

1800 Hz COPLANAR APPARENT RESISTIVITY OF THE ALASKA HIGHWAY CORRIDOR, EAST-CENTRAL ALASKA

PARTS OF TANACROSS QUADRANGLE

by
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DESCRIPTIVE NOTES

The geophysical data were acquired with a RESOLVE Electromagnetic (EM) system and a Scripps cesium magnetometer. The EM and magnetic sensors were flown at a height of 100 feet. In addition, the survey recorded data from a radar altimeter, GPS navigation system, DG/40 Hz magnetometer and video camera. Flights were performed using ACS300B-2 and ACS300B-3 Squire helicopters at a mean terrain clearance of 200 feet along NW-SE (350') survey flight lines with a spacing of a quarter of a mile. The lines were flown perpendicular to the flight lines at intervals of approximately 3 miles.

An Autech GQ24 NAVSTAR / GLOPASS Global Positioning System was used for navigation. The helicopter position was derived every 0.5 seconds using post-flight differential positioning to a relative accuracy of better than 5 m. Flight path positions were projected onto the Clarke 1856 (UTM zone 1) spheroid, 1927 North American datum using a central meridian (CM) of 141°, 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.

RESISTIVITY

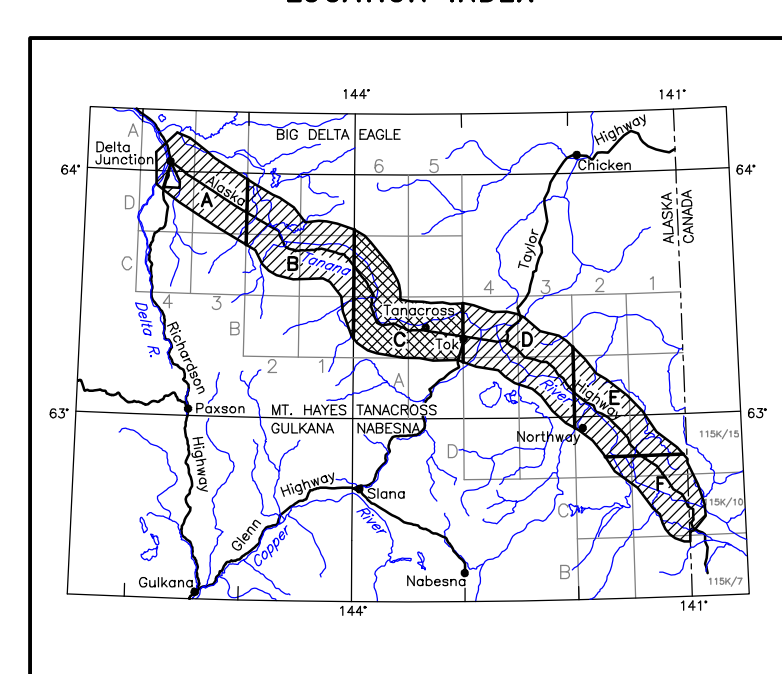
The RESOLVE EM system measured in-phase and quadrature components of six frequencies. One vertical coplanar coil-pair operated at 1800 Hz while the horizontal coplanar coil-pairs operated at 400, 1800, 8200, 42000 and 142000 Hz. EM data were sampled at 0.1 second intervals. The EM system responses to bedrock conductors, conductive overburden, and cultural sources. Apparent resistivity is generated from the in-phase and quadrature component of the coplanar 1800 Hz using the pseudo-layer half space model. The data were interpolated onto a regular 80 m grid using a modified Akima (1970) technique.

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.889-902.

RESISTIVITY ALTITUDE LIMITS

In areas where the EM bird height exceeded 100 m, and the in-phase and quadrature signals were below 3 ppm, the resistivity was not calculated and the grid is blank. This avoids meaningless resistivity calculations due to small signals in areas where the helicopter flew higher to avoid cultural objects or for safety reasons.

LOCATION INDEX



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 (DGGS), and Stevens Exploration Management Corp. Airborne geophysical data for the new area were acquired and processed by Fugro Airborne Surveys Corp. in late 2005 and early 2006.

This map and other products from this survey are available by mail order or in person from DGGS, 3364 College Road, Fairbanks, Alaska, 99709-3707. Published maps are also available for viewing or downloading as Adobe Acrobat Files (*.pdf) on our Web site (<http://www.dggs.adnr.state.ak.us/pubs/>).

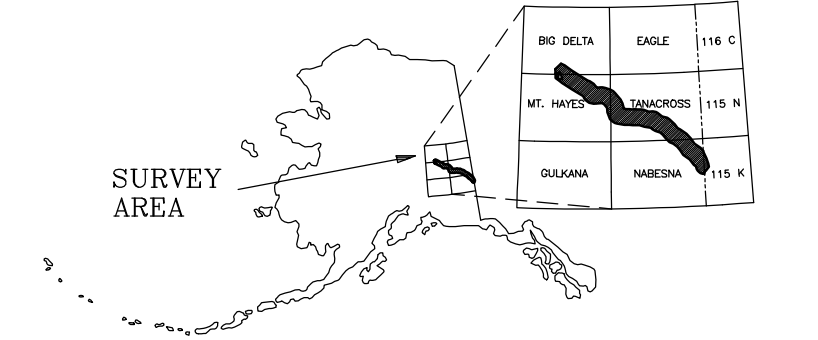


Fig. 100-10, Contour Interval 100 Feet, Alaska Part 6, 1975, 1:50,000, UTM Zone 18N, 1927 North American Datum

