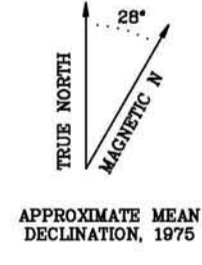
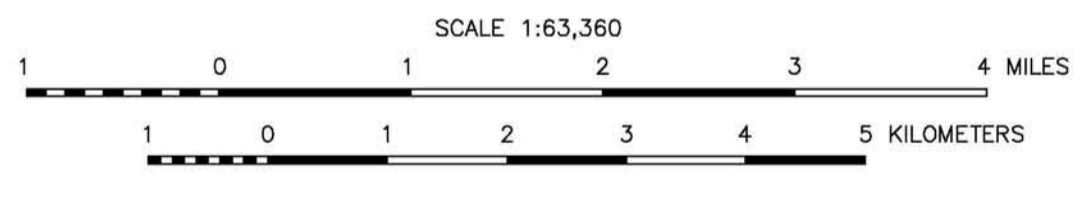
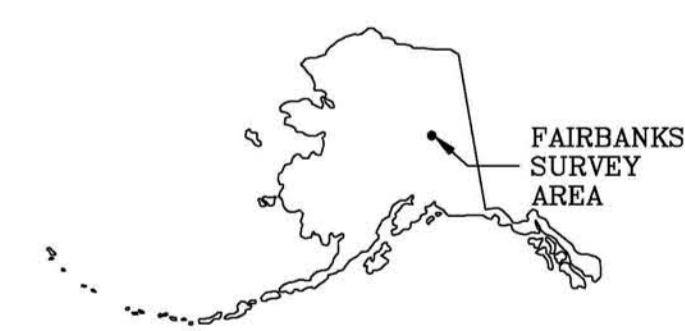


Section outlines from U.S. Geological Survey Fairbanks D-2, 1975, D-3, 1972, Livengood A-2, A-3, 1975, Quadrangles, Alaska.



NOTE: The color bar is an equal area representation of the total magnetic field data. Extreme low and high values (in dark blue and magenta respectively) are not highlighted using this technique. This dataset has mag values ranging from a low of about 56000 nT to a high of about 57400 nT. Most of the deep lows are in the northcentral part of the eastern sheet.

## TOTAL MAGNETIC FIELD OF THE FAIRBANKS MINING DISTRICT, INTERIOR ALASKA

PARTS OF BIG DELTA, CIRCLE, FAIRBANKS AND LIVENGOOD QUADRANGLES

by  
Laurel E. Burns, Fugro Airborne Surveys Corp., and Stevens Exploration Management Corp.  
2004

**DESCRIPTIVE NOTES**

The geophysical data were acquired with a DIGHEM<sup>®</sup> 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 three 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 147°, 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.

**TOTAL MAGNETIC FIELD**

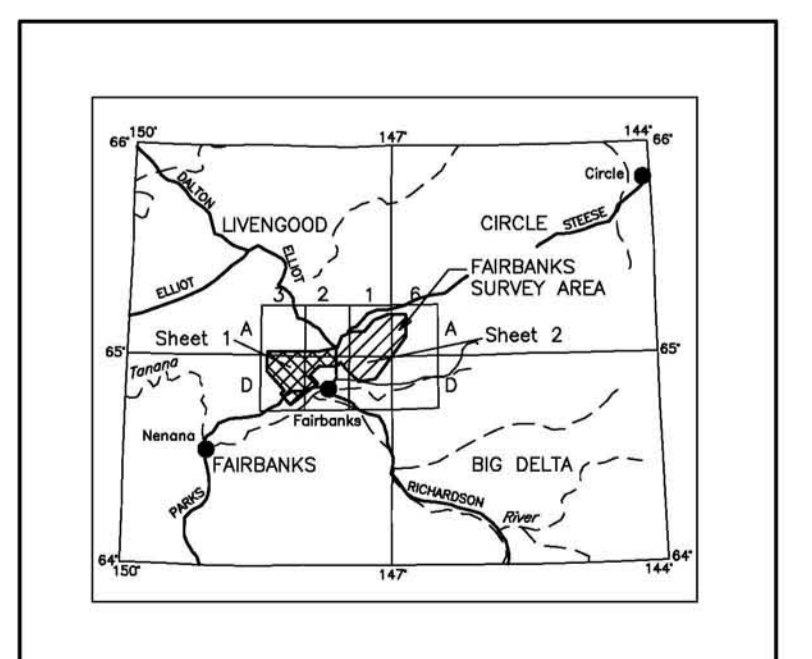
The magnetic total field contours were produced using digitally recorded data from a Scintrex cesium CS2 magnetometer, with a sampling interval of 0.1 seconds. The magnetic data were (1) corrected for diurnal variations by subtraction of the digitally recorded base station magnetic data, (2) levelled to the tie line data, and (3) interpolated onto a regular 100 m grid using a modified Akima (1970) technique. The background trend removal consisted of subtracting a 1st order polynomial surface from the data grid. This surface approximates the regional gradient in the survey area.

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.

**MAGNETIC CONTOUR INTERVAL**

	250 nT
	50 nT
	10 nT
	5 nT

**LOCATION INDEX**



**SURVEY HISTORY**

The map has been compiled and drawn under contract between the State of Alaska, Department of Natural Resources, Division of Geological & Geophysical Surveys, and Stevens Exploration Management Corp. The map was produced by Fugro Airborne Surveys and supersedes the earlier full color version released by DGGS in 1995. Airborne geophysical data for the area were acquired and processed in 1994 under contract between DGGS and WGM, Mining and Geological Consultants, Inc. The subcontractor acquiring and processing the data was DIGHEM, a division of CGG Canada Ltd. Other products from this survey are available from DGGS, 3354 College Road, Fairbanks, Alaska, 99709-3707.