

EXPLANATION

The magnetic contours show total intensity magnetic field of the earth in gauss relative to arbitrary datum. Main magnetic field of the earth, from Fabiano and Peddie (1969), has been removed. Contour intervals are 20, 100, and 500 gammas.

DISCUSSION

The magnetic field was measured with a proton magnetometer flown at a constant radar altitude of 500 feet above ground level, with 1/2 mile north-south spacing. In general, flight lines coincide with section lines. Data points along flight lines are spaced approximately 150 feet apart. Navigation errors were held to less than 500 feet across track and 200 feet along track. Aeronomagnetic data for a given 15' quadrangle map area were gathered within a single eight-hour period using a tie line for temporal control. No adjustment has been made across 15' quadrangles for temporal variations.

This aeromagnetic map has been photographically reduced and compiled from 86 aeromagnetic maps, which cover standard U.S. Geological Survey 15' quadrangles.

Plastic transparencies and paper copies of the 86 aeromagnetic maps at scale 1:62,500, as well as companion topographic and planimetric map bases, may be purchased from the Wisconsin Geological and Natural History Survey, University of Wisconsin Extension, 4815 University Avenue, Madison, Wisconsin 53706.

Each 15' quadrangle was processed separately by interpolating to 1024 points along flight lines and 64 points across flight lines by use of a Lagrange polynomial fit. The individual quadrangles were then contoured using a computer program that prevents drawing of contours where

the magnetic gradient is sufficiently high. This procedure created small offsets between contours at some borders and also abrupt terminations of contours, both in the interiors and at the borders of some quadrangles.

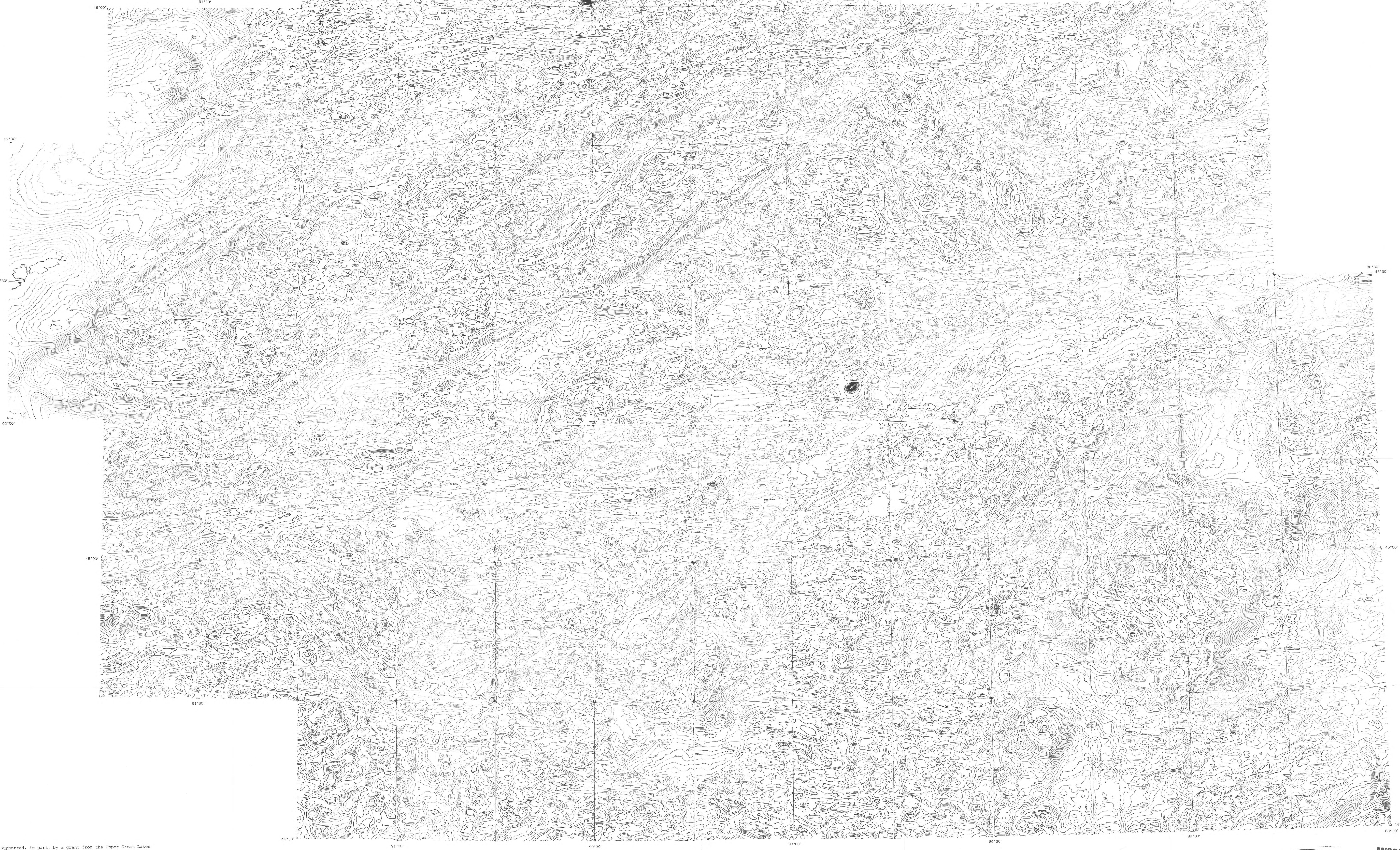
If difficulty is experienced in reading the contour numbers, a hand lens or reference to the original 15' quadrangle sheets is recommended.

The instrumentation of the aircraft, digitization, processing, and contouring of the data was under the direction and responsibility of the Department of Physics, University of Wisconsin-Oshkosh.

The map shows in a spectacular way, trends and lineaments which reflect the structural relationship of the underlying rocks. To accentuate the lithologic variations, the map should be colored to bring out the intensities of the aeromagnetic data.

REFERENCE CITED

Fabiano, E. B., and Peddie, B. W., 1969, Grid values of total magnetic intensity 1965-1966: U.S. NSA Tech. Rept. 38, 55 p.

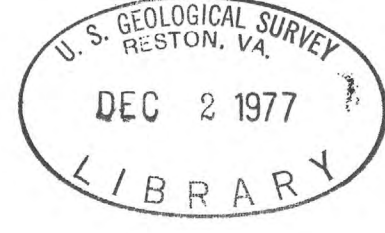


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SCALE 1:250,000
0 5 10 15 20 25 30 MILES
0 5 10 15 20 25 30 KILOMETERS

PRELIMINARY AEROMAGNETIC MAP COVERING MOST OF THE EXPOSED PRECAMBRIAN TERRANE IN WISCONSIN

By
Isidore Zietz, John H. Karl, and Meredith E. Ostrom
1977



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For sale by Bureau of Distribution, U.S. Geological Survey
100 South Sixth Street, Arlington, VA 22204