

## **Disturbances on November 19, 1998 heating experiment observed by Scandinavian ground-based complex**

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On November 19, 1998 experiment on ionosphere modification with long lasting heating pulse (5 min ON /5 min OFF) has been carried out. Tromsø Heating Facility operated at 5.423 MHz. Experiment started at 20.30 UT immediately after localized substorm intensification under condition of well-developed westward electrojet.

Data of IMAGE magnetometers with ten seconds time resolution are used for study of magnetic disturbances. The ionospheric current density is deduced from ground-based magnetic measurements. The procedure includes a separation of the disturbances into the variations from external (ionospheric currents) and internal (induction ones) sources, the calculations of west-east component current density based separately on H- and Z-component data of meridional magnetometer network. Isocontours of the currents show clear decreasing of westward electrojet intensity near latitude of the heating synchronous with switching ON of the pump wave.

Imaging riometer (IRIS) at Kilpisjärvi operates at 38.2 MHz and produces 49 narrow beams. The riometer gives an opportunity to deduce electron density distribution in the ionosphere. During the experiment strong ionospheric inhomogeneities in the vicinity of the Heating Facility have appeared. Regular periodic in space structure is rather stable for 2.5 hours of the heating. It seems to be not phased with the pump cycles.

Data of Finnish Meteorological Institute all-sky cameras have been used to obtain aurora development. Close relationship of the current density maximum and aurora position and their dynamics is noted. Auroral forms are not necessary accompany the enhanced ionospheric absorption.

These experimental findings show significant role of magnetosphere-ionosphere interaction for generation of the disturbances related with ionosphere heating. This work is supported by RFBR (grant 99-05-65209).