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Evolution of CMEs in the inner heliosphere - observations versus models

Manuela Temmer (1), Bojan Vrsnak (2), Christian Möstl (1), Astrid Veronig (1), Tanja Rollett (1), and Bianca Bein (1)

(1) University of Graz, Institute of Physics, IGAM-Kanzelhöhe Observatory, Graz, Austria (manuela.temmer@uni-graz.at), (2) University of Zagreb, Hvar Observatory, Zagreb, Croatia

With the SECCHI instrument suite aboard STEREO, coronal mass ejections (CMEs) can be observed from multiple vantage points during their entire propagation all the way from the Sun to 1 AU. The propagation behavior of CMEs in the interplanetary space is mainly influenced by the ambient solar wind flow. CMEs that are faster than the ambient solar wind get decelerated, whereas slower ones are accelerated until the CME speed is finally adjusted to the solar wind speed. On a statistical basis, empirical models taking into account the drag force acting on CMEs, are able to describe the observed kinematical behaviors.

For several well observed events, we will present a comparative study showing the kinematical evolution of CMEs derived from remote sensing and in situ data, as well as from empirical models using 2D and 3D input parameters. From this we aim to obtain the distance regime at which the solar wind drag force is dominating the CME propagation.