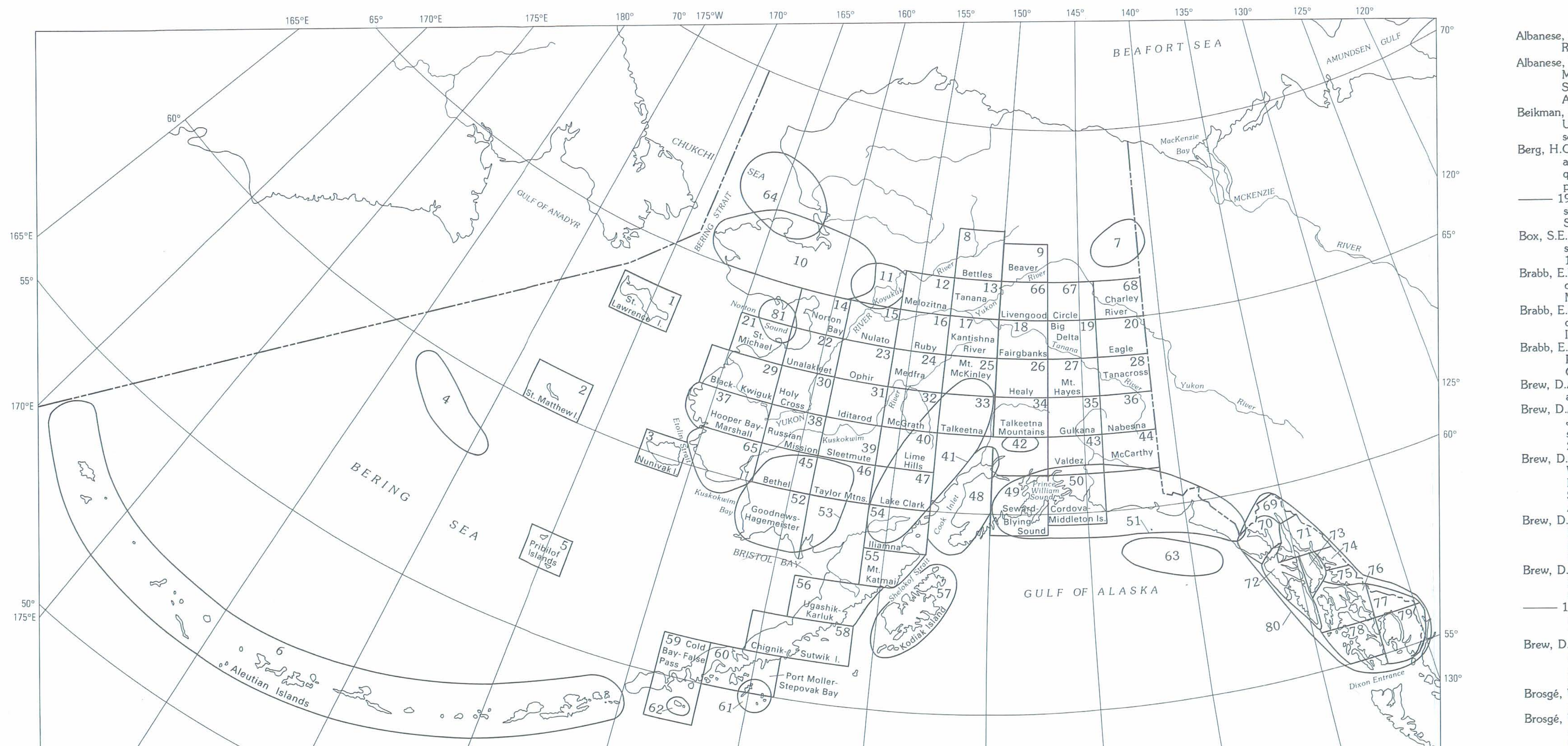

Index map showing principal sources of data used in compiling this map. Also shown are the names of 1:250,000-scale quadrangles that were used in the table or text to describe the location of various volcanic or plutonic bodies. Numbers on the index map are keyed to the table.

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Table I: Tables summarizing age, petrologic, and chemical data on Late Cretaceous and Cenozoic volcanic and plutonic rocks

Abbreviations are as follows: act=actinolite, amph=amphibole, andes=andesine, andst=andesite, anorth=anorthoclase, AOB=alkali-olivine basalt, aug=augite, biot=biotite, bs=basalt, chl=chlorite, dior=diorite, fspar=feldspar, gar=garnet, gb=gabbro, gran=granodiorite, grn=green, hrnbld=hornblende, hyp=hyperstene, il=ilmenite, K-spar=K-feldspar, labrad=labradorite, monz=monzonite, monzgb=monzogabbro, monzdr=monzodiorite, mt=magnetite, mus=muscovite, neph=nepheline, ol=olivine, olig=oligoclase, opx=orthopyroxene, orth=orthoclase, orthopyx=orthopyroxinite, oxides=Fe-Ti oxides, plag=plagioclase, pyr=pyroxene, qtz=quartz, rhy=rhyolite, san=sanidine, serp=serpentine, sph=sphene, zr=zircon, SIR=initial $^{87}Sr/^{86}Sr$, NIR=initial $^{143}Nd/^{144}Nd$.

Late Cretaceous and early Tertiary
Alaska Range-Talkeetna Mountains belt

Unit/Name	Age (Ma)	Classification[1]	K_2O type[2]	Rock types	SiO_2 range (wt. %)	Mineralogy	Other comments	References
Summit Lake	73-58	Calc-alkalic (61)	Moderate-K	Granodiorite, quartz diorite	54.5 - 70	Biot, hmbld reported	Rocks having more than 65 % SiO_2 divided into two suites: normal calc-alkalic and trondhjemite-tonalite.	Reed and Lanphere, 1972; 1974a; M.A. Lanphere, oral comm., 1984
Mt. Susitna	72.0	Presumed calc-alkalic	No data	Granodiorite, quartz diorite, diorite	No data	No data		Magoon and others, 1976; Reed and Lanphere, 1972
Tonalite of Talkeetna Mountains	74 - 61	Calcic (62)	Moderate-K	Tonalite, quartz diorite	58 - 63	Andesine, qtz, orth, hmbld, biot, mt	Granite and granodiorite body to the west intrudes the tonalite body and is 65-67 Ma (has biot±mus)	Csejtey, 1976; 1974; Csejtey and others, 1978
Quartz monzonite of Tired Pup	58-55	Calc-alkalic (does not cross)	High-K	Granodiorite, granite	69.8 - 70.1	Biot; biot-mus reported	Similar to McKinley sequence (Lanphere oral comm., 1984)	Reed and Lanphere, 1972; Reed and Lanphere, 1974
McKinley sequence	57.9-56.6	Calc-alkalic (does not cross)	High-K	Granite, granodiorite	65.9 - 77.6	biot; biot+mus reported	SIR = 0.7054 - 0.7085 Rocks have normative corundum. Limited trace element data-- Low Ba (150-472), low Sr (6-47), and high Nb (24-44)--suggests rocks are not arc-related	Lanphere and Reed, 1985
Crystal Creek sequence	60.5-58	Calc-alkalic	High-K	Granite, granodiorite	70.5 and 75.2	Biot and biot+ hmbld reported		Reed and Lanphere, 1972; 1974a
Middle Fork pluton	58-55	Alkali-calcic		Gabbro, diorite, qtz monzdr., syenite, granite, Alkali feldspar granite	42 - 53 and 60 - 75	Gb and dior: plag ±ol±opx+cpx+biot ±K-spar; syenites: K-spar± qtz+cpx+fayalite; granite: plag+K-spar +qtz+biot+hmbld; alkali feldspar granite: plag+K-spar+biot +Na-amphiboles	An anorogenic type bimodal suite of multiple coeval magmas. Alkali feldspar granite is peralkaline	Solie, D.N., 1988
Granite intrusions of the northern Talkeetna Mountains	58.6-50.4	Probably calc-alkalic	No data	Granite, granodiorite	No data	Qtz+K-spar+ plag+biot, rare hmbld	Includes Tertiary granite intrusions in the Healy and Talkeetna Mountains Quadrangles. Several plutons are associated with tin mineralization. Csejtey considers these plutons to be the subvolcanic equivalents of nearby volcanic rocks	Csejtey, 1974; Csejtey and others, 1978; Csejtey and others, 1986
Volcanic and related plutonic rocks of Lake Clark region	71-58	Presumed calc-alkalic	No data	Rhyodacite, intermediate to mafic volcanic rocks	No data	Rhyodacite: plag± qtz±biot±hmbld intermediate-mafic: plag+ hmbld±pyr	Age uncertain. Description includes undivided rocks of Paleocene and Eocene age. Rhyodacites include breccia flows, ash-flow tuffs and intrusive rocks	Nelson and others, 1983; G.A. Thrupp, written comm., 1984; Eakin and others, 1978; Thrupp and Coe, 1986
Talkeetna Mountains volcanic field	56-51	Calc-alkaline	Moderate-K	Basalt, andesite, dacite, rhyolite	52 - 60 and 68 - 71	Basalt: ol+ plag+cpx+mt+il andesite: plag+ cpx±opx+mt dacite: plag±biot± qtz±biot± rhyolitic: san+ plag in perlitic glass.	Volcanic field consists of a lower sequence composed of quartz latite, rhyolite, latite, and minor andesite, and an upper sequence of andesite and basalt. Description may include rocks of the upper sequence that may be as young as Miocene. Rocks have high Ba (300-700 ppm), moderate Sr (200-500), moderate Y(10-30), moderate, Yb(1.5-3) and low Zr(70-150)	Csejtey and others, 1978; Gilbert and others, 1976; Hillhouse and others, 1985
Volcanic rocks of Cantwell Formation	61-42 (Gilbert and others, (1976) consider the suite Paleocene age)	Calc-alkalic or calcic	Moderate to high-K	Andesite, rhyolite, dacite, minor basalt, quartz diorite	52 - 62 and 71 - 77	Rhy: sand±plag± qtz±biot; Mafic-intermediate: labrad-andes+cpx+mt±ol; Qtz-diorite plug: andesine rimmed by K-spar+cpx+ qtz±ol±garnet	Data show considerable scatter on major element Harker diagrams, probably due to post-depositional alteration. Suite has more TiO_2 - about 2 weight percent, than other contemporaneous suites. Equivalent to Teklanika Formation of Gilbert and and others (1976)	Gilbert and others, 1976; Csejtey and others, 1986

Kuskokwim Mountains belt
northern volcanic fields

Unit/Name	Age (Ma)	Classification	K_2O type	Rock types	SiO_2 range (wt. %)	Mineralogy	Other comments	References
East Susitna batholith	57.0-54.5 70 (U-Pb)			Diorite, granodiorite; subordinate quartz monzonite		Biot, hmbld	Nokleberg and others believe this pluton was 400 km to the south during emplacement so it may not be part of this belt. Pluton is regionally metamorphosed	Nokleberg and others, 1982
Sischu volcanic field	71.0-66.3	Calc-alkalic (do not cross but project to cross at 60.5)	High K_2O	Rhyolite, dacite, minor andesite	62 and 69 - 77.5	Rhyolite: san+qtz±plag+ altered mafics; olig+san±biot ±fayalite; dacite: andesine+qtz+ biot+hmbld; andesite: plag+ biot+mt	Volcanic sequence at least 500 m. thick. May be borderline alkalic. K_2O and Na_2O appear to be strongly modified by post depositional alteration. SIR greater than 0.7080	Moll and others, 1981; E.J. Moll-Stalcup, and R.M. Chapman, unpub. data, 1985; Moll-Stalcup and Arth, 1989
Nowitna volcanic field	64.2-63.8	calc-alkalic (60.5)	Moderate to high K (K_2O/Na_2O= 0.66 for andesite)	andesite, rhyolite	55 - 63.5 and 73	Andesite: plag+cpx±opx+mt rhyolite: plag+san± biot±mt.	Andesite occurs as thick sequence of flows. Rhyolite as small domes overlying andesite sequence	Moll and others, 1981; Moll-Stalcup and Arth, 1989
Dishna volcanic field	Undated	Calc-alkalic	High K_2O (K_2O/Na_2O=1)	Rhyolite, dacite	65 - 78	Rhyolite: qtz+san+biot dacite: qtz+plag+opx+ biot	Information based on only 7 analyses	Chapman and others, 1985; E.J. Moll and R.M. Chapman, unpub. data, 1985
Yetna volcanic field	69-55	Calc-alkalic	Unknown	Andesite rhyolite basalt	Unknown	Rhy: K-spar+ qtz+biot dacite: plag+ cpx+biot±hmbld andesite: plag+ pyr±biot±hmbld basalt: ol+plag +pyr	Probably moderate to high-K	M. L. Miller and T.K. Bundtzen, unpub. data, 1986

Kuskokwim Mountains belt
volcanoplutonic complexes

Unit/Name	Age (Ma)	Classification	K_2O type	Rock types	SiO_2 range (wt. %)	Mineralogy	Other comments	References
Page Mtn., Lonesome Hills, and Cloudy Mountain	71-65	Borderline alkali-calcic--calc-alkalic (60)	Shoshonitic (K_2O/Na_2O =1.21)	Andesite, dacite, basalt, monzonite, quartz-monzonite, granodiorite	56 - 65.5	Basalt: ol+plag ±opx+cpx andesite: plag+ cpx±opx±biot dacite: plag+ biot+qtz+ altered mafics intrusive rocks: plag+K-spar+ cpx+biot±amph+ opaque oxides	Data include intrusive and volcanic rocks. Volcanic sequences generally hydrothermally altered by intrusive rocks. REE data suggest the volcanic rocks may be compositionally similar to less altered Nowitna volcanic rocks. Lonesome Hills formerly Alone benchmark on 1:250,000 map	Moll and others, 1981
Beaver Mtns, Candle Hills, Takotna Mtn.	73-70	Borderline alkali-calcic--calc-alkalic (data show much scatter cross near 55-58)	Shoshonitic (K_2O/Na_2O= 1.5)	Basalt, andesite, dacite, quartz monzonite, monzonite, monzodiorite; minor syenite	51.7 - 64	Bs: plag+cpx+ol; Andes and dacite: plag+pyr; Syenite: K-spar+ qtz+plag+biot± cpx; monz and monzodiorite: K-spar+qtz+plag+ biot+cpx; qtz monz: orth+ qtz+plag+biot	Data include intrusive and volcanic rocks. Whole rock chemical analyses having sums less than 98 wt % or more than 7% volatiles were not used. Candle Hills are located in the northwest McGrath quadrangle; Takotna Mtn. is in the northeast Iditarod quadrangle	Bundtzen and Laird, 1982, 1983a, 1983b; 1983c

Kuskokwim Mountains belt
intrusive rocks of the northern Kuskokwim Mountains

Unit/Name	Age (Ma)	Classification	K_2O type	Rock types	SiO_2 range (wt. %)	Mineralogy	Other comments	References
Von Frank Mountain, Whirlwind Ridge, Nixon Fork, Cripple Creek, and Appel Mtn. plutons	70.4-66.4	Alkali-calcic (57)	High-K to shoshonite K_2O/Na_2O=1	Monzonite, quartz monzodiorite, monzonite, monzogabbro. Gabbro at Von Frank Mountain only	53.3 - 64.4	Qtz-monz: plag+ orth+qtz+ grn amph+biot; Monz: plag+ orth+cpx+opx+ biot+grn amph± qtz; Monzgb and gb: plag±orth±qtz+ biot+cpx+opx+ ol±grn amph	Nixon Fork pluton intrudes limestone and is associated with a gold copper skarn. Von Frank Mountain pluton is compositionally zoned from quartz-rich monzonite in the core to layered monzogabbro and gabbro at the rim. Plutons located in the central Medfra quadrangle; see Moll and others (1981) for location of specific plutons	Moll and others, 1981
Telida Mtn. and upper Sulukna River plutons	70.5 and 69.2	Alkali-calcic (do not cross)	Shoshonitic (K_2O/Na_2O= 2.25)	Granite and qtz monz; (very minor syenite at upper Sulukna River pluton)	71 and 76 (two analyses only)	Telida: plag+K-spar+qtz+biot± hmbld±opaque oxides; Upper Sulukna River pluton: granite and qtz monz: plag+orth+qtz+ biot+hmbld+cpx Syenite: orth+ qtz+sphene+ diopside+plag	Upper Sulukna River pluton intrudes limestone and is associated with a magnetite skarn. Syenite occurs as a border phase at upper Sulukna River pluton. Telida pluton is associated with abundant tourmaline. Telida pluton is located in the eastern part of the Medfra quadrangle	Moll and others, 1981; Throckmorton, and Patton, 1978

Late Cretaceous and early Tertiary
Kuskokwim Mountains belt
intrusive rocks of the northern Kuskokwim Mountains, cont'd

Unit/Name	Age (Ma)	Classification[1]	K_2O type[2]	Rock types	SiO_2 range (wt. %)	Mineralogy	Other comments	References
Sunshine Mountain, Meadow Creek, Fork plutons	63.4 and 62.5	Calc-alkalic (do not cross, cross around 60.5)	High-K 1.14)	Granite	69 - 75	Plag+qtz+orth or san+biot± hmbld	Meadow Creek pluton is dominantly a porphyritic hypabyssal intrusion having sanidine Plutons located in the west-central part of the Medfra quadrangle	Moll and others, 1981
Intrusions of Shepard Creek and intrusions of Mystery Mountains	69.9 - 62.2	Borderline calc-alkalic-calcic (61.5 Shepard Creek only)	High-K (K_2O/Na_2O =0.93)	Rhyolite, dacite, high silica andesite, granodiorite, qtz monz, qtz-rich monz and qtz monzodiorite	61 - 75	Rhy: plag+qtz+ san+biot dacite: plag+ qtz+biot andesite: plag hmbld+biot plutons: qtz+ orth+plag+biot ±hmbld±cpx±opx	Shepard Creek rocks consist of shallow hypabyssal rocks. Mystery Mountains rocks consist of a number of long parallel sills, small plugs, and flows. Sills are highly altered and contain abundant tourmaline. Intrusions are located in the central Medfra quadrangle	Moll and others, 1981
Stone Mtn pluton	68.3 and 66.4	Calc-alkalic (60-61)	Moderate-K (K_2O/Na_2O =0.47)	Monzonite, monzodiorite tonalite, gabbro, monzogabbro	55.7 - 63	Monzogabbro and gabbro: ol+ cpx+opx+plag± K-spar Monzonitic rocks: plag+orth± qtz+biot+green hmbld±opx± cpx+opaque oxides	Layered gabbro having less than 48 wt. percent SiO_2 appears cumulate and was not included. Small pluton in the central Medfra quadrangle	Moll and others, 1981
Rhyolites of Nixon Fork-Iditarod area	65.8	Presumed calc-alkalic (does not cross)	High-K K_2O/Na_2O= 1.2	Rhyolite	73 - 75	Biot+qtz are listed. Presumed to also have plag and sanidine	These are small intrusive rhyolites bodies intruded along the Nixon Fork-Iditarod fault in the central Iditarod quadrangle. Most are peraluminous; some are garnet-bearing	Bundtzen, and Laird, 1982; M.L. Miller, oral comm., 1986

Kuskokwim Mountains belt
Sleetmute-Nyac area

Unit/Name	Age (Ma)	Classification	K_2O type	Rock types	SiO_2 range (wt. %)	Mineralogy	Other comments	References
Holokuk Basalt	74.5 - 64.3	Calc-alkalic (59)	Chiefly moderate-K, some high-K rhyolite	Basaltic andesite, andesite, rhyolite	52 - 60 (no chemical analyses on rhyolite)	Andesite: plag+ hmbld(?) basaltic andesite: plag+cpx+opx+ol rhyolite: san+qtz	Holokuk Basalt is over 1000 m thick, and actually consists of chiefly andesite lahars and flows, felsic breccia, tuff breccia, and agglomerate. Andesitic rocks have SIR 0.7040-0.7060	M.F. Robinson, oral comm; 1985; Decker and others, 1984; Decker and others, 1986
Rhyolite and rhyolite porphyry	Chiefly 64 to 61.5 may be as old as 70.5 at Barometer Mtn	Calc-alkalic (does not cross, plots along trend with Holokuk Basalt)		Rhyolite porphyry and rhyolite	62 and 68 - 76	Qtz+plag+san+ biot±white mica±tourmaline	Contains tourmaline and quartz tourmaline breccia	Decker and others, 1986; M.F. Robinson, oral comm., 1985
Chuilnuk and Kiokluk plutons	68.7-67.5	Calc-alkalic (does not cross)		Granodiorite (granite border-phase on Chilnuk pluton)	64 - 73	Granodiorite: andes+K-spar+ qtz+biot±hmbld± mus	Contains cross-cutting qtz-tourmaline veins	Decker and others, 1986
Intermediate stocks and dikes	69.8	Calc-alkalic		Diorite to granodiorite	58 - 63	Plag±qtz±K-spar± cpx±biot± hmbld	Dikes associated with lode occurrences of cinnabar and antimony	Decker and others, 1986; M.F. Robinson, oral comm., 1986

Kuskokwim Mountains belt
Tikchik Lake plutons

Unit/Name	Age (Ma)	Classification	K_2O type	Rock types	SiO_2 range (wt. %)	Mineralogy	Other comments	References
Kemuk, Okstukuk Hills, and Ualik Lake plutons	Undated	Alkalic-calcic (does not cross, projects to cross at 52)	Shoshonitic	Granite, monzonite	57 - 68	Perthitic fspar olig±qtz+pyr ±amph±biot	Data based on only three samples having higher K_2O than other Tikchik Lake region plutons	Wilson, 1977; Hoare and Coonrad, 1978b
Other plutons in Tikchik Lake region	72.5-60.7	Calc-alkalic (does not cross but projects to cross at about 59)	High-K	Granite, qtz monzonite, granodiorite, qtz monzodiorite, monzonite, qtz diorite, tonalite, diorite	56 - 76	Granite: plag+ qtz+K-spar+biot ±hmbld±cpx monzonite: plag+ K-spar+biot+pyr+ ±qtz diorite: plag+ opx+cpx+K-spar qtz tonalite: plag+ biot+qtz	Includes plutons at Nayorurun, Shotgun Hills, Tikchik Lake, Akulutuk, Togiak Lake, Sunday Creek, Mt. Oratia, Mt.Waskey, Kashaiak, Zone Creek, Wattamuse, Sulutak, Hoholitna, Crooked Mtns, Kulik Lake, Hook, Muklung Hills, Kulukak, Mt. Chaufchivak, Kasigluk River, Kasigluk Dome, Eek River Sill. Exact location of plutons given in Wilson, 1977	Wilson, 1977; Hoare, and Coonrad, 1978b

Kuskokwim Mountains belt
Bristol Bay volcanic rocks

Unit/Name	Age (Ma)	Classification	K_2O type	Rock types	SiO_2 range (wt. %)	Mineralogy	Other comments	References
Walrus Island volcanic rocks	68.7-64.5	Calc-alkaline	Moderate-K (K_2O/Na_2O =0.32)	Andesite, basalt, dacite	51.6 - 66.4	Andesites: plag+cpx+opx Basalt: plag+ cpx+opx±ol	SIR = 0.7037- 0.7041 Formerly called Bristol Bay volcanic rocks	J.M. Hoare, unpub. data, 1979; Box, 1985; Globerman, 1985

Bering Sea shelf

Unit/Name	Age (Ma)	Classification[1]	K_2O type[2]	Rock types	SiO_2 range (wt. %)	Mineralogy	Other comments	References
St. Matthew Island	Volcanic rocks 77-66; plutonic sample 61	Calc-alkalic (60)	Low to moderate-K (K_2O/Na_2O= =0.5)	Basalt, andesite, dacite, rhyolite, granodiorite	Volcanic rocks 52 - 78; plutonic rocks 63 - 65	Basalt: plag+ aug+cpx+oxides andesite: plag+ cpx+opx+oxides dacite: plag± qtz±cpx rhyolite: plag+ qtz+biot granodiorite: plag+orth+qtz+ hmbld	Entire island (350 km²) is Late Cretaceous to early Tertiary volcanic and plutonic rocks. Lower sequence is pyroclastic andesite, dacite, and rhyolite, overlain by andesite and basalt flows at least 250 m. thick. Youngest sequence is rhyolite and dacite welded tuff and hypabyssal rocks	Patton and others, 1975; Patton and others, 1976; W.W. Patton, Jr., oral commun., 1986
St. Lawrence Island	64.4, 64.0, and 62.1	Probably calc-alkalic	Probably high-K	Basalt, soda rhyolite, trachyandesite, andesite	48.4 and 68.3-70.8	Soda rhyolite: san +hmbld no data on other rock types	Insufficient data to classify suite	Patton and Csejtey, 1980

Yukon-Kanuti belt

Unit/Name	Age (Ma)	Classification	K_2O type	Rock types	SiO_2 range (wt. %)	Mineralogy	Other comments	References
Kanuti volcanic field	60 - 56	Calc-alkalic (does not cross; projects to cross at 60.5)	High-K; (K_2O/Na_2O= 0.8)	Rhyodacite, dacite, hi-silica andesite	62 - 73	Rhyodacites: plag+biot+qtz; Dacites: plag+ hmbld±qtz+mt Andesite: plag+ hmbld±qtz+mt+ opx+cpx	Rocks have high LREE (La=54-77) and low HREE (Lu=0.15-0.23) contents. Volcanic field located near the margin of the Yukon-Koyukuk depression	Patton and Miller, 1973; Moll-Stalcup and Arth, 1989; M.A. Lanphere, oral commun., 1986
Blackburn Hill volcanic field	65 - 56	Calc-alkalic 60.0	Moderate to high-K	Andesite, minor basalt, rhyodacite, alkali rhyolite, granodiorite	48 - 77	Andesite: plag+ cpx±opx+mt or +plag+cpx+hmbld +mt) basalt: ol+ plag+cpx+mt rhyolite: olig± biot±hmbld alkali rhyolite: anorth±olig+ hedenbergite or opx	Best exposed volcanic field in the Yukon-Kanuti or Kuskokwim Mountains belt. Alkali rhyolite occurs at top of section and is dated at 56 Ma. Volcanic suite has a silica gap in the dacite range. Samples from granodiorite pluton plot in the gap	Moll-Stalcup and Arth, 1991; Moll-Stalcup and Patton, 1992
Holy Cross quadrangle	Undated	Presumed calc-alkalic	No data	Basalt to rhyolite	No data	No published data. Known to include rhyolite: qtz+ plag+san+biot	Widespread but little known volcanic and plutonic rocks occur in the region. Rhyolite ash-flow tuffs identified in thin sections from Hoare's 1962 collections	Beikman, 1974; J.M. Hoare, unpub. field data, 1960-1963
Yukon River volcanic rocks	53 - 48 and 44 - 43	Calc-alkalic (60.8)	Moderate to high-K	Basalt, andesite, dacite, rhyolite	48 - 76.5	Basalt: ol+cpx+ plag±biot Andesite: plag+ cpx+opx or plag+hmbld Dacite: qtz+plag ±hmbld±cpx Rhyolite: qtz+ plag+anorth±san Alkali rhy: anorth+olig+ san+biot+hmbld	The mineralogy of some of the younger rocks suggests they are alkalic. Harris (1985) reports ages of 43 to 44 Ma on basalts from this area	Patton and Moll, 1985; Moll-Stalcup and Arth, 1989; Harris, 1985
Beringian shelf edge	54.4-50.2	Calc-alkalic	Moderate-K (K_2O/Na_2O= 0.4)	Andesite, basalt, dacite	50.9-65.1	Basalt: ol+ plag+cpx; Andesite and dacite: plag+ opx+cpx	Samples dredged from the Bering Sea shelf at about lat. 58°30', long. 176-177°	Davis and others, 1987a; Marlow and Cooper, 1986
Tokatjikh volcanic field	59.3	Calc-alkalic (do not cross, project to cross at 62)	Transitional between moderate and high-K	Dacite	65.3-69.8	Dacite: plag+ cpx+opx±qtz± biot or plag+ hmbld+cpx+ opaque oxides	Located on strike with the Kanuti volcanic field	Patton and others, 1978; W.W. Patton, Jr., and E.J. Moll-Stalcup, unpub. data, 1988
Roundabout Mtn. volcanic field	Unknown probably 59-38	Probably calc-alkalic	No data	Andesite	No data	Andesite: plag+ cpx+mt	Occurrence of little known, poorly exposed, very fresh volcanic rocks that discontinuously crop out over a 600 km² area along the Koyukuk River south of Huslia. Shown on map as unit KJv	W.W. Patton, Jr., pers. comm., 1985; Patton, 1966
Beaver volcanic field	60.1	Calc-alkalic	High-K (K_2O/Na_2O=1.5) alkali data on glassy rhyolite may not be reliable	Rhyolite	71.3 (one analysis)	Rhyolite: Plag+ qtz+san± biot in glass	Northeastern-most volcanic field of Tertiary age. Appears to consist entirely of rhyolite ash-flow tuff	Brosgé, written commun., 1989; Moll-Stalcup and Lanphere, pers. comm., 1992

Late Cretaceous and early Tertiary
Yukon-Tanana Upland

Unit/Name	Age (Ma)	Classification[1]	K_2O type[2]	Rock types	SiO_2 range (wt. %)	Mineralogy	Other comments	References
Granitic plutons	69.5-56.7	Calc-alkalic, minor shoshonitic	Chiefly high-K some shoshonitic and med-K	Granite, granodiorite, qtz diorite, qtz monzonite, monzonite	63 - 77	Plag+K-spar+ qtz+biot±hmbld ±mus	Includes numerous plutons in the Circle and Livengood quadrangles and northern and northeastern Big Delta quadrangle	Foster and others, 1983; Chapman and others, 1971; Weber and others, 1978
Mafic and intermediate rocks	67.4, 65.0 64.5 (on basalt)	Probably calc-alkalic	No data	Andesite Some gabbro	No data	No data	Intermediate lavas, breccia tuff, and plugs occur in the eastern Tanacross quadrangle; Gabbro occurs in the west-central Tanacross quadrangle	Foster, 1970
Siliceous volcanic rocks	64.1-57.8	Probably calc-alkalic	No data	Felsic porphyries, welded tuff, and breccias	No data	No data	Includes felsic volcanic and hypabyssal rocks in the eastern Big Delta, west-central Eagle, and eastern Tanacross quadrangles. Lithologically similar rocks give ages of 90 Ma and the two events are difficult to distinguish	Foster, 1976; H.L. Foster, oral comm., 1985; Foster, 1970; Weber and others, 1978
Mount Fairplay pluton	69 to 58	Alkalic	(K_2O/Na_2O=1.2)	Diorite, monzonite, some syenite	55.4	Diorite: cpx+ hmbld+biot+ plag; Monzonite: plag+K-spar+ hmbld±biot± cpx; Syenite: plag+K-spar+ hmbld±biot± cpx; Qtz Monz: plag +K-spar+biot hmbld±cpx±opx	One chemical analyses only. At least some of the rocks are nepheline normative	Foster, 1967; Kerin, 1976

Early Tertiary
Sanak-Baranof belt

Unit/Name	Age (Ma)	Classification	K_2O type	Rock types	SiO_2 range (wt. %)	Mineralogy	Other comments	References
Bering Glacier, Valdez quadrangles	53-46 (biot) 64-48 (hrnbld)	Calcic (64)	Med to high K (granite mostly high-K) (K_2O/Na_2O varies, mostly 0.3-1.1 (higher values for granite))	Tonalite, granodiorite, granite	63-76	Tonalite: plag+ qtz+biot±hmbld± K-spar±mus±gar± ap±mt±zr±sph; Granite and grano: plag+ qtz+K-spar+biot± mus±garnet	Only one sample of granite (Bering Glacier quadrangle)	Hudson and others, 1977
Skagway quadrangle	41-26 (biot) 51.4-45.5 (hrnbld) Biotite ages not considered reliable	Calcic (64)	Low to med-K (K_2O/Na_2O= 0.2-0.8)	Tonalite, granodiorite, qtz diorite	61-79	Plag+qtz+biot± hmbld+K-spar± mus±gar±ap±mt± zr±sph	Tonalite from one locality contain magmatic(?) red epidote (thulite) and one sample also contains garnet. These rocks have 79% SiO_2, highly enriched LREE (La=400 500 x chond) and variable HREE (Lu=4-40 x chond). One granodiorite sample contains garnet	T. Hudson and G. Plafker, unpub. data, 1987; J. Lull and G. Plafker, oral comm., 1978
Cordova quadrangle	53-51 (biot) 54-50 (hrnbld)	Calcic (64)	Low to high-K (K_2O/Na_2O= 0.1-1.4; higher values for granite)	Chiefly granodiorite; minor granite, gabbro, orthopyroxenite, and peridotite.	47-79	Granitic: plag+ qtz+K-spar+biot± hmbld±mus±gar± ap±zr±mt; Gabbro: plag±hmbld± cpx±opx±qtz±biot± ap+mt; Orthopyx: Opx+amph+serp; Peridotite: ol+ cpx+opx+plag+hrnbld	REE trends for granodiorite are very consistent: La 70-120x; Lu 12-20x chondrites; moderate Eu anomaly. Orthopyroxenite occurs only as stoped block(?) or xenolith(?) in one granodiorite sample from the Rude River pluton. Peridotite occurs at one locality	J.S. Lull and George Plafker, oral comm., 1988; Winkler and Plafker, 1981
Yakutat and Mt.St.Elias quadrangle	48-43 (biot) 54-51 (hrnbld) 48-47 (mus)	Calcic (64)	Low to high-K (K_2O/Na_2O= 0.1-2.0)	Granite, granodiorite, diorite	52-76	Granitic: plag+ qtz+K-spar+biot± hmbld±mus±gar±ap± zr±mt; Diorite: plag±cpx±hmbld± biot±qtz±ap+mt	One pluton gives a U-Pb zircon age of 36 Ma and biotite K-Ar ages of 21-23 Ma	Hudson and others, 1977; M.A. Lanphere, unpub. K-Ar age, 1979
Sanak pluton	60	Calc-alkalic (60)	High-K (K_2O/Na_2O= 1.0-1.4)	Granodiorite, granite	66-73	Qtz+plag+K-spar+ biot+mus (up to 2%) +Fe-Ti oxides		Moore, 1974a; Hill, 1979
Kodiak batholith	60-57	Calcic (61.5)	Med-K (K_2O/Na_2O= 0.9-1.0)	Tonalite, granodiorite	63-70	Qtz+plag+K-spar+ biot+Fe-Ti oxides	Some garnet-bearing two-mica granite	Hill, 1979; Shew and Wilson, 1981
Shumagin batholith	64-56	Calcic (61.5)	High-K (K_2O/Na_2O= 0.7-1.1)	Granodiorite, granite	63-76	Qtz+plag+K-spar+ mus+Fe-Ti oxide		Moore, 1974b; Hill, 1979; Burk, 1965

Middle Tertiary
Interior west-central Alaska

Unit/Name	Age (Ma)	Classification	K_2O type	Rock types	SiO_2 range (wt. %)	Mineralogy	Other comments	References
Takhakhdona	43.1	Calc-alkalic (60)	High-K	Trachybasalt, andesite, dacite, rhyolite, latite	52.4 - 77.6	Trachybasalt: no data; andesite: plag+ cpx±opx±hmbld+ oxides; rhyolite: plag+ K-spar+qtz+ biot±hmbld; latite: anorth+ plag+biot+opaques	Data based on only five samples	Patton and others, 1978; W.W. Patton, Jr. and E.J. Moll-Stalcup, unpub. data, 1988
Indian Mtn. volcanic field	41.6 and 39.9	Calc-alkalic	High-K (K_2O/Na_2O=1)	Rhyolite and dacite	72.5 - 77.5	Glass, no microlites	Consists of tuff, breccia and flows. Oldest known obsidian locality in the U.S. Covers an area of about 40 km²	Miller and Lanphere, 1981
Dulbi River volcanic field	43.2	Calc-alkalic	High-K (K_2O/Na_2O=1)	Rhyolite	76.8	Qtz+plag+K-spar in perlitic	Rhyolite in this area is highly altered	W.W. Patton, Jr. and E.J. Moll-Stalcup, unpub. data, 1985
Yukon River volcanic rocks	42.7	No data	No data	Basalt	No data	No data	No lithologic data were reported but we know basalt occurs because basalt whole-rock samples were dated. Other lithologies may be more common	Harris, 1985
Basalt in Chuilnuk River area	38.2	No data	No data	No data	No data	Ol+cpx+plag+opx?	Small isolated occurrence of fresh olivine basalt located at lat. 61°07', long. 157°57'	Decker and others, 1986; M.F. Robinson, oral comm., 1986
Rhyolites at Tang Mtn. (equivalent to the black and gray rhyolite unit of Tang Mtn. of Decker and others, 1986)	43.8	Rhyolites are probably calc-alkalic; trachyandesite is alkalic	Probably high-K rhyolites: K_2O/Na_2O=1 trachyte: K_2O/Na_2O= 0.8	Rhyolite tuff and breccia, trachyandesite	75-76 and 55	Rhyolite: san+ qtz in glass trachyandesite: plag+san+cpx	Major and trace element data suggest the trachyandesite is not orogenic. It has high TiO_2 (1.97%), high K_2O and La and lacks a Nb-Ta anomaly. SIR on the trachyandesite is 0.7033 assuming an age of 43 Ma. Tang Mtn. is an informal name given to orange-colored hills located at lat. 61°27', long. 157°50'	Decker and others, 1986; M.F. Robinson, oral comm., 1986
Ray Mtns. basalt flows	32.3	Tholeiitic		Tholeiite	50-52	Plag+cpx, minor ol	Little known volcanic field covering about 50 km² between the Yukon River and the Kanuti volcanic field. Shown on 1:250,000-scale reconnaissance map of the Bettles quadrangle. SIR=0.7046; NIR=0.51282	Patton and Miller, 1973; Wirth and Bird, 1988; Wirth, K.R., pers. comm., 1988; Patton, W.W., Jr., pers. comm., 1984

Bering Sea region

Unit/Name	Age (Ma)	Classification	K_2O type	Rock types	SiO_2 range (wt. %)	Mineralogy	Other comments	References
St Lawrence Island volcanic rocks	39.3	Probably calc-alkalic	Probably high-K (K_2O/Na_2O=1)	Rhyolite and dacite	67 and 76.5	No data	Consists of tuff, breccia and flows. Only two chemical analyses are available for these rocks which makes them difficult to classify	Patton and Csejtey, 1980
Western Alaska wells	42.3-39.7	Tholeiitic(?)		Basalt	52.4-53.9	Bs: plag+cpx+ol, chalcedony+clay	Middle Tertiary basalts have been found in the Norton COST well #1, the Cape Espenberg well #1, Social Nimiuk well and the Bethel Basin (Napatuk #1) well. Chemical data is on basalt from the Norton COST well only. The rocks there are highly altered and have at least 10% CaO	Turner and others, 1983; Tolson, 1986; and unpublished oil company data

Southern Alaska

Unit/Name	Age (Ma)	Classification	K_2O type	Rock types	SiO_2 range (wt. %)	Mineralogy	Other comments	References
Volcanic rocks of Matanuska Valley	45.5-37	Tholeiitic and calc-alkalic	No data	Basalt, dacite, rhyolite	45 - 53 and 69-78	No data	Matanuska Valley rocks are hypabyssal intrusive rocks having; SIR=.7036-.7042	Silberman and Grantz, 1984

Middle Tertiary
Southern Alaska, cont'd

Unit/Name	Age (Ma)	Classification	K_2O type	Rock types	SiO_2 range (wt. %)	Mineralogy	Other Comments	References
Arkose Ridge Formation	56-43	Tholeiitic	Low to moderate-K	Basalt, andesite	48 - 62	Plag+ol+pyr+ oxides	Rocks are highly altered. K-Ar ages considered minimum ages. Grantz and Silberman consider its age as 50-60 Ma. Grantz reports that these basalts are similar in appearance to the basalts exposed on the western flank of the Talkeetna Mountains	Silberman and Grantz, 1984; A. Grantz, oral and written comm., 1986; M.L. Silberman, written comm., 1986
Plutons of Prince William Sound region	36.6-34.2	Calcic (62.5)	Moderate-K	Chiefly granite; subordinate granodiorite tonalite, diorite, gabbro	52 - 54 and 67 - 77	Granite and granodiorite: olig to andes+biot± hmbld (rare biot±mus) diorite: and+ hmbld±biot gabbro: cpx±opx+ labradorite±qtz	Includes plutons on Esther Perry and Culross Islands and and at Billings Glacier, Eshamy Lagoon, Granite Mine, Nellie Juan, Passage Canal, Miners Lake and Yale Arm. Billings Glacier is at lat. 60°50', long. 148°35' and Yale Arm is at 61°12' 147°46'	Tysdal and Case, 1979; Nelson, and others, 1985; S.W. Nelson, written comm., 1986
Sills and dikes Prince William Sound region	54.8-43.6	No data	No data	Hypabyssal dacite and rhyolite	No data	Plag+hmbld (frequently altered to sericite, calcite and chlorite)	These hypabyssal intrusive bodies cut the Valdez Group	Nelson, and others, 1985
Plutons of Yakutat-Mt. St. Elias area	30.6-18.5	Not a coherent suite	Low to high-K (K_2O/Na_2O)= 0.1-0.5	Granite, granodiorite, tonalite, diorite	52-73	Granitic:plag+ qtz+K-spar± hmbld±biot+Fe-Ti oxides±cpx epidote±apatite	Includes samples from Mt. Owen pluton, Brabazon pluton, Mt. Foresta pluton, and Valerie Glacier pluton. Tonalite at Mt. Foresta is foliated. Two tonalites contain muscovite	Hudson and others, 1977
Dikes and plugs in the Yakutat-Mt. St. Elias area	Probably Tertiary	Not a coherent suite	Low to high-K (K_2O/Na_2O= 0.1-0.51	Dacite porphyry, basalt, diabase	47-68	Dacite: plag+ hmbld+Fe-Ti oxides; BS: plag+oxides±	Basalt has amygdules filled with calcite, quartz, and chlorite Diabase has secondary chlorite epidote, and calcite	Hudson and others, 1977
Volcanic rocks in Yakutat-Mt. St. Elias area			High-K (K_2O/Na_2O= 0.1-0.5)	Rhyolite porphyry	76-77	Plag+qtz+san± biot±mus± sphene±apatite±	Related to Mt. Owens pluton. Data based on only two samples	Hudson and others, 1977

Aleutain Arc

Unit/Name	Age (Ma)	Classification	K_2O type	Rock types	SiO_2 range (wt. %)	Mineralogy	Other Comments	References
Finger Bay pluton of Adak Island	Eocene(?)	Tholeiitic	Moderate to high	Gabbro, diorite, qtz monzdr.	47-67	Gb: plag±ol ±opx+mt±K-spar ±biot; Qtz monzdr: plag± opx±K-spar±qtz± biot±hmbld±mt	Small pluton. Metamorphosed to greenschist facies (add act±chl±epi ±preh±alb±qtz)	S. Kay and others, 1983; S. Kay, 1983; S. Kay and others, 1990
Hidden Bay pluton of Adak Island	33	Calc-alkalic (60)	Moderate to high	Gabbro, diorite, granodiorite	49-70	Gb: plag+cpx+ mt±opx±hmbld ±biot±K-spar± qtz; Granodiorite: plag+K-spar+ qtz+cpx+hmbld +biot+mt	Pluton on south side of island. SIR: 0.7028-0.7045	Fraser and Snyder, 1959; Citron, 1980; Citron and others, 1980; S. Kay and others, 1990
Kagalaska pluton of Adak Island	13	Calc-alkalic (59)	Moderate	Gabbro, diorite, granodiorite	52-64	Gb-diorite: plag+opx+ hrnbld+bio+ mt±K-spar±qtz; Granodiorite: plag+K-spar+ qtz+biot+hmbld +mt±cpx	SIR: 0.7027 - 0.7031	Fraser and Synder, 1959; Citron, 1980; Citron and others, 1980; S. Kay and others, 1990
Captains Bay pluton of Unalaska Island	13	Calc-alkalic (62)	Moderate to high	Gabbro, diorite, qtz diorite, granodiorite	48-74	Gb-diorite: plag+cpx +opx+mt± hrnbld±K-spar±ol±qtz; Qtz diorite-granodiorite: plag+K-spar +qtz+hrnbld+ biot±cpx± opx+mt	Unpublished K-Ar age of 13 Ma. SIR: 0.7030-0.7058	Drewes and others, 1961; Perfit, 1977; Perfit and others, 1980; S. Kay and others, 1990
Plutons on Atka Island	15-8.5	Calc-alkalic (60)	Moderate to high	Gabbro, diorite, qtz diorite	47-65	Gb: plag+cpx+ opx+mt±hmbld ±biot; Qtz diorite: plag+cpx+opx +biot+hmbld+ mt+qtz	Three plutons: Beaver Bay, Sergief Bay, and Crescent Bay	Hein and others, 1984; Morgenson and others, 1985; S. Kay and others, 1990
East Cape pluton on Amchitka Island	15.8	Calc-alkalic	Moderate to high	Granodiorite		Granodioriite: plag+K-spar+qtz +hrnbld+mt +biot		Carr and others, 1970; Kay, 1980; S. Kay and others, 1990
Finger Bay volcanics on Adak Island	Eocene(?)	Calc-alkalic	Low to high	Basalt, andesite, dacite	47-64	Basalt: plag +cpx+opx+mt +grdms; Andesite: plag+cpx+opx +mt+grdms	Metamorphosed to greenschist and zeolite facies. SIR: 0.70295-0.70328	Coats, 1956; Rubenstone, 1984; Kay and Kay, this volume
Volcanic rocks on Attu Island	Eocene to Oligocene	Tholeiitic	Low to moderate	Basalt, andesite, dacite, rhyolite	48-72	Basalt: plag+ cpx+mt±opx+ grdms; Rhyolite: plag+ cpx+opx+mt± K-spar±qtz+ grdms	Metamorphosed to lower greenschist facies.	Gates and others, 1971; Rubenstone, 1984; Vallier, unpublished data, 1990
Volcanic rocks on Amlia Island	Eocene to Oligocene	Tholeiitic and calc-alkalic	Low to high	Basalt, andesite, dacite, rhyolite	48-72	Basalt: plag+ cpx+opx+mt+ grdms; Andesite: plag+cpx+opx opx+mt+grdms; Rhyolite: plag+cpx±opx± mt±K-spar±qtz+ grdms	K-Ar ages of 33-32 are minimum; fossils in associated rocks are late Eocene. Lower greenschist facies metamorphism	Friesen, 1982; McLean and others, 1983; Morgenson and others, 1985; Vallier, unpublished data, 1990

Late Tertiary and Quaternary
Bering Sea basalt province
Seward Peninsula

Unit/Name	Age (Ma)	Classification	K_2O type	Rock types	SiO_2 range (wt. %)	Mineralogy	Other Comments	References
Imuruk Lake area: Five volcanic formations:							Hopkins, 1963, reports inclusions of granite rock, dunite, chromite and carbonate and xenocrysts of orthoclase and oligoclase. Swanson and Turner report inclusions of lherzolite and hartzburgite and xenocrysts of pyroxene and olivine	Hopkins, 1963; S.E. Swanson and D.L. Turner, unpub. report, 1984; Swanson, and others, 1981; Moll-Stalcup, unpublished data, 1991
1. Kugruk Volcanics	29-26	Alkalic and tholeiitic		Basanite, ol tholeiite, AOB	44 - 48	Ol+cpx+plag+mt		
2. Imuruk Volcanics	5.8-2.2	Tholeiitic		Tholeiite, ol tholeiite	49 - 52	Plag+ol+cpx+opx+ opaque oxides	No inclusions reported	
3. Gosling Volcanics	0.9-0.8	Alkalic and tholeiitic		Basanite, ol tholeiite	44 - 51	Ol+cpx+plag+ opaque oxides	Inclusion bearing	
4. Camille Basalt	middle and/or late Pleistocene	No data		No data	No data	Presumed tholeiitic	No inclusions reported	
5. Lost Jim Basalt	Holocene	Tholeiitic		No data	52 - 53	Plag+ol+cpx+ opaque oxides	No inclusions reported.	
Unnamed volcanic field north of Teller	2.9 - 2.5	Alkalic		Basanite, tephrite, AOB	44.8 - 47.7	No data	Includes Makachami Mtn., Eva Mtn., and "hill 1220". Locations shown on 1:63,300-scale Teller B-3 quadrangle map	S.E. Swanson and D.L. Turner, unpub. report, 1984

Bering Sea basalt province
western Alaska

Unit/Name	Age (Ma)	Classification	K_2O type	Rock types	SiO_2 range (wt. %)	Mineralogy	Other Comments	References
St Michael volcanic field	3.25 - Holocene	Chiefly alkalic, some tholeiitic		Ol tholeiite, AOB, basanite, hawaiite	44 - 51	Basalt: ol+cpx+plag+mt; Basanite: ol+ +cpx+opaque oxides±plag± analcime± nepheline	Highly alkalic rocks have lherzolite nodules. SIR= 0.7027	J.M. Hoare, unpub. data, 1968; Patton and Moll, 1985; Mark, 1971
Yukon Delta area: Ingakslugwat volcanic field	Presumed to be Pliocene and younger	Alkalic		AOB, basanite, nephelinite	41 - 51	Ol+cpx+ plag+mt:	Field covers 200 square miles. Some of the undersaturated rocks have inclusions of olivine gabbro and lherzolite. SIR = 0.7028	J.M. Hoare, 22 unpub. chem. analyses, 1968; Hoare and Condon, 1971a
Nunivak Island	Five episodes: 6-4, 3.4-3.1, 1.7-1.5, 0.9-0.3 and Holocene	Alkalic and tholeiitic		Ol tholeiite, basanite, AOB, nephelinite	44 - 51	Basaltic: ol+ cpx+plag+mt Basanite: ol+ cpx±plag+nepheline ± analcite	Undersaturated alkalic rock contain inclusions of layered gabbro, lherzolite, spinel-pyroxene, sandstone and conglomerate and xenocrysts of anorthoclase, augite and kaersutite. SIR=0.70251-0.7033, (Mark, 1971; Menzies and Murthy,1980 a, b; Roden and others, 1984);	Mark, 1971; Menzies and Murthy, 1980a; and 1980b; Roden and others, 1984; Hoare and others, 1968; J.M. Hoare, unpub. data, 1971-1981; Roden, 1982

Late Tertiary and Quaternary
Bering Sea basalt province
western Alaska, continued

Unit/Name	Age (Ma)	Classification	K_2O type	Rock types	SiO_2 range (wt. %)	Mineralogy	Other Comment	References
Devil Mountain and volcanic fields to the east	Undated	Presumed alkalic and tholeiitic		No data	No data	No data	Unstudied but presumed to be similar to the other Bering Sea basalt fields	S.E. Swanson and D.L. Turner unpub. report, 1984; Luedke and Smith, 1986
Basalt of Flat Top Mtn.	4.72 and 4.62	alkalic		Basalt	49.4	Ol+cpx+plag	Located in the valley of the Kwethluk, Kisaralik, and Aniak Rivers. One chemical analysis	M.F. Robinson, oral comm., 1986; Decker and others, 1986; Box and Moll-Stalcup, unpublished data, 1989
Togiak Basalt	0.758 and younger	Tholeiitic and alkalic		Tholeiite and AOB	48.6 - 51.7	Plag+cpx+ol+ mt	The youngest volcanic rocks in this field form a tuya from a subglacial eruption	Hoare and Coonrad, 1978a; Hoare and Coonrad, 1980

Bering Sea basalt province
Bering Sea shelf

Unit/Name	Age (Ma)	Classification	K_2O type	Rock types	SiO_2 range (wt. %)	Mineralogy	Other Comment	References
Pribilof Islands:								
St. George Island	2.2 - 1.6	Tholeiitic		Ol tholeiite	48.5 - 49.1	Plag+cpx+ol+mt	SIR St. George = 0.7027; St. Paul =0.7031. Nepheline found in two samples; one from a shallow intrusion on St. George Island and one from a dreged sample.	Lee-Wong and others, 1979; Simpson and others, 1979; Mark, 1971; Cox and others, 1966
Dredged rocks from submarine ridge	0.836 -0.774	Tholeiitic and alkalic		Ol tholeiite, AOB, hawaiite	49 - 50.7	Plag+cpx+ol+mt	Submarine ridge located between St. George and St. Paul.	
St. Paul Island	0.374 to Holocene	Alkalic		Basanite, tephrite, AOB, hawaiite	44.7 - 46.8	Plag+cpx+ol+mt	Inclusions of dunite or periodotite and of aplite or fine-grained granite are reported in the highly alkalic rocks	
Dredged rocks from Bering Shelf edge	0.35-1.1	Alkalic		Basanite	43.1-47.3	Ol+cpx phenos+plag microlites	Samples dredged from Bering Sea shelf near 58° 30' lat., 177°20' long.	Davis and others, 1987b
Kookooligit volcanic field	1.46-.238	Chiefly alkalic, some tholeiitic		Basanite, ol tholeiite, AOB, hawaiite, nephelinite	44 - 55	Basalt: ol+ cpx+plag+mt; Basanite: ol+ cpx±plag±neph ±analcime	Field occurs on St. Lawrence Island. SIR = 0.7036-0.7039	J.M. Hoare, unpub. data, 1971; Mark, 1971; Patton and Csejtey, 1980

Eastern Alaska

Unit/Name	Age (Ma)	Classification	K_2O type	Rock types	SiO_2 range (wt. %)	Mineralogy	Other Comment	References
Prindle Volcano	Post-early Pleistocene	Alkalic		Basanite	42.8	Cpx+ol+opaque oxides (nepheline + K-spar in the groundmass)	Prindle Volcano has peridotite and granulite inclusions. Prindle Volcano and the older alkali-olivine basalts are part of a south-trending belt of basalt and ultrabasic inclusion-bearing lavas extending from eastern Alaska down through British Columbia	Foster, 1981; Foster and others, 1966 H.L. Foster, oral comm., 1984; Foster, 1970
Other volcanoes in the vicinity of Prindle Volcano	Undated, presumed older than Prindle Volcano	Alkalic		AOB	Unknown	Basalt: ol+ plag+cpx+ opaque oxides		
Basalt of Porcupine-Blue River area	16.5	Alkalic and tholeiitic		Ol tholeiite, AOB, basanite	43-46	Plag+cpx+ol	SIR=0.7041-0.7042; NIR=0.51287-0.51291	Plumley and Vance, 1988; Wirth and Bird, 1988; Brabb and Hamachi, 1977; Brabb, 1970; Brabb and Churkin, 1969? Brosgé and Reiser, 1969; Wirth, 1988; Wirth, K.R., pers. comm., 1988
Wrangell volcanic field	26-0	Calc-alkalic. Locally transitional to tholeiitic	Medium-K	Chiefly andesite but range from basalt to rhyolite	49.5-74.0	Predominant mineralogy Andesite: plag+cpx+hyp; plag+hyp+ol; plag+hyp; plag+ol; Dacites: plag+hmbld; plag+hmbld+biot; plag+hmbld+hyp; Basalts: plag+ol; plag+ol+hyp; Rhyolite: plag+biot plag+biot+hmbld	Large, complex field covers more than 10,000 km² in north-central Alaska and consists chiefly of a number of large coalescent shield volcanoes. Available K-Ar ages suggest, with exceptions, that the field youngs to west. Mt. Wrangell in west end of field is geothermally active; K-A ages of 20-26 Ma have been obtained from volcanic centers at the east end of the field along the Yukon Territory border	Richter and others, 1979; Lowe and others, 1982; Nye, 1983; Richter and others, 1984; Miller and Richter, this vol.

Central Alaska

Unit/Name	Age (Ma)	Classification	K_2O type	Rock types	SiO_2 range (wt. %)	Mineralogy	Other Comment	References
Buzzard Creek	0.003	Tholeiitic transitional		Ol basalt	47.4-49.9	Ol+plag+cpx+opx	Ol basalt on the Maar volcano north side of the Alaska Range near Buzzard Creek. Chemically similar to Bering Sea basalts	Péwé and others, 1966; Albanese, 1980
Jumbo Dome	2.72 and younger	Calc-alkalic	Moderate to high-K	Hmbld andesite	56.2-59.0	Hrnbld+plag+ cpx opaque oxides	This dome is related to subduction of the Pacific plate	Wahrhaftig, 1970; Albanese, 1980

Aleutain Arc

Unit/Name	Age (Ma)	Classification	K_2O type	Rock types	SiO_2 range (wt. %)	Mineralogy	Other Comment	References
Akutan Island	1.4 to Recent	Tholeiitic (59-60)	Moderate to high	Basalt, andesite, dacite	46-63	Basalt: plag+cpx+mt+ glass±ol±opx; Andesite: plag± ol±opx+mt+glass	SIR: 0.70302-0.70342; High alumina basalt	Byers and Barth, 1953; Romick, 1982
Atka Volcanic Center, Atka Island	Mostly Quaternary	Tholeiitic (transitional)	Moderate	Basalt, andesite, dacite	48-64	Basalt: plag±ol+cpx+ mt+grdms	SIR: 0.70314-0.70345; High alumina basalt	Marsh, 1982; Myers and others, 1985; Myers and other, 1986; Marsh, this volume
Great Sitkin Volcano on Great Sitkin Island	Mostly Quaternary	Calc-alkalic (62-64)	Moderate to high	Basalt, andesite, dacite	49-66	Basalt: plag+ol+cpx+ mt+grdms; Andesite: plag±ol+ cpx+ opx+mt+grdms; Dacite: plag+cpx+ opx+mt+grdms	High alumina basalt	Simons and Matthewson, 1955; Neuwald, 1987
Moffett Volcano, Adak Island	Mostly Quaternary	Calc-alkalic	Moderate	Basalt, andesite, dacite	49-63	Basalt: plag+ol+cpx+ mt+ grdms; Andesite: plag+cpx± ol±opx+mt±hmbld +grdms; Dacite: plag+cpx+mt+ hmbld+grdms	High alumina basalt	Coats, 1956; Kay and Kay, 1985; Neuwald, 1987; Kay and Kay, this volume

[1]Classification for Late Cretaceous to early Tertiary suites based on Peacock diagram. Numbers refer to weight percent SiO_2 where CaO and $Na_2O + K_2O$ cross. Late Cenozoic rocks are classified on the basis of normative mineralogy. Basalts having normative nepheline are alkali basalt or alkali olivine basalt if they contain more than 10% normative olivine. Basalt having normative hypersthene is called tholeiite or olivine tholeiite if it contains more than 10% normative olivine. Basanites have 10 to 20% normative nepheline; nephelinites have more than 20% normative nepheline. Hawaiites have more than 5% total alkalies and less than 5% MgO. Fe_2O_3/FeO set to 0.15 before norms are calculated. Aleutian arc rocks are classified as tholeiitic on the basis of FeOt/MgO vs. SiO_2 (Miyashiro, 1974).

[2]K_2O-type defined by Gill, (1981). Shoshonites have higher K_2O than orogenic andesites but are similar to orogenic andesites in other major elements.