



Compression of the Magnetosphere by CME clouds

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The CME (coronal mass ejection) clouds that flow pass the Earth are known to compress the dayside magnetosphere. The multi-point Cluster observations provide the opportunity to study the speed of compression of the magnetosphere. The four-point Cluster FGM (high resolution), CIS and PEACE data during the passage of 11 CME clouds during 2001-2005, together with models of magnetosphere and magnetopause, are used to obtain the speed of compression of the dayside magnetosphere. The speed of compression at the impact of the CME clouds, as expected, increases with the dynamic pressure of the clouds. In some cases, the speed of compression exceeds that of the cloud and magnetopause undergoes an oscillation. The oscillation is such that the magnetopause is compressed inward at the impact of the CME cloud, then the magnetopause retreats and is compressed further inward. The plasma (CIS and PEACE) data are analysed to check if the magnetic field and plasma are compressed together, or do they undergo differential motion at the impact of the CME clouds.