DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

OPEN-FILE REPORT
81-27-N

Geochemical Symbols
(size of symbols explained on histogram)

- Anomalous copper value (figure 1)
- Anomalous zinc value (figure 2)
- Anomalous molybdenum value (figure 3)
- Anomalous arsenic value (figure 4)
- Anomalous uranium value (figure 5)

DISCUSSION

This map shows the distribution and abundance of copper, zinc, molybdenum, arsenic, and uranium in 359 filtered water samples collected during the 1978-1979 field seasons in the West Chichagof-Yakobi Wilderness Study Area, southeastern Alaska.

The total area of this project approximates 600 square miles (1800 km^2). Water samples were collected primiarily from active channels of streams draining areas of approximately 2 square miles (6 km^2). In addition, a few of the samples were taken from lakes and ponds.

At sample-collection sites, water samples were filtered through 0.45 micron filters into acid-rinsed polyethylene bottles. The filtered samples were acidified to a pH of less than 2 with concentrated nitric acid. The samples were then analyzed for copper, zinc, molybdenum (Miller and Ficklin, 1976), and arsenic (Aruscavage, 1977) by atomic absorption using a flameless (graphite) furnace. Uranium was analyzed by fluorimetry (Ward and Bondar, 1979).

The histograms were used to identify anomalous values for each element. These anomalous values were plotted at the respective sample site.

Results from the analysis of the various sample media collected in West Chichagof-Yakobi Wilderness Study Area appears in Hessin and others, (1980).

REFERENCES CITED

Aruscavage, Philip, 1977, Determination of arsenic, antimony, and selenium in coal by atomic absorption spectrometry with a graphite tube atomizer: U.S. Geological Survey Journal of Research, v. 5, no. 4, p. 405-408.

Hessin, T. D., and others, 1980, Analytical results of various types of samples taken in the West Chicagof-Yakobi Wilderness Study Area, Sitka quadrangle, southeastern Alaska, Open-File Report 80-905.

Miller, W. R., and Ficklin, W. H., 1976, Molybdenum mineralization in the White River National Forest, Colorado: U.S. Geological Survey Open-File Report 76-711, 29 p.

Ward, F. N., and Bondar, W. F., 1979, Analytical methodology in the search for metallic ores in Hood (ed.), p. 365-383.

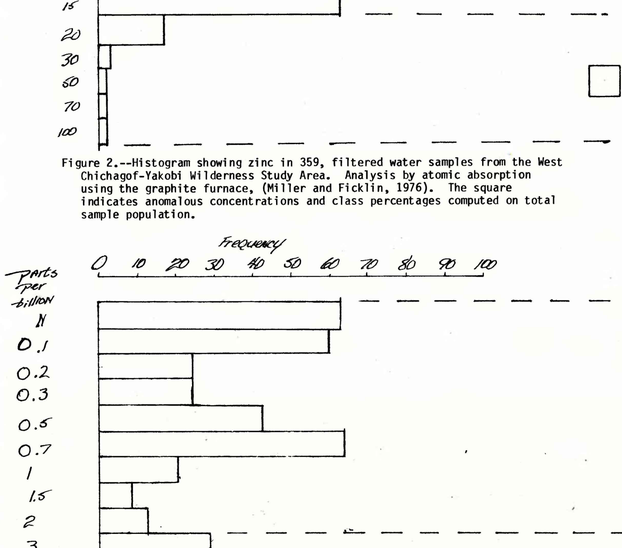


Figure 1.--Histogram showing copper in 359, filtered water samples from the West Chichagof-Yakobi Wilderness Study Area. Analysis by atomic absorption using the graphite furnace, (Miller and Ficklin, 1976). Triangles indicate anomalous concentrations and class percentages computed on total sample population.

N, not detected at limit of detection

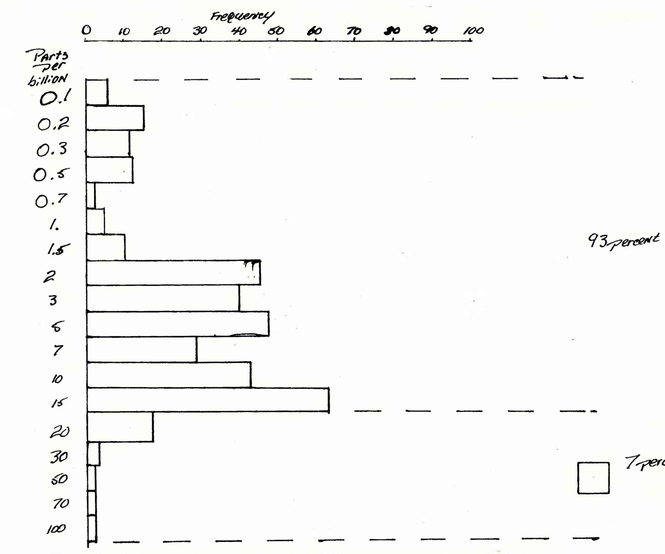


Figure 2.--Histogram showing zinc in 359, filtered water samples from the West Chichagof-Yakobi Wilderness Study Area. Analysis by atomic absorption using the graphite furnace, (Miller and Ficklin, 1976). The square indicates anomalous concentrations and class percentages computed on total sample population.

Figure 3.--Histogram showing molybdenum in 359, filtered water samples from the West Chichagof-Yakobi Wilderness Study Area. Analysis by atomic absorption using the graphite furnace, (Miller and Ficklin, 1976). Hexagons indicate anomalous concentrations and class percentages computed on total sample population.

N, not detected at limit of detection

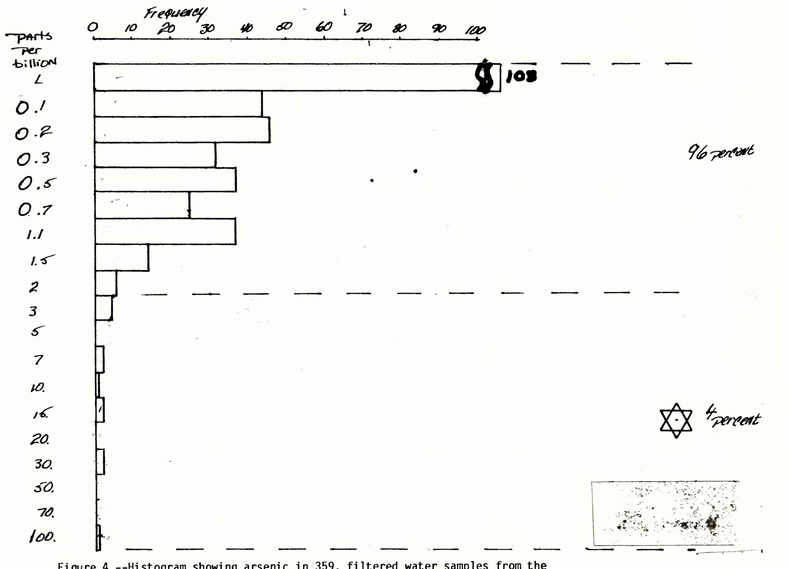


Figure 4.--Histogram showing arsenic in 359, filtered water samples from the West Chichagof-Yakobi Wilderness Study Area. Analysis by atomic absorption using the graphite furnace, (Aruscavage, 1977). The star indicates anomalous concentrations and class percentages computed on total sample population.

L, detected but below level of determination

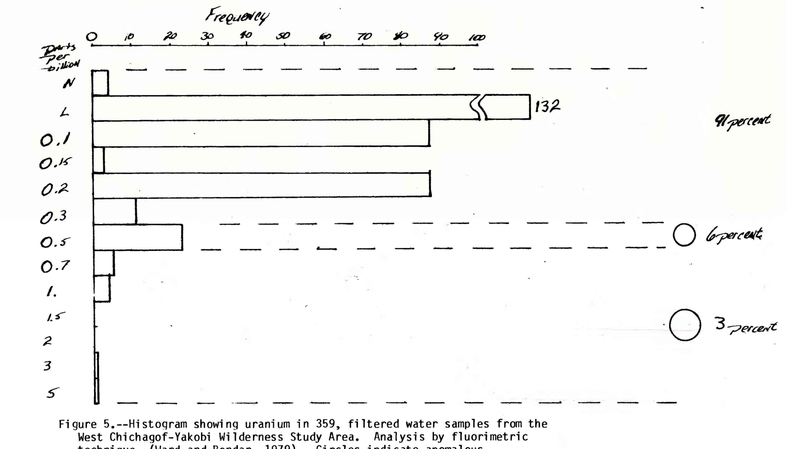


Figure 5.--Histogram showing uranium in 359, filtered water samples from the West Chichagof-Yakobi Wilderness Study Area. Analysis by fluorimetric technique, (Ward and Bondar, 1979). Circles indicate anomalous concentrations and class percentages computed on total sample population.

N, not detected at limit of detection

L, detected but below level of determination

Base from U. S. Geological Survey 1:250,000, 1951
Sitka; Mt. Fairweather

Geology simplified by B. R. Johnson and S. M. Karl, 1981

SCALE 1:125 000
2 0 2 4 6 8 MILES
2 0 2 4 6 8 KILOMETERS

CORRELATION OF MAP UNITS

Qal	QUATERNARY
Tf, Tm	TERTIARY(?)
Kd	CRETACEOUS(?)
Ks	CRETACEOUS
Kkb	CRETACEOUS
KJf, KJm	CRETACEOUS AND JURASSIC
Trw	TRIASSIC(?)
Trg	TRIASSIC(?)
MzPzu	MESOZOIC AND PALEOZOIC(?)

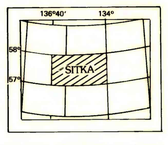
LIST OF MAP UNITS

Qal	ALLUVIAL DEPOSITS--Undivided
Tf	FELSIC PLUTONIC ROCKS--Dominantly tonalitic
Tm	MAFIC PLUTONIC ROCKS--Dominantly gabbroic
Kd	DIORITE SILL--Extensively altered
Ks	SITKA GRAYWACKE
Kkb	KELP BAY GROUP--Metasediments and metavolcanics
KJf	FELSIC PLUTONIC ROCKS--Dominantly granodiorite
KJm	MAFIC PLUTONIC ROCKS--Dominantly quartz diorite, diorite, and gabbro
Trw	WHITESTRIPE MARBLE
Trg	GOON DIP GREENSTONE
MzPzu	UNDIVIDED METASEDIMENTARY--Metavolcanic and metaplutonic rocks

Studies Related to Wilderness

The Wilderness Act (Public Law 88-577, Sept. 3, 1964) and related Acts require the U.S. Geological Survey to survey certain areas on Federal lands to determine their mineral resource potential. Results must be made available to the public and be submitted to the President and the Congress. This report presents the results of a geochemical survey of the West Chicagof-Yakobi Wilderness Study Area, Sitka quadrangle, southeastern Alaska.

QUADRANGLE LOCATION



INDEX SHOWING LOCATION OF STUDY AREA

GEOCHEMICAL MAP SHOWING THE DISTRIBUTION AND ABUNDANCE OF COPPER, ZINC, MOLYBDENUM, ARSENIC, AND URANIUM IN FILTERED WATER SAMPLES IN THE WEST CHICHAGOF-YAKOBI WILDERNESS STUDY AREA, SITKA QUADRANGLE, SOUTHEASTERN ALASKA

By

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1981