

Journey to the Top (or the Relocated Dip)

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The North Magnetic Pole - of interest to navigators for centuries - but no one knew exactly where it was.

A study was done by the Department of Energy, Mines and Resources, Geological survey of Canada, Geophysics Division, to determine the exact location of the North Magnetic Dip Pole (NMDP). This is the location where the north seeking end of the compass needle wants to point straight into the ground. The study was published by the Canadian Journal of Earth Sciences, Vol. 23, 1986. The study was authored by L.R. Newitt and E.R. Niblett. This review is based on pages 1062 through 1067 of that study.

Back in 1831 a man by the name of J.C.ROSS (Ross 1834) was the first person to plot where the NORTH MAGNETIC POLE was. Its rapid motion, 800 km in 150 years (Barraclough and Malin 1981), has led to the re-determination of its position several times since. It has been customary for the Earth Physics Branch, Department of Energy, Mines, and Resources, Canada, to re-determine its position approximately once every decade.

The pole has moved approximately 750 km since 1904, an average of 9.4 km per year. From 1973, when the pole position was last determined, to late 1983, the movement has been approximately 120 km, an average of 11.6 km per year, only slightly more than the 80 year average. Its present direction of travel is approximately northwest.

The North Magnetic Pole was found to be very active and elusive. When it was approached by researchers, it would move. It was also found that the pole was more active during the day than it was at night. Because of this, several different methods and locations were used at the same time to gather data. From all this information, the nature and the extent of the movement of the NMDP could be plotted. The NMDP was tracked from May 13 to May 18, 1984, and the information from all the methods and sites used, was compiled into 6 hour intervals. During an active cycle, it was found that the pole moved as much as 50 km from its mean position. While in a quiet time, it only moved a maximum of about 12 km.

Because of this change, the rate of declination has changed, and the line of 0; declination has moved to the west. It now passes through the western most part of Hudson Bay (Churchill, Manitoba), through Lake Superior, but now goes down the west side of Lake Michigan.

So where is the magnetic north pole you ask? At the end of 1983, the magnetic north pole was north of Bathurst Island, south of King Christian Island, and east by southeast of Loughheed Island at Latitude 77.0 N, longitude 102.3 W, and moving northwest at about 11.6 km per year.

Editor's Note: The study "Relocation of the North Magnetic Dip Pole", used by permission (SARNEWS)