



## **Solar Energetic Particle Research within SEPServer - a Space Weather Perspective**

O.E. Malandraki and the SEPServer consortium Team

Institute of Astronomy and Astrophysics, National Observatory of Athens, Athens, Greece (omaland@astro.noa.gr)

SEPServer is a three year collaborative project funded by the seventh framework programme (FP7-SPACE) of the European Union. One of the primary goals of the project is to lead to novel knowledge on the source, acceleration and transport of Solar Energetic Particles (SEPs) during solar eruptions, a topic directly related to progress on Space Weather. This latter goal will be accomplished by both the extensive data analysis of energetic particle measurements hosted at SEPServer and the simulation-based data analysis methods capable of deconvolving the effects of interplanetary transport and solar injection from SEP observations. SEPServer focuses on the implementation of a comprehensive and up to date SEP event analysis service including scientific data driven analysis both for 1 AU and for  $> 1$  AU using data from the SOHO/ERNE, SOHO/EPHIN, ACE/EPAM, ACE/SIS, WIND/3DP, Ulysses/HISCALE, Ulysses/COSPIN/LET, Ulysses/COSPIN/KET, STEREO/LET and STEREO/SEPT experiments. SEPServer will also provide for the first time the release of the HELIOS data set in a reasonable format and in full time resolution, thus making available data also for orbits inside 1 AU (down to 0.3 AU). During the first year of the project a novel SEP event list, including 114 cases, based on SOHO/ERNE high energy protons ( $\sim 70$  MeV) was produced. In parallel, the systematic scanning of electrons from SOHO/EPHIN (0.25-3.0 MeV) and ACE/EPAM (45-312 keV) was also performed for all SEP cases. The corresponding EM emissions were also delivered and catalogued. Plots of SEP fluxes for electrons and ions in different energy channels from different instruments (SOHO/ERNE, SOHO/EPHIN, ACE/EPAM), onset time determination and time shifting analysis for the identification of the solar release times of electrons from SOHO/EPHIN and ACE/EPAM, and velocity dispersion analysis of protons observed by SOHO/ERNE were performed, together with a first comparison with the associated solar electromagnetic emissions. SEPServer is expected to enable a comprehensive analysis of the timing of SEP events using multi-instrument observations from the Sun to the Earth, setting the scientific foundation for the understanding of SEP events and contributing to the unfolding of SEP event transport, acceleration processes and source identification.

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