

VARIATIONS OF THE AURORAL EMISSIONS AND THE ELECTRON PRECIPITATION DURING SUBSTORMS

VENETA GUINEVA 1, Irina Despirak 2, Rolf Werner 1, Espen Trondsen 3, Farideh Honary 4, Steve Marple 4, Kolbjørn Dahle 5, Peter Stauning 6

Solar-Terrestrial Influences Institute, Stara Zagora Department, Bulgaria, e-mail:

v_guineva@yahoo.com

Polar Geophysical Institute, Apatity, Russia, e-mail: despirak@pgia.ru

University of Oslo, Department of Physics, Norway, e-mail: espen.trondsen@fys.uio.no

Lancaster University, Department of Communications Systems, UK, e-mails: HYPERLINK "mailto:f.honary@lancaster.ac.uk" f.honary@lancaster.ac.uk, s.marple@lancaster.ac.uk

Andøya Rocket Range, Andenes, Norway, e-mail: kolbjorn@rocketrange.no

Danish Meteorological Institute, Copenhagen, Denmark, e-mail: pst@dmu.dk

The opportunity for simultaneous multi-instrument observations by different instruments, as well by sets of instruments of the same kind, nowadays is a precondition for an extensive research of the ionosphere phenomena. For this study, simultaneous ground based observations' data of the OI 5577 Å and 6300 Å emissions, the electron precipitation flux and the terrestrial magnetic field have been used from the following instruments: the All-Sky Imager (ASI), ALOMAR Imaging Riometer for Ionospheric Studies (AIRIS) and the magnetometer, positioned at Andøya Rocket Range (ARR), Andenes (69.3°N, 16.03°E); ASI, 64-beam Imaging Riometer and the magnetometer at the Auroral Observatory, Longyearbyen, Svalbard (78.20°N, 15.83°E); IRIS at Kilpisjärvi, Finland (69.05°N, 20.79°E).

Several cases are examined under disturbed and quiet geomagnetic conditions: four events were registered during substorm development, on the most disturbed days of November 2005 and January 2006; one event occurred on the quietest day of the measurements in November 2005. Variations of the emissions and the absorption at 38.2 MHz, related to the different locations of substorm bulge have been studied. Estimations of the particle precipitation spectra in the polar edge of auroral bulge and inside auroral bulge have been obtained. The correlation between the 5577 Å and 6300 Å emissions and the absorption at 38.2 MHz has been examined.

Data access has been provided under the Project "ALOMAR eARI" (RITA-CT-2003-506208), Andenes, Norway. This Project received research funding from the European Community's 6th Framework Program.

aurora emissions, 38.2 MHz absorption, recurrent solar wind streams

VENETA GUINEVA, Solar-Terrestrial Influences Institute, Stara Zagora Department,
P.O.Box 73, 6000 Stara Zagora, Bulgaria, tel: +359 42 642011, email: v_guineva@yahoo.com