October 16, 2006

KST UHF operation memorandum for the October 16, 2006 experiment

(Using Netscape might be in trouble on this page.)

Experiment name: sp_ni_con: arc1 (CP1)

pointrheight 185.1 77.5 299.6

elan files:puny :/kst/exp/ arc1/arc1.elan

Pulse scheme: arc1

Start time: 20:00 UT on October 16, 2006

End time: 01:00 UT on October 17, 2006

Participants: Satonori Nozawa, Takuo Tsuda, and Tetsuo Motoba

Before our experiment: RIOE2006

After our experiment: Nothing

Other instruments.

Photometer, STEL digital camera (1-min interval), NIPR digital All-sky camera (30-sec interval), STEL proton imager.

Note: (time in UT)

October 16

Raining. Temperature is 3 deg.

19:58 **runexp** /kst/exp/ arc1/arc1 **20:00 cp1 NI**

19:59 sod runexp /kst/exp/arc1/arc1 20:00 cp1 NI

kir runexp /kst/exp/ni/arc1/arc1 20:00 cp1 NI

20:00 START

at EROS4 console (UHF)

20:01 enablerec

sod enablerec

kir enablerec

20:09 (at matilda) guisdap –a

rtg

webtg

20:02 1.6 MW (according to guisdap, while 2520 kW in rtg: rtg is wrong)

20:28 HRP(?)

20:31 1.3 MW

21:32 HRP (?)

21:34 1.3 MW

21:42 still raining

23:00 raining 2 deg. A bit snowing

01:00 stopexp (all sites)

Snowing!!!

Summary

The ionosphere was active and particle precipitation with higher energy (for example, the electron density became higher at lower E-region heights (~90 km), but the weather was bad (raining, and then snowing: this was the first snow this winter!). F region electron density was low; making the remote observations difficult.

Descriptions of SPs

sp_ni_mi

We will make an optical campaign using aurora cameras, proton imagers and 4-wavelength photometer with tje EISCAT UHF radar. Clear sky and higher geomagnetic activity are desired. Although we made request for 5 nights, we will run only 3 nights depending on conditions.

RIOE2006

The main goal of the experiment is an investigation of the mechanisms of high power radio-wave interaction with F-region ionospheric plasma. The UHF EISCAT radar will run the tau2pl program to measure the spatial and temporal variations of the ionospheric parameters simultaneously with multispectral optical observations of the HF induced optical emissions by ALIS (IRF) and ASK (KTH). In particular we are going to study: the differences in temporal behavior of the different optical emissions as well as the electron temperature and density; the pump-power dependences of the emission intensities. To conduct the experiment successfully quite geophysical conditions, strong enough ionospheric F region, and clear sky are needed. If ionospheric conditions will be insufficient (critical frequency less than 4 MHz) or there will be strong auroral activity we will run same observations (but the arc1 program will be used instead the tau2pl for the UHF radar) to study the influence of the HF heating on the ionosphere-magnetosphere interaction.

TEST

We made a test run (normal arc1/CP 1) from 1000 UT to ~1140 UT. Spectra of Tromsø and Kiruna sites looked O.K., but Sodankyla SNR is lower than expected (say 1/4 of SNR of Kiruna). We changed polarizer-settings due to “setpolarizer” with several values, but no improvement…