International Council of Scientific Unions

SPECIAL COMMITTEE
ON
SOLAR-TERRESTRIAL PHYSICS

78-4

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IMS NEWSLETTER

******MAILING ADDRESSES OF IMS PARTICIPANTS******

This note is to remind that we published a complete address listing as a supplement to IMS NL 77-7. The supplement gives the names and addresses of every person and group then receiving these IMS NLs. At that time we discontinued giving the IMS Bulletin No. 2 (1975) program numbers in newsletter items since these are badly out of date. We continue to add new names, change addresses, and delete names upon request. Extra copies of the NL 77-7 Supplement are avialable from the IMSCIE Office and we anticipate an updated version in late summer 1978. JHA 78/04/04

IMSCIE Office: Telex 45897 SOLTERWARN BDR
Telephone: 303-499-1000 x6501 (FTS 323-6501)
IMS Satellite Situation Center (J. Vette): Telex 89675 NASCOM GBLT
Telephone: 301-982-2354
European Information (P. Simon): Telex 200590 CNET OBS B MEUDO
Telephone: 027-75-30 et 75-70
USSR Coordination/Information Office (I. Zhulin): Telex 7523 SOLTER SU

SPECIAL IMS HIGH-ALTITUDE SATELLITE PERIODS - 1978

Special IMS High-Altitude Satellite Intervals for April-June 1978 are given here. On page 4 of IMS NL78-2 details are given listing all the SSC-selected Special Satellite intervals for January-June 1978 and the configurations that were the basis for this designation by the IMS Satellite Situation Center. Times of the intervals given below were extended by six hours at start and end of each period from those given in the detailed table because the boundaries used in the exact model calculations may fluctuate during disturbances. Similar extended periods were announced for 1976 and 1977 in IMS/SSC Reports and IMS NLs.

1 Apr	91/0200 UT to 3 Apr 93/0100 UT	9 May	129/0100 UT to 10 May 130/1700 UT
22 May	142/1200 UT to 23 May 143/1600 UT	31 May	151/1400 UT to 3 Jun 154/0500 UT
28 Jun	179/0600 UT to 29 Jun 180/0300 UT		

SPECIAL LOW-ALTITUDE SATELLITE CONJUNCTIONS

See Program Details below for special request in re coordinated satellite data acquisition intervals and copy of the most recent satellite conjunction forecast telex sent to spacecraft experimenters and staff. Magnetic flux tube conjunction times have been forecast by the IMS SSC for GEOS, ISEE, and selected low-altitude satellites and ground-based arrays on a weekly basis. These forecasts have been distributed via telex from the IMSCIE Office to provide two or three week advance notice of opportunities for coordinated data acquisition. Generally, these messages are too numerous and lengthy to include in these NLs.

GROUND-BASED, BALLOON AND ROCKET CAMPAIGNS:

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

Feb 27 to Apr 9; W. Sharp; "25.031UE"; Ft. Churchill; ROCKET - auroral studies, update in NL 78-2, pg 3
Mar 20 to Apr 7; R.A. Goldberg; "18.214 & 18.215GM"; Poker Flat; ROCKETS (2) - See "ACTUALITIES"
Mar 21 to Apr 7; R.A. Goldberg; "AUROROZONE"; Poker Flat; ROCKETS (6) - note in NL 78-1, pg 3
Apr 1 to Apr 13; W. Bernstein; "E PARALLEL B"; Ft. Churchill; ROCKET - 27.010AE, details in NL 78-2
Apr 1 to Apr 15; R.H. Holzworth; "E-Field-Spring 78"; E. Canada; BALLOONS (3-5)-details in NL 78-3, pg 4
Apr 1 to Apr 30; G. Witt; "S27-TWILIGHT"; Kiruna; ROCKET - Nike-Orion 31.006UE, details in NL 78-2, pg 3
Apr 1 to Apr 30; E.J. Llewellyn; "ATOMIC OXYGEN & OZONE"; Ft. Churchill; ROCKET - coordinated with S27
Apr 1 to Sep 30; Ejiri, Kimura, Oya, & Nakamura; "AUSTRAL WINTER CAMPAIGN"; Syowa; ROCKETS(4)- NL 78-3
May 1 to May 31; A. Christensen; "18.1023UE"; White Sands; ROCKET - Nike-Tomahawk for plasma physics
May 1 to May 31; E.C. Zipf; "31.004UE"; White Sands; ROCKET - Nike-Orion for plasma physics study
Jun 1 to Jun 30; Smith, Morse, Kelley; "JASPIC"; Wallops Isl; ROCKETS (4) - See below for details
Jun 1 to Jun 30; ????; "JASPIC"; Shipboard launches; ROCKETS (5) - See below for details
Jun 30 to Aug 8; S. Ullaland; "SBARMO"; Scandinavia; BALLOONS (36) - details in NL 78-3, pg 4

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

Apr 12, Jun 1-14; 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 Apr 30; Eather; "MERIDIAN SCANNING PHOTOMETERS"; Churchill Chain; SURFACE - note in NL 77-11
Apr 20 to Oct 15; Siebert; "GEOMAGNETIC PULSATIONS"; N. Scandinavia; SURFACE - details in NL 78-2, pg 3

REGIONAL IMS SAT/GBR PROGRAM DETAILS, APRIL - JUNE 1978

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

SATELLITES

GEOS-1 --- K. Knott, ESA-ESTEC, telephoned the following information on this program. Because of interesting results from GEOS measurements during earlier inversion maneuvers (NL 77-10, pg 3), the GEOS spin axis will be shifted again. On 3 April it will be rotated 90 deg and kept in that orientation for one week. On 10 April the axis will be rotated 180 deg. During the inversion maneuvers data acquisition at Odenwald will be limited to 4.5 hours around apogee.

The problem with the GEOS magnetometer (Experiment S331) has been diagnosed as a "latch up" in a CMOS switch. This has been corrected in the instrument to be flown in GEOS-2.

All GEOS low-speed data collected by NASA during passes over the western apogee have been converted to experimenter tape format. The high-speed data still is in processing. Data of improved quality is available for the latter portion of GEOS passes over N. America (>50% good). A summary diagram of Plasma Density +/- 2-hours about eastern apogee is described under actualities. These are preliminary results from A. Pedersen's DC-field experiment on GEOS-1.

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Data acquisition from GEOS-1 will be terminated 16 days before launch of GEOS-2.

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GEOS-2 --- Satellite launch window still scheduled to open 22 June 1978. Final satellite integration will occur during week of 3-7 April. The Integrated System Test (IST) will take place the following week. Packing and shipment to the Eastern Test Range (Canaveral) is set for 20 April.

Requested Supplementary Special Satellite Periods

P. Reiff has asked for 5 more special data acquisition intervals during which time all possible efforts would be made to obtain data from the ISEEs, GEOS-1, and S3-3. During these times GEOS and the ISEEs will be in the tail and near apogee while S3-3 will be in the dawn-dusk meridian. Normal orbit changes will preclude such observations after some time in May. Data taken will be used in the Rice University magnetosphere modelling program. The two first priority periods are: (1) 9-10 April, 99/1700-100/0300 UT; (2) 21-22 April, 111/1700-112/0300 UT. The second priority periods are: (3) 2-3 April, 92/1700-93/0300 UT; (4) 14-15 April, 104/1700-105/0300 UT; and (5) 26-27 April, 116/1700-117/0300 UT. Information about the planned GEOS inversion maneuver has been relayed to Rice.

ISEE-1 --- K. Ogilvey, NASA-GSFC, called with updated information about the ISEE spacecraft. Data pool tapes have been created for experimenter evaluation and after agreement as to the validity of the algorithms used, these summary prompt-data tapes will be available to the IMS community. At this time the probable date for availability of the first data pool tapes is 1 May 1978.

Bame's experiment, 50 eV to 40 KeV Proton and 5 eV to 20 KeV Electron Plasma Probe, is no longer degrading and it has been returned to operation in the tail during low-bit data rate orbits. Before this, it was operated only during high-bit rate orbits. Also, for about 3 weeks there have not been the spurious commands and reconfigurations that occurred on a few (3 or 4) passes in association with tracking from Ascension Island. The problem is still under study.

Evidence of results already coming from ISEE and GEOS is the list of papers given in the 3rd Announcement for the ESLAB Symposium (5-7 June, Innsbruck). There are 4 scheduled sessions and already 38 contributed papers. For further news see "Meetings", pg 8 of this NL. The ISEE Science Working Group is scheduled to meet at Goddard on 14 April 1978.

SATELLITE CONJUNCTION FORECASTS

Since July 1977, we have included in many NLs lists of times when GEOS-1 was in conjunction along a magnetic flux tube with certain low-altitude satellites. After launch of ISEE-A&B the coverage was extended to include this satellite-pair. These items were summaries of conjunction forecast messages sent earlier (weekly) by the IMS Satellite Situation Center through IMSCIE Office telex communication facilities. As of last week, these forecasts were sent to some 35 experimenters and/or satellite controllers. Generally, they cover conjunction intervals two or three weeks beyond the time of distribution. The dates spanned by these forecasts are determined by the timely availability of satellite orbit parameters at the IMS SSC and the variability of low-altitude satellite orbits due to changes in atmospheric drag. Since those receiving the telexes are, for the most part, experienced in satellite terminology and because telexes can be costly, the messages are relatively concise. We reproduce below the message distributed at 1815 UT on 23 March 1978.

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TENTATIVE ISEE/LOW-ALTITUDE SATELLITE CONJUNCTIONS AND ISEE/GEOS CONJUNCTIONS FOR 1 APRIL - 7 APRIL 1978 (DAYS 91-97)
CONJUNCTION TIMES ARE COMPUTED ONLY FOR ISEE ORBIT SEGMENTS WITHIN 4-15 EARTH RADII GEOCENTRIC DISTANCE RANGE. CONJUNCTION IS DEFINED AS MAGNETIC FOOTPRINT OF ISEE AND RELEVANT SATELLITE BEING WITHIN +/- 3 DEGREES LATITUDE AND +/-6 DEGREES LONGITUDE BOX.

NOTE CHANGE IN ISEE ALTITUDE RANGE FOR CONJUGACY

ABBREVIATIONS FOR THE CONJUGACY TIMES ARE JC/JIM CREEK, I1/ISIS-1, I2/ISIS-2, AC/AE-C, C/CHATANIKA RADAR, M/MOON, T/TRIAD, D1/DMSP-5D-F1, D2/DMSP-5DF2 AL/ALBERTA MERIDIAN MAGNETOMETER CHAIN, S2/S3-2, S3/S3-3.

NEW LOW ALTITUDE SATELLITE E1/KYOKKO IS ADDED.

DAY CONJUNCTION TIMES UT

91 T-0.4, 2.0; D2-0.3; AC-1.3, 2.9

92 D1-19.1, 20.8, 22.6; I2-21.4, 23.3; S2-21.4 22.9; E1-23.5
GEOS-ISEE CONJUNCTION ON DAY 92/23.6 TO DAY 93/1.4
GEOS ALTITUDE 4.0 TO 4.2 EARTH RADII
ISEE ALTITUDE 8.4 TO 5.5 EARTH RADII
GEOMETRIC SEPARATION 4.0 TO 4.2 EARTH RADII
FLUX TUBE SEPARATION 5.4 TO 3.4 EARTH RADII

93 S2-0.5, 11.2; D1-0.3; AL-5.3 TO 6.0; I1-5.6 D2-5.4; E1-6.1, 17.8; T-16.8, 18.4

95 D1-4.8, 15.5; AL-10.4 TO 12.0; S3-5.1; S2-16.2; D2-16.1, 17.8; T-16.8, 18.4

97 D1-17.7, 19.4; E1-20.0; I2-20.8, 21.4

BEST REGARDS, M. CANDIDI IMSCIE OFFICE

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Any satellite experimenters or other IMS participants having a clear need to receive these weekly messages may send a request to the IMSCIE Office. Experience suggests that it is appropriate to send the forecast telex directly to concerned experimenters rather than through an intermediary because of the short reaction times available.

We cannot send specialized telexes to each individual to match specialized needs but must continue with a common message to everyone. However, the IMS SSC and IMSCIE Office welcome suggestions about other useful information that might be added and responses about the utility of these weekly messages. Also, as explained before in these NLs, the forecast conjunction times are subject to error because of low-altitude satellite orbit fluctuations. It may be necessary for the SSC to recalculate actual conjunction intervals retrospectively after final orbit tapes are available. Any experimenter having more detailed needs for satellite information for coordination with specific campaigns should contact the IMS SSC directly (see this NL cover page for address).

PROGNOZ-6 --- Detailed information about the scientific tasks and on-board experiments for this USSR satellite were published in IMS NL 78-3, pg 3. Experiment #6 was omitted from the list and is given here: (6) Isotope Spectrometer, energy range 5-50 MeV/nucleon. V.N. Lutsenko, Inst of Space Research, Moscow, and S. Fisher, Astronomical Institute of CzSAN, Czechoslovakia.

ISIS-I&II --- IMSCIE Office received listings of February 1978 data acquisition intervals for times when either of the ISIS spacecraft were near the magnetic field line passing through GEOS-1. Given are the date, station acquiring the data, actual data recording times, tape number, coincidence time with GEOS, field line separation and an indication of those intervals that were among the forecast conjunction messages. For example, on 12 Feb 1978, station KER recorded ISIS-II data from 0344-0356 UT (tape # 0125) and LAU recorded data from 0705-0717 UT. The coincidence time was 07h07m55s UT and the field line separation was 85 km.

EXOS-A (KYOKKO) --- K. Hirao sends the following summary update of orbit parameters for this low-altitude satellite (included in the conjunction forecast messages). Mean elements: Epoch 1978/03/06, 00h00m00.0s UT, Rev. 319; Semi-major axis 8,684 km; eccentricipy 0.192423; inclination 65.38 deg; right ascension of ascending node 162.08 deg; argument of perigee 328.42 deg; mean anomaly 79.99 deg; mean motion 10.727 rev/day; height of perigee 635 km; height of apogee 3977 km; and period 134.2 min.

GMS (HIMAWARI) --- Routine operation at geostationary altitude continuing. Data processing began for continuous monitoring as of 1 Feb 1978. See actualities (pg 5) in this NL for data sample and further news.

ISEE-C (HELIOCENTRIC) --- This satellite is still scheduled for launch in July 1978. We will try to have an update for the next IMS NL. Our last coverage of the complete ISEE program was in IMS NL 77-8, pgs 8&9. References are given there to several published articles on the various ISEE spacecraft. Our standard reference for program details is Report NSSDC/WDC-A-R&S 77-03, "Report on Active and Planned Spacecraft and Experiments", September 1977 (pgs 154-157 for ISEE-C). Project Scientist for this satellite is T.T. von Rosenvinge, NASA-GSFC.

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J.M. Wilcox, Stanford U., has shared a letter about standard data presentation scales for ISEE data plots. The critical paragraph reads: "With ISEE publications now beginning it may be appropriate to remind everyone of the plotting standards that we have previously established and agreed to. These standards are also being used by the IMS and by the Solar-Geophysical Data reports from Boulder. The basic scales are: 0.8 cm/day; 1 cm/hr; 6 cm/hr; and 12 cm/hr. A magnification of 18.25 should be used. In a few cases a magnification of 18.0 will have to be used, where 18.25 is not available." For more updates on standard data display scales for IMS Workshops see R.Rostoker's report on the IMS Steering Committee decisions in re the IMS Working Conference ("Meetings & Workshops", pg 6).

GROUND-BASED, BALLOON, AND ROCKET CAMPAIGNS

USA

JASPIC --- This acronym is for "Joint American Soviet Particle Intercalibration Project", a

cooperative investigation by US and USSR scientists of the night-time ionosphere. In particular, observations will be made of the plasma physics related to corpuscular sources of the night-time ionosphere at mid-latitudes. From Wallops Island, Smith will launch two Nike-Apaches, 14.542UE & 14.543UE; Morse will launch Nike-Tomahawk 18.1Ø19CE; and Kelley will launch Nike-Apache 14.539UE. In coordination with these launches, the USSR Hydrometeorological Service (Gidromet) will launch 5 rockets from shipboard during June 1978. Details about this program have been requested.

CANADA

AO&O --- Llewellyn's Atomic Oxygen & Ozone rocket to be launched from Ft. Churchill was postponed until early April. It will be launched into the twilight auroral zone upper atmosphere (130 km) to study height distribution of atomic oxygen and ozone during winter warming. Launch will follow some 18 hours after Witt's "S27-TWILIGHT" launch from Kiruna, Sweden. Details on both rockets have been given in NL 77-12, pg 4, and 78-2, pg 3.

We note here that Mr. J. Aitken has announced the proposed move of the rocket and balloon launch support staff from Ft. Churchill to Gimli, Manitoba. The move would result in economies because use of the Churchill range has been steadily decreasing and there is an increasing demand for launches at other Canadian locations. Federal government facilities and housing are available at Gimli.

E-FIELD SUMMER 78 --- This program of F. Mozer and R. Holzworth was described in detail last month. We correct portions of that description by noting that the downwind telemetry site is Fort McMurray, Alberta, Canada and that one of the two launch sites should have been Schefferville, Quebec and the other is Thompson, Manitoba.

ACTUALITIES

SATELLITES

GMS --- See the figure and explanation on the facing page of this NL (pg 5).

GEOS-1 --- On page 7 of this IMS NL is reproduced a chart of plasma density measurements within +/- 2-hours about GEOS apogee. This "preliminary" data is from A. Pedersen's DC Electric-field sensor that is part of the S-3Ø0 Waves & Fields experiment (K. Knott, "Payload of the 'GEOS' Scientific Geostationary Satellite", ESA Scientific & Technical Review, Vol. 1, No. 3, (173-196), 1975). We print here an excerpt of Arne's "Dear colleagues" letter which came with the diagram. The diagram gives electron density near GEOS apogee for days when dc electric field experiment summaries were made. The density is derived from measurements of the satellite floating potential using the electric field probes as a reference. The derived electron density is weakly dependent on electron temperature; it has been assumed that kTe/e for the dominant electrons is in the range 1-5 V. This has been shown by probe characteristics and by active wave experiments. The uncertainty in density determination is with a factor 2 for densities above 25/cc and below 5/cc. For intermediate densities in the range 5-25/cc, the uncertainty is less.

This figure is circulated to: Identify interesting days for comparison by giving an overview of high and low density days. To contribute to work in progress between S-3Ø0, S-3Ø1, S-3Ø2, S-3Ø3, and S-3Ø4 to arrive at good methods for determining plasma density and energy distribution at the low energy end. To give a crude plasma density for days when no active wave experiments were in operation (e.g. to aid in estimating characteristic parameters such as plasma frequency). And to assist in looking for characteristic features in particle data (S-3Ø2, S-3Ø3, and S-31Ø) for high and low density days.

By telephone last week, Pedersen confirmed that the values shown here are generally in agreement with similar values obtained by other GEOS experiments. He cautioned that anyone interested in this diagram should remember it is preliminary and intended only as a summary guide.

GROUND-BASED, BALLOON, & ROCKET CAMPAIGNS

Last month the IMS Calendar of GBR Campaigns showed some 19 launch actualities during January and February 1978. Most of these were described in some detail in either NL 78-2 or 78-3. With this NL we pick up some 11 further launches in February and March and, together with an omitted actuality from January, all are described below.

ANDOYA, NORWAY

Ferdinand-47 (BUGATTI) & Ferdinand-48 (TRINOM) --- E.V. Thrane was Project Scientist for these launches, both on 1 March 1978. Purpose of the program was to make in situ studies of the composition and structure of the mesosphere and lower thermosphere. See NL 77-12, pg 3.

FORT CHURCHILL, CANADA

25.Ø31UE --- W.E. Sharp launched this rocket at Ø7Ø5 UT on 13 March 1978. Purposes of the program were: investigate the production and distribution of NO2 in aurora; and monitor the angular distribution of low energy electrons (78-2, pg 3).

Energetic Particle Detector --- B.A. Whalen launched a Black Brant IVB into an auroral substorm on 26 February 1978. Its purpose was to measure the energy spectrum, pitch angle distribution, and mass distribution of electrons and ions in the energy range from 1 eV to 1Ø0 KeV. Launch coordinated with Venkatesan, see next actuality. Details in NL 77-11, pg 1Ø.

Auroral X-Rays --- D. Venkatesan launched a Black Brant VI into the same substorm as Whalen's rocket, 25.Ø31UE, on 26 Feb 1978. Its purpose was to measure auroral X-rays during special times such as auroral break-up or during pulsating aurora. A second launch was attempted unsuccessfully on 27 Feb. The third rocket in this program has been postponed.

POKER FLAT, ALASKA

18.1Ø17UE --- T.N. Davis and E. Wescott launched the first of two Nike Tomahawks in this campaign on 27 February 1978. Its purpose was to study perpendicular and parallel E-fields up to several earth radii over discrete aurora to determine formation and dynamics of laminar V shocks. See 78-2, pg 3.

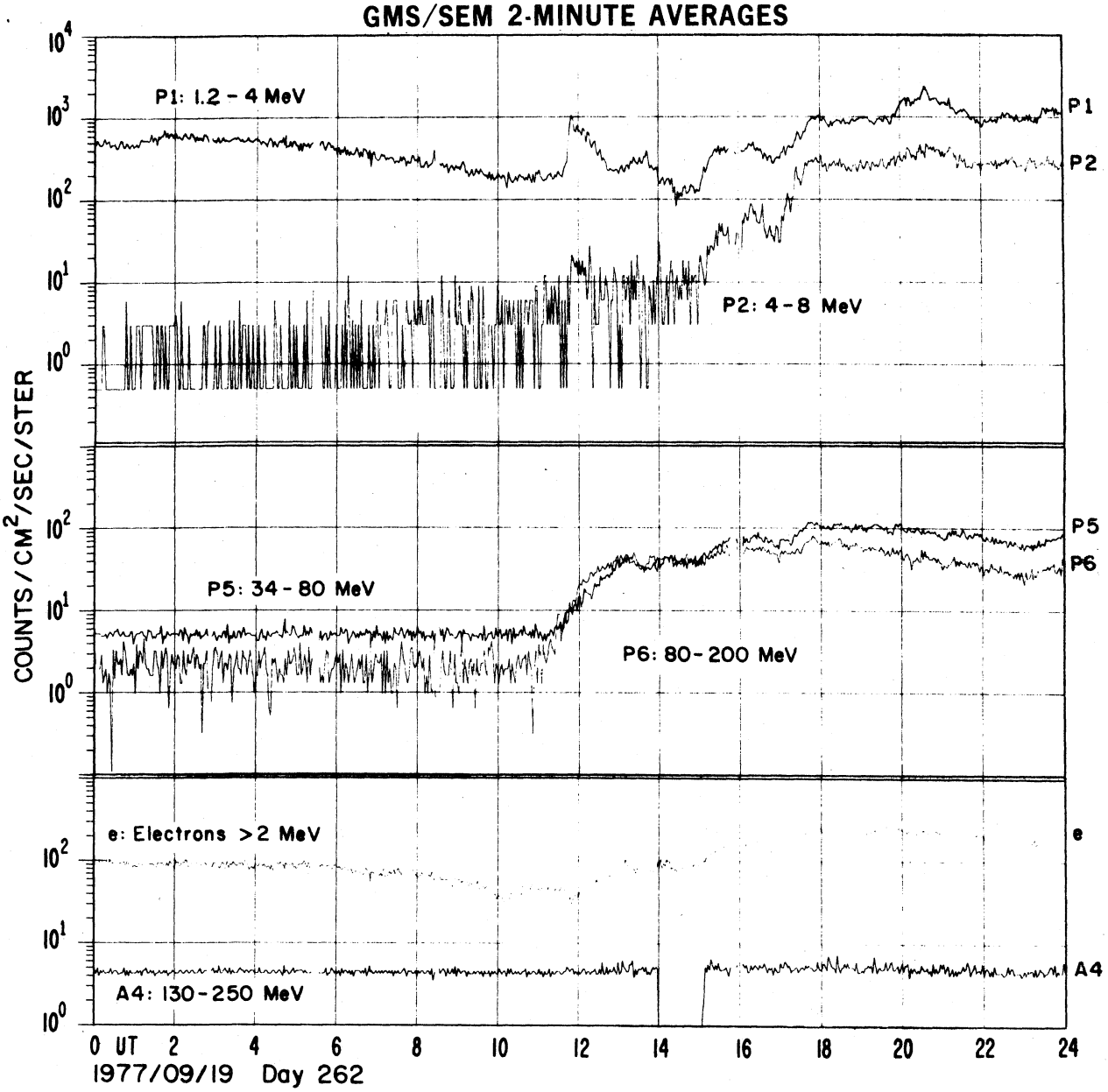
18.1Ø15UE & 18.1Ø16UE --- M. Kelley and T.S. Jorgensen launched two Nike Tomahawks;, one on 28 February at Ø417 UT and the other on 2 March at Ø423 UT. Purpose of the campaign was to study ionized and neutral thermospheric winds in the evening sector of the auroral oval through multiple chemical releases. All 5 releases on each rocket were tracked successfully. See 78-2, pg 3.

29.Ø07UE --- P.A. Cloutier & H. Anderson launched a Terrier Malemute rocket on 9 March at Ø813 UT. Purpose: to study auroral particles and fields.

18.215GM --- R.A. Goldberg launched a Nike Tomahawk on 27 March at 1Ø27 UT. Purpose was to study energetics of high latitude phenomena changes in the stratosphere correlated with rocket observations of X-rays during aurora. Other rockets are part of this campaign. Details in NL 78-1, pg 3.

WALLOPS ISLAND

14.533UE --- L.G. Smith launched a Nike Apache on 5 January 1978. Purpose was to study upper E-region for effects of trapped energetic electrons as mid-latitude ionization source during night time. See 77-8, pg 3.



Solar Flare Effect at Geostationary Satellite GMS

The data above for 19 September 1977, are from 6 of the 13 particle sensor channels on the Japanese Geostationary Meteorological Satellite ----GMS---- ("Himawari"). Details about this satellite were in IMS NL 77-8, pg 3, and 77-6, pg 2. It was launched on 14 July 1977 and placed in geostationary orbit at longitude 140 deg East (north of New Guinea). As announced last month, routine data acquisition and processing began 1 February 1978. Data obtained from earlier periods during experiment turn-on and testing phases is available for some times.

T. Kohno provided the analog records from which the figure above was prepared. We show here four proton channels, the electron channel and one alpha particle channel with energy ranges as given: P1 1.2-4 MeV; P2 4-8 MeV; P5 34-80 MeV; P6 80-200 MeV; e >2 MeV; and A4 130-250 MeV. Also available from this satellite are proton and alpha particle channels: P3 8-16 MeV; P4 16-44 MeV; P7 200-500 MeV; A1 9-70 MeV; A2 30-70 MeV; A3 65-170 MeV; and A5 320-370 MeV.

The sharp increase in protons shown in the P1 channel about 1136 UT on 19 September 1977, was a result of solar activity associated with McMath Active Region 14952 which transited the face of the solar disc from 8-21 September. The several flares (including 3 Class X2 flares) associated with this region and the sequence of activity was described in IMS NL 77-10, pg 10. Also in that issue were copies of the GEOS-1 Daily Summary plots for the 20 & 21 Sept, showing activity resulting from this solar disturbance.

Just at press time for this NL we received comprehensive GMS data plots for the complete interval 18-26 September 1977 and for the active period 12-15 February 1978 (see IMS NL 78-3, pg 11). The day-to-day and within-day variations in particle population recorded by GMS span some 4 orders of magnitude in P1 and 3 orders of magnitude in e during the September event.

Interplanetary Shock from Solar Flare ????

A. Maxwell, Harvard Observatory, has written about the interplanetary shock event recorded by ISEE-1 on 26 October 1977, and shown in IMS NL 78-3, pg 5. Maxwell asked "What solar flare was responsible for this shock?" The sun seems to have been relatively quiet from 23-25 Oct with no significant radio burts. A check with the NOAA-SEL Forecast Center confirmed this; however, on 22 Oct there was an SN flare at 0410 UT that included a C5 X-ray event. Later that day there was an M1 flare with X-ray burst at 0848-0930 UT but without optical correlation. The IMSCIE Office will share any further information about this event as it becomes available.

MEETINGS & WORKSHOPS

IMS WORKING CONFERENCE, INNSBRUCK, AUSTRIA --- G. Rostoker called with a summary of decisions reached during the IMS Steering Committee meeting in Moscow during the week 20-24 March 1978.

"The first IMS Working Conference will be held in Innsbruck, Austria in conjunction with the XXI COSPAR Conference. The workshop will take place over 9-10 June 1978. At a meeting of the IMS Steering Committee it was decided to select the following intervals for detailed study:

1400UT, 1 Dec 1977 to 2000UT, 3 Dec 1977
1100UT, 10 Dec 1977 to 2400UT, 12 Dec 1977
0000UT, 20 Sep 1977 to 2400UT, 21 Sep 1977

The preliminary working conference schedule is:

June 9:	0900-1030	(1400/1 Dec - 1000/2 Dec)
	1030-1100	Coffee Break
	1100-1230	(1000/2 Dec - 2000/3 Dec)
	Lunch	
	1400-1530	(1100/10 Dec-0800/12 Dec)
	1530-1600	Coffee Break
	1600-1730	(0400/12 Dec-2400/12 Dec)
	2000-2200	A special extra study of data from 20-21 Sept 1977
June 10:	0900-1000	Further look at the most interesting events from June 9 discussion
	1000-1030	Coffee Break
	1030-1230	Summary of Working Conference accomplishments - Selection of events for follow-up study Consideration of future workshops.

It was decided by the IMS Steering Committee that the specific goals of the working conference should be as follow: I. Identify sudden changes in the parameters being monitored. The goal is to discover what is happening on a global scale when a sudden change occurs in one local parameter. II. To identify the position of important magnetospheric and ionospheric boundaries at times during the periods of interest listed above.

The recommended formats for data presentation at the working conference are as follow: I. 35mm slides: 1/2-hr per slide; 1-hr per slide; 4-hrs per slide; 24-hrs per slide. The distance between the extreme time markers on each slide should be 2.0 cm. II. Analog Charts: 1 cm/hr; 8 cm/hr; and 64 cm/hr. III. View Graphs: 1 cm/hr; and 8 cm/hr. The distance between extreme time markers should be 22 cm."

SPRING AGU MEETING, MIAMI --- The following memo to all GEOS/N. American cooperating scientists comes from R.H. Manka, US IMS Coordinator, about the informal data discussion planned for this meeting. Tuesday evening, 18 April 1978, 7-10 pm in the Baccarat Room of the Deauville Hotel in Miami there will be a data discussion meeting. "This informal review will be preliminary to the opportunity to interact with the GEOS experimenters at Innsbruck in June.

Spectacular events are seen during both the substorm of 29 July 1977 and the magnetic storm of 20-21 September 1977. For both of these events the magnetopause is pushed in past the GEOS orbit. Please bring your data for these two intervals to the AGU (VU-graphs, slides, or charts). The following list gives a chronology of some of the data reported thus far (see also recent IMS Newsletters).

Summary of Data Reported for 29 July and 21 September 1977 --- Substorm of 29 July: This is a very cleancut event stemming from a large solar wind shock arriving at the magnetosphere at about 0030 UT on 29 July.

26-28 July: Energetic protons and electrons detected by IMP-7&8, arrive at magnetosphere; higher energy particles arriving first. About 0030 UT, 29 July: Solar wind shock arrives at earth. Densities in excess of 100/cc appear to persist until about 0400 UT. SSC seen by Alaska magnetometers at 0027 UT. GEOS at about 7 Re and 1400 LT (in dayside magnetosphere) sees a spectacular event which K. Knott interprets as the magnetopause being pushed in past its orbit. Very fortuitously, data was being acquired during the N. American apogee of GEOS at this time (n.b. Data acquisition during this apogee pass was requested by ESA according to the IMS SSC/IMSCIE telex forecast of conjunctions during interval G49. See IMS NL 77-8, pg 10). Virtually all the GEOS experiments see the magnetopause crossing at about 0030 UT.

Magnetic storm, 20-21 September: The magnetosphere responded to two flares, the second of which occurred on 19 Sept 1977 (Class 3B). Magnetospheric activity was observed during the whole period of 19-22 September. In particular several events have been reported on 21 Sept: 0445 UT and 0650 UT, 21 Sept electron injection (about 20 KeV) seen by ATS-6 at about 2200 LT. 1015 UT, 21 Sept GEOS located on dayside magnetosphere sees magnetopause pushed in past GEOS (the GEOS Daily Summary plots for this event were reproduced in IMS NL 77-10, pgs 8-9). 2045 UT, 21 Sept SSC seen by the AFGL plasmapause magnetometer chain.

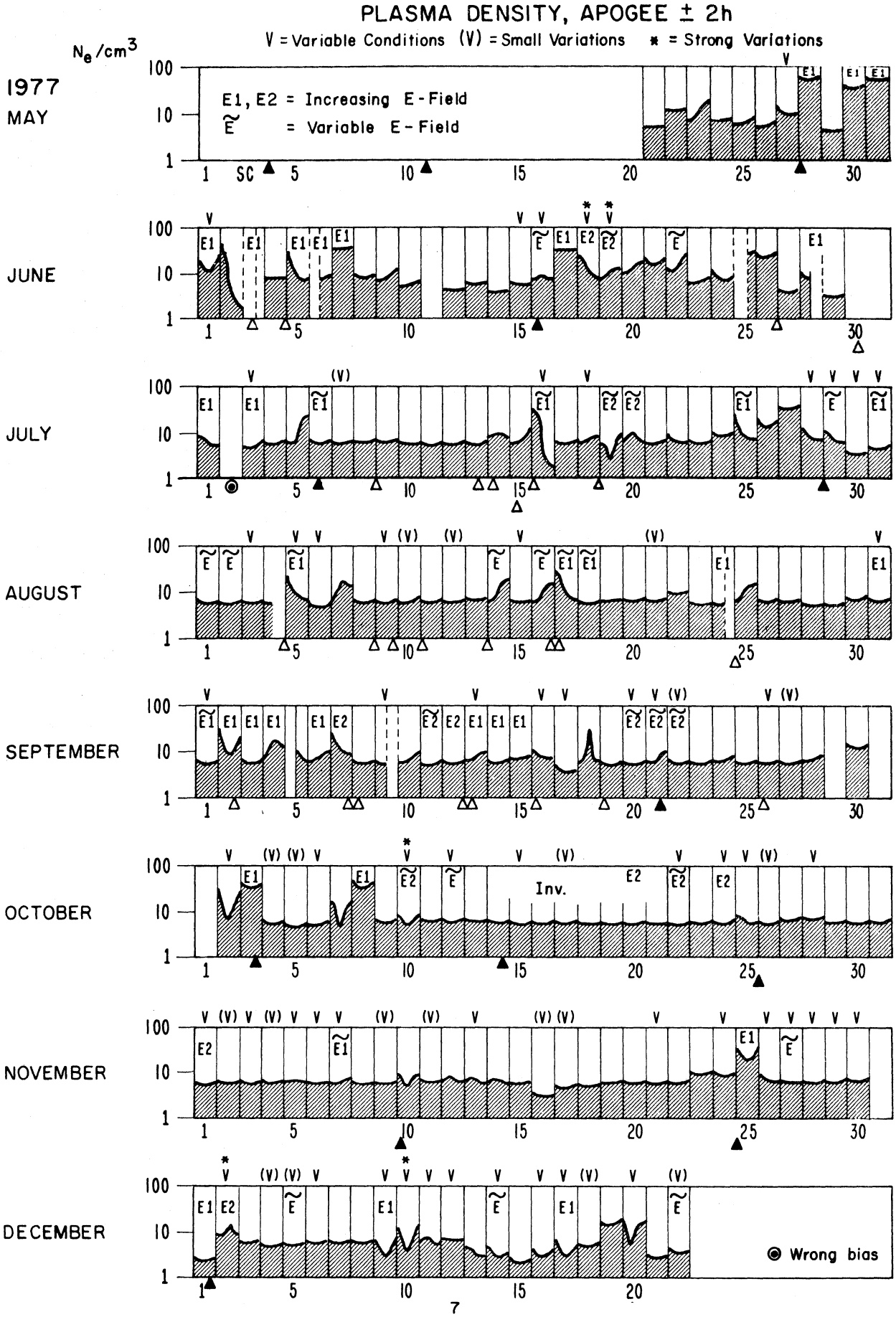
These July and September events will be discussed at the AGU. At Innsbruck the 29 July data will be discussed in an informal workshop on 7 or 8 June (between the ESLAB Symposium and the IMS Working Conference) and the 20-21 September event, as well as data from 1-15 December, will be discussed in the IMS Working Conference to be held 9-10 June."

2nd WORKSHOP ON IMS OBSERVATIONS IN N. EUROPE --- 24-27 October 1978. The Second Circular for this meeting has been received from R.A. Greenwald and G. Lange-Hesse. Already, some 70 scientists have pre-registered and about 30 have recommended periods of investigation. The meeting is to be held at the REVITA HOTEL in Bad Lauterberg, Germany. This site is in the Harz mountains, about 35 km east of the MPI fur Aeronomie in Lindau.

From among the many intervals suggested, two have been selected for detailed study: the special IMS interval from 1-15 December 1977 and the Auroral Breakup Campaign from 27 February to 13 March 1978 (see IMS NL 77-12, pg 3). These periods appear to have the most general interest, they were times of extended efforts, and the IMS satellites GEOS and ISEE-A&B were in orbit. Although the December interval is to be examined at Innsbruck, we feel that the discussions at that meeting will serve as a stimulous for further cooperative studies. Our experience at Hankasalmi has been that initial data comparisons normally lead to more refined cooperative studies. The 2nd IMS WORKSHOP would serve as a natural forum for presentation of these results.

In the first circular it was proposed that one or two rocket flights be chosen for detailed ground-based comparisons. However, it has become apparent that this is a difficult task. Flights from Andoya are directed away from the bulk of the Scandinavian instrumentation whereas flights from Kiruna do not cover an appreciable latitudinal range. A possible solution is to devote one or more sessions to ground-based and rocket comparisons without choosing any special periods. This idea will be discussed further at the ESA Symposium on Sounding Rocket and Balloon Research in Corsica.

(Continued on pg 8)


PLASMA DENSITY, APOGEE ± 2h
V = Variable Conditions (V) = Small Variations * = Strong Variations
Ne /cm3
1977
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER
E1, E2 = Increasing E-Field
Ẽ = Variable E-Field
SC
Inv.
Wrong bias

(Continued from pg 6)

Time will be scheduled for participants who wish to report on research outside of the preselected periods listed above. Potential participants having data during one of the special intervals should send a brief note stating the type of measurements, data interval, and phenomena observed. These notes will be forwarded to the session coordinator who will contact you for further information. R. Pellinen has already agreed to coordinate the ABC sessions. Coordinators for the December interval and the ground-based rocket comparisons are not yet chosen.

Present hopes are for a sufficient number of data presentations to devote a full day to each selected interval. A third day will be devoted to ground-based rocket comparisons and studies from times outside the selected intervals. We hope to have a panel discussion at the close of each daily session. The panel will lead a discussion on the significance of presentations for that day.

More information will be distributed in the next circular in late June, just after the Innsbruck meeting. However, all participants may send comments about the following possibility: from several discussions between J. Untiedt and representatives of SPRINGER-Verlag, it has become possible for us to publish the workshop results in a special issue of Journal of Geophysics. The organizing committee would be interested in your reactions.

URSI XIX General Assembly, Helsinki, 2-9 August 1978 --- D. Jones, ESTEC, has circulated an announcement of the program for the Workshop on Wave Analysis which will be held at the URSI XIX General Assembly. The workshop will cover three half-days. Each session will include a 40-min invited paper and as many 10-min contributed papers as possible (discussion time will be assured). Poster sessions will be organized informally if too many contributions are received. All contributions will be published in a special issue of Annales de Telecommunication. Contributions will only be accepted if they deal with "methods" of analysis and not solely with presenting results. Session I --- Spectral Analysis: Reconstitution of frequency-time variation of signals; Stationary signals: maximum entropy, correlation analysis. Session II --- Polarisation and Wave Normal Studies (single point): Techniques for measuring polarised signals on ground and in space; Wave normal studies. Session III --- Propagation and time delays (multipoint): Locating the origin of electromagnetic signals; Source location in Radio Astronomy signal analysis.

INTERNATIONAL WORKSHOP ON SELECTED TOPICS OF MAGNETOSPHERIC PHYSICS, TOKYO, 13-16 March 1979 --- T. Obayashi, Chairman Organizing Committee, has distributed the following workshop announcement. "The International Magnetospheric Study has entered the third year. This organized campaign to study the physics of the outer envelopes of the planet has already produced a wealth of new information and is proving to be a most successful international project. In order to clarify what we have learned about the magnetosphere and to discuss what has to be done in the future, the Japanese IMS Committee is organizing an International Workshop on Selected Topics of the Magnetospheric Physics, at the International House of Japan, Tokyo, from 13 through 16 March 1979. This Workshop will be cosponsored by SCOSTEP, IAGA, and National Society of Terrestrial Magnetism and Electricity (Japan), and Science Council of Japan (to be confirmed).

The major topics to be covered in the present Workshop are: 1) Integrated Approach to high-latitude phenomena; 2) Wave Particle Interactions in the Plasmasphere; and 3) Recent Developments in Magnetospheric Studies.

The Workshop program, in four-days period, includes presentations by invited review speakers on IMS activities in various disciplines (experimental and theoretical), panel discussions on relevant IMS Projects and some topical contributions.

There will be no formal publication of the Workshop Proceedings, but it is hoped that a summary is reported in Solar Terrestrial Environmental Research in Japan (STER) and individual papers will be published in relevant scientific journals.

The Japanese IMS Committee looks forward to the participation of the international clan of magnetospheric physicists in the Workshop. Additional information is obtainable from Dr. A. Nishida, Inst. of Space and Aeronautical Science University of Tokyo, Komaba, Tokyo 153, Japan."

NEWS FROM WDC-A for STP

J.V. Lincoln has contributed two items for this IMS NL. First: "A preliminary data compilation package covering the interval December 1-15, 1977 -- the period to be studied extensively at the SCOSTEP Innsbruck meeting -- may be ordered now from WDC-A for STP for $35. Checks should be made out to Department of Commerce, NOAA/NGSDC. This xerographic document places under a single cover all available observations made during those 15 days and published in Solar-Geophysical Data. By July 1978 the package will include the complete set of pertinent observations routinely published in SGD plus several special data products such as 5-min neutron monitor counting rates, 15-min graphical values of riometer absorption, electron density profiles, ionospheric f-plots, and 'snapshots' of DMSP differential energy spectra of auroral zone and polar cap precipitating electrons along with matching auroral photographs. The final package with the special data products will be available for $50. Large increments of special data in addition to the basic package may be requested at the usual data center costs."

Second: "The Directory of Solar-Terrestrial Physics Monitoring Stations, MONSEE Special Publication No. 1, issued November 1977 was published for the Special Committee on Solar-Terrestrial Physics by the Air Force Geophysics Laboratory and World Data Center A for Solar-Terrestrial Physics and compiled by H.E. Coffey and M.A. Shea. The entries are computerized for ease in updating the files. Users of the directory are encouraged to notify the WDCs of any mistakes they may find, changes that may occur or additions to be made. The stations are summarized alphabetically and by discipline. Maps illustrate station locations. The major entries are by discipline and list: name, date of entry, discipline, station latitude, station longitude, alternate names, dates of operation, observing schedule, instrument description, raw data, data reduction practice, regular reduced data available after __ months, form of reduced data, data routinely published, data sent to WDCs, data available on request, addresses for information about stations, address for information about data and additional comments."

NETWORK NEWS

At the IMSCIE Office we have accumulated a large supply of information about data collected at various ground-based locations such as magnetometer networks, all-sky camera chains, etc. We hope to summarize all such material in the next IMS NL, 78-5, and provide sample figures where suitable for NL publication.

One typical collection is represented by the figure on page 9 of this NL (facing). W. Baumjohann, Univ. Munster, has given us the latest update describing data collection intervals of the Scandinavian IMS Magnetometer Array. Details of this IMS program of Untiedt, Kuppers, and Baumjohann were given in IMS NL 77-1, pg 4. Standardized data coverage sheets have now been prepared through June 1977. These are the standard forms described by A. Pedersen in the CCOG Handbook, pages 191-193. Each page can contain information about as many as five stations, three components or instruments each, for one month.

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GIEVENBECKER WEG 61
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INSTRUMENT GOUGH-REITZEL MAGNETOMETER

TYPE OF RECORD 35mm FILM

YEAR 1976 MONTH OCT

——— DATA EXIST a = H-COMP
• • • POOR DATA b = D-COMP
▬▬▬ SERVICE c = Z-COMP

STATION 11 FREDVANG LAT. 69.06 N LONG. 13.17 E ACCURACY OF TIME 5 s. TIME RESOLUTION 10 s.

DAY 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

a
b
c

00 UT

STATION 12 GLOMFJORD LAT. 66.90 N LONG. 13.58 E ACCURACY OF TIME 5 s. TIME RESOLUTION 10 s.

DAY 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

a
b
c

00 UT

STATION 13 OKSTINDAN LAT. 65.90 N LONG. 14.27 E ACCURACY OF TIME 5 s. TIME RESOLUTION 10 s.

DAY 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

a
b
c

00 UT

STATION 14 RISEDE LAT. 64.50 N LONG. 15.13 E ACCURACY OF TIME 5 s. TIME RESOLUTION 10 s.

DAY 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

a
b
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00 UT

STATION 15 HASSELA LAT. 62.07 N LONG. 16.50 E ACCURACY OF TIME 5 s. TIME RESOLUTION 10 s.

DAY 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

a
b
c

00 UT

IMS CALENDAR OF GBR CAMPAIGNS FEBRUARY - JULY 78
(As of 29 March 1978)