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MAP AND TABLE DESCRIBING THE ADMIRALTY-REVILLAGIGEDO INTRUSIVE BELT PLUTONS IN THE PETERSBURG 1:250,000 QUADRANGLE, SOUTHEASTERN ALASKA

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A study of the Admiralty-Revillagigedo plutonic belt between 56° and 57° north latitude was done as part of the Petersburg AMRAP (Alaska Mineral Resource Assessment Program) project in southeastern Alaska. Reconnaissance geologic mapping and petrologic studies were conducted in order to define lithologic units and provide unit descriptions for the plutonic rocks in this belt. Progress reports have been written during the course of this study (Burrell, 1984a, b). These reports are updated and summarized in this compilation which includes 1) a summary table of the characteristics of each unit, and 2) a map showing the distribution of each unit.

Other published reports which have described the plutonic rocks of this portion of the Admiralty-Revillagigedo plutonic belt include Brew and Morrell (1983), Buddington and Chapin (1929), and Adams (1891). The geologic map from which the pluton outlines were taken is as yet unpublished (Brew, D. A., Ovenshine, A. T., Karl, S. M., and Hunt, S. J., 1984, Preliminary reconnaissance geologic map of the Petersburg and parts of the Port Alexander and Sumdum 1:250,000 quadrangles, southeastern Alaska).

This suite of rocks is of early Late Cretaceous age based on K/Ar determinations of biotite and hornblende (M. L. Lanphere, written commun., 1982). The plutons crop out in the western part of the Coast plutonic-metamorphic complex and intrude schists, semischists, and phyllites throughout the study area and Early Cretaceous metavolcanic rocks, flysch, and mafic and ultramafic bodies locally. They, in turn, are intruded by Tertiary granites and lamprophyre dikes.

Texture and mineralogy are the main characteristics used to classify rocks of this suite of plutons. Several specific features identify rocks as almost certainly belonging to the suite. Coarse plagioclase phenocrysts with classic oscillatory zoning, as occur in units Kqop and Ktgp, are the best criterion (along with visible garnet) for field identification of rocks belonging to this suite. Similar zoned phenocrysts occur in other units. They are less abundant in unit Ktop and rare in unit Ktif. Garnet and magmatic epidote/clinozoisite are unique characteristic phases and the ubiquitous epidote/clinozoisite is also a primary criterion for identification of this suite of plutons.

Lack of epidote and garnet and unusual texture suggest that rocks of unit Kqo may not be genetically related to this early Late Cretaceous suite. Rocks of unit Kdi are highly altered, thereby making it difficult to apply any of the above criteria to original texture and mineralogy.

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Table 1.--Table describing the Admiralty-Revillagigedo intrusive belt plutons in the Petersburg 1:250,000 quadrangle, southeastern Alaska

Unit	Body No.	Approx.No. of Samples Studied	Color Composition(1,2)	Index(3)	Dominant Mafic Minerals	Foliation	Texture	Grain Size
Kqo	1,4,5,11	39	Quartz monzodiorite Monzodiorite (Quartz diorite) (Diorite)	32-52 (18-61)	Hornblende > biotite; when hornblende is absent, pyroxene > biotite	Massive to locally foliated	Equigranular	Medium
Kqop	6,7,8,10, 17,23,34, 37	71	Quartz monzodiorite (Quartz diorite) (Tonalite)	16-28 (16-49)	Hornblende≫ biotite	Massive, locally foliated	Porphyritic	Medium to coarse, fine-grained groundmass near body margins
Kdi	16	9	Diorite	15-50	Chlorite	Massive	Porphyritic and inequigranular	Medium to coarse
Ktef	24,26,28, 38,39, 40,41	183	Tonalite Quartz diorite (Granodiorite) (Quartz monzodiorite)	27-42 (17-50)	Biotite > hornblende	Foliated, locally massive	Equigranular with seriate plagioclase locally	Medium
Ktop	15,18,25, 31,36,43	44	Tonalite (Quartz monzodiorite)	25-40 (15-40)	Biotite > hornblende	Massive, locally foliated	Porphyritic with seriate plagioclase	Medium to coarse
Ktoc	9,19,20, 29	19	Tonalite (Granodiorite)	14-23 (14-29)	Biotite	Massive	Inequigranular to semi-porphyritic.	Fine to medium
Ktgp	22,27,44	53	Tonalite Granodiorite Quartz diorite	11-24 (11-35)	Biotite	Foliated	Porphyritic	Medium to coarse
Ktif	2,3,12, 13,14,32, 33,35	112	Tonalite Granodiorite Quartz diorite (Quartz monzodiorite)	21-41 (14-52)	Hornblende > or = biotite	Foliated, locally massive.	Inequigranular to semi-porphyritic.	Fine to medium

1. Compositions listed in order of decreasing frequency of occurrence. Compositions in parens are minor phases.
2. IUGS classification (Streckeisen, 1973)
3. First color index range is typical, numbers in parens show entire range..

Table 1.--Table describing the Admiralty-Revillagigedo intrusive belt plutons in the Petersburg 1:250,000 quadrangle, southeastern Alaska--Continued

Unit	Homogeneity (Map Scale)	Mineralogy: Plagioclase	K-spar Quartz	Hornblende	Biotite	Epidote/ Clinozoisite	Garnet
Kqo	Heterogeneous: mineralogy changes over area	Twinned with some alteration to sericite	Interstitial	Subhedral to anhedral with pyroxene cores; inclusions of biotite and plagioclase	Anhedral with inclusions of plagioclase opaques and sphene	None	None
Kqop	Homogeneous	Twinned and oscillatory zoned phenocrysts; epidote and hornblende inclusions; minor sericite alteration	K-spar oikocrysts, interstitial quartz	Euhedral and subhedral; some alteration to epidote	Anhedral with euhedral and subhedral epidote inclusions	Euhedral to subhedral twinned and zoned epidote, also secondary from hornblende	Trace amount
Kdi	Homogeneous	Sericite alteration; some twinning still recognizable	Interstitial quartz, no K-spar.	Altered	None	Secondary epidote	None
Ktef	Heterogeneous; variable mineralogy and foliation	Twinned and zoned; moderate alteration to sericite; epidote and garnet inclusions	Interstitial	Euhedral and subhedral.	Anhedral with clinozoisite inclusions, some chlorite alteration	Subhedral clinozoisite or epidote with allanite cores	Local throughout unit, subhedral to corroded; some as inclusions in plagioclase
Ktop	Heterogeneous; variable grain size	Twinned and zoned phenocrysts, minor alteration to sericite; inclusions of biotite, hornblende epidote and garnet	Interstitial	Subhedral with inclusions of biotite and garnet	Anhedral, some garnet inclusions, some chlorite alteration	Subhedral epidote.	Euhedral to subhedral; some with biotite and plagioclase inclusions; some alteration to chlorite.
Ktoc	Heterogeneous; variable grain size	Twinned and zoned laths with clinozoisite inclusions	Interstitial	None	Anhedral; some intergrown with muscovite; some garnet inclusions	Euhedral to subhedral clinozoisite in plagioclase and biotite	Euhedral to subhedral, and corroded; some mantled by biotite.
Ktgp	Homogeneous	Twinned and oscillatory zoned phenocrysts with garnet, biotite, clinozoisite and hornblende inclusions	Interstitial	Absent to trace amounts	Anhedral	Subhedral clinozoisite, some occurs in biotite, some secondary	Euhedral to subhedral; some as inclusions in plagioclase
Ktif	Heterogeneous textural variation	Twinned and zoned with epidote inclusions, minor to moderate alteration to sericite	Interstitial, some K-spar oikocrysts	Subhedral to euhedral	Anhedral with epidote inclusions	Subhedral epidote	Rare

Table 1.--Table describing the Admiralty-Revillagigedo intrusive belt plutons in the Petersburg 1:250,000 quadrangle, southeastern Alaska--Continued

Unit	Mineralogy: Pyroxene	Mineralogy: Accessory Minerals	Relations between units: Textural	Relations between units: Mineralogical	Spatial Relation	Areal Extent	Criteria for differentiating into specific units
Kqo	Subhedral clinopyroxene, alteration to hornblende	Opaque minerals Sphene Apatite Zircon	Feldspar groundmass supports mafic minerals giving a spotted appearance; distinctive from other textures	Absence of epidote and garnet and ubiquitous pyroxene gives this unit a distinctive mineralogy	Intrudes country rock and the Kane Peak ultramafic body	Lindenberg Peninsula and Mitkof Island	-lack of epidote and garnet -presence of pyroxene. -unique texture
Kqop	None	Allanite Sphene Apatite Zircon	Coarse grained plagioclase phenocrysts distinguish unit from Ktop with seriate plagioclase, similar to unit Ktgp	Abundant hornblende, minor biotite, and lack of garnet sets this unit apart from Ktgp	Discordant intrusion into country rock; aplite dikes present in adjacent country rock	Lindenberg Peninsula and Mitkof, Dry, Zarembo and Woronkofski Islands	-hornblende≫ biotite -presence of epidote -porphyritic -lack of garnet
Kdi	Local			Extensive alteration obscures most minerals		Woewodski Island	Strongly altered
Ktef	Local, mostly on Wrangell and Etolin Islands Anhedral, also as cores in hornblende	Allanite Sphene Apatite Zircon	Differs from Ktop by lack of seriate plagioclase phenocrysts	Less garnet and presence of pyroxene distinguish this unit from Ktop	Concordant intrusion into country rock	Lindenberg Peninsula, Mitkof, Farm, Dry, Zarembo, Woronkofski, Wrangell, Etolin Islands and the mainland	-local garnet and pyroxene -presence of epidote -equigranular with seriate plagioclase
Ktop	None	Allanite Sphene Apatite Zircon	Gradational from Ktef; seriate plagioclase distinguishes this unit from Kqop	Similar to Ktef; higher biotite/hornblende ratio and abundant garnet distinguishes this unit from Ktif	Concordant intrusion into country rock, gradational to unit Ktif	Mitkof, Kadin, Rynda, Woronkofski and Wrangell Islands	-abundant biotite hornblende and garnet -presence of epidote -seriate plagioclase phenocrysts
Ktoc	None	Allanite Sphene Apatite Zircon	Inequigranular, fine grained version of Ktgp	Same mineralogy as unit Ktgp	Concordant intrusion into country rock	Wrangell and Mitkof Islands	-absence of hornblende -presence of garnet and epidote -inequigranular to semi-porphyritic
Ktgp	None	Allanite Sphene Apatite Zircon	Coarse porphyry like Kqop	Differs from Kqop by absence of hornblende and presence of garnet, generally less mafic	Concordant intrusion into country rock	Mainland and Etolin Island	-absence of hornblende -presence of garnet and epidote -porphyritic
Ktif	Rare	Allanite Sphene Apatite Zircon	Finer grained mafics and more of a porphyritic appearance than Ktef	More K-spar, rare garnet and pyroxene compared to Ktef	Concordant intrusion into country rock	Mitkof, Sokolof, Zarembo and Woronkofski Island	-inequigranular to semi-porphyritic -presence of epidote -absence of garnet and pyroxene