A comparison between april 1999 and february 2000 solar-terrestrial connection events: magnetospheric aspects

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In this work we present a comparison between the magnetospheric responses for two different interplanetary structures: complex ejecta and magnetic cloud. Successive Coronal Mass Ejections (CMEs) can interact in the interplanetary medium originating a complex ejecta structure. The complex ejecta are different from magnetic clouds due to the disordered magnetic fields, and it is more frequent during solar maximum. The intense interplanetary geomagnetic storm registered on February 12th 2000 (Dst -110 nT) was caused by an interaction of two interplanetary remnsants of coronal mass ejections. The Kp and AE indices showed an increase during this day, which means that global and auroral activity rose up due to the interaction between magnetosphere and the complex ejecta. Magnetometer data were used from different stations located near the geomagnetic dip equator and at high latitudes, as well as data from geosynchronous satellites. The comparison is made with the strong geomagnetic storm on April 17th 1999 (Dst -91nT), which was caused by a south-north fast magnetic cloud driving an interplanetary shock detected at 1 astronomical unit (1 AU) at 1030 UT on April 16th 1999. With this study we intend to identify differences between magnetospheric response to the complex ejecta and magnetic clouds.

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