



## The Solar Energetic Particle Event of March 15 2013 - Characterization of the interplanetary medium conditions

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On March 15, 2013, an Earth directed halo CME, associated with an SEP event, was observed. This study aims to characterize the interplanetary medium conditions in which the event propagated, in order to make the first steps towards the validation of the modeling of SEPs employing two recently coupled models, EUHFORIA (EUropean Heliospheric FORcasting Information Asset) and PARADISE (PARTicle Radiation Asset Directed at Interplanetary Space Exploration).

The Sun in the days prior and after the event was very active, with several strong flares and coronal mass ejections during this period. The main event was associated with the long duration GOES M1.1 X-ray flare originating from the active region (AR) 11692, located at N11E12. imagers aboard SOHO and STEREO spacecrafts observed the CME launch at 7:12 UT and the projected line of the sight speed was estimated to be about 1060 km/s. A rise in the  $>10$  MeV GOES proton count was observed the following day, with flux exceeding the 1000 pfu threshold, and stayed above it for several days. Another strong CME was launched, within the following hours, towards the west but with a good magnetic connection to Earth's position, which could have accelerated even further the particle population seeded by the main event.

We model the solar wind and its transients CMEs with EUHFORIA, in order to obtain the realistic conditions of the ambient plasma through which the associated particles are propagating. Different spatial and temporal resolutions of the model will be explored to run the newly developed model for energetic protons PARADISE in an optimal environment and make a step towards better SEP predictions.