



PARTS OF EAGLE and TANACROSS QUADRANGLES

DESCRIPTIVE NOTES

The geophysical data were acquired with DIGHEMY Electromagnetic (EM) system and a Fugro D1344 magnetic gradiometer mounted on a towed vessel sensor. The EM and magnetic sensors were flown at a height of 100 feet. In addition to the EM system, we also collected GPS navigation system, 50/60 Hz monitors and video camera. Flights were performed with an altitude of 100 ft and a track spacing of 1 mile. The clearance of 200 feet along NW-SE (350°) survey direction was required by the FAA. The flight track 1 mile tie lines were flown perpendicular to the flight lines at intervals approximately 3 miles.

A Novatel OEMV-G2L Global Positioning System (GPS) receiver was used to collect real-time position data. A real-time kinematic (RTK) correction was derived every 0.5 seconds using post-flight differential positioning to a relative accuracy of 1 cm. The datum was set as WGS84 and projected onto the Clarke 1866 (UTM zone 7) projection. The datum shift between the Clarke 1866 and the North American Datum of 1983 (NAD83), central meridian (NOM) of 141°, a north constant of 0 and an east constant of 500,000. Positional errors are expected to be better than 10 m or 10m with respect to the UTM grid.

The DIGNEM[®] EM system measured inphase and quadrature components at five frequencies. Two vertical coaxial coil-pairs operated at 1000 and 5500 Hz while three horizontal coplanar coil-pairs operated at 900, 7200 and 56,000 Hz. The data were sampled at 0.1 second intervals. The EM system was designed to be sensitive to magnetic 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 procedures, *Comput. J.*, 13, no. 4, 580-582.

—, 1975, *Computer Methods of Interpretation and Smoothing Curve Fitting*, *Geophysical Research Series*, 17, American Geophysical Association.

—, 1979, *Computing Machinery*, v. 17, no. 4, 559-62.

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.

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 area were acquired and processed by Fugro Airborne Surveys Corp. in 2007. Funding for the project was provided by the U.S. Department of the Interior, Bureau of Land Management (BLM).

This map and other products from this survey are available by mail order, or in person, from DGGGS, 3354 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.dgggs.dnr.state.ak.us/pubs/>).