Geophysical Research Abstracts
Vol. 12, EGU2010-10281, 2010
EGU General Assembly 2010

Comparisons of Interplanetary CME Observations with the Results of Numerical Modelling

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Interaction between interplanetary coronal mass ejections (ICMEs) and the background solar wind plays an important role in determining the velocity and structure of ICMEs at 1 AU. Interaction between ICMES can also significantly modify their structure, and recent studies suggest that a significant proportion of large geomagnetic storms are associated with such compound ICMEs. Here, we discuss case studies of two ICME events, the first showing clear evidence of interaction between the ICME and the background wind, and the second showing interaction between two ICMEs. We compare observations of the ICMEs in interplanetary space from the EISCAT, MERLIN, and STELab interplanetary scintillation (IPS) experiments, and from the STEREO heliospheric imagers, along with the results of numerical modelling of the events, with the aim of obtaining a better understanding of the physical processes controlling the evolution of ICMEs.