

Date: 12 August 1992

To: EISCAT data representatives

From: Peter Collis

Subject: Common programme result tapes

Data from the following experiments have now been analysed and a tape containing results in the standard format will be mailed to you when copies have been made. Plots of system temperature and transmitter peak power during these experiments are enclosed.

(1992)

CP-1-J	30 Mar - 3 Apr	(1600 - 1600 UT)
CP-2-D	13-14 Apr	(1000 - 1600 UT)
CP-6-B	10-11 June	(1505 - 1600 UT)
CP-3-F	22-24 June	(1100 - 1600 UT)
CP-2-E	7-8 July	(1000 - 1600 UT)

Notes

1. CP-1-J, 30 March - 3 April, 1992

Cp-1-J is the new version of common programme one, the main difference being the replacement of the multipulse scheme by one using alternating codes for E- and lower F-region measurements. Additionally, the number of power profile gates is changed. Both the alternating code pulses as well as the long pulses are received at the remote sites, resulting in two sets of ACF results for each post-integration interval. Antenna pointing is identical with CP-1-I. Further details can be found in the description files CP-1-J-T/R:DESC on the tape.

The particular combination of frequencies used for the different pulse schemes during this operation resulted in occasional contamination of the high resolution power profile measurements by plasma line echoes from the long pulse transmission. This is most evident as excess power at the shortest ranges where true ionospheric scatter is expected to be negligible. While it is recommended to use these results with great care, there are periods of uncontaminated data which can be cross-checked for validity with the medium resolution power profile results. The latter cover altitudes above 68.7 km, compared with 62.2 km for the high resolution results. A note describing these features was distributed to SAC members in April. The quoted lowest altitudes for the power profiles (and 86.8 km for the alternating code data) which have been used in the analysis are slightly lower than the original estimates for SP-EI-ALTCP1 which were included in the symbolic files when this experiment was run. These original files are included on the tape, as well as the revised :GDEF and :DESG files where these changes are noted.

The transmitter was turned off between 0740 and 0813 UT on 2 April to allow investigations into the apparent excess power in the power profile data, but raw data from Tromsø are anyway missing between 0513 and 0900 UT on this day due to an error in data recording following a change of disc set. However, results from an initial analysis of data integrated in real time are available for this interval and are appended as the final Tromsø data files for this experiment(3 files; 04 to 10 UT). Note that the electron densities from the preliminary analysis were 20% higher than the correctly-

scaled ones of the final analysis; the electron temperatures from the 0513-0900 UT interval are thus underestimated. The start ranges of the two power profiles and the alternating code results in this interval are slightly larger than the values used in the subsequent analysis of the rest of the data set, as noted above. Data are missing from Kiruna between 14 and 16 UT on the same day due to an antenna problem.

The frequency of one of the second local oscillators in Tromsø became changed from its nominal value following a crowbar at 1116 UT on 31 March. This resulted in an apparent decrease of electron density and increased variance in the results from the alternating code scheme (as well as reduced densities from the high resolution power profile) until the frequency was corrected at 1200 UT.

2.CP-2-D, 13-14 April, 1992.

No reported problems.

3. CP-6-B, 10-11 June, 1992.

The results on the tape begin at 1505 UT on 10 June. Although the experiment started at 10 UT, it was discovered shortly after the start that spectra were exactly symmetric about zero frequency. The cause of this was eventually tracked down to a loose card connector in the ADC unit and reliable data began to be recorded when this card had been reseated, at 1505 UT. A data gap exists between 2302 and 2346 UT following a high voltage trip caused by the collector temperature interlock. A similar fault occurred at 0346 UT and the experiment was stopped at 0452 UT for investigation of the transmitter. Operation resumed at 0830 UT and continued to 1600 UT.

4. CP-3-F, 22-24 June, 1992.

The start of this operation was delayed by one hour while a local oscillator fault in Tromsø was fixed. Otherwise there were no reported problems.

5. CP-2-E, 7-8 July, 1992.

Version E of CP-2 uses alternating codes for measurements of the E- and lower F-region. The pulse scheme is identical with that of CP-1-J and the pointing geometry is unchanged from CP-2-D. The comments regarding the start ranges of the power profiles and the alternating code results mentioned in (1) above also apply to these data; the revised lower values have been used in the data analysis and both the original and the new :GDEF and :DESC files are included on the tape. Note that the frequencies used for the long pulse transmission were different from those used in CP-1-J of 30 March to avoid possible plasma line contamination.