The Hermanus Magnetic Observatory and the IPYs: Past, Present, and Future

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The Hermanus Magnetic Observatory (HMO) had its origin in 1932 during the 2nd International Polar Year (IPY 2); The 4th International Polar Year (IPY 4, 2007-2009) coincided with the HMO's 75th anniversary as a key provider of Earth data. During IPY4, the HMO was a key participant in a multi-institution, multi-disciplinary Space Weather project "Polar Space Weather studies during IPY/IHY". The project involved researchers from 5 different universities (NWU, UKZN, UP, UCT, Rhodes) and became the South African contribution to a multinational IPY project "Upper Atmosphere Monitoring for Polar Year 2007/2009" in support of the ICESTAR/IPY project.

Since its establishment, the HMO has actively participated in the worldwide network of magnetic observatories, whose core function is to monitor and model variations of the Earth's magnetic field. Over the years, the scope of the HMO's Earth data contributions has increased substantially. The HMO currently contributes key Earth data to several international Earth data repositories, including ionospheric data from the four ionosondes in the South African ionosonde network, geomagnetic data from 4 INTERMAGNET observatories in Southern Africa, geophysical data from Antarctica (geomagnetic & several ionospheric observations e.g. Riometer, Scintillation Monitor, HF Radar), Marion Island (Ionospheric) and Gough Island (Ionospheric). The HMO was designated as the Space Weather Regional Warning Centre for Africa in June 2007.

This paper presents an overview of the history and role of the HMO as a provider of quality geophysical data, the current data holdings of the HMO, and new developments in data management at the HMO in order to assure long term preservation and accessibility of the HMO's Earth data for Space Weather monitoring and research in the following fields: Modelling and Studies of the Main geomagnetic Field and Secular Variation, Monitoring and Studies of the Plasmasphere and Inner Magnetosphere, Characterisation and Studies of the Ionosphere.