



High Energy Solar Energetic Particle Events

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17:15 - 18:30, @ Permeke

Motivation

Recent studies have found a type of Solar Energetic Particle (SEP) events with a high-energy tail, that are either recorded by only polar high-altitude neutron monitors (NMs) or onboard spacecraft. Traditionally, ground-level enhancements (GLEs) comprise the high-energy tail of SEPs and constitute a special class of events in which ions are accelerated to relativistic energies, causing a significant sudden increase of cosmic rays at ground-based detectors, mainly at NMs. The high-energy SEP events are associated with both fast coronal mass ejections (CMEs) and intense solar flares (SFs). Given the new developments, a (possible) sub category, often termed as "sub-GLEs" has emerged in the scientific literature. In this Topical Discussion we propose to address the following points: [a] Review the current state of knowledge on GLEs. Discuss definition of a sub-GLE class (in terms of energy or identification) and thus provide the basis for a discussion on terminology of sub-GLEs; [b] Discuss how high energy SEPs that reach to relativistic energies but are not recorded at Earth, can be included under the category of sub-GLEs (or these should constitute a new category of events). We cordially invite anyone who is interested in the above questions, either from the NM or the spacecraft recordings perspective to attend this session. (<http://www.stce.be/esww14/program/tdm.php?nr=11>)

Program

1. **Introduction** | A. Papaioannou
2. **Modeling of Proton acceleration in application to a GLE** | A. Afanasiev, R. Vainio, A. P. Rouillard, M. Battarbee, A. Aran and P. Zucca
3. **Flare, CME and the acceleration of relativistic protons at the Sun** | K.-L. Klein
4. **Solar Energetic Particle Events with Protons Above 500 MeV Between 1995 and 2015 Measured with SOHO/EPHIN** | P. K uhl, N. Dresing, B. Heber, and A.B. Klassen
5. **Sub-GLE and GLE events: in the light of the global NM network** | A. Mishev, I. Usoskin, S. Poluianov
6. **General Discussion**

Important information

- We have established a form in which colleagues can import the points they think that should be discussed during the TDM. This form is accessible [here](#).
- The Topical Discussion Meeting (TDM) will also be available via Webex¹ (courtesy of the ESWW LOC). Therefore, colleagues who would like to join but are not able to be in Oostende should connect [here](#) [Meeting Number: **951 396 528** | Meeting password: **KEQUFbxJ** | when it is time press **Join**].

¹ Information on Webex can be found at: <https://www.webex.com/>