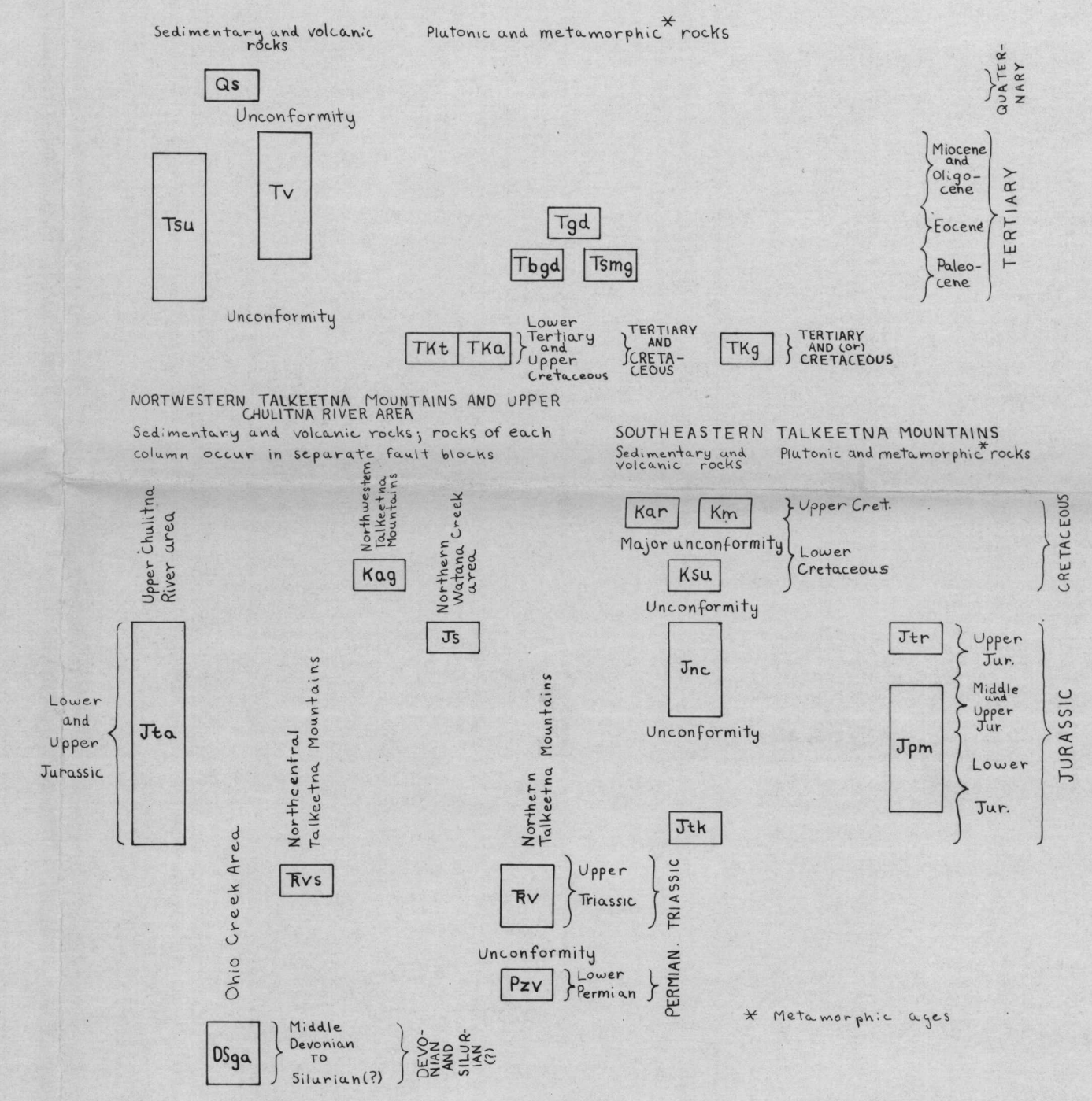


CORRELATION OF MAP UNITS

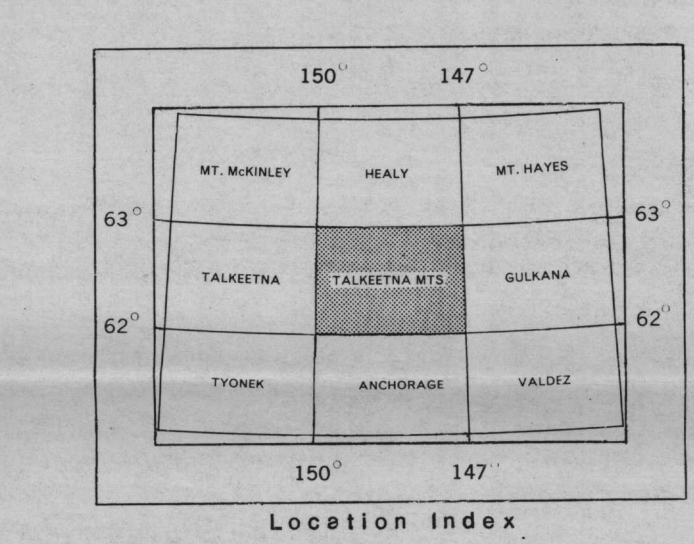
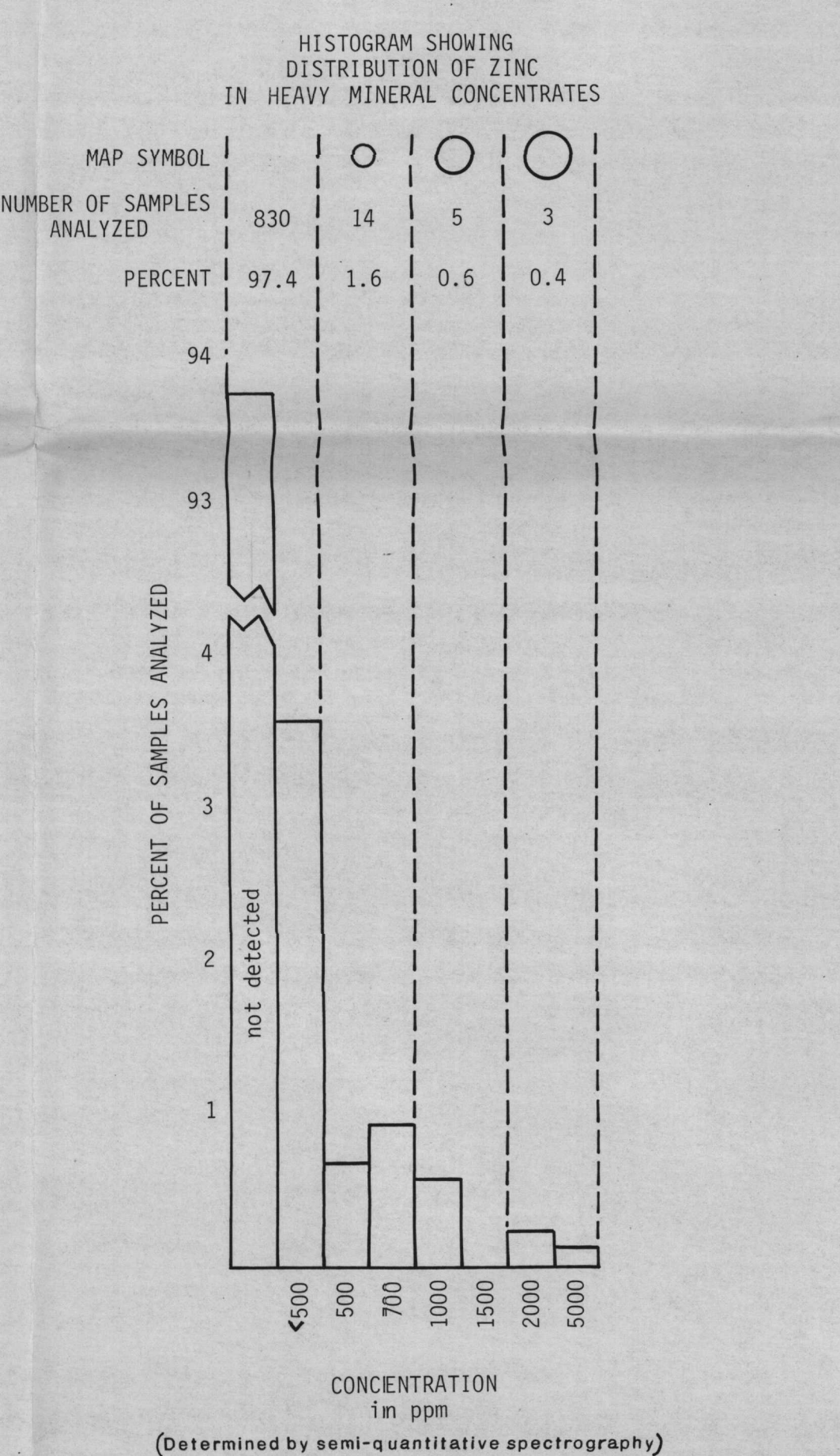
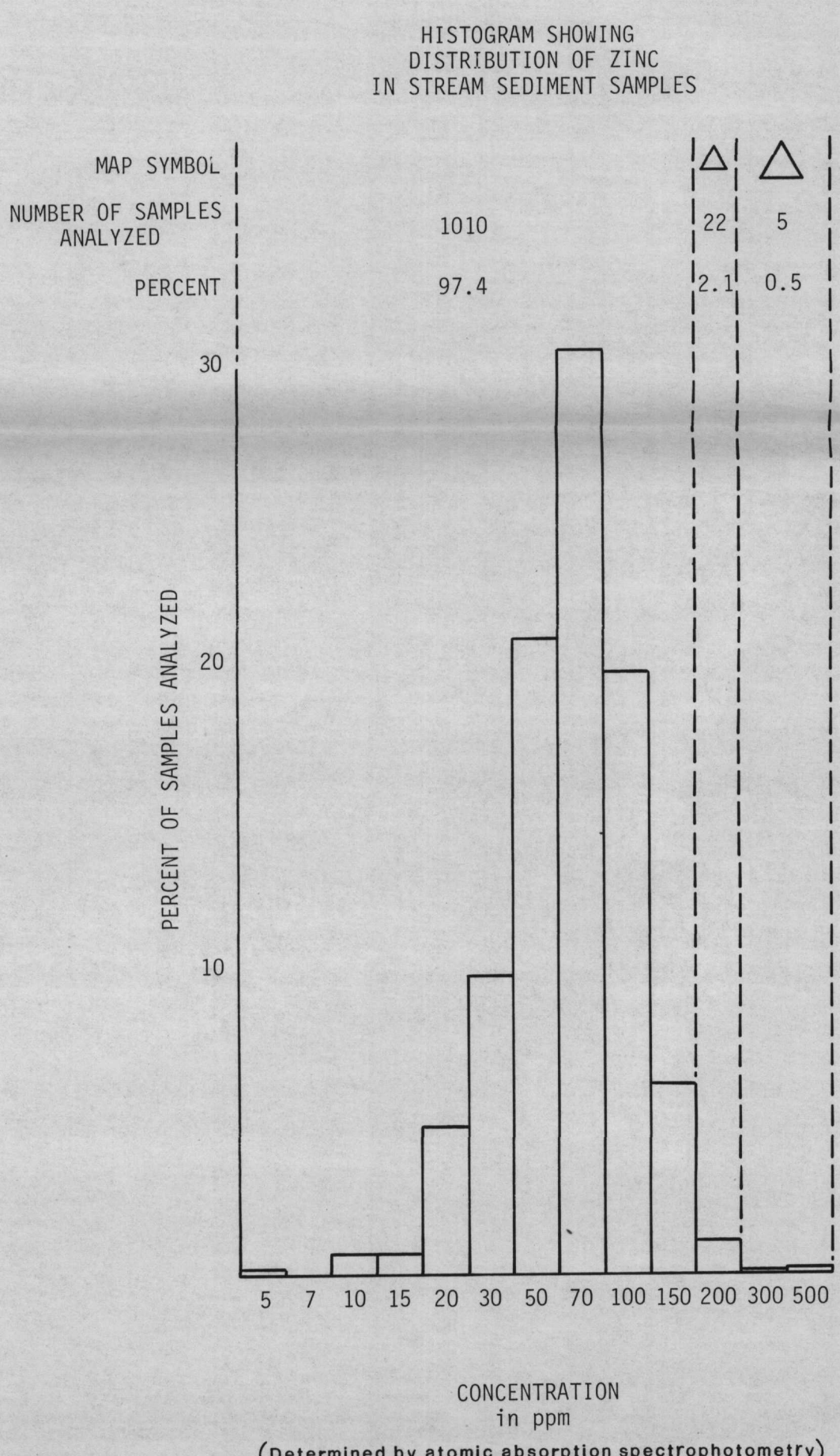
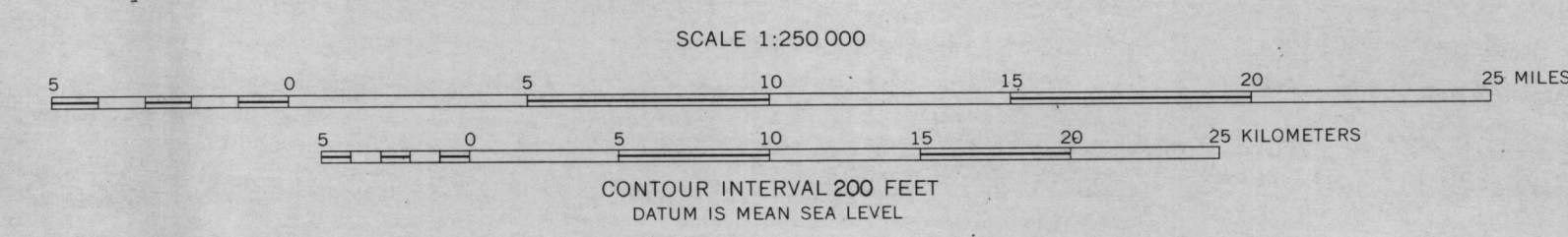
Geology generalized after Csejty and others, 1978



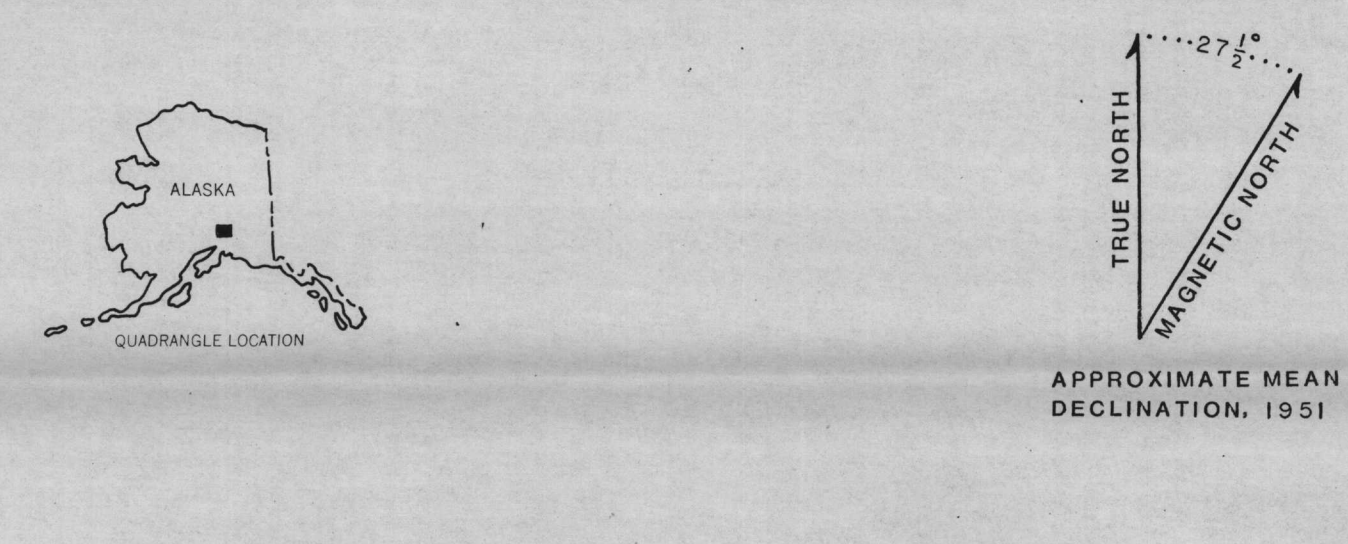
DESCRIPTION OF MAP UNITS

- Qs SURFICIAL DEPOSITS, UNDIFFERENTIATED (Quaternary).
Tv VOLCANIC ROCKS, UNDIVIDED (Paleocene to Pleistocene(?)--felsic and mafic subvolcanic volcanic rocks and related shallow intrusions.
Tsu TERTIARY SEDIMENTARY ROCKS, UNDIFFERENTIATED (Paleocene to Miocene)--Terrestrial, mostly fluvialite strata with a few lignite interbeds.
Tpd GRANODIORITE (Eocene).
Tbpd BIOTITE AND HORNBLende GRANODIORITE (Paleocene, in part early Eocene).
Tmgp SCHIST, MIGNONITE, AND GRANITE (Paleocene intrusive and metamorphic ages)--Migmatitic border zone of biotite and hornblende granodiorite.
Ttc TONALITE (Upper Cretaceous and lower Paleocene).
Tta ANDALUSITE (Upper Cretaceous and lower Paleocene).
Tkg GRANITIC ROCKS, UNDIVIDED (Cretaceous and/or Tertiary).
kar ARDRE RIDGE FORMATION (Lower and (or) Upper Cretaceous).
ktu MITSUNAGA FORMATION (Lower and Upper Cretaceous).
Ksu SEDIMENTARY ROCKS, UNDIVIDED (Lower Cretaceous)--Shallow marine sequence of calcareous sandstone, claystone, and massive clastic limestone.
Kag ARGILLITE AND LITHIC GRAWACKE (Lower Cretaceous)--intercalated, marine, flyschlike sequence.
Jt TERTIARY AND VOLCANIC ROCKS, UNDIVIDED (Upper Jurassic)--Marine sequence of argillite, graywacke, conglomerate, and andesitic to latitic rhyolite porphyry dikes and intercalated flows.
Jtr TRONDHJEMITE (Upper Jurassic).
Jnc JURASSIC SEDIMENTARY ROCKS, UNDIVIDED (Middle and Upper Jurassic)--Includes Nankai and Chinita Formations, and Tuedini Group.
Jta CRYSTAL TUFF, ARGILLITE, CHERT, GRAWACKE, AND LIMESTONE (Lower to upper Jurassic)--Shallow to moderately deep marine, intercalated sequence.
Jpm PLUTONIC AND METAMORPHIC ROCKS, UNDIFFERENTIATED (Lower to upper Jurassic)--Mainly quartz diorite, granodiorite, amphibolite, and gneissite.
Jtk TALKEETNA FORMATION (Lower Jurassic).
Jvs METABASALT AND SLATE (Upper Triassic)--intercalated, shallow-water-marine sequence.
Jbv BASALTIC METAVOLCANIC ROCKS (Upper Triassic)--Mainly shallow water marine metabasalt flows.
Jpv BASALTIC AND ANDESITIC METAVOLCANIC ROCKS (Pennsylvanian(?) and Early Permian)--Metamorphosed marine sequence of inter-layered basaltic to andesitic flows, tuffs, coarse volcanoclastic rocks, and subordinate mudstone and limestone.
Jsg GRAYWACKE, ARGILLITE, SHALE, AND LIMESTONE (Siderian(?) to Middle Devonian)--intercalated marine sequence, probably continental margin deposits.

Base map from U.S. Geological Survey, 1:250,000 Talkeetna Mountains Quadrangle, Alaska, 1955



- EXPLANATION OF GEOCHEMICAL MAP SYMBOLS
- Location of stream sediment sample
- Location of heavy mineral concentrate sample
- Location of both stream sediment and heavy mineral concentrate sample
- Stream sediment sample with possibly significant zinc value. Increase in symbol size indicates higher analytical value as shown on histogram.
- Heavy mineral concentrate sample with possibly significant zinc value. Increase in symbol size indicates higher analytical value as shown on histogram.



EXPLANATORY STATEMENT

In the course of U.S. Geological Survey investigations of the Talkeetna Mountains quadrangle, 1118 stream sediment, 852 heavy mineral concentrate, and 501 rock samples were collected. All of these samples were analyzed for up to 30 elements by a six-step semi-quantitative spectrographic method (Grimes and Marranzino, 1968). Most of the stream sediment and rock samples were also analyzed for up to 4 elements by atomic absorption spectrophotometry, as described by Ward and others (1969). The present map shows the sample collection sites of 1037 stream sediment samples and 852 heavy mineral concentrates which were analyzed for zinc by the atomic absorption and spectrographic methods, respectively. Complete analytical data plus location maps, station coordinates, and discussion of sampling and analytical procedures for samples from sites shown on the present map are published in a report by Miller and others (1978). Concentration of metals in geochemical samples varies for different lithologies and in different areas. Because of this, as well as 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 might indicate the presence of zinc deposits. For this reason, the analytical values have been grouped into ranges (see histograms), each range being represented by a different symbol on the map. Higher values may indicate a greater likelihood of zinc deposits, but confidence levels are low for "single-element" anomalies and for results which are not supported by neighboring values.

EXPLANATION OF GEOLOGIC MAP SYMBOLS

- Contact, approximately located
Approximate contact of surficial deposits
Fault
Long dashed where approximately located; short dashed where inferred; dotted where concealed. U indicates upthrown side where direction of displacement is known. Arrows indicate relative lateral movement.
Thrust fault
Long dashed where approximately located, dotted where concealed. Teeth indicate upthrown side.
Approximate axis of intense shear zone of variable width, possibly marking a thrust fault
Dotted where concealed; teeth indicate possible upthrown side of postulated thrust

REFERENCES CITED

Csejty, Béla, Jr., Nelson, W. H., Jones, D. L., Silberling, N. J., Dean, R. M., Morris, M. S., Lanphere, M. A., Smith, J. G., and Silberman, W. L., 1978, Reconnaissance geologic map and geochronology, Talkeetna Mountains quadrangle, northern part of Anchorage quadrangle, and southwest corner of Healy quadrangle, Alaska: U.S. Geol. Survey open-file rept. 78-558-A, 62p.
Grimes, D. J., and Marranzino, A. F., 1968, Direct-current arc and alternating-current spark emission spectrographic field methods for the semiquantitative analysis of geologic materials: U.S. Geol. Survey Circ. 591, 6p.
Miller, R. J., Cooley, E. F., O'Leary, R. M., Garmezey, Larry, Csejty, Béla, Jr., Smith, T. E., and Cleveland M. N., 1978, Analyses of geochemical samples from the Talkeetna Mountains quadrangle, Alaska: U.S. Geol. Survey open-file rept. 78-1052, 279 p.
Ward, F. H., 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.

MAP SHOWING GEOCHEMICAL DISTRIBUTION AND ABUNDANCE OF ZINC IN STREAM SEDIMENTS AND HEAVY MINERAL CONCENTRATES, TALKEETNA MOUNTAINS QUADRANGLE, ALASKA

This report is preliminary and has not been edited or reviewed for conformity with Geological Survey standards and nomenclature.