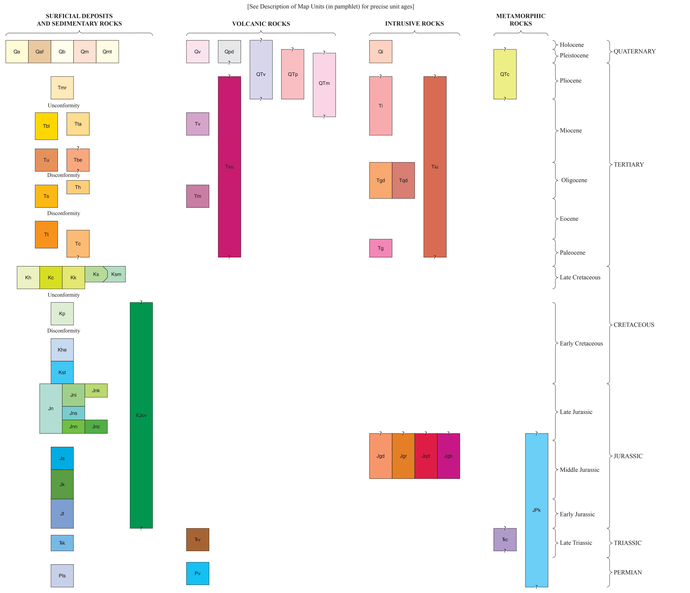
CORRELATION OF MAP UNITS

[See Description of Map Units (in pamphlet) for precise unit ages]



Early Tertiary Shumagin batholith on Nagai Island in the Shumagin Islands south of the Alaska Peninsula. Plutons were emplaced very soon after deposition of the Shumagin Formation. Photograph by Frederic Wilson, June, 1982.

The southwesternmost of the volcanoes of Stepovak Bay. Spire is a basaltic plug in throat of volcano; adjacent ridges are capped by stacked flows. K/Ar age on distal flows from this center were between 0.534 and 0.407 Ma (see Yount and others, 1985; Wilson, 1989). Photograph by Frederic Wilson, July 26, 1983.

Cirque in the Agripina Bay batholith on the Pacific coast, south of Wide Bay. Pluton is quartz diorite to granodiorite in composition, yields K/Ar ages between 2.1 and 5.24 Ma, and intrudes Pliocene and latest Miocene volcanic rocks. Cirque reflects latest Pleistocene or Holocene glaciation. Photograph by Frederic Wilson, July, 1981.

Latest Cretaceous Shumagin Formation on Nagai Island in the Shumagin Islands south of the Alaska Peninsula. Shumagin Formation consists of mudstone and graywacke turbidites deposited in a paleo-Aleutian trench; thought to be part of the same deposition system as the Chignik (nearshore), and Hoodoo (shelf) Formations. Photograph by Frederic Wilson, June, 1982.

LIST OF MAP UNITS

SURFICIAL DEPOSITS AND SEDIMENTARY ROCKS

Surficial deposits

- Qa — Alluvial deposits (Holocene and Pleistocene)
- Qaf — Alluvial fan and landslide deposits (Holocene and Pleistocene)
- Qb — Marine beach and estuarine deposits (Holocene and Pleistocene)
- Qm — Moraines and other glacial deposits (Holocene and Pleistocene)
- Qmt — Marine terrace deposits (Holocene and Pleistocene)
- Tmr — Milky River Formation (Pliocene)
- Tbl — Bear Lake Formation (late and middle Miocene)
- Tla — Tachilni Formation (late Miocene)
- Tu — Unga Formation (middle Miocene to late Oligocene)
- Tbe — Belkofski Formation (middle Miocene? to late Oligocene?)
- Th — Hemlock Conglomerate (late Oligocene)
- Ts — Stepovak Formation (early Oligocene and late Eocene)
- Tt — Tolstoi Formation (middle Eocene to late Paleocene)
- Tc — Copper Lake Formation (early Eocene and Paleocene?)
- Kh — Hoodoo Formation (Late Cretaceous; Maestrichtian and Campanian)
- Kc — Chignik Formation (Late Cretaceous; Maestrichtian and Campanian)
- Ks — Kagayak Formation (Late Cretaceous; Maastrichtian and Campanian)
- Ka — Shumagin Formation (Late Cretaceous; Maastrichtian)
- Kum — Mudstone
- Kp — Pedmar Formation (Early Cretaceous; Albian)
- Jk — Chert and volcanic sequence (Early Cretaceous or Jurassic)
- Khe — Herendeen Formation (Early Cretaceous; Barremian and Hauterivian)
- Kuc — Staniukovich Formation (Early Cretaceous; Valanginian and Berriasian)
- Jn — Naknek Formation (Late Jurassic; Tithonian to Oxfordian)
- Jo — Indecision Creek Sandstone Member (Tithonian and Kimmeridgian)
- Jrk — Katolinat Conglomerate Member (Tithonian)
- Jng — Snug Harbor Siltstone Member (Kimmeridgian and Oxfordian)
- Jmn — Northeast Creek Sandstone Member (Oxfordian)
- Jno — Chisik Conglomerate Member (Oxfordian)
- Js — Shelikof Formation (Middle Jurassic; Callovian)
- Ja — Kialagvik Formation (Middle and Early Jurassic; Callovian to late Toarcian)
- Jt — Talkeetna Formation (Early Jurassic)
- Ks — Kamishak Formation (Late Triassic; Norian)
- Pls — Limestone (Permian; early Guadalupian)

VOLCANIC ROCKS

- Qv — Volcanic rocks (Holocene and Pleistocene)
- Qpd — Pyroclastic and debris-flow deposits (Holocene and late Pleistocene?)
- QTv — Volcanic rocks (Quaternary and Pliocene?)
- QTp — Pyroclastic deposits (Pleistocene? and Pliocene)
- QTm — Morzhovoi Volcanics (early Quaternary?, Pliocene, and late Miocene?)
- Tv — Volcanic rocks, undivided (Tertiary)
- Tv — Volcanic rocks (late Miocene)
- Tm — Meshik Volcanics (early Oligocene and late Eocene)
- Tv — Volcanic rocks (Late Triassic)
- Pv — Volcanic rocks (Permian?)

INTRUSIVE ROCKS

- Qi — Intrusive rocks (Holocene and Pleistocene)
- Ti — Intrusive rocks (Pliocene and late Miocene)
- Tiu — Intrusive rocks, undivided (Tertiary)
- Tgd — Granodiorite (Oligocene)
- Tqd — Quartz diorite (Oligocene)
- Tg — Granodiorite (Paleocene)

Granitic rocks

- Jgd — Granodiorite (Late? and Middle Jurassic)
- Jgr — Granite (Late? and Middle Jurassic)
- Jqd — Tonalite and quartz diorite (Late? and Middle Jurassic)
- Jgb — Diorite and gabbro (Late? and Middle Jurassic)

METAMORPHIC ROCKS

- QTc — Contact-metamorphosed rocks (early Quaternary or late Tertiary)
- JPk — Kakhonak(?) Complex (Late Jurassic? to Permian?)
- Ꞧc — Cottonwood Bay Greenstone (Late Triassic; Norian?)

EXPLANATION OF MAP SYMBOLS

Stratigraphic contact—Solid where location is certain; long dashed where location is approximate; short dashed where location is inferred

Internal contact

Fault—Solid where location is certain; long dashed where location is approximate; short dashed where location is inferred; dotted where location is concealed

Thrust or high-angle reverse fault—Solid where location is certain; long dashed where location is approximate; short dashed where location is inferred; dotted where location is concealed. Sawteeth on upper plate

Caldera or crater rim—Hachures point into crater. Hachures may not be present on short line segments

Dike

Moraine—Hachures point upslope

Moraine or till margin (scour) on bedrock—Hachures point upslope. Hachures may not be present on short line segments

River or ocean shoreline

Terrace, erosional, or wave-cut scarp—Hachures point towards toward water

Folds—Showing approximate trace of axial plane. Arrowhead on axial plane shows plunge. Solid where where location is certain; long dashed where where location is approximate; short dash where where location is inferred

Anticline

Overturned anticline

Syncline

Overturned syncline

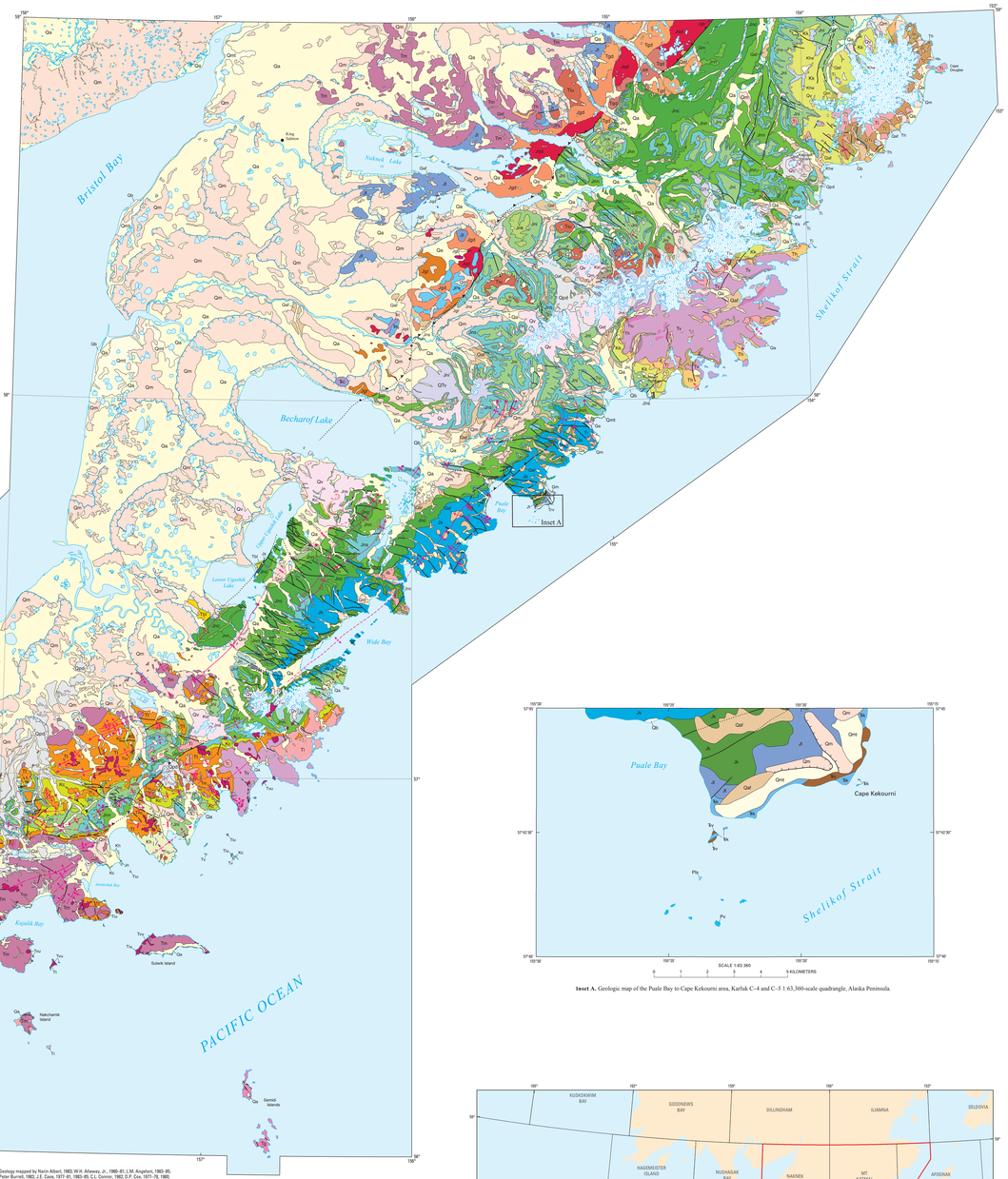
Peak

Town

Glacier

Alteration zone

Hornfelsed zone



Inset A. Geologic map of the Puale Bay to Cape Kekourni area, Karluk C–4 and C–5 1:63,360-scale quadrangle, Alaska Peninsula.

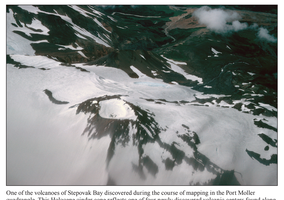
Geology mapped by Narin Albert, 1983; W.H. Allaway, Jr., 1980–81; L.M. Angeloni, 1983–85; Peter Burrell, 1982; J.E. Case, 1977–81, 1982–85; C.L. Connor, 1982; D.P. Cox, 1977–78, 1980; John Decker, 1980, R.L. Detterman, 1977–86, 1980; G.D. DuBois, 1985, 1988, 1990; C.L. Engelhardt, 1973; B.M. Gamble, 1983–86; S.Z. Gazewski, 1980; C.D. Holloway, 1977, 1980–81; R.A. Horn, 1977–78; R.L. Howell, 1977–78; Ronald Hunter, 1981–82, 1985–87, 1982, 1984; Eric Martin, 1984; Hugh McLean, 1977; J.W. Miller, 1976–80; T.P. Miller, 1973–75, 1977–79, 1981–82, 1988; M.A. Parnickas, 1983; B.L. Reed, 1983–84; J.R. Riehle, 1981–86; Nora Shew, 1981–82; R.A. Spicer, 1977–78; F.R. Weber, 1983–85; F.H. Wilson, 1977–88, 1986, 1990; J.A. Wolfe, 1977–78; M.E. Yount 1977–86, 1988. Some geology modified from Burk (1965); Kennedy and Waldron (1955); Waldron (1961); and Moore (1974a,b)

GIS database and digital cartography by Keith Labay

Edited by Kate Jacques, Jane S. Conner, Carol Dettergrec, and Taryn A. Lindquist; digital cartographic production by Kathryn Nimz and Richard D. Koch

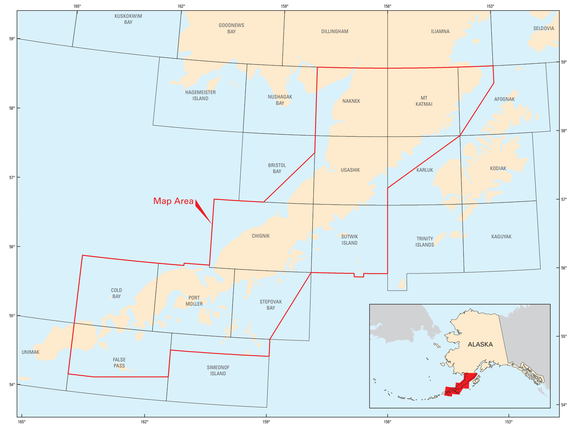
Manuscript approved for publication May 27, 2006

Petrified *Metasequoia* stump in the Unga Formation on northern Unga Island. Stump is about 2 m tall and nearly 1 m in diameter. Forest was engulfed in lahar deposits of Miocene age. Photograph by Frederic Wilson, June, 1982.



One of the volcanoes of Stepovak Bay discovered during the course of mapping in the Port Moller quadrangle. This Holocene cinder cone reflects one of four newly discovered volcanic centers found along the crest of the Aleutian Range. Photograph by Frederic Wilson, July, 1983.

Soft-sediment deformation at Necessity Cove south of Chignik at Castle Cape. Rock unit here is a mixature of the Latest Cretaceous Hoodoo and Chignik Formations; photograph is of Hoodoo Formation. Deformation shown here is unusual for these units. Photograph by Frederic Wilson, July, 1978.



DATA SOURCES (BY 1:250,000–SCALE QUADRANGLE)

Afognak: Riehle and others, 1987, 1993; Riehle and Detterman, 1993; R.L. Detterman, written commun., 1989; interpretation of vertical airphoto, SLAR, and Landsat imagery, F.H. Wilson, 1989

Bristol Bay: Detterman and others, 1987a,b; R.L. Detterman, written commun., 1988

Chignik: Detterman and others, 1981a,b; R.L. Detterman, written commun., 1988

Cold Bay: Kennedy and Waldron, 1955; Waldron, 1961; Burk, 1965; McLean and others, 1978; DuBois and others, 1989; F.R. Weber, written commun., 1989; T.P. Miller, written commun., 1989; interpretation of vertical airphoto, SLAR, and Landsat imagery, F.H. Wilson, 1989–91; field work, F.H. Wilson, G.D. DuBois, and W.H. White, 1990

False Pass: Kennedy and Waldron, 1955; Waldron, 1961; Burk, 1965; McLean and others, 1978; DuBois and others, 1989; F.R. Weber, written commun., 1989; T.P. Miller, written commun., 1989; interpretation of vertical airphoto, SLAR, and Landsat imagery, F.H. Wilson, 1989–91; field work, F.H. Wilson, G.D. DuBois, and W.H. White, 1990

Karluk: Detterman and others, 1987a,b; R.L. Detterman, written commun., 1988

Mt. Katmai: Riehle and others, 1987, 1993; Riehle and Detterman, 1993; R.L. Detterman, written commun., 1989; interpretation of SLAR and Landsat imagery, F.H. Wilson, 1989

Naknek: Riehle and others, 1987, 1993; Riehle and Detterman, 1993; Muller, 1952; interpretation of SLAR and Landsat imagery, F.H. Wilson, 1989

Port Moller: Wilson and others, 1995; field work, F.H. Wilson, G.D. DuBois, R.L. Detterman, and W.H. White, 1989

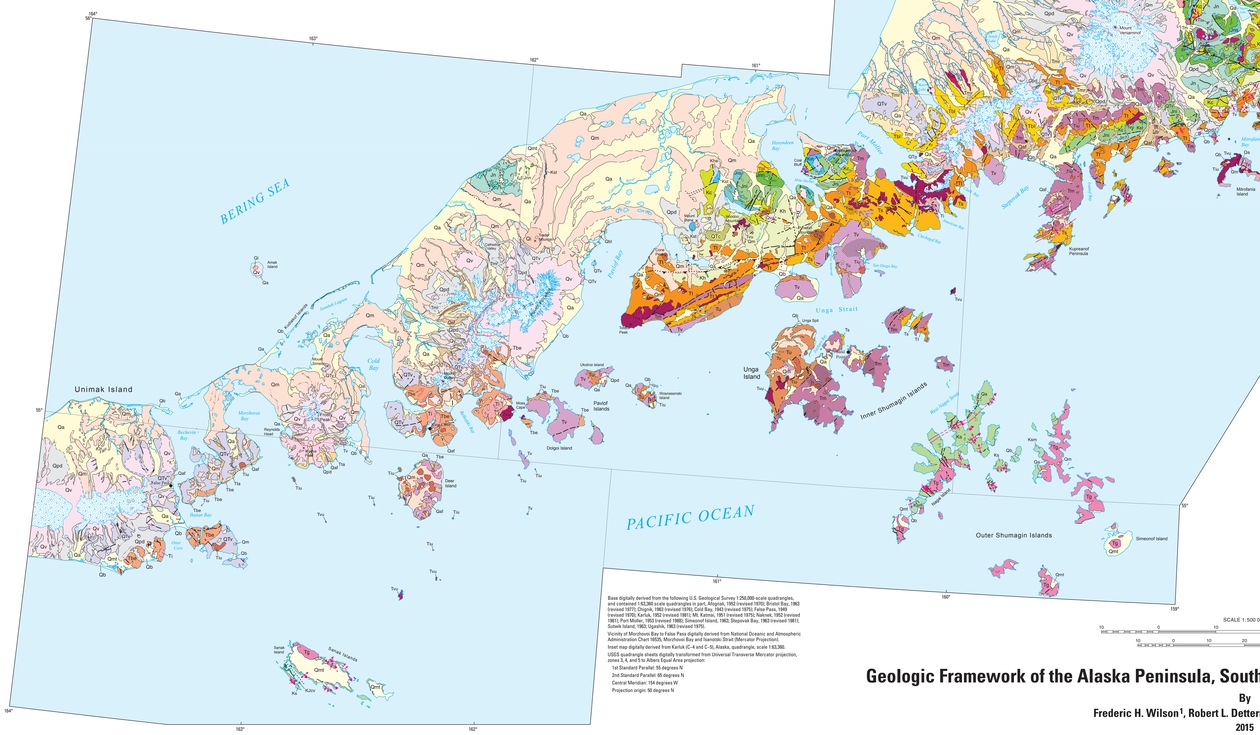
Simeonof Island: Wilson and others, 1995; field work, F.H. Wilson, G.D. DuBois, R.L. Detterman, and W.H. White, 1989

Stepovak Bay: Wilson and others, 1995; field work, F.H. Wilson, G.D. DuBois, R.L. Detterman, and W.H. White, 1989

Sutwik Island: Detterman and others, 1981a,b; R.L. Detterman, written commun., 1988

Ugashik: Detterman and others, 1987a,b; R.L. Detterman, written commun., 1988

INDEX MAP SHOWING LOCATION OF THE ALASKA PENINSULA RELATIVE TO ALASKA AND THE LOCATIONS OF 1:250,000-SCALE QUADRANGLES ON THE ALASKA PENINSULA.



Base digitally derived from the following U.S. Geological Survey 1:250,000-scale quadrangles, and contained 153,386 scale quadrangles in part: Afognak, 1993 (revised 1978); Bristol Bay, 1983 (revised 1978); Cape Newenham, 1962 (revised 1978); Cold Bay, 1962 (revised 1978); False Pass, 1962 (revised 1978); Karluk, 1962 (revised 1981); Mt. Katmai, 1983 (revised 1978); Naknek, 1952 (revised 1981); Port Moller, 1953 (revised 1980); Simeonof Island, 1962; Stepovak Bay, 1962 (revised 1981); Sutwik Island, 1963; Ugashik, 1962 (revised 1975).

Vicinity of Morzhovoi Bay to False Pass digitally derived from National Oceanic and Atmospheric Administration Chart 16535, Morzhovoi Bay and Isanotski Strait (Mercator Projection).

Inset map digitally derived from Karluk (C–4 and C–5), Alaska, quadrangle, scale 1:63,360.

USGS quadrangle sheets digitally transformed from Universal Transverse Mercator projection, zones 3, 4, and 5 to Albers Equal Area projection:

1st Standard Parallel: 55 degrees N
2nd Standard Parallel: 65 degrees N
Central Meridian: 154 degrees W
Projection origin: 50 degrees N

SCALE 1:500 000

10 0 10 20 30 40 MILES

10 0 10 20 30 40 50 KILOMETERS

Geologic Framework of the Alaska Peninsula, Southwest Alaska, and the Alaska Peninsula Terrane

By
Frederic H. Wilson[1], Robert L. Detterman[2], and Gregory D. DuBois[1]

2015

[1] U.S. Geological Survey;
[2] Deceased

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