

Energetic particle precipitation characteristics inverted from spectral riometer and incoherent scatter radar measurements

A. Kero

Sodankylä Geophysical Observatory, Tähtelantie 62, FI-99600, Sodankylä, Finland
email: antti.kero@sgo.fi

In the Earth's ionosphere, the height-dependent density of free electrons, and its time-dependent response to variable ionising radiation from space, yields information on both the ionisation source processes (solar electro-magnetic radiation, energetic particle precipitation, cosmic rays) and their consequences on the atmosphere (changes in chemistry, energetics and dynamics). For modelling the atmospheric response to the ionisation, in terms of electron density, the Sodankylä Ion and neutral Chemistry model (SIC) is used. This provides a forward model for Bayesian inversion of energetic particle precipitation characteristics from D-region ionospheric electron density measurements.