Date: November 8, 1995
To: EISCAT Data Representatives
From: Peter Collis
Subject: Common programme results tapes

Data from the following experiments have now been analysed and a tapes containing results in the standard format will shorttly be distributed. Plots of system temperature and transmitter peak power during these experiments are enclosed.

(1995)		
CP -2 - E	22 - 23 May	(1400 - 1600 UT)
CP -6 - B	22 - 23 May	(1200 - 1600 UT)
CP -1 - K	20 - 21 June	(1200 - 1800 UT)
CP -1 - K	13 - 14 July	(0800 - 1400 UT)
CP -6 - B	13 - 14 July	(0755 - 1400 UT)
CP -1 - K	27 - 28 Sept	(1200 - 1600 UT)
CP -7 - F	27 - 28 Sept	(0930 - 1600 UT)
CP -6 - B	24 - 25 Oct	(0916 - 0754 UT)
CP -6 - B	26 - 27 Oct	(1856 - 1600 UT)

NOTES

1. CP-2-E and CP-6-B, 22-23 May, 1995

The experiment start time (scheduled for 1000 UT) was delayed because of several problems with the UHF radar: 1) there was a problem in the RX protect that required work in the antenna, 2) LO2 on channel 4 was not going to the correct frequency, and 3) damage to the front-end caused by the RX protect failure. CP-2 was finally started at 1400 UT. CP-6 also started late (at 1200 UT); two klystrons were used.

The UHF transmitter tripped off a number of times (in the previous week it had shown a problem in the mod-anode voltage, which was fixed prior to the experiment), and so it was decided to not exceed 82 kV.

Gaps in the CP-6 analyzeddata are due to correlator problems caused by transmitter trips. The Cp-2 alternating code was continuous without problem. However, the low resolition power profile had a serious problem, resulting in incorrect background levels. This was fixed at 0820 UT on May 23.

A small offset of the Sodankylä velocities was discovered when they were plotted after the experiment. As it is not possible to tell whether this was a constant, or slowly-varying offset, neither the Sodankylä results nor the vector velocities have been included on this result tape.

2. CP-1-K, 20-21 June, 1995.

On June 19, the Sodankylä ND computer suffered a disk crash. A replacement was sent from Helsinki, arriving after lunch on June 20. The installation went smoothly and Sodankylä began taking

measurements at 1506 UT. Kiruna experienced unsettlingnoises from the correlator before the start, as well as the message ˜correlator hanging in load˜ from EROS. A fan in the correlator was replaced and Kiruna joined in at 1306 UT.

In Tromsø, both experiments started on time. At 1244 UT the LO2 for channel 3 on UHF (one of hte 2 long pulse channels, the other being channel 4) was correctly set (it needed to be taken from channel 1 on the VHF side). While testing and correcting this fault, the attenuation in channel 4 appears to have been left at 63 dB as it was discovered to have this value at 1050 UT on 21 June, when it was reset.

3. CP-1-K and CP-6-B, 13-14 July, 1995.

No reported problems. Both VHF klystrons were used.

4. CP-1-K and CP-7-F, 27-28 September, 1995.

No reported problems. Both VHF klystrons were used.

5. CP-6-B, 24-25 and 26-27 October, 1995.

The scheduled experiments were CP-2 (main experiment) and CP-6, with start 16 UT on 23 October and end at 16 UT on 27 October.

The actunal operations turned out to be CP-6 only, from 0916 UT on 24 October to 0754 UT, 25 October, and 1856 UT on 26 October to 1600 UT on 27 October.

A water leak on the VHF side had appeared on the previous Friday (October 23 being a Monday) but the system was made available by Monday afternoon after sterling work by the staff. Tests of the UHF system on the Monday morning showed a high filament curreht, indicating the need to examine the filament. Plans to run CP-2 were therefore shelved pending further work on the transmitter. CP-6 would go ahead as planned.

23 October: the scheduled 16 UT start of CP-6 was delayed, due in small part to reconfiguring the hardware in the control roomm (disconnected cables, swalling matches filter) but mainly to a faulty 30 MHz reference signal. The symptom of this was lack of signal and noise coming from the receiver and RTGraph displays showing typically ±1 unit full scale. A standard oscillator was put in place, producing the expected signal levels and an apparent power profile from CP-6. No spectra were visible, however, during conditions when they should have been seen. A test of CP-7 showed good data as far as could be seen. CP-7 uses chsnnels 4, 6 and 8 while CP-6 uses channel 5. In view of the obvious problem and lack of ideas how it could be fixed, the experiment was cancelled at about 10 pm local time.

24 October: work continued to try to pin down the fault with the VHF receiver. A 50 Hz contamination of the LO2 on channel 5 was discovered to be the culprit. The experiment was started at 0916 UT taking the LO2 from channel 6. The spectra were still poor, however, so the LO2 from channel 7 was taken instead. This produced a good improvement so this configuration was maintained.

A data gap exists from 2112 to 2315 UT (24 October) due to IPA problems, then some more brief breaks up to about 0100 UT (25 October) as adjustment were made. An unscheduled power break was announced just before 08 UT (25 October) so it was decided to stop the experiment for a while to allow work on the UHF transmitter.

The experiment was restarted at 1512 UT though the signals were so weak that no spectra could be seen. This was initially put down to the very quiet geophysical conditions, but after a crowbar at 1659 UT the signals appeared even more strange so various tests were run. No solution could be found so the experiment was cancelled some time after midnight.

Further investigations on 26 October found that the drive level to the transmitter IPA was too low; when this was increased the experiment performed correctly, starting at 1856 UT and continuing to 1600 UT on 27 October.