

## OBSERVATIONS OF IONOSPHERIC AND MAGNETOSPHERIC PHENOMENA FROM THE POLAR REGIONS: THE ITALIAN CONTRIBUTION TO IPY

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In the last two decades a number of scientific instruments has been installed in the auroral and polar regions for the study of ionospheric and magnetospheric phenomena by Italian groups in collaboration with other partners. These include now:

- participation in the Kerguelen SuperDARN radar (French-Italian collaboration);
- an all sky auroral camera at MZ Base (Mario Zucchelli Base - Baia Terra Nova, Antarctica);
- a three axial flux gate magnetometer at MZ Base;
- a three axial search coil magnetometer at MZ Base;
- an ionospheric observatory at MZ base comprising of a digital ionosonde, an ionospheric TEC and scintillation GPS receiver, and riometers operating at 30MHz, 38.2MHz and 51.4 MHz;
- a three axial flux gate magnetometer at Dome C (French-Italian collaboration);
- a three axial search coil magnetometer at Dome C;
- two ionospheric TEC and scintillation GPS receivers at Ny Alesund (Svalbard);
- the ITACA2 twin all sky cameras of Ny Alesund (Svalbard) and Daneborg (Greenland).

Moreover, in the next two years two new SuperDARN radars will be installed at Dome C. Finally, a proposal has been submitted to the funding agencies for the installation of a network of ionospheric TEC and scintillation GPS receivers under the field of view of the East DomeC SuperDARN radar. This set of ground based stations constitutes an important contribution to IPY, ICESTAR and IHY. This paper reviews the main achievements reached through such instruments and describes the scientific objectives which can be addressed through them in the near future.