



On the scaling features of high-latitude geomagnetic field fluctuations during a large geomagnetic storm

Paola De Michelis (1), Maria Federica Marcucci (2), and Giuseppe Consolini (2)

(1) Istituto Nazionale di Geofisica e Vulcanologia, Rome, Italy (paola.demichelis@ingv.it), (2) INAF-Istituto di Astrofisica e Planetologia Spaziali, Rome, Italy

Recently we have investigated the spatial distribution of the scaling features of short-time scale magnetic field fluctuations using measurements from several ground-based geomagnetic observatories distributed in the northern hemisphere. We have found that the scaling features of fluctuations of the horizontal magnetic field component at time scales below 100 minutes are correlated with the geomagnetic activity level and with changes in the currents flowing in the ionosphere. Here, we present a detailed analysis of the dynamical changes of the magnetic field scaling features as a function of the geomagnetic activity level during the well-known large geomagnetic storm occurred on July, 15, 2000 (the Bastille event). The observed dynamical changes are discussed in relationship with the changes of the overall ionospheric polar convection and potential structure as reconstructed using SuperDARN data.

This work is supported by the Italian National Program for Antarctic Research (PNRA) – Research Project 2013/AC3.08 and by the European Community's Seventh Framework Programme ([FP7/2007-2013]) under Grant no. 313038/STORM and