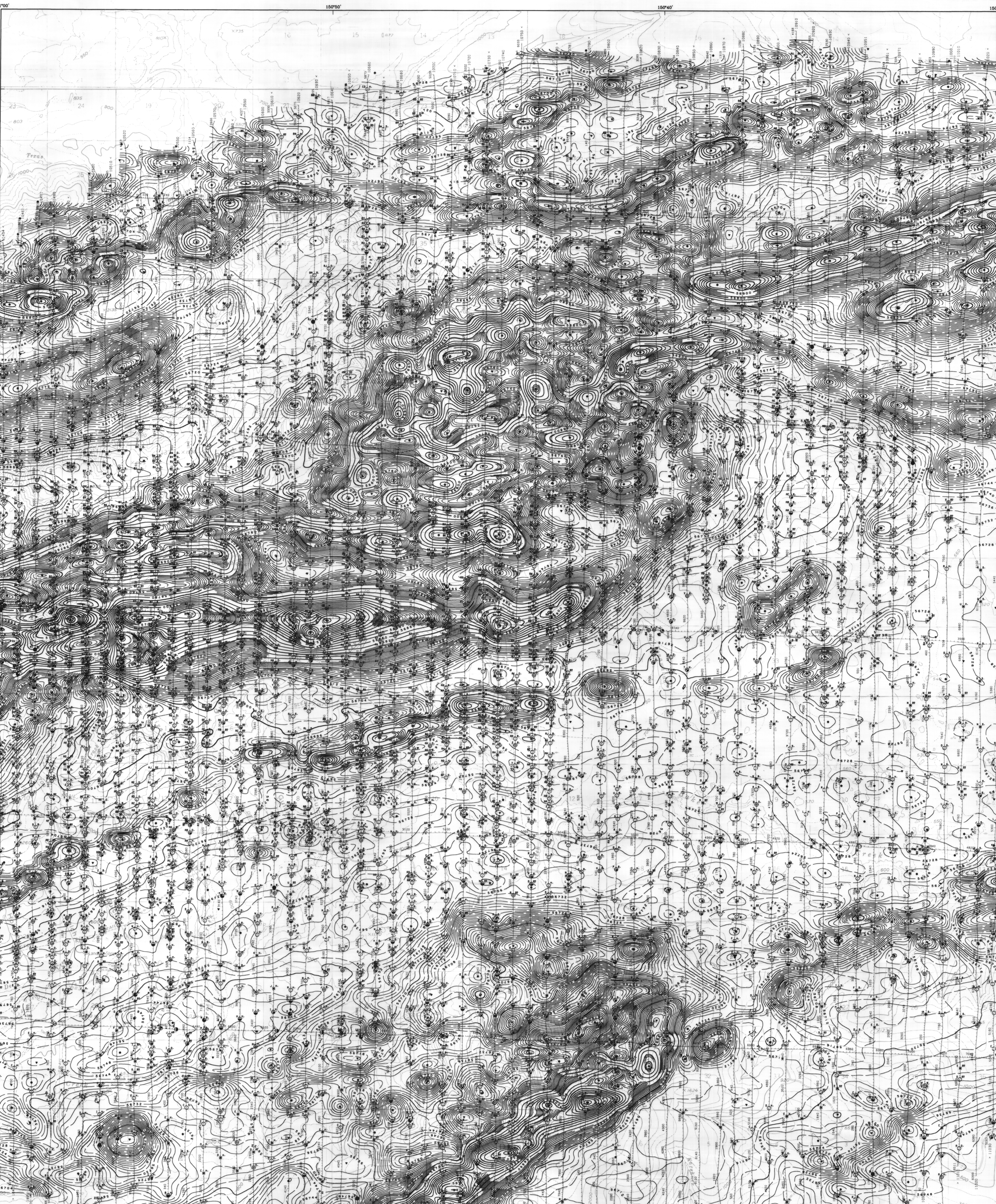
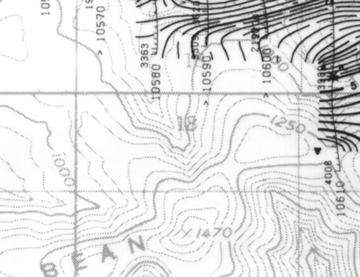


Base from U.S. Geological Survey Kantishna River D-2, 1952; Tanana A-2, 1953; B-2, 1956; Quadrangles, Alaska



SCALE 1:31,680

0.5 0 0.5 1 1.5 2 MILES

0.5 0 0.5 1 1.5 2 2.5 KILOMETERS

CONTOUR INTERVAL 100 FEET
DATUM MEAN SEA LEVEL

APPROXIMATE MEAN DECLINATION, 1953

TOTAL FIELD MAGNETICS AND DETAILED ELECTROMAGNETIC ANOMALIES OF THE RAMPART-MANLEY MINING DISTRICT ALASKA (TANANA A-2 AREA)

IGRF GRADIENT REMOVED

1996

DESCRIPTIVE NOTES

The geophysical data were acquired with a DIGHEM^V Electromagnetic (EM) system, a Scintrex cesium CS2 magnetometer, and a Herz VLF system installed in an AS350B-1 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 50/60 Hz monitors and video camera. Flights were performed at a mean terrain clearance of 200 feet along survey flight lines with a spacing of a quarter of a mile. Tie lines were flown perpendicular to the flight lines at intervals of approximately 3 miles.

A Sercel Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.5 seconds using real-time differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clark 1866 (UTM) spheroid, 1927 North American datum using a central meridian (CM) of 153°, a north constant of 0 and an east constant of 500,000. Positional accuracy of the presented data is better than 10 m with respect to the UTM grid.

ELECTROMAGNETICS

To determine the location of EM anomalies or their boundaries, the DIGHEM^V EM system measured inphase and quadrature components at five frequencies. Two vertical coaxial-coil pairs operated at 900 and 5000 Hz while three horizontal coplanar-coil pairs operated at 900, 7200, and 56,000 Hz. EM data were sampled at 0.1 second intervals. The EM system responds to bedrock conductors, conductive overburden, and cultural sources. The type of conductor is indicated on the aeromagnetic map by the interpretive symbol attached to each EM anomaly. Determination of the type of conductor is based on EM anomaly shapes of the coaxial- and coplanar-coil responses, together with conductor and magnetic patterns and topography. The power line monitor and the flight track video were examined to locate cultural sources.

ELECTROMAGNETIC ANOMALIES

F B — Arcs indicate the conductor has a thickness >10m
100 — Magnetic correlation in nT
Dip direction

Anomaly	Conductance
●	>100 siemens
◕	50–100 siemens
◒	20–50 siemens
⊕ (partly filled)	10–20 siemens
⊕	5–10 siemens
○	1–5 siemens
( )	< 1 siemens
✳	Questionable anomaly
△ᴹ	EM magnetite response

Anomaly identifier — Interpretive symbol

Depth is greater than
· 15 m
: 30 m
⋮ 45 m
⁞ 60 m

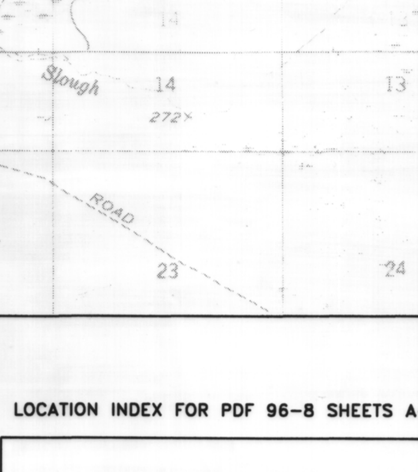
Inphase and quadrature of coaxial coil is greater than
. 5 ppm
.. 10 ppm
... 15 ppm
.... 20 ppm

Interpretive symbol	Conductor ("model")
B	Bedrock conductor
D	Narrow bedrock conductor ("thin dike")
S	Conductive cover ("horizontal thin sheet")
H	Broad conductive rock unit, deep conductive weathering, thick conductive cover ("half space")
E	Edge of broad conductor ("edge of half space")
L	Culture, e.g., power line, metal building or fence

MAGNETIC CONTOUR INTERVAL

heavy solid line	100 nT
solid line	20 nT
thin solid line	4 nT
dashed line	2 nT
closed contour with ▼	magnetic low
closed contour with ✱	magnetic high

LOCATION INDEX FOR PDF 96-8 SHEETS A-F



SURVEY HISTORY

This map has been compiled and drawn under contract between the State of Alaska, Department of Natural Resources, Division of Geological & Geophysical Surveys, and WGM Inc., Mining and Geological Consultants. Airborne geophysical data for the area were acquired by DIGHEM, a division of CGG Canada Ltd., in 1995. Other products from this survey are available from the Alaska Division of Geological & Geophysical Surveys, 794 University Ave., Suite 200, Fairbanks, Alaska, 99709.

TOTAL FIELD MAGNETICS

The total field magnetic data were acquired with a sampling interval of 0.1 seconds, and were (1) corrected for diurnal variations by subtraction of the digitally recorded base station magnetic data, (2) leveled to the tie line data, and (3) interpolated onto a regular 100 m grid using a modified Akima (1970) technique. The regional variation (or IGRF gradient, 1985, updated to October 1995) was removed from the leveled magnetic data.

Akima, H.,1970, A new method of interpolation and smooth curve fitting based on local procedures: Journal of the Association of Computing Machinery, v. 17, no. 4, p. 589–602.