Geophysical Research Abstracts,
Vol. 11, EGU2009-4796, 2009
EGU General Assembly 2009

A study of Magnetic Clouds related to intense geomagnetic storms

M.A. Hidalgo and J.J. Blanco

Space Research Group, Physics Department, University of Alcala (Spain) (juanjo.blanco@uah.es)

One of the most interesting problems on physics of the interplanetary medium is the relationship between magnetic clouds and geomagnetic storms. When a MC arrives to Earth can interact in a very effective way with the magnetosphere disturbing it and driving a strong geomagnetic storm. About 1/3 of the storms are caused by a MC arrival. From the Dst index we have selected three intense storms observed in the solar cycle 23, and caused by MCs. Then we have analyzed the MCs main features (as the current density inside the cloud and its orientation) with our elliptical cross-section model for MCs and the storm characteristics such as main phase, Dst minimum and recovery phase, focusing our attention on the relation between the orientation of the cloud and the main features of the geomagnetic storm and paying special attention to the profile of the recovery phase. This is the first step of a more ambitious study of the MCs related to geomagnetic storms.