DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

COBALT

OPEN FILE REPORT
78-73 I

CORRELATION OF MAP UNITS

[Geologic map generalized from Berg and others (1978)]

- Qu — QUATERNARY
- QTv — QUATERNARY AND TERTIARY
- Tmp — Miocene; Tep — Eocene — TERTIARY
- TKp — TERTIARY OR CRETACEOUS
- KJup, KJs, KJv — Lower Cretaceous or Upper Jurassic — CRETACEOUS OR JURASSIC
- JRt, JRvs — JURASSIC OR TRIASSIC
- Rsv — Upper Triassic — TRIASSIC
- MzPzp, MzPzu — MESOZOIC OR PALEOZOIC
- Pzs — Middle and Upper Paleocene; Pzv; Pzp, Pzsv — Silurian or Older — PALEOZOIC OR OLDER

DESCRIPTION OF MAP UNITS

Qu	UNCONSOLIDATED DEPOSITS, UNDIVIDED (Quaternary)
QTv	VOLCANIC ROCKS (Quaternary and Tertiary)
Tmp	UNDIVIDED MIOCENE PLUTONIC ROCKS
Tep	UNDIVIDED EOCENE PLUTONIC ROCKS
TKp	UNDIVIDED TERTIARY OR CRETACEOUS PLUTONIC ROCKS
	GRAVINA ISLAND FORMATION AND UNNAMED CORRELATIVE ROCKS (Lower Cretaceous or Upper Jurassic)
KJup	Ultramafic and other plutonic rocks
KJs	Metasedimentary rocks
KJv	Metavolcanic rocks
JRt	TEXAS CREEK GRANODIORITE (Jurassic or Triassic)
JRvs	METAMORPHOSED VOLCANIC AND SEDIMENTARY ROCKS (Jurassic or Triassic)
Rsv	METAMORPHOSED SEDIMENTARY AND VOLCANIC ROCKS (Upper Triassic)
MzPzp	PARAGNEISS AND AMPHIBOLITE (Mesozoic or Paleozoic)
MzPzu	METAMORPHIC ROCKS, UNDIVIDED (Mesozoic or Paleozoic)
Pzs	METAMORPHOSED SEDIMENTARY AND MINOR VOLCANIC ROCKS (Middle and upper Paleozoic)
Pzv	FELSIC METAVOLCANIC ROCKS (Paleozoic or older)
Pzp	PLUTONIC ROCKS, CHIEFLY TRONDHJEMITE (Silurian or older)
Pzsv	METAMORPHOSED SEDIMENTARY AND VOLCANIC ROCKS (Silurian or older)

In the course of U.S. Geological Survey investigations of the Ketchikan and Prince Rupert quadrangles, 2602 stream-sediment samples were collected. Samples were analyzed for up to 30 elements by a 6-step, semiquantitative emission spectroscopic method (Grimes and Marranzino, 1968) and for up to 5 elements by atomic-absorption spectrophotometry (Ward and others, 1969). This map shows sample collection sites for 2602 samples which were analyzed for cobalt by the spectrographic method. Complete analytical data plus location maps (scale 1:125,000), station coordinates, and a discussion of sampling and analytical procedures for samples from sites shown on this map are published in two reports (Koch and Elliott, 1978b, c). These are also available on magnetic computer tape (Koch, Van Trump, and McDanal, 1978).

Background levels vary for different lithologies and in different areas. Because of this and variability introduced from other sources such as sampling practice, analytical variance, and degree of chemical weathering, it is impossible to select a specific analytical level above which values indicate mineralization. For this reason, the analytical values have been grouped into three ranges with each range represented by a different symbol on the map. Higher values may indicate a greater likelihood of bedrock mineralization but confidence levels are low for single-element "anomalies" and results which are not supported by neighboring values.

Selected References

Berg, H. C., Elliott, R. L., Smith, J. G., and Koch, R. D., 1978, Geologic map of the Ketchikan and Prince Rupert quadrangles, Alaska: U.S. Geol. Survey open-file rept. 78-73A, 1 sheet, scale 1:250,000.

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 material: U.S. Geol. Survey Circ. 591, 6 p.

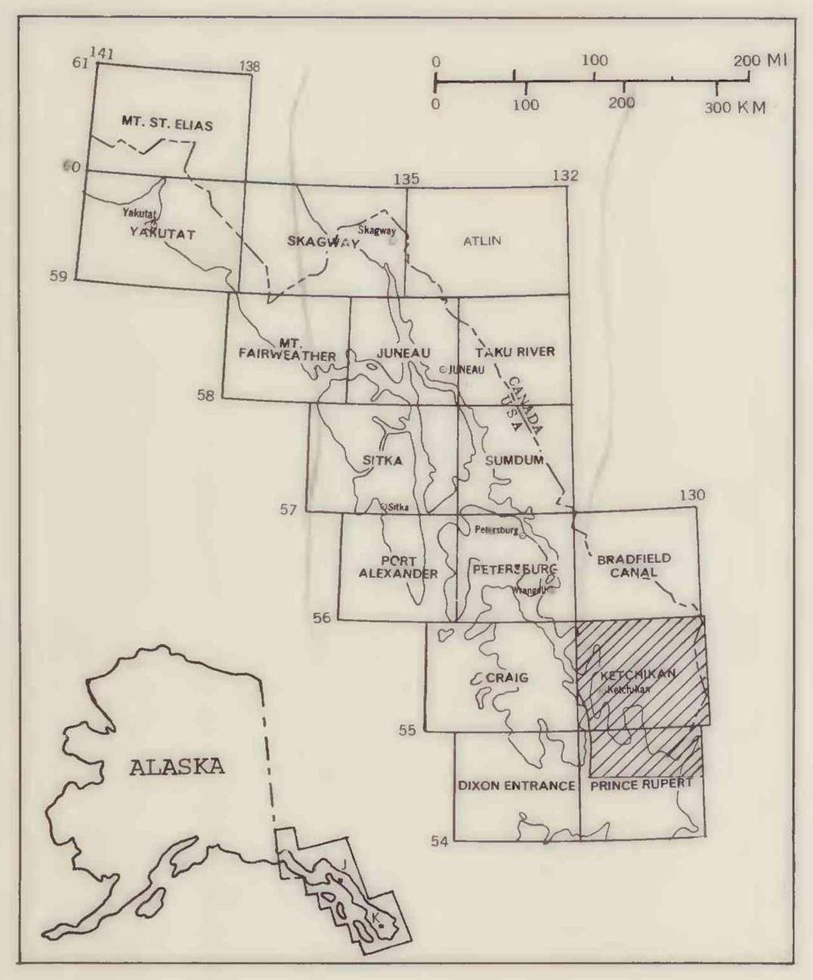
Koch, R. D., and Elliott, R. L., 1978a, Analyses of rock samples from the Ketchikan quadrangle, southeastern Alaska: U.S. Geol. Survey open-file rept. 78-156A, 163 p.

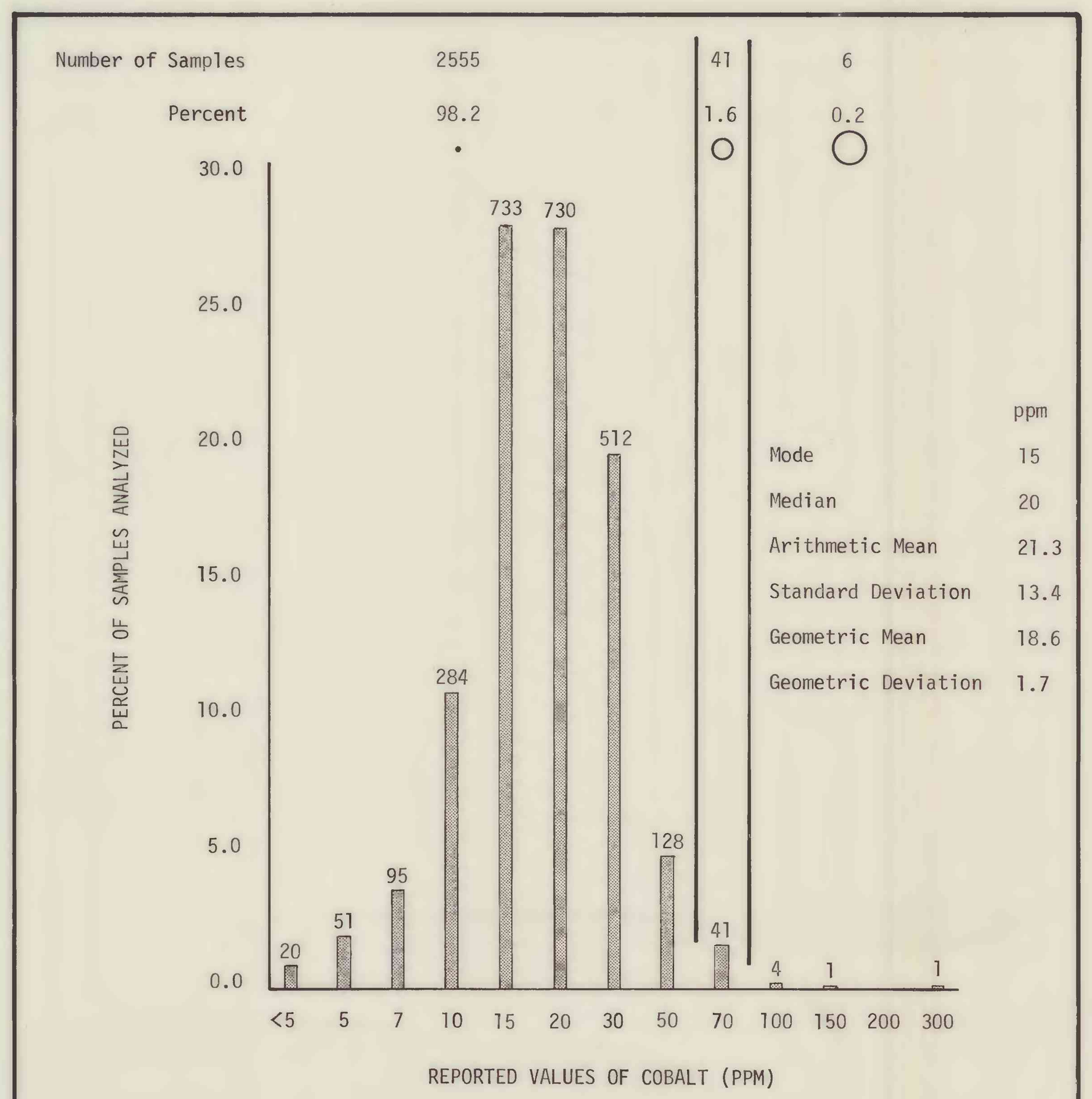
_____1978b, Analyses of rock and stream-sediment samples from the Prince Rupert quadrangle, southeastern Alaska: U.S. Geol. Survey open-file rept. 78-156B, 98 p.

_____1978c, Analyses of stream-sediment samples from the Ketchikan quadrangle, southeastern Alaska: U.S. Geol. Survey open-file rept. 78-156C, 214 p.

Koch, R. D., Van Trump, George, Jr., and McDanal, S. K., 1978, Magnetic tape containing analytical data for rock and stream-sediment samples from Ketchikan and Prince Rupert quadrangles, southeastern Alaska: U.S. Geol. Survey Rept., 8 p., computer tape [Available from the Natl. Tech. Inf. Service, U.S. Dept. Commerce, Springfield, VA NTIS PB-276-777].

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. Geol. Survey Bull. 1289, 45 p.





Calculations based on 2602 analyses with a lower limit of determinability of 5 ppm

Base from USGS 1:250,000 topo series:
KETCHIKAN, 1955; PRINCE RUPERT, 1959.
ALASKA-CANADA.

SCALE 1:250 000
4 0 4 8 12 16 20 MILES
4 0 4 8 12 16 20 KILOMETERS
CONTOUR INTERVAL 200 FEET
DATUM IS MEAN SEA LEVEL

TRUE NORTH — MAGNETIC NORTH — 27½°
APPROXIMATE MEAN DECLINATION, 1955

Geology by H. Berg, R. Carten, J. Childs, A. Clark, W. Condon, M. Diggles, G. Dunne, R. Elliott, C. Holloway, J. Houghton, R. Koch, R. Miller, R. Rudser, J. Smith, B. Wiggins, 1966-1977

MAP SHOWING SPECTROGRAPHICALLY DETERMINED COBALT IN STREAM SEDIMENTS, KETCHIKAN AND PRINCE RUPERT QUADRANGLES, ALASKA

By
R.D. Koch, R.L. Elliott, and M.F. Diggles

1978