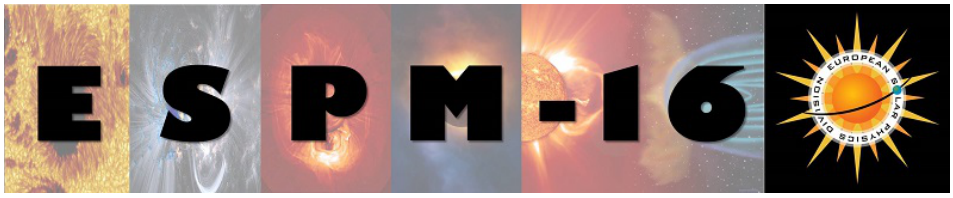

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On the Drag Parameter Probability Distribution Function for Coronal Mass Ejection propagation models

Tuesday 7 September 2021 11:00 (13 minutes)

Interplanetary Coronal Mass Ejections (ICMEs) are among the main drivers of Space Weather and are responsible for the strongest variations in the near-Earth solar-wind conditions. Forecasting the Time of Arrival and Speed of Arrival of an ICME more than an hour ahead is a rather complicated task, since it means propagating a poorly determined plasma and magnetic field structure into an essentially undetermined interplanetary environment.
The Drag-Based Model, despite its simplicity, is still among the most used models to simulate the propagation of an ICME in the heliosphere.
To model the interaction of the ICME with the background solar wind it uses the parameter γ, which is the parameter that modulates the coupling between the solar wind fluid and the ICME body.
Since this parameter incorporates much of the physics of the ICME-wind interaction and its precise value is poorly understood, we think it deserves further investigation.
We built a database with a large number of ICMEs to create a new empirical Probability Distribution Function for γ and to find a suitable functional form to model it.

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