Evolution of ICMEs and magnetic clouds in the heliosphere

Pascal Démoulin*[1]

[1]Observatoire de Paris (Observatoire de Paris) – Observatoire de Paris – LESIA, UMR 8909,(CNRS)
Meudon Principal Cedex, France

Abstract

Significant quantities of magnetized plasma are transported from the Sun to the interstellar medium via interplanetary coronal mass ejections (ICMEs). Magnetic clouds are a particular subset of ICMEs, forming large-scale magnetic flux ropes. Their evolution in the solar wind is mainly determined by their own magnetic forces and the interaction with the surrounding solar wind. This interaction is complex since, for example, as their 3D magnetic structure expands in all directions while traveling away from the Sun, a sheath of plasma and magnetic field accumulates in front, which partially reconnects with the ICME magnetic field.
This talk will provide a summary of present knowledge and perspectives on the ICMEs propagation and interactions.

Keywords: coronal mass ejections, Magnetic clouds, Magnetic field, Solar wind

*Speaker