



**140,000 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, 100/400 Hz monitors and video camera. Flights were performed using AS350B-2 and AS350B-3 Squirrel 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 G24 NAVSTAR / GLONASS Global Positioning System was used for navigation. The helicopter position was derived every 0.5 seconds using post-flight differential positioning to a real-time accuracy of better than 5 m. Flight path positions were projected onto the Clarke 1858 UTM zone 11 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 3,000 Hz while the horizontal coplanar coil-pairs operated at 400, 1800, 8200, 42,000 and 140,000 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 components of the coplanar 140,000 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 Computing Systems*, v. 15, No. 4, p.389-402.

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

