



Acceleration and loss of relativistic and ultra-relativistic electrons in the outer Van Allen belt during intense storms: a statistical study.

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We present electron phase space density (PSD) calculations as well as concurrent Pc5 and chorus wave activity observations in the outer radiation belt during 18 intense geospace magnetic storms by employing multi-point particle and field observations (both in-situ and through ground-based remote sensing), including the THEMIS, Van Allen Probes, NOAA POES and GOES constellations, the XMM and INTEGRAL spacecraft, and the CARISMA and IMAGE ground magnetometer arrays. The data provide a broad range of particle energies and a wide radial and azimuthal spatial coverage. Observations show that different acceleration and loss mechanisms act simultaneously on different electron populations, depending on the values of the electrons' 1st and 2nd adiabatic invariants. This work has been supported by the NOAA/IAASARS SOLPLA project.