

# **Energetic particles and how their precipitation is affected by the magnetosphere**

**J. M. Wissing <sup>1</sup>**

*<sup>1</sup>University of Osnabrück, Germany*

*E-mail: jawissin@uos.de*

The magnetosphere shields the planet from charged particles from outside, e.g. GCRs and the solar energetic particles. Easy access is given only in the magnetic pole regions where these particles may gyrate down along the magnetic field-lines. However, the magnetosphere also creates a new particle population, the magnetospheric particles, that are trapped inside, gyrating along field-lines, bouncing from pole to pole and drifting around the planet.

Given that the magnetosphere accumulates and even accelerates particles, it builds up radiation belts which now can be modulated by the solar wind pressure. As high solar wind pressure reduces the size of the magnetosphere, particle's mirror points move down into the atmosphere where they may get lost by interactions. This bounce loss cone defines the precipitation regions around the poles and significantly depends on local time sector.

As a planetary magnetic field is not an ideal dipole, additional loss cone appear, the drift loss cone.

The talk will concentrate on earth-like magnetospheric fields, however, most aspects will also be applicable to other configurations.