



Acceleration of electrons with hundreds of KeV in the slot region : A Fermi process ?

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We present electron data in the energy range from 70 keV to 2.5 MeV obtained on-board the Demeter satellite on its low altitude polar orbit. The outer belt is as expected quickly responding to geomagnetic activity while the inner belt low energy and low altitude component is quite surprisingly made of a superposition of nearly mono-energetic structures, as expected from particle interactions with a large number of monochromatic waves in the ~ 5 -25 kHz frequency range. Inside the slot region separating the inner and outer belts, the Demeter satellite encounters a precipitation of electron in the energy range from 70 to ~ 600 keV. The outer boundary of this region, as measured both inside and outside the south Atlantic anomaly, shows an energy dispersion well fitted by a Fermi process. We examine the conditions leading to the formation of this region, particularly its links with magnetic storms and use the obtained results to identify small scales structures related to the inner belt dynamics.