March 4, 2006

KST UHF operation memorandum for the March 4, 2006 experiment

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

Experiment name: sp_ni_mi: arc1 (CP1 scanning)

Today, only 3 positions are scanned.

pointrheight 184.5 77.1 250 SYNC 1200

pointrheight 184.5 63.6 250 SYNC 1200

pointrheight 139.42 69.483 250 SYNC 1200

This SP (mi using arc1) is made to investigate the 3-D current system using artificial ionosphere heating in the E-region. PI is Prof R Fujii.

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

puny:/kst/exp/ni/arc1/scans/mi_pattern.elan

Pulse scheme: arc1

Start time: 15:00 UT on March 4, 2006

End time: 19:00 UT on March 4, 2006

Participants: Satonori Nozawa, Kazuhiro Adachi, and Takuo Tsuda

Before our experiment: Nothing (but, test)

After our experiment: Nothing

Together with Heating experiment.

(1) 4 MHz

(2) X-mode

(3)10 min ON and 10 min OFF

(4) Field-aligned.

Concerning (3), please start the operation one minute past the starting time (i.e., 15:01 UT).

Note: (time in UT)

March 4

Clear Sky. Temperature is -6 deg.

run /kst/exp/ni/arc1/arc1 15:00 mi NI

rem ksu run /kst/exp/ni/arc1/arc1 15:00 mi NI

14:52 **runexp** /kst/exp/ni/arc1/arc1 **15:00 mi NI**

14:53 sod runexp /kst/exp/ni/arc1/arc1 **15:00 mi NI**

kir **runexp** /kst/exp/ni/arc1/arc1 **15:00 mi NI**

15:00 START

at EROS4 console (UHF)

15:00 enablerec

sod enablerec

kir enablerec

15:03 power up

15:08 at matilda

guisdap –a

15:09 1.2 MW

15:20 p1 -> p2 (16 sec)

15:40 p2 -> p3 (40 sec)

16:00 p3-> p1 (40 sec)

17:04 – 17:11 Tx is stopped to check the "crow-bar".

19:00 stopexp (all sites)

sp_ni_mi

Development of polarization electric field due to artificial, sudden changes of ionospheric parameters by the EISCAT Heating facility

Here we propose an EISCAT heating experiment along with KST UHF observations for understanding the nature of the magnetosphere-ionosphere (M-I) coupling, in particular, of the electric field in the polar ionosphere.

EISCAT heater:

-The carrier frequency is set close to the plasma frequency around 110 km high.
The sequence of the on-off of the heater is 10 min on and 10 min off. (the traveling time of the Alfven wave between M and I is a few minutes, so within 10 min saturation to reach an equilibrium state can be expected)

EISCAT UHF radar:

Multi-points Arc mode. The remote antennae point the common volume around 280 km. The EISCAT UHF radar can measure only one line of sight at one time and cannot provide any information in other regions. It is therefore very important to check if the spatial and temporal development of the enhanced region by the heater and those of physical parameters have quantitative reappearance.