International Council of Scientific Unions

SCIENTIFIC COMMITTEE
ON
SOLAR-TERRESTRIAL PHYSICS

78-11

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IMS NEWSLETTER

Notice, our letterhead has changed. Dr. E.R. Dyer, SCOSTEP Secretary, sent the information contained in the SCOSTEP item beginning on page 4 of this NL. Briefly, ICSU has converted SCOSTEP from a "Special" to a "Scientific" Committee; the acronym is retained. Background for this change and its implications for present (IMS/MONSEE/STIP/etc.), planned (SMY & MAP), and possible new SCOSTEP programs involving international, multidisciplinary participation are covered in Ned's report. *** We will include contributions from the recent Substorm Symposium at Los Alamos in the next NL but for now see G. Rostoker's item on the earlier Victoria Substorm Conference on pg 7 of this NL. JHA 78/10/25

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SPECIAL IMS HIGH-ALTITUDE SATELLITE PERIODS - 1978

Special IMS High-Altitude Satellite Intervals for October through December 1978 are given below. Page 4 of NL 78-8 has a detailed listing of all the SSC - selected Special Satellite intervals for July - December 1978 and the satellite configurations that were the basis for selection of these periods. As was done for such earlier intervals, start and end times were extended from the model calculations to allow for boundary fluctuations during disturbances. Details for the first half of 1978 were published in NL 78-2, pg 4.

#16	8 Nov	312/0200 UT	to	9 Nov	313/1200 UT	#17	3 Dec	337/1600 UT	to	6 Dec	340/0600 UT
#18	17 Dec	351/0500 UT	to	17 Dec	351/2200 UT	#19	28 Dec	362/0400 UT	to	29 Dec	363/0900 UT

SPECIAL LOW-ALTITUDE SATELLITE CONJUNCTIONS

The IMS Satellite Situation Center prepares a weekly forecast of times of satellite magnetic field line conjunctions for principal high-altitude IMS satellites, selected low-altitude satellites and selected ground-arrays. This information is telexed by the IMSCIE Office, upon request, to some 20 locations for use by project scientists, satellite tracking controllers and administrators. The service was started for those interested in the position of their experiments relative to the orbit foot-track of GEOS-1 and was expanded with the successful launch of ISEE-1&2. It is expected that many of the original interested persons will wish to continue receiving such information to facilitate special data acquisition in connection with the newly-launched GEOS-2 satellite. We will continue to feature conjunction intervals between the ISEEs and GEOS-2. Those interested in addition of other satellite or ground-based experiments to these forecasts should contact J. Vette, IMS SSC (see NL letterhead for address) and anyone wishing to receive the weekly telexes should contact the SSC or the IMSCIE Office. A conjunction forecast telex was shown in NL 78-4, pg 3.

GROUND-BASED, BALLOON AND ROCKET CAMPAIGNS:

----------Phenomena-related Campaigns----------

Oct 16 ---------; R. MacQueen; 27.033AS/US; White Sands; Rocket 27.033AS/US - Coronal Research
Oct 23 to Nov 2; W. Sharp; "MAP-2"; White Sands; ROCKET - 13.135UE
Oct 1 to Oct 31; E. Nier; 18.1024UA; White Sands; ROCKET - Nike/Tomahawk for EUV dayglow, ion chemistry
Oct 22 to Nov 8; J.C. Ulwick;3 programs; Poker Flat; ROCKETS (6) - see NL 78-8 pg 3
Oct 22 to Nov 11; L.J.C. Woolliscroft; "U.K. Andoya Campaign 1978"; Andoya; ROCKETS (2) - SL1424 & F6
Nov 13 to Dec 10; Maehlum, Martelli, Maynard; Ferdinand 40,41; Andoya; ROCKETS (2) - 18.216IE, 18.207IE
Nov 25 ---------; J.R. Winkler; "ECHO V"; Poker Flat; ROCKET - Strypi-Plasma Physics-Aurora
Dec 1 ---------; J.H. deLeeuw; "Electron Beam Fluorescence Probe"; Ft Churchill; ROCKET-Black Brant
Jan 14 to Mar 9; R. Lundin; "S23 Substorm Geos"; Esrange; ROCKETS (2) - see this NL pg 2
Jan 1 to Mar 31; Appleton Labs; Esrange; ROCKETS (2) - Petrel II
Jan 24 to Mar 4; Zhulin; "SAMBO II"; Esrange; BALLOONS (25) - see this NL pg 3
Jan 18 to Feb 5; H. Anderson; "29.013UEX"; Poker Flat; ROCKET - Terrier Malemute

------Quasi-synoptic Observations involving Balloons, Rockets, Aircraft, Selected Surface Campaigns------

Nov 15 and Dec 13; Bauer, Evans; IISN; Global Network; SURFACE - See NL 78-2, pg 2 for details
Monthly; Wright & Hilsenrath; "OZONESONDE"; Various Sites; ROCKETS - See Actualities, NL 77-10, pg 3

----------Observing Plans for Temporary Surface Stations----------

------ to Nov 30; K. Wilhelm; "GEOMAGNETIC PULSATION CAMPAIGN"; 20 W to 40 E; SURFACE - NL 78-5 pg 3&11
Dec 1 to Jan 31; C. S. Deehr; Norwegian - Alaskan Spitsbergen Expedition; Spitsbergen - see NL 78-9 pg 3

REGIONAL IMS SAT/GBR PROGRAM DETAILS, NOVEMBER - JANUARY

Program details for many brief listings given above appeared, as indicated, in earlier IMS NLs.

ROCKETS

ANDOYA - ANDENNES

Ferdinand 40 and 41 (Electron 2 and 3) --- See NL 78-10 pg 3. Instrumentation and principal experimenters for Ferdinand 40 and 41 are listed below.

F40 Electron 2 "Mother" payload; receivers for measurement of angle of arrival of electrostatic waves - Martelli, Smith, Gough: whistler mode receivers 1.4 - 9.0 MHz - Holtet: receivers for time delay measurements of electrostatic and electromagnetic waves 1.4 - 9.0 MHz - Troim: DC E-W field probe, gyro aspect sensor - Maynard: electron spectrometers 0.1 - 12 KeV swept, 100 eV and 300 eV fixed, 10 KeV electron counter centered at accelerator energy - Maehlum: solid state detectors, electrons and protons > 20KeV - Soras: Ne probes, capacitance and Gerdian - Jacobsen: magnetic aspect sensor X, Y and Z component, capacitance probe - Friedrich.

F40 Electron 2 "Daughter" payload; electron accelerator 10 KeV intermittently switched to 3.3 KeV - Troim: vehicle charge measurement - Jacobsen: photometer 3914A filter - Thrane: photometer H beta filter - Maseide: receiver for time delay measurement of electrostatic waves - Troim: magnetic sensor X and Z component.

F41 Electron 3 payload; receivers for measurement of angle of arrival of electrostatic waves - Martelli, Smith: receivers for time delay measurements of electrosatic and electromagnetic waves 1.4 to 9.0 MHz - Troim: DC E-field probe, gyro aspect sensor - Maynard: electron spectrometers 0.1 to 12 KeV - Evans: solid state detectors, spectrometers > 20 KeV, electrons and protons - Soras: N probes, capacitance and Gerdian - Jacobsen: magnetic aspect sensor, X, Y and Z component, capacitance probe - Friedrich: photometer H beta filter - Maseide.

ESRANGE

"S23-Substorm GEOS" --- R. Lundin will launch three rockets from Kiruna in the period Jan 14 - Feb 8, Feb 13 - Mar 19, 1979, two Black Brant VC's to 250 km and one Nike-BBVC to 400 km altitude. The scientific object is to measure particles and fields on and close to the GEOS field-line during an auroral substorm. Experimenters are: O. Storey - enhanced resistivity; E. Ungstrup - AC E-field and B-field; F. Primdahl - DC magnetic field; U. Fahleson - DC electric field; R. Lundin - low and

medium energy charged particles, 0.05-200 KeV and positive ions with mass-resolution 1-16 KeV, 1 to about 20 Amu; B. Holback - DC and AC plasma density measurements; and G. Witt - Grating polychromator. Launch will be into clear sky during an auroral substorm. Coordination is planned with satellites GEOS 2, S302, S303, S310 and S321. In addition, K. Bullough, University of Sheffield, will launch a "VLF" Petrel rocket as part of the S23-Substorm GEOS campaign. This rocket will study the mesopause region in the presence of noctilucent clouds, particularly nucleation processes.

POKER FLAT, ALASKA

29.013UEX --- H. Anderson, Rice University, Houston is the project scientist for this Terrier Malemute launch for electrodynamic measurements to study varying field perturbations. Measurements will include DC electric fields, AC electric field spectrum from DC to 10 MHz, electron energy and pitch angle spectrum from energies of 30 eV to 40 KeV, proton spectrum - pitch angle and energy spectrum. Measurements will also be made of plasma density and pressure spectrum, and rapid fluctuations in that density. Launch window is 18 Jan to 5 Feb, 1979.

BALLOONS

ESRANGE

"SAMBO II" --- I. A. Zhulin is project scientist for this international program of multiple balloon launches from Kiruna/ESRANGE. Launch window is from 24 Jan to 4 Mar, 1979. Co-investigator for this program is J. P. Treilhou. Scientific objective of the balloons is to study auroral disturbance effects at 33-35 km altitude by measuring X-rays (30 KeV - 160 KeV, 13 channels), electric field and photometric emissions (6300, 5577, 5200 and 4278 A). Experimenters participating in SAMBO II are: I. A. Zhulin, L. Lazutin, W. Riedler, J. P. Treilhou, C. Barat and M. Fehrenbach. Coordination will be sought with ground magnetometer data collection, auroral and riometric observations, ionosondes etc. and with GEOS 2.

ACTUALITIES

GROUND BASED

CANADA

Reprinted from the September 1978 Canadian Newsletter is the following summary by Professor Watanabe about the joint University of British Columbia - University of Tokyo projects for 1978 - 1979 on micropulsations in Canada.

The Cooperative Operation of the U. of Tokyo - U. of British Columbia was carried out during a four week period in August - September 1978. Eight stations were set up for observation of magnetic pulsations; Rankin Inlet in N.W.T., Churchill, Gillam, Island Lake, Little Grand Rapids, Star Lake in Manitoba,Minneapolis, Minnesota and Boulder, Colorado. Auroral observations using the University of Tokyo TV camera system is planned to be done in winter only, because of better weather conditions than in summer. Observation of VLF radio emissions is also planned to be made in winter. Auroral and VLF observations will be made in Churchill. A second campaign is planned from December 1978 to February 1979.

1977 Operation - A Notable Result. The cooperative operation of the U. of Tokyo - UBC was carried out in Manitoba for two weeks in the middle of September. Observation of magnetic pulsations by induction magnetometer was carried out at Star Lake, Riverton, Island Lake, Thompson and Churchill. A preliminary observation was made at Rankin Inlet, N.W.T. Observation of aurorae by a TV camera system and of VLF radio emission by a direction finder was carried out at Riverton about 80 miles north of Winnipeg. Extremely poor weather conditions in the month of September in Manitoba prevented us from carrying out auroral observations. An interesting effect relating to magnetic fields created by a local power line was detected by the VLF direction finder. It was found that a.c. magnetic fields of 180Hz and 540Hz, vis, third and ninth harmonics of 60Hz existed more or less continually. At a time of SSC of September 21, 360Hz and 720Hz magnetic tides, viz., 6th and 12th harmonics were detected also. It seems that the odd harmonics, 3rd and 9th , were created by the non - linear hysteresis loop of the core materials of the transformers of the power line system. Only odd harmonics are created if the hysteresis loop has a point of symmetry. Appearance of the even harmonics indicates that the hysteresis loop lost the point symmetry. A d.c. magnetic bias is known to make hysteresis loops unsymmetric. Quasi d. c. telluric currents induced by magnetic pulsation fields are likely to flow into power lines through neutrals of Y-connected transformers. Such currents are referred to as solar induced currents (SIC's) in electrical engineering. SIC's are bound to cause a d.c. magnetic bias. The magnetic fields at the harmonic of 60 Hz changed in intensity concurrently with fluctuations in the earth's magnetic field. During some time intervals, additional higher harmonics , viz., 900Hz (15th) and 1080Hz (18th) were detected. All the harmonics detected were at the multiples of 180Hz, as if it were the fundemental frequency. This indicates that they originated from a 3-phase power line system.

Photometer Project --- The following is a summary by Prof Eather, Boston College, about his 1977-78 photometer project at three sites along the Churchill magnetometer line. A comparable project is planned for the 1978-79 season.

The first year of operation of our arctic photometer chain (Island Lake, Churchill, Rankin Inlet) met with reasonable success. Total instrument down time (usually only at one of the three stations) was about 23%. These problems will hopefully be corrected to ensure a more trouble-free operation next winter. Planned operating nights were all nights except within plus or minus four days of full moon. Of approximately 110 possible nights, examination of cloud data from the three sites indicates 10 nights which were completely cloud free at all stations. In addition, there are perhaps another 15 nights with cloud problems limited to just one of the three sites. This number of nights of good data was expected from statistical cloud data examined for previous years.

We are at presently analysing tapes for the 10 cloud-free nights at all stations, and these will be available in keogram format.

BALLOONS

CANADA

D.Venkatesan, U. of Calgary has reported the successful launching of a balloon carrying an X-ray payload at Roberval, Quebec on 28 August 1978 during the period of a great magnetic storm and auroral activity. On 26 August aurora was seen to the north beginning at local midnight. On 27 August good aurora was seen to the north shortly after sunset. Riometer absorption was observed at 31 and 52 MHz and pulses were seen in the ULF data at the Stanford University site at Roberval. The balloon was launched at 0458 UT with a stable auroral arc visible to the north and much of the sky filled with rays and pulsating patches. Discrete arc remained visible all night to the south. The balloon reached an altitude of 108,000 feet shortly before 08 UT and winds kept it to the south of Roberval. An extensive auroral display was noted at 08 UT. Riometer absorption also continued from 07 to 09 UT and large amplitude oscillations with period 3 to 10 seconds were seen in the ULF data.

Balloon data continued until after cutdown at 1420 UT, well after sunrise. Discrete arc was still visible to the south of the balloon even as the sun rose. Preliminary X-ray data show very high count rates with highly variable spectral shapes.

The X-ray detectors were 5 inch diameter by 0.5 inch thick sodium iodide crystal collimated by an array of glass tubes. Effective area for normal incidence is 64.6 sq. cm. collimated to half this area at 70 degrees off normal. There were twelve data channels, eleven covering the range 20 - 160 KeV and one >160 KeV.

NORWAY

Polar - 78 --- During the period July 14 - August 4, 1978 three balloons were launched from Ny Alesund, Norway (79N, 12E). The first balloon experiment collected DC electric field and X-ray data for the period July 14, 22 UT - July 15, 20 UT. Because of payload spin failure the electric field can be evaluated only occasionally. The second experiment collected electric field and magnetic field data from July 24, 00 UT - July 26, 24 UT and in addition auroral X-ray data was obtained on July 24, 00 UT - 24 UT. The third balloon carried the electric field experiment only and was operated on August 4 from 05 UT to 19 UT. All three balloons remained in the range 75 - 80 degree invariant latitude, floating in the area between Svalbard and Greenland.

SATELLITES

THE FOLLOWING ARE ESA-GEOS 2 MAGNETIC CONJUNCTION TIMES WITH ISEE 1 (IE), ISIS 1 (I1), EXOS 1 (E1), TRIAD (T), S3-3 (S3), AE-C (AC), DMSP-5D-F1 (D1), DMSP-5D-F2 (D2) AND DMSP-5D-F3 (D3), AS COMPUTED BY THE IMS SATELLITE SITUATION CENTER. THESE ARE CONJUNCTIONS FOR THE TIME PERIOD AUGUST 1 (DAY 213) THROUGH AUGUST 26 (DAY 238), WHICH IS THE EARLIER TIME PERIOD NOT PREVIOUSLY DISTRIBUTED THROUGH THE ROUTINE TELEXES.

213/ T-2.0, 11.2, 14.0, 23.2; I2-4.3, 15.9; D2-6.7, 7.3, 16.6; S3-8.9, 12.0, 14.3, 16.6; D1-9.6, 10.3, 19.5; AC-10.9, 12.4, 14.0, 15.6, 19.2, 22.3, 23.9; D3-14.5, 20.6; I1-19.4, 22.2; E1-20.4
214/ E1-1.6, 11.1; D1-1.7, 9.3, 19.3; S3-2.4, 12.7, 15.0; D2-6.4, 7.0, 16.3; D3-6.5, 20.3; I1-7.7, 18.9; AC-9.6, 11.2, 12.8, 14.3, 19.6, 21.1, 22.7; T-10.7, 22.7; I2-19.1
215/ D1-1.4, 19.0; S3-3.0, 7.9, 13.3, 15.6; I2-3.6, 15.3; D2-6.1, 6.7, 16.0; D3-6.2, 20.0; AC-10.0, 11.5, 13.1, 14.6, 18.3, 21.4, 23.0; T-10.2, 22.2; I1-7.2, 18.4; E1-11.4, 21.0
216/ D1-1.1, 18.7; T-2.2, 14.1; I2-4.3, 18.5; D3-5.3, 5.9, 15.2; D2-5.8, 6.5, 15.7, 21.9; I1-6.7; AC-8.7, 10.3, 11.8, 13.4, 21.8, 23.3; S3-11.6, 14.0, 16.2; E1-19.8
217/ D1-0.8, 10.2, 10.7; E1-1.0, 10.5; T-1.6, 10.9, 13.6, 22.9; S3-2.0, 6.8, 12.3, 14.6; D3-5.0, 5.6, 14.8; I2-6.1, 14.7; AC-9.0, 10.6, 12.2, 13.7, 17.4, 22.1; IE-10.7 TO 11.0; D2-15.5, 21.6
218/ D1-0.5, 9.8, 10.4, 19.7; S3-2.6, 7.5, 12.9, 15.2; I2-3.6, 15.3; D3-4.6, 5.3, 14.5, 20.7; AC-9.4, 10.9, 12.5, 14.0, 17.7, 20.8, 22.4; I1-9.4, 19.2, 22.0; T-10.4, 22.4; E1-20.3; D2-21.3
219/ S3-1.0, 5.7, 11.3, 13.6, 15.9; E1-1.5; D3-4.3, 4.9, 14.2, 20.3; I2-5.5; AC-8.1, 9.7, 11.2, 12.8, 16.5, 21.2; I1-8.9, 18.7, 21.5; D1-9.6, 10.2; T-9.9, 21.9; IE-16.3 TO 16.9; D2-21.0
220/ S3-1.6, 6.4, 11.9, 14.2; I2-3.0, 14.7; D2-6.4, 7.0, 16.3, 20.8; I1-6.9, 8.4, 18.2, 21.0; AC-8.4, 10.0, 11.6, 16.8, 21.5; D1-9.2, 9.9, 19.2; E1-11.4; D3-13.9, 20.0; T-21.3
221/ T-1.3, 10.5, 13.3, 22.5; S3-2.3, 7.1, 10.2, 12.6, 14.8; I2-3.6, 17.8; D2-6.1, 6.7, 16.0; I1-6.5, 17.7; AC-7.2, 8.7, 10.3, 11.9, 15.5, 20.2, 21.8; D1-9.0, 9.6, 18.9; E1-19.7; D3-19.7
222/ S3-0.6, 5.4, 10.9, 13.2, 15.5; T-0.8, 10.0, 12.8, 22.0; E1-0.9, 10.4; D1-1.0, 18.6; D3-5.0, 5.6, 14.9, 19.4; I2-5.5, 14.0; D2-5.8, 6.4, 15.7, 21.9; I1-6.0; AC-7.5, 9.1, 10.6, 12.2, 15.8, 20.5
223/ I2-3.0, 14.7, 17.2; D3-4.7, 5.3, 14.6, 19.1; D2-5.5, 6.1, 15.4, 21.6; I1-5.6; S3-6.0, 9.2, 13.8, 23.6; AC-7.8, 9.4, 10.9, 14.6, 20.8; D1-9.0, 18.3; T-9.5, 12.2, 21.5; E1-10.7, 20.2
224/ D1-0.4; S3-1.9, 4.3, 9.8, 14.5; D3-4.4, 5.0, 14.3; I2-4.8; D2-5.2, 5.8, 15.1; AC-6.6, 8.1, 9.7, 11.2, 14.9, 19.6; T-9.0, 21.0; E1-19.0
225/ D1-0.1, 9.5, 10.1, 19.4, 23.8; S3-0.2, 5.0, 12.8; E1-0.3, 9.8; I2-2.3, 14.0; D3-4.1, 4.7, 13.9, 20.1; D2-5.6, 14.8, 21.0; AC-6.9, 8.4, 10.0, 19.9; I1-8.1, 18.0, 20.8; I1-8.1, 18.0, 20.8
226/ T-0.4, 9.6, 12.4, 21.7, 23.9; S3-0.9, 5.7, 8.8, 13.5; I2-3.0, 17.2; D3-3.7, 4.4, 13.6, 19.8; AC-5.6, 7.2, 8.7, 10.3, 13.9, 18.7, 20.2; I1-6.2, 7.6, 17.5, 20.3; D1-9.2, 9.8, 19.1; E1-10.1, 19.5; D2-20.7
227/ E1-0.7, 9.0, 18.3, 23.6; S3-3.9, 9.5, 14.1, 23.8; I2-4.8, 13.4; I1-5.8, 17.0; AC-5.9, 7.5, 9.0, 10.6, 14.3, 19.0; D2-6.1, 6.6, 15.9, 20.4; D1-8.9, 9.5, 18.8, 23.3; T-9.1, 11.9, 21.1, 23.4; D3-19.4
228/ I2-2.3, 3.6, 14.0, 16.6; S3-4.6, 7.8, 12.4; I1-5.3, 6.7, 19.3; D2-5.8, 6.4, 15.6, 20.1; AC-6.2, 7.8, 9.3, 13.0, 19.3; D1-8.6, 9.2, 18.5; E1-9.2, 10.6; T-11.4, 20.6; D3-19.1
229/ S3-0.5, 2.9, 8.4, 13.1, 22.9; I2-4.2, 17.2; D3-4.5, 5.1, 14.3, 18.8; AC-5.0, 6.5, 8.1, 13.3, 18.0, 19.6; D2-5.5, 6.1, 15.4, 19.1; D1-8.3, 8.9; E1-9.5; T-12.5
230/ E1-0.1, 9.6, 22.9; T-0.1, 12.0, 23.6; S3-1.2, 3.6, 13.7, 23.5; I2-1.7, 13.4, 15.9; D2-5.2, 5.8, 15.1; AC-5.3, 6.8, 8.4, 12.1, 18.3; D1-8.0, 8.6
231/ D1-0.0, 8.3, 23.7; S3-1.9, 7.4, 12.1; I2-3.5, 16.6; D3-3.8, 4.4, 13.7, 19.8; D2-4.9, 5.5, 14.8, 20.9; AC-5.6, 7.1, 12.3, 18.6; I1-7.4, 20.0; T-8.7, 11.5, 20.8, 23.0; E1-10.0, 19.3
232/ S3-0.2, 2.6, 8.1, 12.7, 22.5; I2-1.0, 4.2, 12.7; D3-3.5, 4.1, 13.4, 19.5; AC-4.3, 5.9, 7.4, 11.1, 12.7, 17.3; D2-5.2, 20.7; D1-19.0, 23.4; E1-23.4
233/ S3-0.8, 3.2, 6.4, 13.3, 23.1; I2-1.7, 2.9, 13.4, 15.9; D3-3.8, 19.2; D2-4.9, 20.4; AC-4.6, 6.2, 11.4, 17.6; I1-5.1, 6.4, 16.3, 19.1; D1-8.8, 9.4, 18.7, 23.2; E1-9.0; T-10.5, 23.7
234/ S3-1.5, 7.0, 11.7, 21.4, 23.8; AC-3.4, 4.9, 6.5, 11.7, 17.9; I2-3.5, 16.6; D3-3.5, 18.9; D2-4.6, 5.7, 15.6, 20.1; I1-4.6, 6.0, 18.6; D1-8.5, 9.1, 18.4, 22.9; E1-9.3, 18.6, 23.8; T-11.7, 23.2
235/ I2-1.0, 12.7, 15.3; D3-3.1, 14.1, 18.5; AC-3.7, 5.2, 10.4, 16.7; I1-4.1, 5.5, 18.1; D2-4.4, 15.3, 19.8; D1-8.2, 8.8, 18.1, 22.6; T-8.4, 11.1, 20.4, 22.7; S3-12.3, 22.1; E1-22.6
236/ S3-0.5, 6.0, 22.8; I2-2.9, 15.9; D3-3.9, 4.5, 13.7, 18.2; AC-4.0, 5.5, 10.7, 17.0; D2-5.2, 5.8, 15.0, 19.5; D1-7.9, 8.5, 17.8, 24.0; T-7.9, 10.6, 19.9, 22.2; E1-8.3, 19.1
237/ I2-0.4, 3.5, 12.1, 14.6; S3-1.2, 6.7, 11.3, 21.1, 23.4; AC-2.7, 4.2, 5.8, 9.4, 15.7; D3-3.6, 4.2, 13.4, 17.9; D2-4.9, 5.5, 14.7; I1-6.6, 19.3; D1-7.6, 8.2, 23.7; E1-8.6, 23.1; T-10.1, 21.7
238/ I2-1.0, 2.3, 12.7, 15.3; S3-1.8, 11.9, 21.7; AC-3.0, 4.5, 9.7, 16.0; D3-3.2, 3.8, 13.1, 19.3; D2-4.6, 5.2, 14.5, 20.6; I1-6.2, 16.1, 18.8; D1-7.9, 23.4; E1-8.8; T-11.3, 22.8

ADDITIONAL INFORMATION CONCERNING ESA-GEOS 2/ISEE 1 CONJUNCTIONS:

	DAY/HOUR	IE ALT. (RE)	GEOS 2 ALT(RE)	G.SEP. (RE)	F.T.SEP. (RE)
ENTER	217/10.7	1.8	5.6	4.9	5.6
EXIT	217/11.0	2.6	5.6	4.9	4.7
ENTER	219/16.3	6.5	5.6	2.3	4.4
EXIT	219/16.9	5.4	5.6	2.3	3.0
ENTER	228/9.6	2.2	5.6	4.8	3.9
EXIT	228/10.1	3.4	5.6	4.8	6.2

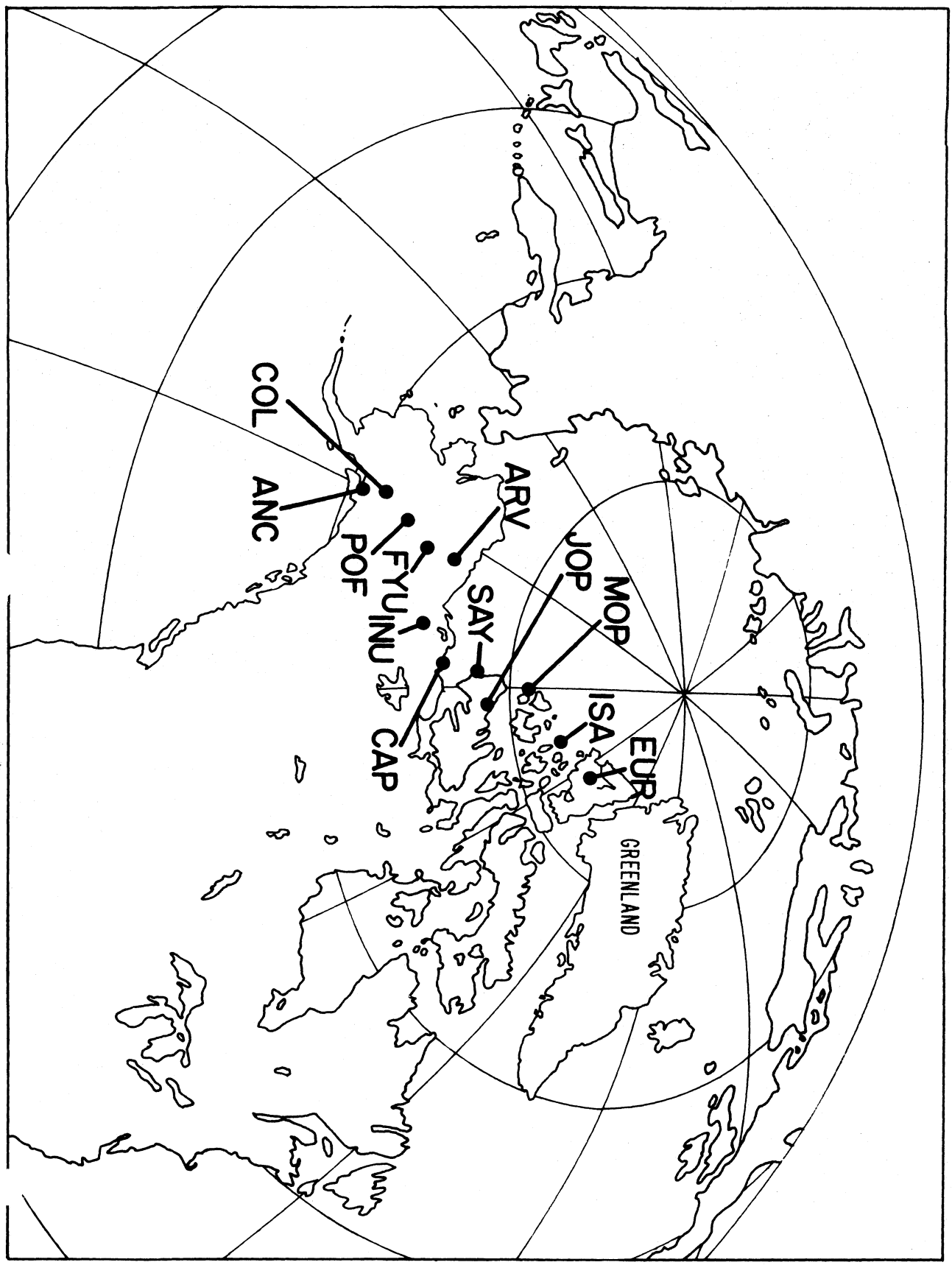
ICSU Converts SCOSTEP into a Scientific Committee with Indefinite Lifetime --- The following resolution was adopted by the 17th General Assembly of the International Council of Scientific Unions (ICSU) on 28 September 1978.

"The 17th General Assembly of ICSU, in view of the long-term nature of several of the currently planned research programs in solar-terrestrial physics such as the International Magnetospheric Study (IMS), and the Middle Atmosphere Programme,

Resolves to convert the Special Committee on Solar-Terrestrial Physics into a Scientific Committee,

Endorses the presently planned programmes of the Committee, and

(Continued on pg 7)


COL
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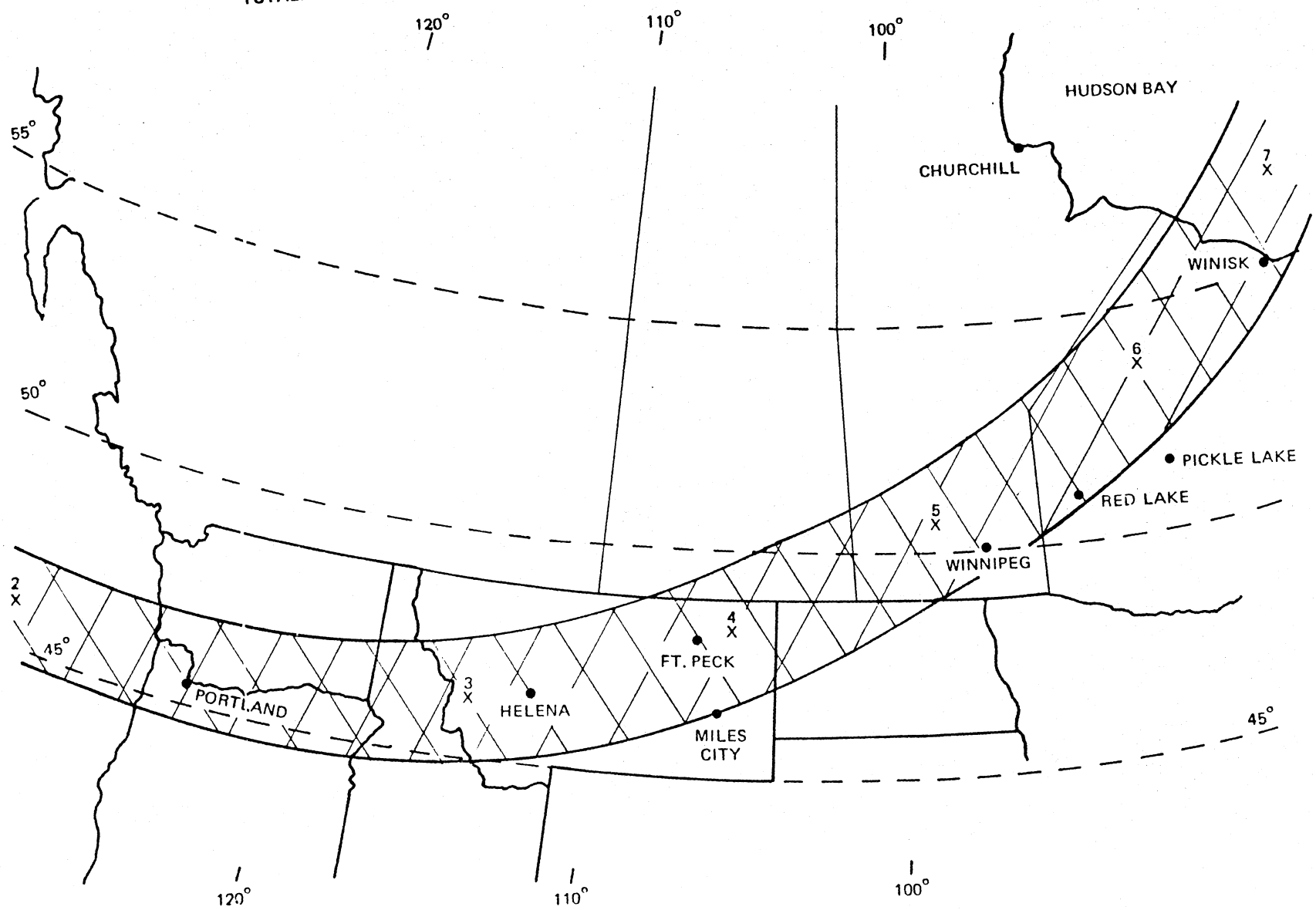
TOTALITY PATH OF THE SOLAR ECLIPSE OF 26 FEBRUARY 1979 OVER CANADA



Commends these for support to the members of the ICSU family."

A word of explanation may be helpful to some readers. The International Committee of Scientific Unions (ICSU) is a non-governmental federation of some 19 international scientific unions (like the IAU, IUGG, URSI, IUPAP, etc.) and the national academies of sciences, national research councils, etc., in nearly 70 countries or geographical regions with independent scientific activities. ICSU is empowered to create interdisciplinary bodies to carry out specific activities ranging across the interest of more than one Union. One class of such bodies is the "ICSU Committee", normally charged with the program-oriented task of planning, organizing and coordinating international interdisciplinary projects (e.g., the IMS) requiring the scientific expertise of several Unions and implementation by scientists in many countries. There are two subclasses of "ICSU Committees": "Special Committees" with a lifetime limited to the duration of the specific programs it is authorized to carry out: and "Scientific Committee", with a lifetime of indefinite duration and more open-ended authorization to organize programs or series of programs as long as there is international demand for them. Until 28 September 1978, SCOSTEP was the "Special Committee on Solar-Terrestrial Physics" with responsibility for the IMS and other authorized programs. After an extension for the IMS, SCOSTEP was due to be dissolved at the end of 1980 (a year after the end of the formal operational phase of the IMS), although there was widespread sentiment in favour of at least extending SCOSTEP once again until the late 1980's to take care of the Middle Atmosphere Program (MAP). However , the countries active in solar-terrestrial physics have long been convinced that SCOSTEP, far from outliving its usefulness with the completion of particular programs like the IMS or MAP, should continue into the indefinite future in order to develop new coordinated programs based on new ideas that are constantly emerging in this developing interdiscipliary field. The earlier scepticism of some of the Unions has now largely evaporated, with the result embodied in the resolution.

The resolution specifically endorses SCOSTEP's "currently planned programs" (those already in existence having been endorsed before). The reference to the IMS is to the Data Analysis Interval 1980-85. ICSU, remembering the unforseen changes in the dates of the IMS and the need to return to ICSU to authorize these changes because the dates had been incorporated into the earlier resolutions, wisely omitted the dates of the MAP from this resolution to allow SCOSTEP the flexibility to set or change the dates of MAP itself. The SCOSTEP Council of National Representatives has already set these at 1982-1985. The resolution also includes by implication the Solar Maximum Year (SMY), August 1979-February 1981.

Finally, Professor de Jager, a long-time member and friend of SCOSTEP, will in his new capacity as President of ICSU (1978-1980) write a letter to the member countries of ICSU inviting their participation in SCOSTEP's programs, with special emphasis on the Solar Maximum Year and MAP.

Solar Eclipse, February, 1979 --- On page 6 is a sketch of the totality path over Canada of the 26 February 1979 solar eclipse, sent by W. W. Benning, Physical Science Laboratory, University of New Mexico. In the period 19-26 February 1979, approximately 14 large and 20 small sounding rockets will be launched from two sites near Red Lake, Ontario, in studies related to the total solar eclipse of 26 February. A majority of the sounding rocket experiments are designed to measure the response of the mesosphere and ionosphere to the variation in solar input energy. The principal sponsors of the activities are the U. S. Army Atmospheric Science Laboratory (ASL), Air Force Geophysics Laboratory (AFGL), NASA-Wallops Flight Center (WFC) and the National Research Council of Canada (NRC).

The launch sites for the sounding rockets are in the vicinity of Red Lake, Ontario (approximately 51N, 93.5W) with the onset of totality at approximately 1654 UT on the 26th. Because of these eclipse rocket launchings, Poker Flat Research Range will be closed for all of February 1979.

Preliminary Listing of Solar Flares

Solar Flare Data --- The table below contains a listing of X-ray flares, class M1 and higher, for the period 18 September -21 October 1978 extracted from "Preliminary Report and Forecast of Solar Geophysical Data", published by SESC Boulder (see IMS NL78-5).

Date	Begin	Max	End	Location		Imp	Reg	Cl
Sep21	B0416	0420	0442	N23	E40	1B	1301	M2
23	0947	1029	A1030	N35	W50	3B	1294	X1
24	1718	1729	1815	N24	E06	1B	1301	M1
27	B0835	0839	0903	N30	W17	-N	1304	M1
	B1439	1448	A1603	N28	W20	2N	1304	M1
	B1700	1727	1825	N30	W21	2B	1304	M1
29	1049	1054	1227	S32	E50	1B	----	M1
Oct 1	0653	0730	0913	S10	E55	2B	1320	M7
5	2027	2030	2034	S13	W04	-F	1320	M1
6	1646	1655	1719	S14	E75	-N	1335	M4
8	0840	0841	0902	S18	E59	-B	1335	M1
9	1951	1953	A1955	S18	W61	1N	1320	M4
12	1442	1447	1452	S14	W90	1B	1320	M1
14	0649	0652	0710	S21	E35	-N	1348	M1
	B2112	2113	2125	S21	E27	-B	1348	M1
15	B0353	0356	A0410	S20	W90	1B	1332	M1

MEETINGS AND WORKSHOPS

Solar and Interplanetary Dynamics Meeting. --- IAU Symposium No. 91, Solar and Interplanetary Dynamics, will be held in Cambridge, Massachusetts, U. S. A. 27-30 August 1979. Co-chairmen will be E. Tandberg - Hanssen and M. Dryer. Emphasis will be placed on solar activity as evidenced by flares and coronal holes and their interplanetary consequences. Invited and contributed papers will be presented. A call for papers will be forthcoming within the next few months. This symposium will be held during the week following the IAU General Assembly in Montreal, Canada (14 - 23 August 1979).

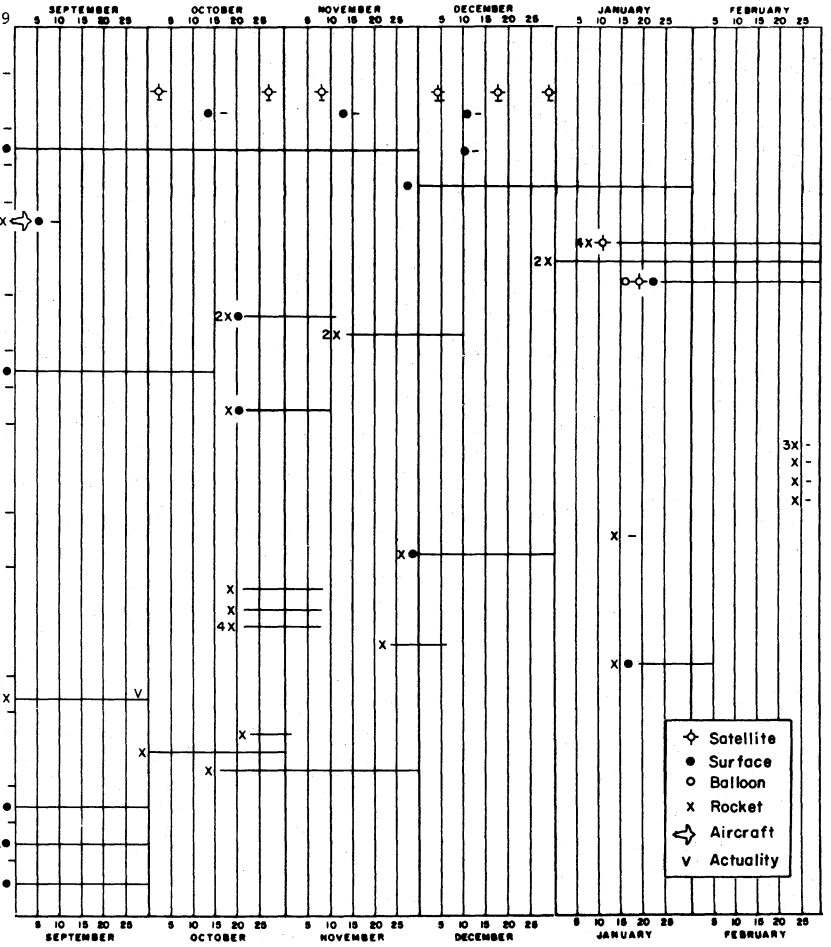
Victoria Substorm Morphology Workshop --- Stimulated by the various definitions of the "substorm" prevalent at the present time, nine researchers active in this field met on the campus of the University of Victoria, B.C. (Canada) over the period August 21 - 23, 1978 to attempt to reach a consensus definition on the term "substorm". The nine participants were S. I. Akasofu, J. Foster, R. A. Greenwald, Y. Kamide, K. Kawasaki, A. T. Y. Lui, R. L. McPherron and C. T. Russell.

Over the period of the meeting a consensus was reached on the characteristic properties of the substorm and a formal definition was prepared. At the conclusion of the meeting, small subgroups of the participants were assigned the task of preparation of the definitions of the various signatures (magnetogram, micropulsation, auroral and electric field) of the substorm onset and the ground rules for the use of these signatures. These subgroups are presently preparing their statements on the signature of the substorm onset, and it is expected that the final document stemming from the decisions reached at the Victoria workshop will be in final form by the end of the year. It is planned to publish the substorm definition and its ancilliary classification in the Journal of Geophysical Research.

Composite Alaska Magnetometer Chain --- S. I. Akasofu, Uni. of Alaska, supplied the station array map on page 5 of this newsletter. He also enclosed stack plots of 5 minute average magnetic variations recorded at the indicated sites and promised to send a one month data tape of the 5 minute averages as plotted to WDC-A in Boulder.

IMS CALENDAR OF GPR CAMPAIGNS SEPTEMBER 78 - FEBRUARY 79
(As of 23 OCTOBER 1978)

WORLD-WIDE
Special SSC-selected satellite periods
IISN (Bauer et al)
20 W TO 40 E
Wilhelm; "Geomagnetic Pulsation Campaign"
SPITSBERGEN
Deehr; "Norwegian - Alaskan Spitsbergen Expedition"
KIRUNA (ESRANGE)
Haerendel; "Porcupine"
Lundin; "S23 - Substorm GEOS
Appleton Laboratory; Petrel II
Zhulin; "SAMBO II"
ANDOYA (ANDENES)
Woolliscroft; "UK Andoya Campaign"
Maehlum et al; Ferdinand 40,41
N. SCANDINAVIA
Siebert; "Geomagnetic Pulsations"
ALASKA-N. SCANDINAVIA
Heppner; "Cameo"
CANADA (RED LAKE)
Smith; "18.1020UE, 18.1021UE, 18.1022UE"
Hale; "23.009UE, 23.010UE"
Kelley; "33.003UE"
Zipf; "33.003UE"
FORT CHURCHILL
Sharp; "25.041UE"
deLeeuw; "Electron Beam Fluorescence Probe"
POKER FLAT
Ulwick; "EXCEDE II Spectral"
Ulwick; "FWIF"
Ulwick; "TMA, SWIR, IR"
Winkler; "ECHO V"
Anderson; "29.013UEX"
WALLOPS ISLAND
Smith; "14.542UE"
WHITE SANDS
Sharp; "13.135UE MAP-2"
Nier; "18.1024UA"
MacQueen; "27.033AS/US
ANTARCTICA
IPPDYP (Helliwell, et al)
SYOWA
"Syowa aus. Winter Rocket Program"
CONJUGATE POINTS
Syowa - Iceland (Fukunishi)



SOLAR AND GEOMAGNETIC ACTIVITY AUGUST 15 - OCTOBER 7

KP

ROTATION #1983

2800 MHZ
FLUX OTTAWA 129 121 118 113 109 105 102 104 102 103 102 99 109 107 106 121 137 156 172 164 178 177 180 175 167 159 148
SS NO. BOULDER 81 63 56 - 44 79 61 54 81 123 63 93 125 61 88 108 187 224 240 245 317 346 247 247 197 158 131

KP

ROTATION #1984

2800 MHZ
FLUX OTTAWA 141 137 136 144 151 160 160 170 169 167 172 178 170 158 157 148 152 147 147 142 139 138 132 135 140 137 142
SS NO. BOULDER 146 140 169 198 208 190 228 201 234 256 202 183 263 256 256 233 210 213 199 196 163 180 141 195 108 140 184

121