



SEPServer Solar Energetic Particle event Catalogues at 1 AU based on STEREO recordings: selected solar cycle 24 SEP event analysis

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STEREO (Solar TERrestrial RELations Observatory) recordings provide an unprecedented opportunity to identify the evolution of Solar Energetic Particles (SEPs) at different observing points in the heliosphere. In this work, two instruments onboard STEREO have been used in order to identify all SEP events observed within the declining phase of solar cycle 23 and the rising phase of solar cycle 24 from 2007 to 2012, namely: the Low Energy Telescope (LET) and the Solar Electron Proton Telescope (SEPT). A scan over STEREO/LET protons within the energy range 6-10 MeV has been performed for each of the two STEREO spacecraft. Furthermore, parallel scanning of the STEREO/SEPT electrons in order to pinpoint the presence (or not) of an electron event has been performed in the energy range of 55-85 keV, for all of the aforementioned proton events, included in our lists. We provide the onset and peak times as well as the peak value of all events for both protons and electrons. Time-shifting analysis for near relativistic electrons leads to the inferred solar release time and to the relevant solar associations from radio spectrographs (Nançay Decametric Array; STEREO/WAVES) to GOES Soft X-rays and hard X-rays from RHESSI. The aforementioned information materializes the STEREO SEPServer catalogues that recently have been released to the scientific community. In order to demonstrate the exploitation of the STEREO catalogues, we then focus at the series of SEP events that were recorded onboard STEREO A & B as well as at L1 (ACE, SOHO) from March 4-14, 2012. We track the activity of active region (AR) 1429 during its passage from the East to the West which produced a number of intense solar flares and coronal mass ejections and we compare the magnetic connectivity of each spacecraft in association with the corresponding SEP signatures. During this period the longitudinal separation of the STEREO spacecraft was > 220 degrees, yet both of them recorded SEP events. These complex multi-spacecraft series of SEP events stands out as an example of the scientific information that can be derived using the SEPServer STEREO catalogues.