



The effects of the storm events in 2015 on the radiation belts observed by EPT/PROBA-V

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With the Energetic Particle Telescope (EPT) on board the ESA satellite PROBA-V, we analyze the high-resolution measurements of electrons at LEO (820 km).

On 17 March 2015, a big geomagnetic storm event injected unusual fluxes up to low radial distances in the radiation belts. EPT electron measurements show a deep dropout at $L > 4$ starting during the main phase of the storm, associated to the penetration of high energy fluxes at L value lower than 2 filling completely the slot region. After 10 days, the formation of a new slot around $L = 2.8$ separates the outer belt from the inner belt extending at other longitudes than the South Atlantic Anomaly.

This is believed to be a result of enhanced precipitation losses of energetic electrons due to their interactions with VLF waves in the magnetosphere.

Two other similar events occurred in January and June 2015, again with injection of electrons in the inner belt, contrary to what was observed in 2013 and 2014.

These events and the EPT measurements help us to better understand the formation of three belts structures.