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Sudden Impulses: the discrimination between magnetospheric and ionospheric contributions in ground manifestations.

M. Piersanti (1,2) and U. Villante (1,2)

(1) University of L'Aquila, Physics Department, Italy (mirko.piersanti@aquila.infn.it), (2) Consorzio "Area di Ricerca in Astrogeofisica", L'Aquila, Italy

The definite identification of the characteristics of the geomagnetic response to sudden changes of the solar wind dynamic pressure represents an interesting element of the magnetospheric dynamics that is also important in the Space Weather context. In the present analysis the aspects of the global response from a large number of ground stations have been examined for few events. A preliminary comparison between the observations at geostationary orbit and the predictions of the Tsyganenko model shows that, for these events, the change of the magnetopause current alone well interprets the observed magnetospheric response. It allows to subtract in ground measurements the expected DL field (from the magnetopause current), in order to obtain a confident estimate of the residual DP field of ionospheric origin at different latitudes and local times. We discuss on a global scale the results obtained with such technique for both the Preliminary and the Main Impulses (PI and MI).