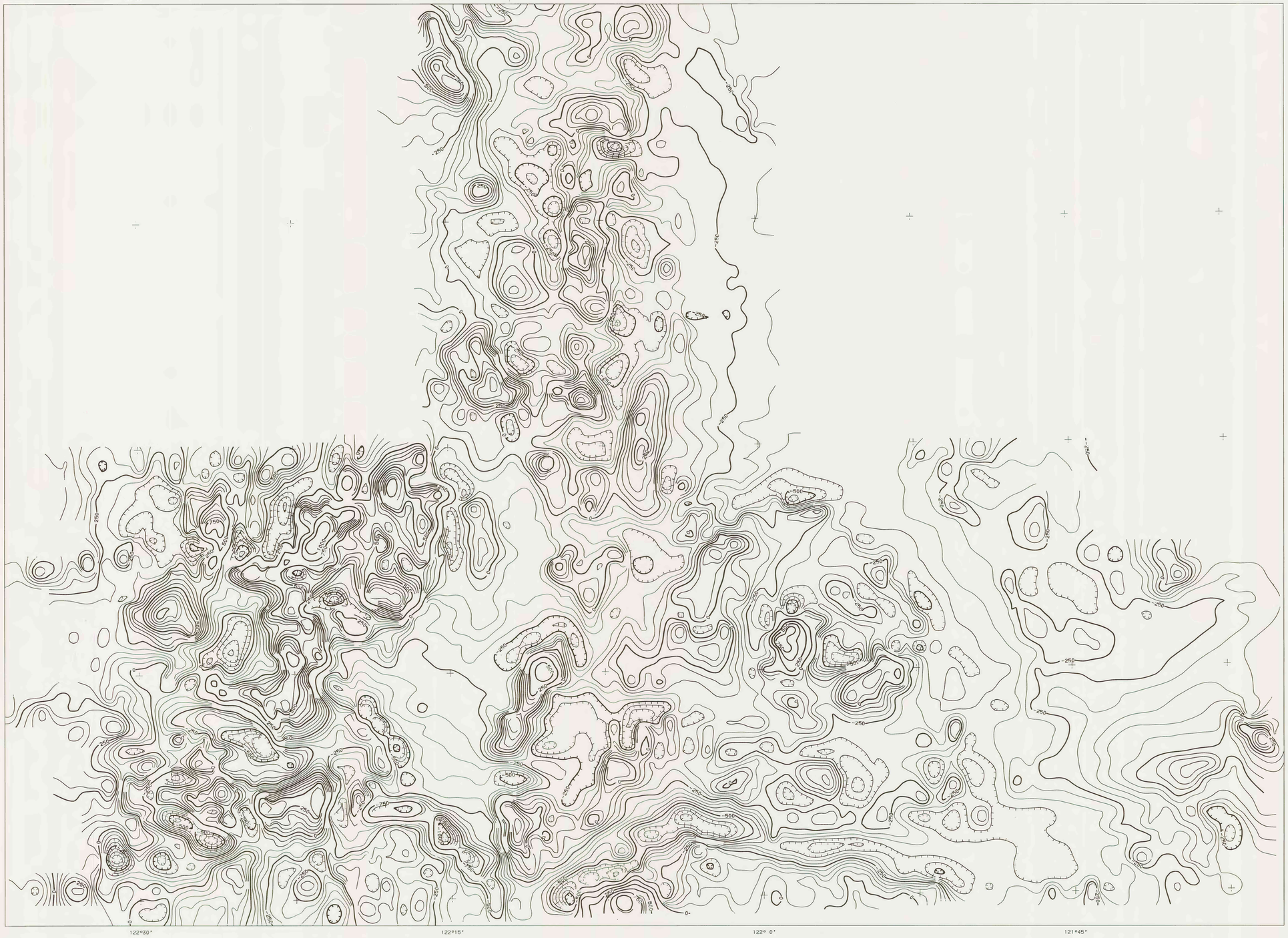
U.S. DEPARTMENT OF THE INTERIOR

U.S. Geological Survey

Open-File Report 92-251



INTRODUCTION:

The aeromagnetic data were collected by the U.S. Geological Survey, 1990. Funding for the survey was provided by the U.S. Department of Energy, Morgantown Energy Technology Center, under U.S.G.S./D.O.E. Interagency Agreement DE-A121-83MC20422. The aeromagnetic anomaly map of Morton and vicinity covers approximately 907 square miles (figure 1). The area is bounded by $46^{0}30'$N. lat and 47^{0}N. lat and $122^{0}30'$W. long and $121^{0}33'$W. long.

DATA COLLECTION AND REDUCTION:

Approximately 1590 line-miles were flown by Charles Mitchell, Roy Kipfinger, Charles Thompson and Richard Sneddon in U.S. Geological Survey, aircraft. The flight line direction was W-E with a spacing of half a nautical mile (approximately 926 meters, 3038 ft). The survey was flown 1000 feet above ground. The magnetic field was measured using GeoMetrics model G-812 proton precession magnetometer mounted on the right wingtip. The sensitivity was .5 nanoteslas and the cycle time was .5 seconds per hour. Flight path recovery was accomplished by taking positions from aerial photographs. The raw flight-line data were reduced using unpublished computer programs (Robert E. Bracken, U.S. Geological Survey). [1]Diurnal corrections and flight line leveling were accomplished using base station magnetometer data. The Definitive International Geomagnetic Reference Field (DIGRF) was removed on a point-by-point basis. The data were transformed with the Universal Transverse Mercator projection (Central Meridian 123^{0}-W., base latitude=0^{0}) and gridded at 0.25 km spacing, using a computer program written by Webring (1981). The aeromagnetic contour map was made by using CONTOUR, a program by Godson and Webring (1982).

[1]The earth's magnetic field oscillates with a periodicy of about a day and an amplitude averaging about 25 gammas. The oscillations are called the diurnal variations and are recorded at the base station.

REFERENCES CITED

Godson, R.H., and Webring, M.W., 1982, CONTOUR - A modification of G.J. Evendow's general purpose contouring program: U.S. Geological Survey Open-File Report 82-797, 73 p.

Sweeney, R.E., 1990, IGRFGRID--A program for creation of a total magnetic field (International Geomagnetic Reference Field) grid representing the earth's main magnetic field: U.S. Geological Survey Open-File Report 90-45A-B, 39 p.

Webring, M.W., 1981, MINC--A gridding program based on minimum curvature: U.S. Geological Survey Open-File Report 81-1224, 41 p.

EXPLANATION

MAGNETIC CONTOURS--Showing residual magnetic intensity of the earth's field (total intensity minus the geomagnetic reference field updated to the dates of the aeromagnetic survey). Hachures indicate closed areas of lower magnetic intensity. Contour interval is 50 gammas.

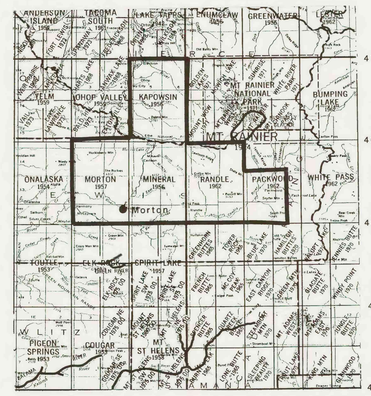


Figure 1. SURVEY LOCATION

This map is preliminary and has not been reviewed for conformity with U.S. Geological Survey standards. Any use of trade names in this report is for descriptive purposes only and does not imply endorsement by the U.S. Geological Survey.

SCALE 1 : 125,000

2 0 2 4 6 8

STATUTE MILES

Aeromagnetic Map of Morton and vicinity, Washington

by

Gerda A. Abrams, Robert P. Kucks, and Robert E. Bracken

1992