

Magnetic Observatories, Forecasting and Reporting

Historical note on magnetic observations in the Australian region

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The Australian region has always played an important role in the study of geomagnetism, due largely to its position in the southern hemisphere. The earliest recorded magnetic observations in the region were made by European mariners, principally Abel Tasman of the Netherlands (1603?–59) and subsequently James Cook of England (1728–79), for whom a knowledge of the magnetic declination was of great value in navigation. As described by Day (1966), measurements of magnetic intensity were made south of Hobart by de Rossel in 1792 and 1793, and in the new colony of New South Wales some magnetic observations were made at Parramatta in 1823 by Rumker.

One of the first magnetic observatories in the world was established in Van Diemen's Land (now Tasmania) at Rossbank, Hobart in 1840 (see description by Green 1972). The establishment of this observatory, by a Royal Navy expedition from England, followed only 2 years after the German natural philosopher C. F. Gauss (1777–1855) presented his first spherical harmonic analysis of the geomagnetic field. The Rossbank observatory closed in 1854 but the Bavarian surveyor and explorer George von Neumayer (1826–1909), who had been an assistant at Rossbank, subsequently extended Australian observatory and magnetic survey work from Melbourne. Magnetic measurements by the explorers of the continent and of its coastlines then increased rapidly, with a major part being played early in the twentieth century by the Carnegie Institution of Washington.

The region of Australia and its Antarctic Territories, together with New Zealand, Indonesia, Papua New Guinea and neighbouring islands, covers one-eighth of the surface of the earth and contains both the south magnetic and geomagnetic poles. There are two Australian Antarctic Stations, Casey and Davis, near the south polar cusp. A map of the magnetic observatories in the Australian region is given in Fig. 1.

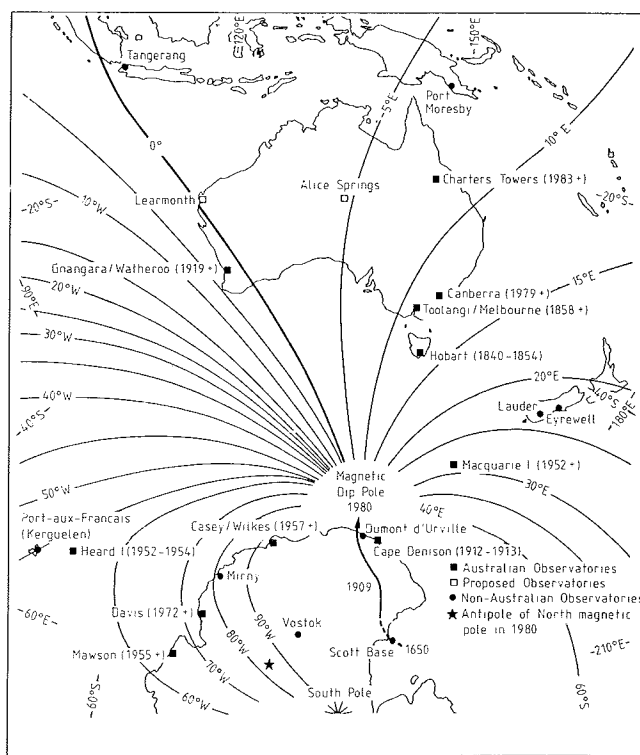


Fig 1 Present magnetic observatories in the Australian region, with lines of equal magnetic declination superimposed. The change in the earth's magnetic field since 1640 can be seen by comparison with the map on the front cover of this issue.

References

- Day A. A. (1966), 'The development of Geophysics in Australia', *J. Proc. Roy. Soc. NSW* **100**, 33–60.
 Green R. (1972), 'Sponsored research in Geomagnetism 130 years ago', *EOS (Trans. Am. Geophys. Union)*, **53**, 778–779.