

Solar Energetic Particle Spectra Measured with PAMELA

Monday, 24 April 2017 11:15 (30 minutes)

We present updated event integrated spectra from several SEP events occurring from 2006 to 2014 in the energy range starting at 80 MeV and extending well above the neutron monitor threshold. The PAMELA instrument is in a high inclination, low Earth orbit and has access to SEPs when at high geographic latitudes. This means that the spectra have been assembled from regularly spaced measurements with gaps during the course of the event. Furthermore, the field of view of PAMELA is small and during the high latitude passes it scans a wide range of asymptotic directions as the spacecraft moves. Correcting for data gaps and solid angle effects, we have compiled event-integrated intensity spectra that typically exhibit power law shapes in energy with an exponential roll over. The events analyzed include two, maybe three, GLEs. In those cases the roll over energy lies above the neutron monitor threshold (~1 GV) while the others are lower. We see no qualitative difference between the spectra of GLE vs. non-GLE events. One event has been studied where we separately examined the spectra during the impulsive and gradual phases of the GLE. Those results will be compared to those of the event integrated data.

Primary author: RYAN, James (Space Science Center, University of New Hampshire, Durham, NH, United States)

Co-authors: STOCHAJ, Steven (Electrical and Computer Engineering, New Mexico State University, Las Cruces, NM, United States); SPARVOLI, Roberta; Mr MARTUCCI, Matteo; MERGE, Matteo (Department of Physics, University of Rome Tor Vergata, I-00133, Rome, Italy); CHRISTIAN, Eric (NASA/GSFC); BRAVAR, Ulisse (University of New Hampshire); MUNINI, Riccardo (INFN - Universita Studi Trieste); DE NOLFO, Georgia (NASA/Goddard Space Flight Center); BOEZIO, Mirko (Universita e INFN, Trieste (IT))

Presenter: RYAN, James (Space Science Center, University of New Hampshire, Durham, NH, United States)

Session Classification: Late Monday Morning