Date: February 24, 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 shortly be distributed. Plots of system temperature and transmitter peak power during these experiments are enclosed.

1994		
CP -7 - F	04 - 05 Oct	(1352 - 2400 UT)
CP -3 - G	06 - 08 Dec	(0800 - 2300 UT)
CP -2 - E	19 - 22 Dec	(1330 - 2300 UT)
1995		
CP -3 - G	01 - 04 Feb	(0900 - 2300 UT)
CP -7 - F	01 - 04 Feb	(0900 - 0817 UT)

Notes:

1. CP-7-F, 4-5 October, 1994.

This was a World Day period with a core interval of 24 hours starting at 16 UT on October 4. The original schedule was for a joint CP-1 and CP-7 operation but the UHF transmitter was not available. The radar operation was relatively trouble-free, with just a few HV trips.

2. CP-3-G, 6-8 December, 1994.

This was a World Day period with a core interval of 24 hours starting at 16 UT on December 6.

December 6 is independence in Finland; a national holiday. The experiment in Sodankylä was started remotely from Tromsø but experienced DMA errors and problems with RT programs. These were subsequently fixed by the duty staff and the experiment was able to be started correctly at 09 UT. The heater was tuned up at 4.04 MHz at 0910 UT on December 6 (antenna field 2, vertical beam, O-mode) and pulsing (1 sec on, 9 sec off) began at 0912:20 UT. A narrow region of heater-induced backscatter was at elevation 77˚ to the south, but not for the dumps 0914:10 to 0916:00 UT when the anttena was vertical.

The same procedure was repeated on December 8, with tuning up between 1035 and 1039 UT and transmission between 1042 and 1045 UT, and again between 1112 and 1116 UT. In all these cases the critical frequency shown by the dynasonde was below 4 MHz and no heater effects were seen in the radar data. The CP operation was interrupted between 1530 and 1700 UT on December 6 to allow a UK special programme in support of local optical experiments during auroral activity.

3. CP-2-E, 19-22 December, 1994.

The start of the experiment, scheduled for 0800 UT, was delayed due to problems with the transmitter and correlator. RTGRAPH indicated a problem with the alternating code, which was confirmed by running the alternating code diagnostic program. The problem was fixed by replacing a

board in the correlator. On December 20, channel 1 LO2 was found to be 147.502 MHz, and so the synthesizer was manually tuned to 147.5 MHz.

There are several short gaps due to transmitter problems during this operation. A longer break followed a crowbar just after 5 UT on December 21; the experiment was eventually restarted at 1306 UT. On the morning of December 22, it was discovered that Tromsø site's experiment sysle was out-of-synchronisation with that of the remotes, due to an experiment re-start the previous evening at an incorrect time. Thus no signals were received at the remote sites for about 9 hours following 2345 UT on December 21. The experiment was restarted in Tromsø with the correct cycle time at 0824 UT on December 22.

4. CP-3-G and CP-7-F, 1-4 February, 1995.

This operetion covered the World Day interval from 16 UT on February 1 to 16 UT on February 4.

A break in the Common Programme was allowed between 1925 and 2100 UT on February 1 for a UK special programme requiring clear skies and aurora. Although the Special Programme interruption was for the UHF radar only, the VHF was also powered down in order to avoid interference with the optical equipment.

The Common Programmes resumed at 21 UT and continued without major incident or interruption until the early hours of February 3. During this period, the high voltage on the UHF was steadily increased to about 93 kV (1.4 MW peak output power); meanwhile, the two VHF klystrons were delivering a combined output between 2.8 and 2.9 MW peak.

Examination of the data after the experiment revealedthat the VHF signal strength dropped by a factor of two between 1020 and 1025 on February 2 and remained at that level for the rest of the experiment. The cause has not yet been located, but the later data were reanalysed with a 'system constant' of 0.37 to correct the problem.

The Tromsø UHF antenna developed a fault in one azimuth drive system around 0130 UT on February 3, though the experiment continued until 0900 UT when a one hour interruption was used to fix the problem. The Common Programme continued smoothly until about midnight the same day when a combination of computer and software problems caused several breska in the operation. Soon afterwards, a failure in theUHF mod-anode PSU took the UHF system offline. The UHF mod-anode PSU was fixed by borrowing the appropriate board from the corresponding VHF system and the further problem.

Throughout, the Kiruna and Sodankylä stations appeared to operate correctly and to produce good data, though interference at both sites was visible, particularly in the southerly directions.