



UA061549

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Geomagnetic Response and Interplanetary Aspects of the Sun-Earth Connection Events on April 1999 and February 2000

Alves M. V.

LAP - NATIONAL INSTITUTE FOR SPACE RESEARCH
AV. DOS ASTRONAUTAS, 1758 12227-010 JARDIM DA GRANJA SAO JOSE DOS CAMPOS, SP, BRAZIL
virginia@plasma.inpe.br

In this work we analyze the geoeffectiveness and the interplanetary aspects of a magnetic cloud (MC - April 1999, Dst peak = -91 nT) and a complex ejecta (CE - February 2000, Dst = -133 nT). The interplanetary plasma conditions are described in details, and they lead to magnetic storms with distinct characteristics. The energy injection into the magnetosphere is obtained presenting higher power and lower integrated values for the MC. These results reflect the Bz profiles, smooth in the MC and irregular/fluctuating during the CE. The geoeffectiveness of these events is analyzed in terms of the Dst, Kp and AE geomagnetic indices, through correlation analysis.