

Coronal mass ejection, space weather perspective

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In this presentation I will discuss the key solar wind parameters in Coronal Mass Ejections (CMEs) that determine their ability to disturb the near-Earth space environment. The emphasis is on those factors that are needed from solar modelling to improve the accuracy of long-lead time targeted space weather forecasts. The particularly important for determining the timing, magnitude and details of the magnetospheric response are the profiles of the interplanetary magnetic field north-south component, solar wind density and speed. Currently, our ability to predict even the intrinsic CME flux rope configuration is very limited. Furthermore, this intrinsic flux rope configuration may experience significant changes during the eruption, lift-off and its propagation from Sun to Earth, all which can dramatically affect its geomagnetic response. I will also shortly discuss another key driver of space weather storms, turbulent sheaths ahead of CMEs.

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