DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

MISCELLANEOUS FIELD STUDIES
MAP MF-880E
FOLIO OF THE SEWARD AND BLYING SOUND QUADS., AK.
GEOCHEMICAL MAP, Cu

CORRELATION OF MAP UNITS

L G Qu	Holocene	QUATERNARY
Tg	Oligocene	TERTIARY
Tgc	Eocene(?)	
Tgh	Eocene	
Tgb — Oligocene(?) Eocene(?), or Paleocene(?)		
Tos Tog Top Tod Togs Tops Togb	Lower Eocene(?) and Paleocene	
Kv Kvs Kvp Kvd Kvt Kvg Kvu	Upper Cretaceous	CRETACEOUS
KJm	Cretaceous and(or) Upper Jurassic	CRETACEOUS AND (OR) JURASSIC

DESCRIPTION OF MAP UNITS

L LAKE

G GLACIER

Qu UNCONSOLIDATED SEDIMENTARY DEPOSITS, UNDIVIDED (HOLOCENE)

Tg GRANITE AND GRANODIORITE (OLIGOCENE)--Unfoliated granite and granodiorite

Tgc GRANITE (EOCENE?)--Muscovite-bearing granite of Cedar Bay area

Tgb GABBRO (OLIGOCENE?, EOCENE?, OR PALEOCENE?)--Olivine-bearing plutonic rocks

Tgh GRANITE OF HARDING ICEFIELD REGION (EOCENE)--Foliated granite

ORCA GROUP (LOWER EOCENE? AND PALEOCENE)

Tos Sedimentary rocks, undivided--Flysch of sandstone and siltstone

Tog Greenstone, undivided--Basaltic rocks not distinguished as to pillows, dikes, or tuffs

Top Pillow basalt--Submarine extrusive basalt

Tod Sheeted basalt dikes--Sequence composed almost wholly of dikes

Togs Greenstone and sedimentary rocks--Basalt sills and dikes intruding flysch

Tops Pillow basalt and sedimentary rocks--Interbedded pillow basalt and flysch

Togb Grabbro--Small plutons and locally coarse-grained dikes

VALDEZ GROUP (UPPER CRETACEOUS)

Kv Sedimentary rocks, undivided--Flysch of sandstone and siltstone, in part metamorphosed to slate and phyllite

Kvs Schist--Sandstone, siltstone, and some tuffs metamorphosed to biotite grade of greenschist facies

Kvp Pillow basalt--Submarine extrusive basalt

Kvd Sheeted basalt dikes--Sequence composed almost wholly of dikes

Kvt Tuff--Aquagene tuff interbedded with flysch

Kvg Gabbro--Large pluton that intrudes sheeted dikes and flysch

Kvu Ultramafic rocks--Small tabular bodies of serpentinized dunite

KJm McHUGH COMPLEX (CRETACEOUS AND(OR) UPPER JURASSIC)--Weakly metamorphosed clastic and volcanic rocks; in large part is a melange

——— CONTACT--Dashed where approximately located; dotted where concealed

– – – HIGH-ANGLE FAULT--Dotted where concealed

▲▲▲▲ THRUST FAULT--Dotted where concealed. Sawteeth on upper plate

Discussion

Reconnaissance geochemical and mineralogical sampling was done in the Seward and Blying Sound quadrangles during 1975 and 1976 as part of the Alaska Mineral Resource Assessment Program (AMRAP). This map shows the distribution and abundance of copper in stream-sediment samples.

Stream-sediment samples were collected at 569 sites from active stream channels and locally, from the interface of streambeds with intermediate- to low-tide beaches. Most of the stream sediment is fine- to coarse-grained sand, with a clay-silt fraction in streams discharging from glaciers.

The stream sediment samples were air dried and sieved through a 80-mesh (0.2 mm) sieve, and the minus-80 mesh fraction was saved for analysis. A split of each sample was analyzed for copper and 15 other elements by a semiquantitative spectrographic method (Grimes and Marranzino, 1968). Other splits were analyzed for gold and zinc by atomic absorption methods (Ward and others, 1969).

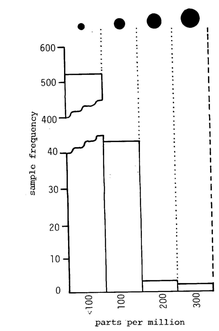
Sample sites and copper values (in parts per million) are indicated on the map by symbols identified in the histogram. The weakly anomalous values are considered to be significant only where they were detected in stream-sediment or heavy-mineral concentrate samples that also contained strongly anomalous values of other metals such as arsenic, gold, lead or tungsten.

The map shows two populations for copper in stream sediments. One population consisting of generally lower copper values represents the samples collected from the sedimentary terrane in the central and western parts of the quadrangles. The other population consisting of generally higher copper values includes samples collected in areas of sheeted basalt dikes and pillow basalts in the eastern part of the quadrangles and from the sedimentary terrane of Latouche Island; in these areas chalcopyrite and pyrite were observed as fine-grained disseminations in the rocks and as mineral particles in the heavy-mineral concentrates.

References Cited

Grimes, D. J., and Marranzino, A. P., 1968, Direct-current arc and alternating-current spark emission spectrographic field methods for the semiquantitative analysis of geologic materials: U.S. Geological Survey Circular 591, 6 p.

Ward, F. N., Nakagawa, H. M., Harms, T. F., and Van Sickle, G. H., 1969, Atomic absorption methods of analysis useful in geochemical exploration: U.S. Geological Survey Bulletin 1289, 45 p.



Histogram for copper in 569 stream-sediment samples, showing symbols corresponding to concentrations in parts per million.

EXPLANATION
COPPER CONCENTRATIONS

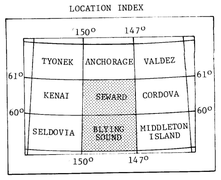
- Background values
- Weakly anomalous values
- Moderately anomalous values
- Strongly anomalous values

Geology mapped by R. G. Tysdal and J. E. Case, 1975-77; geochemistry by R. B. Tripp, W. D. Crim, E. F. Cooley, and G. W. Day, 1975-76.

Base from U.S. Geological Survey, 1953

SCALE 1:250 000
5 0 5 10 15 20 25 MILES
5 0 5 10 15 20 25 KILOMETERS
CONTOUR INTERVAL 200 FEET
DATUM IS MEAN SEA LEVEL

LOCATION INDEX



This map is one of a series, all bearing the number MF-880. Background information relating to this map is published as U.S. Geological Survey Circular 760, available free of charge from the U.S. Geological Survey, Reston, VA. 22092 .

GEOCHEMICAL MAP SHOWING THE DISTRIBUTION AND ABUNDANCE OF COPPER IN STREAM SEDIMENTS IN THE SEWARD AND BLYING SOUND QUADRANGLES, ALASKA

By

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