

EXPLANATION

- SYMBOLS**
- Stream-sediment sample locality
  - Stream-sediment sample locality, anomalous in one or more elements
  - △ Rock-sample locality
  - ▲ Rock-sample locality, anomalous in one or more elements

INTRODUCTION

Sheet 2 presents geochemical results from 21 stream-sediment samples and 52 rock samples collected in the Skagway C-3 and C-4 Quadrangles as part of a cooperative project between the Alaska Division of Geological and Geophysical Surveys (DGGs) and the U.S. Bureau of Mines to evaluate the mineral resources of the Skagway subdistrict of the Juneau Mining District. Analytical techniques used for analyses are reported by Still and others (1987). The reconnaissance geochemical sampling program of this study supplements studies of the magnetite deposit near Klukwan (Robertson, 1956; Still, 1984b) and of nearby anomalies and prospects by Winkler and MacKevett (1970), MacKevett (1971), Still (1984a), Still and others (1985, 1987), and Gilbert and others (1987).

ANOMALOUS VALUES

The location and definition of geochemical anomalies requires the comparison of analyzed values for stream-sediment and bedrock samples with normal or worldwide average abundances of the target elements, adjusted for local or regional background levels. The selection of anomalies must also consider the limits of detection for each particular element and the analytical error associated with values produced by the various analytical methods. A more complete discussion of establishment of threshold values for the samples in this report may be found in Still and others (1987). Threshold anomalous levels, in ppm, for the samples in this report are shown below.

Sample type	Au	Ag	Cu	Pb	Zn	Co	Ba
Stream sediment	0.002*	0.5	100	50	200	50	1000
Argillaceous rocks	0.002*	0.6	100	25	200	25	2500
Mafic igneous rocks	0.002*	0.5	180	25	160	80	1000
Felsites	0.002*	0.5	150	50	150	50	500
Vein quartz	0.002*	0.6	150	50	160	80	1000
Carbonate	0.002*	1.0	75	30	150	30	500
Granitic rocks	0.002*	1.0	100	50	150	50	1000

\*Limit of detection.

Table 1. Stream sediment sample results  
(All values in ppm - anomalous values underlined)

Map	Sample	Au	Ag	Cu	Pb	Zn	Co	Ba
4	AJGV2891	N	0.300	73	15	220	20	850
9	AJGV2880	N	N	38	6	49	7	170
14	AJGV2819	N	0.200	79	5	71	19	680
15	AJGV2820	N	N	125	4	61	18	270
29	AJGV2899	N	N	117	N	56	16	370
34	AJGV2872	N	N	224	3	134	33	160
37	AJGV403	N	N	187	2	65	23	...
39	AJGV2879	N	N	67	6	70	11	620
44	AJGV2976	N	N	130	5	78	13	310
48	AJGV2878	N	0.200	49	6	91	11	620
49	AJGV2877	N	0.200	46	6	111	10	600
50	AJGV2876	N	N	61	5	90	16	510
59	AJGV2821	N	N	64	4	67	12	3340
62	AJGV2978	N	N	76	4	78	8	620
63	AJGV2979	N	N	152	2	67	12	230
64	AJGV2980	N	N	22	N	31	3	790
65	AJGV411	N	N	66	N	57	7	...
66	AJGV412	N	N	22	N	28	3	...
33	AJGV481	N	N	127	3	50	36	240
35	AJGV2916	N	0.300	35	3	435	27	40
36	AJGV403	N	N	18	14	100	26	...
38	AJGV2840	N	N	36	5	31	13	340
40	AJGV2877	N	0.200	170	9	67	29	190
41	AJGV2856	N	4.500	3,325	20	146	400	40
42	AJGV2930	N	N	9	3	36	7	520
43	AJGV2839	N	0.200	120	4	59	18	650
45	AJGV2853	N	0.400	78	49	90	10	340
46	AJGV2854	N	N	148	31	8	N	Quartz vein
47	AJGV2855	N	0.200	580	6	39	24	170
51	AJGV2852	N	0.300	62	12	76	12	900
52	AJGV2851	N	1.000	47	7	56	7	660
53	AJGV2922	N	2.400	213	11	130	44	1,110
54	AJGV2889	N	0.700	107	7	58	10	920
55	AJGV2866	N	0.500	46	12	200	6	1,500
56	AJGV2867	N	0.200	34	22	35	10	1,020
57	AJGV2890	N	0.500	68	50	62	11	740
58	AJGV2923	N	0.200	410	4	75	12	1,220
60	AJGV2815	N	N	20	22	73	21	...
61	AJGV2921	N	0.400	1,620	5	22	535	N
70	AJGV498	N	N	32	3	12	1	760
71	AJGV1621	N	N	21	N	121	N	860
72	AJGV3025	N	N	235	N	28	N	780
73	AJGV2624	0.250	1.025	7.15	25	68	2	800

REFERENCES CITED

Gilbert, W.G., Burns, L.E., Redman, E.C., and Forbes, R.B., 1987, Preliminary bedrock geology and geochemistry of the Skagway B-3 Quadrangle, Alaska: Alaska Division of Geological and Geophysical Surveys Report of Investigations 87-2, scale 1:40,000, 2 sheets.

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Still, J.C., 1984a, Stratiform massive sulfide deposits of the Mt. Henry Clay area, southeast Alaska: U.S. Bureau of Mines Open-File Report 118-84, 10 p.

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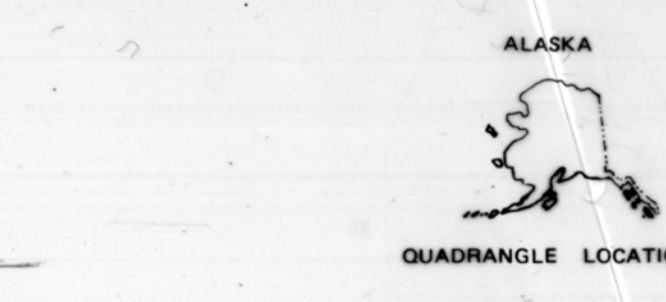
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Winkler, G.R., and MacKevett, E.M., Jr., 1970, Analyses of bedrock and stream-sediment samples from the Haines-Porcupine region, southeast Alaska: U.S. Geological Survey Open-File Report 406, 90 p., scale 1:125,000, 1 sheet.

Table 2. Rock sample results

Map	Sample	Au	Ag	Cu	Pb	Zn	Co	Ba	Comment
1	AJGV2842	N	N	48	6	31	25	680	Pyritic greenschist
2	AJGV2862	N	4.500	1,920	12	172	43	30	Silicified limestone-hornfels with pyrrhotite + chalcopyrite
3	AJGV2863	N	0.300	135	9	49	11	570	Pyrrhotite and minor chalcopyrite bearing basalt
5	AJGV2859	N	0.200	175	6	44	23	320	Pyrite-bearing metabasalt
6	AJGV2858	N	0.200	103	9	52	16	220	Pyrite silicified volcanics along fault
7	AJGV2868	N	0.500	124	118	56	25	140	Iron-stained pyritic black quartzite
8	AJGV2924	N	0.300	70	15	112	7	710	Pyritic biotite-quartz schist
10	AJGV2869	N	0.600	105	19	73	13	5,400	Iron-stained pyritic black quartzite
11	AJGV2912	N	N	89	3	100	19	130	Pyritic biotite-quartz schist
12	AJGV2911	N	N	141	2	57	29	50	Pyritic greenschist
13	AJGV2860	N	N	96	6	62	29	40	Gossan-silicified greenstone
16	AJGV2910	N	N	35	4	51	5	410	Hematitic quartz granite
17	AJGV2897	N	N	23	N	47	2	340	Quartz-feldspar dike
18	AJGV1629	N	0.200	66	N	148	3	140	Greenschist with sulfides
19	AJVL6362	0.025	N	72	N	48	25	N	Iron-stained andesite with 5 to 10 percent pyrite
20	AJGV2917	N	N	8	N	4	24	40	Ethalite
21	AJVL6363	N	N	78	N	110	27	N	Banded andesite with sulfides
22	AJGV2918	N	N	8	2	4	39	40	Ethalite with anasozopyrite
23	AJGV1630	N	N	153	N	9	38	50	Epidote schist with sulfides
24	AJGV2920	N	N	58	2	70	8	N	Ethalite
25	AJGV2919	N	N	53	2	335	22	130	Ethalite
26	AJGV2841	N	N	154	2	70	30	220	Amphibolite
27	AJGV2909	N	0.200	114	3	40	18	N	Pyritic greenschist
28	AJGV2900	N	0.300	200	4	24	16	380	Iron-stained pyritic quartz-diorite dike
30	AJGV2901	N	0.200	4	3	21	1	730	Pink-weathering granite
31	AJGV2861	N	N	30	4	65	12	240	Pyritic biotite-quartz schist
32	AJGV489	N	0.200	102	5	53	22	880	Iron-stained mafic metasedimentary with 2 percent pyrite
33	AJGV481	N	N	127	3	50	36	1,020	Iron-stained mafic metasedimentary with 3 percent pyrite
35	AJGV2916	N	0.300	35	3	435	27	40	Pyritic greenschist
36	AJGV403	N	N	18	14	100	26	...	Quartz-calc banded metavolcanics with pyrrhotite, chalcopyrite hematite
38	AJGV2840	N	N	36	5	31	13	340	Pyritic muscovite-biotite schist
40	AJGV2877	N	0.200	170	9	67	29	190	Pyrrhotite-bearing metabasite
41	AJGV2856	N	4.500	3,325	20	146	400	40	Pyrrhotite-chalcopyrite veinlet in metabasalt
42	AJGV2930	N	N	9	3	36	7	520	Pyritic metafelsite
43	AJGV2839	N	0.200	120	4	59	18	650	Pyrrhotite-bearing biotite-mafic schist
45	AJGV2853	N	0.400	78	49	90	10	340	Pyritic black schist
46	AJGV2854	N	N	148	31	8	N	Quartz vein	
47	AJGV2855	N	0.200	580	6	39	24	170	Quartz vein with massive pyrrhotite
51	AJGV2852	N	0.300	62	12	76	12	900	Pyritic biotite-quartz schist
52	AJGV2851	N	1.000	47	7	56	7	660	Sulfide-bearing black schist
53	AJGV2922	N	2.400	213	11	130	44	1,110	Silicified marble with phyllite, chalcopyrite, pyrrhotite
54	AJGV2889	N	0.700	107	7	58	10	920	Iron-stained hornfelsed marble
55	AJGV2866	N	0.500	46	12	200	6	1,500	Pyrite-bearing felsic schist
56	AJGV2867	N	0.200	34	22	35	10	1,020	Pyrite-bearing felsic schist
57	AJGV2890	N	0.500	68	50	62	11	740	Pyritic orthogneiss
58	AJGV2923	N	0.200	410	4	75	12	1,220	Iron-stained pyrrhotite-bearing quartz schist
60	AJGV2815	N	N	20	22	73	21	...	Granodiorite
61	AJGV2921	N	0.400	1,620	5	22	535	N	Quartz vein with pyrrhotite
70	AJGV498	N	N	32	3	12	1	760	Porphyritic granodiorite
71	AJGV1621	N	N	21	N	121	N	860	Granite with iron-stain
72	AJGV3025	N	N	235	N	28	N	780	Leucocratic granodiorite
73	AJGV2624	0.250	1.025	7.15	25	68	2	800	Malachite-stained mafic inclusions in quartz-monzodiorite

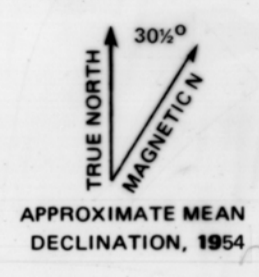
Base from U.S. Geological Survey Skagway C-3 and C-4 Quadrangles, Alaska, 1954



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CONTOUR INTERVAL 100 FEET  
DATUM MEAN SEA LEVEL



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PRELIMINARY GEOLOGY AND GEOCHEMISTRY OF THE KELSALL RIVER AREA, SOUTHEAST ALASKA

by  
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