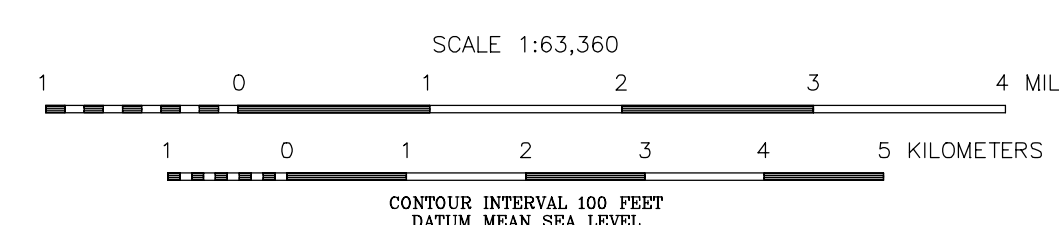


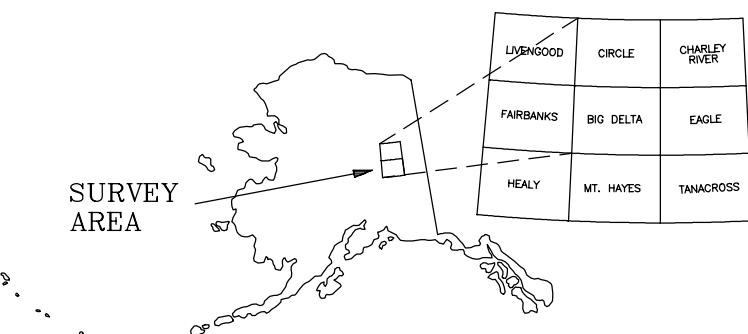
Base from U.S. Geological Survey Circles 4-4, 1970; 4-5, 1981; 5-4, 1984; 5-5, 1980. Quadrangle, Alaska.



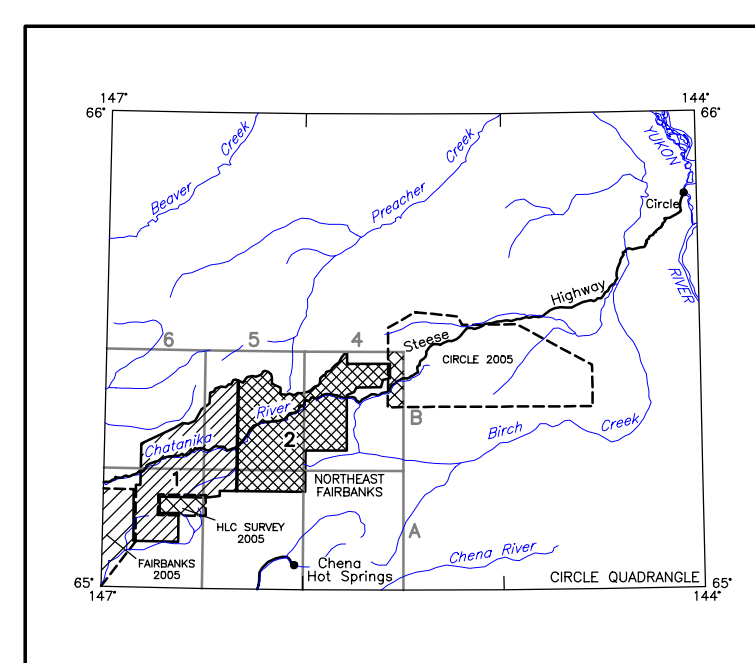
**56,000 Hz COPLANAR APPARENT RESISTIVITY  
OF THE NORTHEAST FAIRBANKS AREA,  
FAIRBANKS AND CIRCLE MINING DISTRICTS,  
INTERIOR ALASKA**

PARTS OF CIRCLE QUADRANGLE

by  
Laurel E. Burns, Fugro Airborne Surveys Corp., and Stevens Exploration Management Corp.  
2006



LOCATION INDEX



DESCRIPTIVE NOTES

The geophysical data were acquired with a DIGHEM<sup>®</sup> Electromagnetic (EM) system and a Sinterex 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, 50/60 Hz monitors and video camera. Flights were performed with an AS300B-2 Squirre helicopter at a mean terrain clearance of 200 feet along N-S (or) 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 Ashtech GG24 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 relative accuracy of better than 5 m. Flight path positions were projected onto the Clarke 1866 (UTM zone 6) spheroid, 1927 North American datum using a central meridian (CM) of 147°-0' 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 DIGHEM<sup>®</sup> EM system measured inphase and quadrature components of five frequencies. Two vertical coplanar coil-pairs operated at 1000 and 5000 Hz while three horizontal coplanar coil-pairs operated at 300, 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. Apparent resistivity is generated from the inphase and quadrature component of the coplanar 56,000 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 properties. *Journal of the Association of Computing Machinery*, v. 17, no. 4, p.589-602.

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

This map and other products from this survey are available by mail order in person from DGGGS, 5354 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.dnr.state.ak.us/pubs/>).