



Contribution ID: 36

Type: oral

Spectral and angular characteristics of SEPs during the Halloween GLE events

Tuesday, 6 September 2016 11:00 (15 minutes)

The solar cycle 23 provided several strong ground level enhancements. The period of end October - beginning of November 2003 was characterized by a strong cosmic ray variability and a sequence of three GLEs, which have been observed by worldwide neutron monitor network. In order to estimate possible atmospheric and space weather effects it is important to derive the solar energetic particle (SEP) spectra. This can be achieved using neutron monitor (NM) data. Here we perform precise analysis of SEP spectral and angular characteristics on the basis of NM records by modeling their propagation in the Earth's magnetosphere and atmosphere using a newly computed NM yield function at several altitudes above the sea level. Subsequently on the basis of the method representing a sequence of consecutive steps such as a detailed computation of the SEP asymptotic cones of acceptance, NM rigidity cut-offs and application and convenient optimization procedure, we derive the rigidity spectra and anisotropy characteristics of the Halloween GLEs. We derive the SEP spectra and pitch angle distributions in their dynamical development throughout the events

Primary author: Dr MISHEV, Alexander (Oulu University)

Co-author: Prof. USOSKIN, Ilya (University of Oulu)

Presenter: Dr MISHEV, Alexander (Oulu University)

Session Classification: Parallel