Date: October 9, 1997
To : EISCAT data representatives
From : Peter Collis
Subject : Common Program Result Tapes

Results from the experiments listed below will shortly be sent to you. Enclosed are plots of transmitter power and system temperature from these runs, together with some notes on the operations.

	1997		
CP-3-F	8 April (1500 UT)	to	9 April (1354 UT)
CP-1-K	9 April (1440 UT)	to	10 April (2200 UT)
CP-6-B	14 May (1425 UT)	to	15 May (2200 UT)
CP-1-K	14 May (1435 UT)	to	15 May (2200 UT)
CP-7-F	3 June (1101 UT)	to	6 June(1555 UT)
CP-1-K	23 June (1046 UT)	to	27 June (1600 UT)
CP-6-B	13 August (1000 UT)	to	14 August (1555 UT)
CP-4-B	27 August (2200 UT)	to	29 August (0600 UT)
CP-3-F	2 September (1000 UT)	to	3 September (1600 UT)

NOTES

1. CP-3-F, 8-9 April, 1997.

CP-3 was initially scheduled to run from 10 UT on 8 April to 16 UT on 10 April. The experiment was tested early on 8 April and performed correctly. The run proper was started at 0930 UT, but was immediately beset by problems on the receiver side (at least a loose connector, but maybe also a short-circuit causing current surges in the receiver rack) and with the transmitter (crowbars at low HV). The receiver problem was fixed and the experiment restarted at 1230 UT. The transmitter continued to cause problems and a fault was traced to the HV switch-gear, which was brought into the lab. The alignment of a solenoid was adjusted to clear the problem. No data were saved in this initial period (0930-1500 UT).

A new restart occurred at 1500 UT though the HV was low (70 kV). At about 1530 UT it was noticed that the data were not, and had not been for some time, dumped to the ND. This could not be rectified by EROS commands so the experiment was stopped and restarted at 1545 UT (with a requested start time of 1530 UT). This action caused a loop (cycle) time to be added to the requested start time, so the new start became 1600 UT. The transfer to thesparc failed after a few minutes, for no apparent reason. The experiment continued, but it proved impossible to raise the HV above 75 kV without a crowbar; the operating value was often less than this (range 70-75 kV).

An attempt was made to get the sparc transfer going again sometime after 20 UT. This was unsuccessful, and NEW-FILE commands had no effect on the data recording to the ND. The expected 30-min file mark at 2030 UT was not written either, so it looked as if we would end up with huge data files as seen earlier (e.g. CP-1, 6-7 Nov 1996). The experiment was stopped and an UNLOAD command issued, but the command stack was by then corrupt and there was no logical response from EROS. It was of course impossible to exit EROS without the UNLOAD command

being executed, so the ND was rebooted - twice. The experiment was restarted at 2108 UT (this time the start time of 2100 UT caused a skipping-on action rather than a loop-time added one). The sparc transfer started successfully with the experiment.

CP-3 continued through the night of 8-9 April, but sill with the HV no higher than 75kV. The signals from a good number of the lower gates were quite reasonable even with such low power (500 kW), but distant gates and the remotes were poor (though Kiruna not too bad under the circumstances). At 0730 UT the experiment was stopped for tests on the transmitter. Using CP-1 as part of these, a HV of 88 kV could be reached.

CP-3 was restarted at 0808 UT and continued until 0924 UT (the sparc transfer stopped at 0853 UT for no obvious reason). The transmitter was frequently up and down in this period. The termination at 0924 UT was to allow a further test using CP-1 to see whether a higher HV really could be maintained for a reasonable time (ruling out e.g. A water leak in the klystron as a cause of the CP-3 crowbars). This test was successful with 90 kV operation, so CP-3 was restarted at 1030 UT. It was, however, still not possible to raise the klystron above 75 kV so the experiment was terminated at 1354 UT. (The sparc transfer started with the experiment at 1030 UT but stopped at 1048 UT).

2. CP-1-K, 9-10 April, 1997

A start of CP-1-K was quickly scheduled for 1400 UT in Tromso and Kiruna (the sparc transfer did not start in Tromso). The staff in Sodankyla had by then gone home (filters need changing between CP-3 and CP-1 at remotes). A remote UNLOAD and MOUNT from Tromso to Sodankyla showed no free disk set available. There had been some free earlier, and it turned out that the data on the disk sets flagged as unloaded had actually already been copied. This fault was probably related to the replacement of the ND disk units some days previously. Sodankyla was started correctly at 1500 UT.

The CP-1 experiment files at all 3 sites had a common volume of 300 km. This was changed to 250 km (with azimuth 183.0^0, elevation 77.1^0) at 1530 UT and the experiment files updated with these values. The experiment continued without further problems (at ～９３ KV) except for a brief break of about 10 minutes following a crowbar at 1720 UT.

This was part of a telescience operation aimed at studying the effects of a coronal mass ejection expected at Earth at about midnight UT on 9 April. The original scheduled stop (16 UT, 10 April) was extended to 22 UT to take account of these conditions. Horizontal ion velocities in excess of 1 km/sec were seen towards the end of the experiment.

The vector velocities from the earlier CP-3 look pretty useless due to the low transmitted power, but those from CP-1 appear excellent (good snr and more-or-less complete time series).

3. CP-6-B, 14-15 May, 1997.

The original schedule was for a split-beam CP-6 operation starting at 10 UT. A water leak at the VHF klystron at the end of the previous week resulted in the need for replacing the oil, delaying the start of the VHF operation. In addition, we were informed of an Earth-directed coronal mass ejection observed at 0455 UT on 12 May. This was expected to produce active-to-storm conditions on 15 May so the decision was made to run single beam CP-6 together with CP-1.

CP-6 (1 klystron, A-side) was started at 14:25:01 UT. There were several hrps in the first half-hour but then the system settled down, and, with the exception of a very small number of hrps, the operation was unbroken until the end of the experiment at 22 UT on 15 May (extended beyond the scheduled end at 16 UT due to the interesting conditions).

Good data throughout, though CP-6 did not see as much energetic precipitation as might have been expected considering the disturbed conditions.

4. CP-l-K , 14-15 May, 1997.

The only obvious fault was a wrongly set LO2 in UHF channel 7, which was corrected to 149.5 Mhz at 1559 UT on 14 May (it had been 89.5 Mhz). Otherwise, no reported problems and good data with convection velocities >2km/sec at times. The F-region densities in particular showed remarkable changes, and the peak was often well below the 250 km common volume height.

5. CP-7-F, 3-6 June, 1997.

There are several short interruptions of typically a few minutes each in the raw data from this run due to crowbars. A short break around 2020 UT on 3 June was caused by having to reboot the ND computer. The experiment was stopped between 1122 and 1212 UT on 4 June to investigate a leaking capacitor.

6. CP-1-K, 23-27 June, 1997.

The experiment was stopped between 0650 and 0710 UT on 24 June and again from 1023 to 1225 UT due to problems with the cooling system in the hub room. A 10-min gap occurred at 1628 UT on 25 June due to inability to restart the transmitter after a crowbar. No other major problems were reported except that the half-inch raw data tape covering the interval 0324 to 1244 UT on 24 June was overwritten before the data could be analysed on the ND so there is a gap in the results on this tape. These raw data were securely archived on the Unix system and saved to DAT tape.

7. CP-6-B, 13-14 August, 1997.

No reported problems.

8. CP-4-B, 27-29 August, 1997.

No reported problems except for a small number of crowbars and the need to clear EROS at 2320 UT on 27 August (10-min break).

9. CP-3-F, 2-3 September, 1997.

The heater started tuning up at 1630 UT on 2 September and transmitted 1 s on 1 s off rom 1650 to 1710 UT during an Akebono pass. This time (1650 UT) coincided exactly with a UHF antenna problem (elevation drive disabled) and CP-3 started again at 1715 UT.