Geophysical Research Abstracts, Vol. 8, 00350, 2006
SRef-ID: 1607-7962/gra/EGU06-A-00350

Study of the energy balance during intense and very intense magnetic storms using a solar wind dynamic pressure scaled epsilon parameter

A. de Lucas, W. D. Gonzalez, E. Echer, F. L. Guarnieri, A. Dal Lago, L. E. Vieira, M. R. da Silva

Instituto Nacional de Pesquisas Espaciais, Sao Jose dos Campos, Brazil (adelucas@gmail / Fax: +5539456810 / Phone: +5539456808)

In this paper is analyzed the total injected energy into the magnetosphere, and the consequent dissipation into the ring current during different types of magnetic storms. Thirty events were selected between years 1981 and 2001. Fifteen out of 33 events are very intense magnetic storms (Dst $<$ -250 nT) and the others are intense magnetic storms (-250 $<$ Dst $<$ -100 nT). The interplanetary data were obtained from ACE spacecraft website. Geomagnetic indices were obtained from World Data Center for Geomagnetism - Kyoto (AE, Asy, Sym), and from Space Physics Interactive Data Resource (Dst and Kp), on the NOAA website. Our aim is to analyze interplanetary characteristics (electric field E_y, B_s interplanetary magnetic field), the ε parameter, and the total energy input, (W_ε), during events caused by different structures. Two corrections on the ε coupling function were used: the first one is an already known change in the magnetopause radius taking into account the changed solar wind pressure. The second correction accounts for the reconnection efficiency. The geomagnetic data/indices are also employed to study the ring current dynamics and to search the differences in the storm evolution during these events.