Geophysical Research Abstracts
Vol. 17, EGU2015-2642-1, 2015
EGU General Assembly 2015

Release Timescales of Solar Energetic Particles as inferred from In-situ and Remote Electromagnetic Observations

Neus Agueda and the SEPServer Consortium Team
Universitat de Barcelona, ICC-UB/DAM, Barcelona, Spain

We present a systematic study of the timing and duration of the release processes of near-relativistic (NR; >50 keV) electrons in the low corona. We analyze seven well-observed events using in-situ measurements by both the ACE and Wind spacecraft, and context electromagnetic observations in soft X-rays, radio, hard X-rays and white light. We use an interplanetary transport model to take propagation effects from the source to the observer into account. This allows us to unfold the NR electron release time history in the low corona from in-situ measurements at 1 AU. We obtain that NR electrons observed in interplanetary space appear to be released during either short (<30 min) or long (>2 h) periods. Short release episodes appear to originate in solar flares, in coincidence with the timing of observed type III radio bursts reaching the local plasma line measured at 1 AU. The origin of long release episodes seems to be more intricate. They appear associated with signatures of long acceleration processes in the low corona (long decay of the soft X-ray emission, type IV radio bursts, and time-extended microwave emission).