

THE PERMANENT MAGNETIC OBSERVATORY OF CONCORDIA STATION (DOME C, ANTARCTICA)

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A magnetic observatory was opened at the beginning of 2005 in the inland of Antarctica (lat. 75°06'S, long. 123°23'E). Since the opening, the field is recorded almost continuously at a one second and one minute rate. The base lines of the triaxial variometer are controlled by standard absolute measurements made at a regular rate all over the year. Absolute values of the field components are available at any rate lower than or equal to one second.

Recently, in January 2009, a new data acquisition system was installed. This new system (Magnetic Acquisition and Recording Cell 1.0 -- M.A.R.Cell 1.0, developed by EOST) enables to record data, vectorial and of intensity, resulting from the same logger but also a wide set of instrumental parameters such as temperatures, voltages, ... Several technical and scientific improvements are presented such as the quasi-real time repatriation in Europe of the data automated by email (every half-day, limited by the station network itself).

The new magnetic acquisition system allows : (i) to fulfil the 2003 Intermagnet requirements concerning the acquisition of 1Hz data, (ii) to cope with the difficulties arising in the operation of an observatory in such extreme conditions (as for instance an external temperature varying between minus 30°C and minus 70°C and a total darkness lasting two months), and (iii) to prepare the new requirements of synchronized one second ground data acquisition and dissemination in the context of the forth-coming Swarm satellite mission. .

The validity of the results is discussed in the light of the data provided by the nearest observatories (Dumont d'Urville, Scott Base, Mario Zuchelli base) and in comparison with various global or regional models.

Magnetic observatory, remote region, Antarctica, second data, acquisition

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