



Impact of solar and magnetospheric particles on the entire atmosphere - a view on global ionization with AIMOS

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Energetic particles give rise to ionization in the atmosphere. This effects chemical processes and influences the production of HO_x und NO_y . Because the origin, strength and composition of energetic particles differ, the effect on the entire atmosphere leads to a complex spacial and temporal pattern.

We developed the AIMOS (Atmospheric Ionization Module OSnabrueck) which is based on GEANT4 (GEometry ANd Tracking). The model uses satellite data from NOAA and accounts for some additional conditions like time sector, the geomagnetic structure and the movement of the main precipitation areas with increased gemagnetic activity. The concern was to describe ionization from 20 km up to 250 km, including all main precipitating particle species (protons, electrons and αs).

We will verify our model, show results in particular of the october event 2003 and compare it with other ionization models. In addition we will outline possible long term calculations using the kp-index instead of actual satellite measurement data.