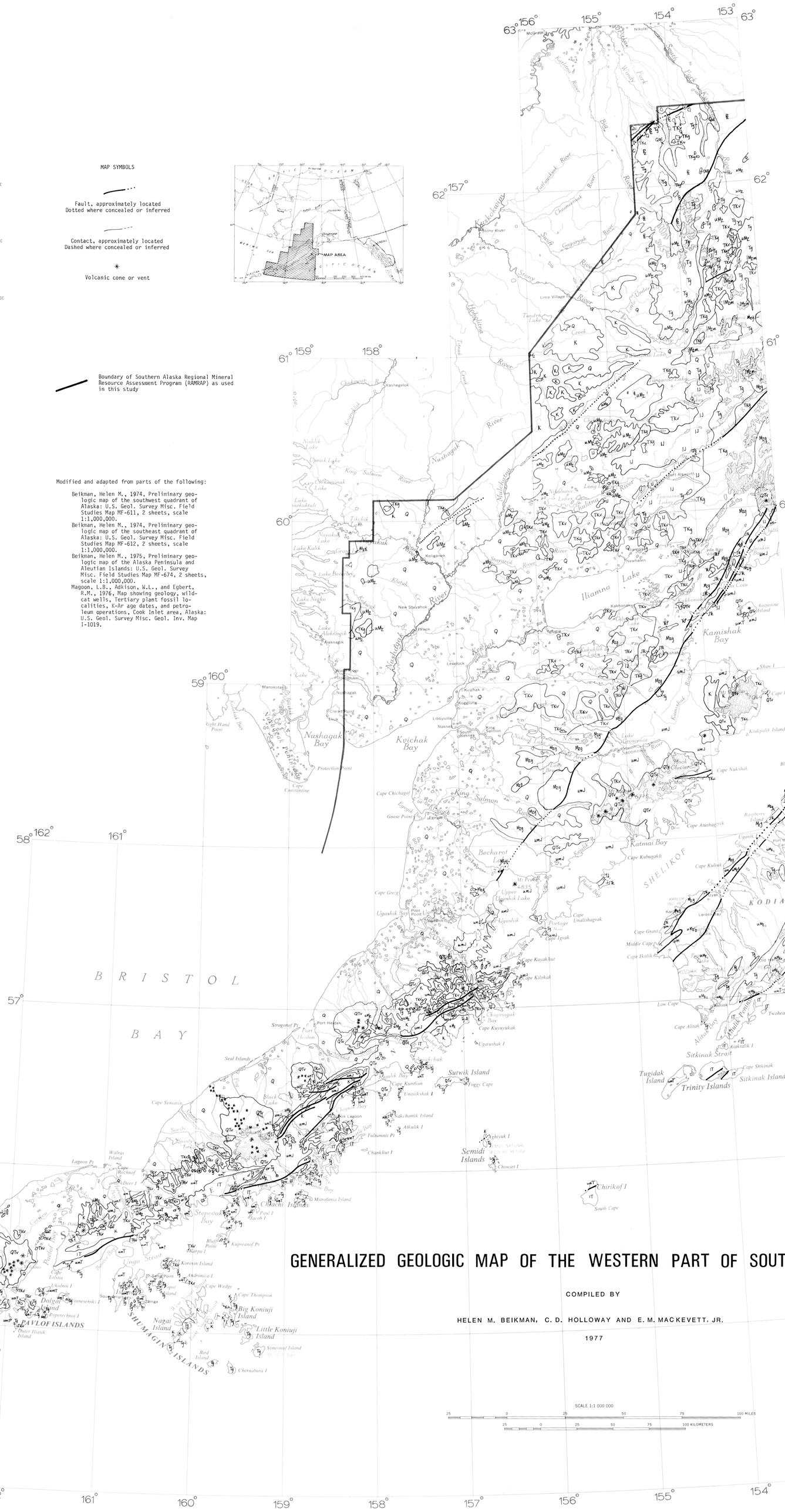
Modified and adapted from parts of the following:

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
Nushagak Bay
Kvichak Bay
Katmai Bay
Kanishak Bay
Ilianna Lake
SHELIKOF STRAIT
KODIAK ISLAND
Sitkalidak Island
Sitkinak Strait
Sitkinak Island
Tugidak Island
Trinity Islands
Sutwik Island
Semidi Islands
Chirikof I
Stepovak Bay
Chignik Bay
Unimak Bay
UNIMAK ISLAND
ALEUTIAN ISLANDS NATIONAL WILDLIFE REFUGE
Unimak Pass
Akun Island
Sanak Island
Sanak Islands
Deer Island
Dolgoi Island
PAVLOF ISLANDS
Nagai Island
SHUMAGIN ISLANDS
Little Koniuji Island
Big Koniuji Island
Chernabura I
Simeonof Island
Bird Island
Unalaska Island
Akutan Island
Umnak Island
Tugidak Island
Chirikof Island
Kodiak Island
Afognak Island
Raspberry Island
Shuyak Island
Marmot Island
Long I
Chiniak Bay
Narrow Cape
Cape Greig
Cape Kekurnoi
Cape Kumlun
Unavikshak I
Cape Kuyuyukak
Ugaiushak I
Cape Kilokak
Cape Kayakhut
Cape Igvak
Cape Ugashik
Cape Chiginagak
Cape Douglas
Cape Nukshak
Cape Kubugakli
Cape Atushagvik
Cape Kuliuk
Cape Granite
Middle Cape
Cape Ikolik
Cape Barnabas
Cape Sitkinak
Cape Alitak
Twoheaded I
Cape Chiachof
Cape Seniavin
Cape Greig
Cape Glazenap
Cape Krenitzin
Cape Morzhovi
Cape Pankof
Cape Lazaref
Cape Tolstoi
Cape Wedge
Cape Thompson
Cape Menshikof
Cape Newenham
Cape Romanzof
Cape Mendenhall
Cape Constantine
Protection Point
Port Heiden
Port Moller
Port Mollen
Port Wilson
Port Nellie Juan
Port Chatham
Port Graham
Port Dick
Port Alsworth
Port Alexander
Port Bailey
Port Bagot
Port Banks
Port Bedford
Port Bentinck
Port Bismarck
Port Bonita
Port Bright
Port Camden
Port Clarence
Port Clarendon
Port Clarence
Port Conclusion
Port Crescent
Port Dalrymple
Port Dick
Port Dick
Port Dick