

## CME Propagation and How It Affects Their Geo-effectiveness

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The Sun-to-Earth propagation of coronal mass ejections (CMEs) take between 1 and 4 days. In the past decade, we have gained deeper understanding in the physical processes occurring during the propagation thanks to remote observations by STEREO, in-situ measurements by planetary missions at Mercury and Venus and missions at 1 AU (Wind, ACE and STEREO) and large MHD simulations. These have revealed that processes such as expansion, erosion, deflection, rotation and interaction, that routinely occur, affect the properties of CMEs and their potential impact on Earth's magnetosphere. Here, we present two particular cases, one when the ongoing interaction of two CMEs at Earth enhanced the geomagnetic response of Earth's magnetosphere, and one where the CME expansion resulted in an unusual coupling between the solar wind and the magnetosphere.

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