

Comparison between magnetic cloud related decreases observed from 0.3 to 1 AU

Athanasiou Papaioannou (1), Anastasios Anastasiadis (1), Anatoly Belov (2), Eugenia Eroshenko (2), Bernd Heber (3), and Konstantin Herbst (3)

(1) Institute for Astronomy, Astrophysics, Space Applications and Remote Sensing (IAASARS), National Observatory of Athens, I. Metaxa & Vas. Pavlou St., GR-15236, Penteli, Greece, (2) Institute of Terrestrial Magnetism, Ionosphere and Radio Wave Propagation (IZMIRAN), 42092 Troitsk, Moscow Region, Russia, (3) Christian-Albrechts-Universitaet zu Kiel, Leibnizstrasse 11, 24118 Kiel, Germany

Interplanetary coronal mass ejections (ICMEs) are solar wind structures, which usually are referred to as the counterparts of coronal mass ejections. If a smooth rotation in the magnetic field vector is present, together with relatively high magnetic field intensity and low plasma temperatures, then the ICME is called a magnetic cloud (MC). ICMEs (with or without MC) and their corresponding shocks can also sweep out galactic cosmic rays (GCRs) and thus modulate their intensity, resulting in non-recurrent Forbush decreases (FDs). In this work we present FD events that have been recorded at Earth by neutron monitors and at Helios spacecraft, resulting from ICMEs (MC) occupying distances between 0.3 and 1.0 AU. We investigate the effect of ICMEs (MC) on the GCR flux through the analysis of the amplitude of the decreases, in terms of the solar wind and magnetic field properties of the ICME (MC) , at both locations and we inter-compare our findings.