Upper-mesospheric Temperature Effects caused by energetic Electron Precipitation

H. Nesse (1, 2), U.-P. Hoppe (1), D. Heinrich (1), B. Williams (3), F. Honary (4), J. Stadsnes (2), U. Blum (1) and E. Trondsen (5)

(1) Norwegian Defence Research Establishment (FFI), Norway, (2) University of Bergen (UiB), Norway, (3) NorthWest Research Associates, Colorado Research Associates division(CoRA), USA, (4) Lancaster University, UK, (5) University of Oslo (UiO), Norway

We study possible temperature effects in the upper mesosphere and lower thermosphere caused by energetic electron precipitation, using temperature measurements from the ALOMAR Weber Na Lidar at ALOMAR, Norway. The Imaging Riometers in Kilpisjärvi, Finland (IRIS) and Andøya, Norway (AIRIS) monitor the local energetic electron precipitation. The ALOMAR All-Sky camera will also provide information about the electron precipitation.

The presence of gravity and tidal waves almost always leads to a complex temperature and wind field in the height region of interest. We therefore analyse the gravity wave and tidal wave field in order to distinguish possible energetic electron precipitation effects from wave effects. We will present and discuss our analysis method together with our conclusions.