

G E O P H Y S I C A L B U L L E T I N

No. 2

PROVISIONAL VALUES FOR MAGNETIC DECLINATION
IN IRELAND
FOR THE EPOCH 1950.5

by

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A Magnetic Survey of Ireland has been carried out during the summer of 1950. Measurements of the three elements Declination, Horizontal Intensity and Inclination have been taken at 44 stations throughout the country. These stations are with two exceptions the same as those occupied by Walker in 1915. The apparatus used was a Carnegie Institution of Washington Magnetometer with Earth Inductor.

As the final reduction of the work must await a few more field observations and the compilation of the Diurnal Variation of the elements from magnetic observations in England, it is thought the publication of the declination figures subject to later small corrections should not be delayed as it is valuable to many circles.

The results are presented in the form of a map. The stations where measurements have been taken are marked by circles, left of which is entered the station number, on the right is the actual value of the declination measured. Below the latter figure is another, in minutes of arc, which represents the departure of the actual value from the normal value calculated for this point. At those stations without figures measurements have not yet been completed. The figures given for the declination correspond to those for mid-year 1950. They are in every case westerly. This Westerly Declination is decreasing at present at about 8.5' per year but this rate is showing signs of a change.

To obtain the normal value for the declination the value at each

station was represented by the linear equation

$$D = a + b_2 B + b_3 L$$

where D is the declination in degrees, B and L are the Latitude and Longitude of the station in degrees, a , b_2 and b_3 are constants. The constants a , b_2 and b_3 have been determined by the method of least squares from 41 stations. The result of the computation gives Declination in degrees = $11.1067 + 0.2734(B - 50) + 0.5413(L - 5)$ where B is the Latitude and L is the Longitude West of Greenwich, the declination obtained being Westerly.

The lines of equal declination (Terrestrial Isogonic Lines) calculated from the equation above have been drawn on the map.

It is believed that the values for declination given are in nearly every case accurate to 2 minutes but for some stations where no astronomically determined value of the azimuth is available the declination given may be outside this limit.

The work was carried out by the Meteorological and Geophysical Department of the School of Cosmic Physics in the Dublin Institute for Advanced Studies with the cooperation of the Ordnance Survey of Ireland and the Ordnance Survey of Northern Ireland. The results will be published as No.4 of the Geophysical Memoirs of the School.

Thomas Murphy

Reference

- G. W. Walker: The Magnetic Re-survey of the British Isles for the Epoch January 1, 1915, Phil. Trans. Roy. Soc. London, A 219, pp. 1-72, 1919,

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IRELAND

Provisional values for
MAGNETIC DECLINATION
Epoch 1950-5

DECLINATION WESTERLY
ANOMALY +, WEST

0 10 20 30 40 50 MILES



Station Model
Station No. ° Declination
Anomaly