DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

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76-430

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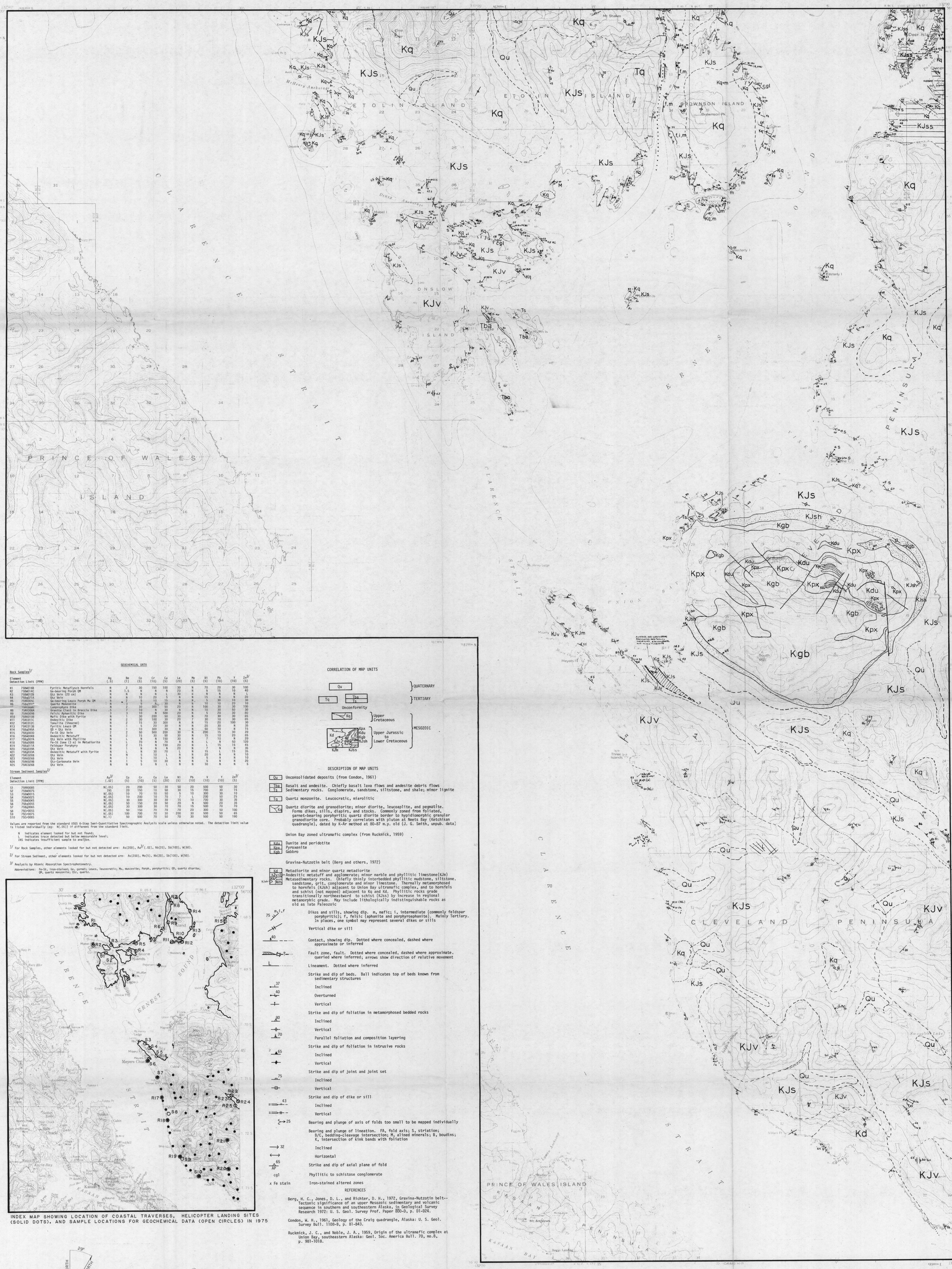


INDEX MAP SHOWING LOCATION OF COASTAL TRAVERSES, HELICOPTER LANDING SITES (SOLID DOTS), AND SAMPLE LOCATIONS FOR GEOCHEMICAL DATA (OPEN CIRCLES) IN 1975

GEOCHEMICAL DATA

Rock Samples[1/]

		Element / Detection Limit (PPM)	Ag (.5)	Be (1)	Co (5)	Cr (10)	Cu (5)	La (20)	Mo (5)	Ni (5)	Pb (10)	Y (10)	Zn[3/] (5)
R1	75BW016B	Pyritic Metaflysch Hornfels	N	2	30	150	100	30	N	70	20	30	100
R2	75BW014C	Ga-bearing Porph QM	N	1.5	N	N	N	20	N	N	15	10	40
R3	75BW012B	Qtz Vein (20 cm)	N	N	N	N	L	30	N	N	N	N	L
R4	75BgD71A	Qtz Vein	N	N	10	20	5	N	N	15	N	N	20
R5	75RK005C	Ga-bearing Leuco Porph Mu QM	N	2	5	10	15	N	N	5	30	10	30
R6	75BgD44	Quartz Monzonite	N	3	5	N	30	N	N	10	10	20	10
R7	75HG006A	Lamprophyre Dike	N	2	30	300	50	20	N	100	30	30	100
R8	75RK008A	Granite Clast in Breccia Dike	.5	7	10	N	30	N	N	10	30	50	30
R9	75RK009B	Felsic Aphanitic Dike	3	3	10	N	500	20	N	5	20	30	80
R10	75RK010B	Mafic Dike with Pyrite	N	1	30	200	50	30	N	70	30	30	85
R11	75RC011C	Andesitic Dike	N	2	30	100	30	20	7	80	10	30	85
R12	75RC012C	Tonalite (Sheared)	N	2	15	30	300	N	N	15	20	100	30
R13	75RC013B	Pyritic Leuco QM	N	1	5	20	30	N	N	20	30	N	35
R14	75BgD95A	QD + Qtz Vein	N	1	10	300	30	N	N	50	10	N	15
R15	75BgD03D	Fe-St Qtz Vein	2	2	50	500	200	30	N	200	15	30	20
R16	75BW004B	Andesitic Metatuff	N	2	15	30	50	30	N	15	10	20	85
R17	75BgD07A	Qtz Vein with Phyllite	N	L	N	N	150	30	N	7	10	N	20
R18	75BgD08B	Fe-St Zone (3 m) in Metadiorite	N	L	70	N	70	N	N	L	N	50	120
R19	75BgD11A	Feldspar Porphyry	N	2	15	N	150	20	N	L	15	15	45
R20	75BgD39A	Qtz Vein	N	1	N	N	N	20	N	7	N	N	35
R21	75BgD33A	Andesitic Metatuff with Pyrite	N	L	N	30	70	L	N	15	L	15	35
R22	75RC028B	Qtz Vein	N	N	5	10	L	N	N	20	N	N	10
R23	75RK026B	Qtz Vein	N	1	5	10	L	N	N	5	N	N	10
R24	75RK029B	Qtz-Carbonate Vein	N	1	5	10	30	N	N	5	N	N	20
R25	75RC026B	Qtz Vein	N	N	5	N	L	N	N	10	N	N	5

Stream Sediment Samples[2/]

		Element / Detection Limit (PPM)	Au[3/] (.02)	Co (5)	Cr (10)	Cu (5)	La (20)	Ni (5)	Pb (10)	V (10)	Y (10)	Zn[3/] (5)
S1	75RK008S		N(.05)	20	200	50	30	50	20	500	50	30
S2	75BW007S		INS	20	150	10	50	30	15	700	30	15
S3	75BW001S		N(.05)	10	70	10	50	5	10	300	30	10
S4	75BW002S		N(.05)	10	200	10	70	7	L	200	50	25
S5	75BW004S		N(.05)	30	300	30	30	15	10	700	30	35
S6	75BgD05S		N(.05)	50	150	20	50	20	N	500	20	35
S7	75BgD06S		N(.05)	30	300	30	70	70	15	500	70	70
S8	75ER005S		N(.05)	50	150	70	70	70	20	300	50	100
S9	75ER007S		N(.05)	100	700	70	30	200	30	500	50	65
S10	75ER008S		N(.1)	50	500	70	50	70	30	500	50	190

Values are reported from the standard USGS 6-Step Semi-Quantitative Spectrographic Analysis scale unless otherwise noted. The detection limit value is listed individually (eg: N(.05)) if different from the standard limit.

N indicates element looked for but not found;
L indicates trace detected but below measurable level;
INS indicates insufficient sample to analyze.

1/ for Rock Samples, other elements looked for but not detected are: As(200), Au[3/](.02), Nb(20), Sb(100), W(50).

2/ for Stream Sediment, other elements looked for but not detected are: As(200), Mo(5), Nb(20), Sb(100), W(50).

3/ Analysis by Atomic Absorption Spectrophotometry.

Abbreviations: Fe-St, iron-stained; Ga, garnet; Leuco, leucocratic; Mu, muscovite; Porph, porphyritic; QD, quartz diorite; QM, quartz monzonite; Qtz, quartz.

CORRELATION OF MAP UNITS

DESCRIPTION OF MAP UNITS

Qu — Unconsolidated deposits (from Condon, 1961)

Tba — Basalt and andesite. Chiefly basalt lava flows and andesite debris flows
Ts — Sedimentary rocks. Conglomerate, sandstone, siltstone, and shale; minor lignite

Tq — Quartz monzonite. Leucocratic, miarolitic

Kq — Quartz diorite and granodiorite; minor diorite, leucoaplite, and pegmatite. Forms dikes, sills, diapirs, and stocks. Commonly zoned from foliated, garnet-bearing porphyritic quartz diorite border to hypidiomorphic granular granodiorite core. Probably correlates with pluton at Neets Bay (Ketchikan quadrangle), dated by K-Ar method at 80-87 m.y. old (J. G. Smith, unpub. data)

Union Bay zoned ultramafic complex (from Ruckmick, 1959)

Kdu — Dunite and peridotite
Kpx — Pyroxenite
Kgb — Gabbro

Gravina-Nutzotin belt (Berg and others, 1972)

Kd — Metadiorite and minor quartz metadiorite
KJv — Andesitic metatuff and agglomerate; minor marble and phyllitic limestone (KJm)
KJm, KJsh, KJss — Metasedimentary rocks. Chiefly thinly interbedded phyllitic mudstone, siltstone, sandstone, grit, conglomerate and minor limestone. Thermally metamorphosed to hornfels (KJsh) adjacent to Union Bay ultramafic complex, and to hornfels and schist (not mapped) adjacent to Kq and Kd. Phyllitic rocks grade transitionally northeastward to schist (KJss) by increase in regional metamorphic grade. May include lithologically indistinguishable rocks as old as late Paleozoic

75 m,i,f — Dikes and sills, showing dip. m, mafic; i, intermediate (commonly feldspar porphyritic); f, felsic (aphanite and porphyroaphanite). Mainly Tertiary. In places, one symbol may represent several dikes or sills

Vertical dike or sill

40 — Contact, showing dip. Dotted where concealed, dashed where approximate or inferred

Fault zone, fault. Dotted where concealed, dashed where approximate, queried where inferred; arrows show direction of relative movement

L — Lineament. Dotted where inferred

Strike and dip of beds. Ball indicates top of beds known from sedimentary structures

37 — Inclined

40 — Overturned

Vertical

Strike and dip of foliation in metamorphosed bedded rocks

80 — Inclined

Vertical

70 — Parallel foliation and composition layering

Strike and dip of foliation in intrusive rocks

65 — Inclined

Vertical

Strike and dip of joint and joint set

75 — Inclined

Vertical

Strike and dip of dike or sill

43 — Inclined

Vertical

25 — Bearing and plunge of axis of folds too small to be mapped individually

Bearing and plunge of lineation. FA, fold axis; S, striation; B/C, bedding-cleavage intersection; M, alined minerals; B, boudins; K, intersection of kink bands with foliation

32 — Inclined

Horizontal

65 AP — Strike and dip of axial plane of fold

cgl — Phyllitic to schistose conglomerate

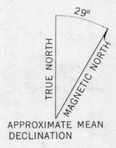
x Fe stain — Iron-stained altered zones

REFERENCES

Berg, H. C., Jones, D. L., and Richter, D. H., 1972, Gravina-Nutzotin belt--Tectonic significance of an upper Mesozoic sedimentary and volcanic sequence in southern and southeastern Alaska, in Geological Survey Research 1972: U. S. Geol. Survey Prof. Paper 800-D, p. D1-D24.

Condon, W. H., 1961, Geology of the Craig quadrangle, Alaska: U. S. Geol. Survey Bull. 1108-B, p. B1-B43.

Ruckmick, J. C., and Noble, J. A., 1959, Origin of the ultramafic complex at Union Bay, southeastern Alaska: Geol. Soc. America Bull. 70, no.8, p. 981-1018.



APPROXIMATE MEAN DECLINATION

QUADRANGLE LOCATION

Base from U. S. Geological Survey, 1:63,360, Craig Quadrangle, AK, C-1, 1950; D-1, D-2, 1949.

Geology by H. C. Berg, R. L. Elliott, R. B. Carten, R. D. Koch, J. G. Smith, R. Rudser, B. Wiggins, and J. C. Ruckmick, 1959-1975

This map is preliminary and has not been reviewed for conformity with U.S. Geological Survey standards and nomenclature.

SCALE 1:63 360

1 ½ 0 1 2 3 4 5 MILES

1 .5 0 1 2 3 4 5 KILOMETERS

CONTOUR INTERVAL 100 FEET
DATUM IS MEAN SEA LEVEL

PRELIMINARY GEOLOGIC MAP OF THE CRAIG D-1 AND PARTS OF THE CRAIG C-1 AND D-2 QUADRANGLES, ALASKA

BY

Henry C. Berg, Raymond L. Elliott, Richard D. Koch, Richard B. Carten, and Frances A. Wahl

1976