



Comparative analysis of impact of ICMEs on near-Mars environment during solar minimum and solar maximum

Primož Kajdič (1), Laura Neves R. do Amaral (2), Beatriz Sánchez-Cano (3), Diana Rojas-Castillo (4), Olivier Witasse (5), and Cristian G. Bernal (2)

(1) UNIVERSIDAD NACIONAL AUTONOMA DE MEXICO, Instituto de Geofísica, Ciencias Espaciales, CIUDAD DE MEXICO, Mexico (primoz@geofisica.unam.mx), (2) Instituto de Matemática, Estatística e Física, Universidade Federal do Rio Grande, Rio Grande do Sul, Brasil (laura.nevesdoamaral@gmail.com, bernalcg@gmail.com), (3) University of Leicester, Department of Physics and Astronomy, Physics and Astronomy, Leicester, United Kingdom (bsemdr1@leicester.ac.uk), (4) UNIVERSIDAD NACIONAL AUTONOMA DE MEXICO, Facultad de Ciencias, CIUDAD DE MEXICO, Mexico (diana.rojascastillo@gmail.com), (5) European Space Agency, ESTEC - Scientific Support Office, Noordwijk, The Netherlands (owitasse@cosmos.esa.int)

We perform a comparative study of impacts that ICMEs have on near-Mars environment (magnetosheath, magnetosphere, ionosphere) during solar maximum and solar minimum. The motivation for the study is the fact that the Sun emits less ionising (UV, X-ray) light during the minima than during the maxima of its activity. This means that the ionosphere of Mars, which, due to the lack of the planet's global magnetic field, represents the obstacle for the solar wind, is weaker during minima than during maxima. Specifically, we compare the impact of two ICMEs, with similar parameters (speed, duration, maximum magnetic field, etc). The first one hit Mars on November 2007, when the solar activity was very low, and the second one on March 2012, when the solar activity was near its maximum. The analysis will provide answers such as how the Sun-Mars interaction changes as a function of the phase of the solar activity cycle.