International Council of Scientific Unions

SCIENTIFIC COMMITTEE
ON
SOLAR-TERRESTRIAL PHYSICS

79■6

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IMS NEWSLETTER

With this issue we are halfway through the last year of the so called "active" phase of IMS. We have so far used this term to indicate the phase when data were being gathered, and not at all to imply that the following data analysis phase was expected to be "inactive". In fact the data analysis phase has already "actively" begun with the various workshops. One of the implications of this transition, now already under way, is that when we come to compose the Newsletter, the programs section gets smaller (see NL 79-4 as compared to this issue); on the other hand, we do not seem to receive much more material dealing with data analysis than we did earlier. This "sermon" is to encourage everybody to "actively" submit their inputs to us for mentioning in the NL. We think that the NL should be a means to let your colleagues know what you are "active" at now that the experimental phase of the IMS is coming to its end.

MC 79/05/30

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: 534-75-30
USSR Coordination/Information Office (I. Zhulin): Telex 7523 SOLTER SU

PROGRAM PLANS FOR JUNE 1979 - AUGUST 1979

SPECIAL IMS HIGH-ALTITUDE SATELLITE PERIODS - 1979

Special IMS High-Altitude Satellite Intervals for Jun - Aug 1979 are given below. Page 5 of NL 79-3 has a detailed listing of all the SSC - selected Special Satellite intervals for January - June 1979 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 latter half of 1978 were published in NL 78-8, pg 4.

#7 6 Jun 157/0200 UT to 8 Jun 159/0500 UT

At press time the Special IMS High-Altitude Satellite Intervals for July and August 1979 were not available. The listing stops therefore with #7. We will give the July and August periods, if there are any, in next issue.

SPECIAL LOW-ALTITUDE SATELLITE CONJUNCTIONS

The IMS Satellite Situation Center prepares a weekly forecast of times of satellite magnetic field line conjunctions for the principal high-altitude IMS satellites (ISEE-1&2, GEOS-2 and SCATHA), 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. Those interested in addition of other satellites 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.

Because of the introduction of SCATHA, the number of conjunctions has become so vast to suggest a change of format. Time intervals of special significance are now selected. These, numbered sequentially, include all conjunctions between target satellites (ISEE, GEOS-2, SCATHA) and those conjunctions between target satellites and low altitude satellite or ground based station which fall in the selected interval. These periods are called " special periods of magnetic conjunction ". In addition to these times two tables are given; the first shows additional information about conjunctions between target satellites, including altitudes, geomagnetic separation and separation along the magnetic flux tube; the second shows the total number of conjunctions between each target satellite and the other satellites and ground stations. Additional information about these conjunctions is available directly from the SSC.

GROUND-BASED, BALLOON AND ROCKET CAMPAIGNS:

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

May 1 to Jul 31; K. Tsuruda; Roberval, Canada; GROUND BASED - see NL 79-6, page 2.
Jun 1 to Jul 13; S. Ullaland; "SBARMO 79"; N. Scandinavia; BALLOONS (36) - see NL 79-4 pg 2
Jun 1 to Jul 13; J. Wygand; Manitoba, Canada; BALLOONS (5) - See NL 79-4 pg 3
Jul 16 to Aug 11; P.H.G.Dickinson;"P197H,P209H,P210H,P211H";South Uist;ROCKETS(4)-Petrel-see NL 79-5 pg 3
Jul 16 to Aug 11; Krankowsky; "P212H,P213H,P214H"; South Uist; ROCKETS (3) - Petrel - see NL 79-5 pg 2
Jul 16 to Aug 11; E.R. Williams;"P169H,P170H,P171H,P172H";South Uist;ROCKETS(4)-Petrel - see NL 79-5 pg 2

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

Mar 15 to Jun 20; Siebert, Wedeken, Krenzien;"GEOMAGNETIC PULSATIONS"; N. Scandinavia-see NL 79-1, page 3
Monthly; Wright & Hilsenrath; "OZONESONDE"; Various Sites; ROCKETS - See Actualities, NL 77-10, pg 3
World geophysical days; Kelly; "WORLD WIDE E-FIELDS"; Chatanika; RADAR - see NL 79-5, page 2

REGIONAL IMS SAT/GBR PROGRAM DETAILS, JUNE - AUGUST 1979

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

GROUND BASED

CANADA

K. Tsuruda and A. Nishida, of the University of Tokyo, are going to carry out a VLF direction finding experiment near Roberval, P. Q., Canada, in collaboration with the Stanford University. The principal purpose of the experiment is to study the dynamics of the magnetospheric plasma by following the motion of the VLF duct. The man-made signal transmitted from Siple, Antarctica, will be received and both the UTK type VLF direction finder system and a receiver network consisting of 12 antennae will be utilized. The operation will last from late May through July.

SATELLITES

JAPAN

JIKIKEN --- A. NIshida informs us about a cooperative plan between I. Kimura and H. Matsumoto, of the University of Kyoto, and R. Helliwell, of the Stanford University, to receive the Siple signal at the Jikiken satellite to study the magnetospheric amplification process of VLF signals. This experiment is planned to take place in July.

ACTUALITIES

ROCKETS

SOUTH UIST

P201H --- P. Simon sends us word about the successful launch of this Petrel rocket from the South Uist range on April 25, 1979, at 1225 UT. The apogee attained is preliminarily given at 141 Km. Principal investigator for this mission is E. R. Williams, University College of Wales, Aberystwyth. See NL 79-2, page 3.

GROUND-BASED

Norwegian-Alaskan Spitsbergen Expedition --- This campaign was announced and details of observational plans given in several earlier issues of these IMS NLs (see 78-9, pg 3; 78-12, pg 3; and 79-4, pg 8). Dr. A. Sivjee, University of Alaska Geophysical Institute, was so kind as to send the IMSCIE Office a very preliminary report on results obtained from quick-look analysis of only some of the data taken during the first year of this multi-national program. We have summarized some of his comments here but emphasize that this account is not definitive, rather it is shared here to indicate the excitement arising from this successful first year of joint work in tracking the location of the cusp, its width and dynamics under different magnetic conditions. This project employed an array of three Meridian Scanning Photometers (MSPs) which made possible clear, sharp cusp observations with high spatial resolution and with time resolution of a few seconds, permitting detailed studies which are not possible with satellites or rockets.

The Spitsbergen cusp project is a cooperative effort involving groups from the Univ of Alaska, the Univ of Saskatchewan, and the Univ of Oslo. The Canadian and US groups operated separate MSPs at Longyearbyen while the Norwegian group operated a third MSP from Ny Alesund. The 100-km distance between Longyearbyen and Ny Alesund provided a good triangulation base for determining the height of the auroral features observed. Some first observations from quick-look analysis of a few of the MSP records are:

(1) Cusp aurora are generally tilted about 30 degrees W relative to the longitudinal extent of the auroral oval.

(2) Location and motion of the cusp depends on the level of magnetic activity. It first appears north of Longyearbyen at about 78 degrees invariant latitude and then disappears under magnetically quiet conditions. Under increasingly disturbed conditions the cusp will move down to the zenith at Longyearbyen (about 75 degrees invariant latitude) or even farther south to about 62 degrees invariant latitude. The northward return of the cusp takes place only after progressively longer intervals for increasingly larger magnetic disturbances, up to a few days for extremely large events.

(3) During extreme disturbances, oscillations of cusp boundaries have been observed of a few degrees invariant latitude and with a period of a few minutes. When IMF data become available these will be studied for possible relationship.

(4) Average cusp electron energy is normally around 200 eV, but at times this energy has been observed to increase by a factor of 4 over the entire cusp.

(5) Accelerated magnetosheath electrons with relatively high energy are detected as spikes in mid-cusp and near both boundaries even though the acceleration mechanism in the cusp is unknown.

The dayside Spitsbergen measurements will be integrated with simultaneous nightside observations from the Alaskan instrumentation chains (see NL 79-5, pg 6&7) and with airborne cusp data taken by the Air Force Geophysics Laboratory. Prompt publication is planned of sample data from all experiments of this project together with complementary ionospheric and aeronomic data from coordinated experimental programs.

SATELLITES

USSR

Zhenya Kharin of WDC B Moscow, sent to the IMSCIE Office and to the SSC WDC A information about the two following items.

COSMOS 900 --- Plots of count rates versus UT, like the one shown on page 4, are available. The data were taken by junction spectrometers on board COSMOS 900, orbiting at 500 Km altitude with an inclination of 83 degrees and an orbital period of 94.4 minutes. The accompanying letter gives details about geometric factors and view angles of the detectors which sample respectively:
detector 1: protons with energies 1 to 3 MeV
detector 2: protons with energies 80 to 130 KeV
detector 3: electrons with energies 80 to 130 KeV
The data refer to days 4-5, 8-9, 12-13 December 1977, and were published in a paper by E. N. Sosnovetz et al., of the Institute of Nuclear Physics of the Moscow State University.

PROGNOZ-4 and PROGNOZ-5 --- Tables of bow shock, magnetopause and plasmapause crossings containing the same information given for PROGNOZ-6 in NL 79-2, page 3. The tables give date and time of crossing with a broad description of the type of crossing (multiple bow shock crossing, magnetopause crossing, plasmapause crossing and diffuse magnetopause crossing). The time periods covered are 25 December 1975 to 11 March 1976 for PROGNOZ-4 data and 29 November 1976 to 3 May 1977 for PROGNOZ-5.

INTERKOSMOS 18 and 19 --- We were informed by the IMS Satellite Situation Center of the launch of two new satellites in the Interkosmos series:
- The satellite Interkosmos 18 (MAGIK) was launched on 24 October 1978 and received the NSSDC international ID 78-099A; it released a Czechoslovakian subsatellite whose ID is 78-099C (MAGION).
- The satellite Interkosmos 19 (IONOSONDIK) was launched on 27 February 1979 and received the NSSDC international ID 79-020A.
Both these satellites were announced in NL 76-5, page 4, as a soviet contribution to the IMS. We will publish further information about orbits and payload perfomance when these are available.

JAPAN

EXOS-A KYOKKO --- Selected summary data plots from EXOS-A keep coming to the IMSCIE Office. The collection has now reached a sizeable dimension and covers the period from 4 February 1978 to 13 January, 1979. An example of these was shown in NL 78-9, page 5, and the instrumentation was described on pages 2-3 of the same issue. As already specified there, we reference anybody interested in this data set to K. Hirao, ISAS, University of Tokyo.

UNITED KINGDOM

GEOS-2 --- G. L. Wrenn, of the University College London, has supplied summary data plots from the experiment S302 on GEOS 2, referring to the period August to December 1978. He announces that similar plots for subsequent months will be produced and supplied in due course. One of the plots is shown on page 5, with a line showing the movement of the 18 hour LT due to the longitudinal shift of the satellite. We reproduce in the following the description of the plots and of the underlying analysis as given by Wrenn.

"GEOS-2 MONITORING OF PLASMASPHERIC PLASMA AT 6.6 RE The suprathermal plasma analysers (S302) on GEOS-2 observe cold ions at the geostationary orbit. The plots show monthly summaries of cold plasma density. Each panel has a linear scale of 0 to 100 /(cm^3). A sensor bias of -28 volts is used to overcome the satellite potential and accelerate ions into the analysers. Maximum count rates during fifteen minute periods are converted into density values via calibration utilising S300 plasma frequency measurements. No attempt has been made to allow for variations in ionic temperature, composition or drift velocity but it is believed that the data are good to better than 20%. The ions are predominantly protons and their temperature is of the order 1 eV; it must be noted that large variations of density within a 15 minute period are not uncommon. The curves are intended only as a guide for IMS workers who are interested in the motion of the plasmapause; results from a more refined analysis will be available. It is clear that a geomagnetic index (Ap is listed) is only a crude indicator of the boundary location; the profile in local time often differs appreciably from that predicted by a simple pear-drop model."

MEETINGS AND WORKSHOPS

THIRD WORKSHOP ON IMS OBSERVATIONS IN NORTHERN EUROPE --- This workshop was already announced in NL 79-2, page 4. The second circular, which just came into the IMSCIE Office, gives some more details. We quote them in the following.
The sponsors of this workshop are the "Swedish Natural Science Research Council", the "Swedish Board for Space Activities" and the "Uppsala Ionospheric Observatory".

(continued on pg. 9)

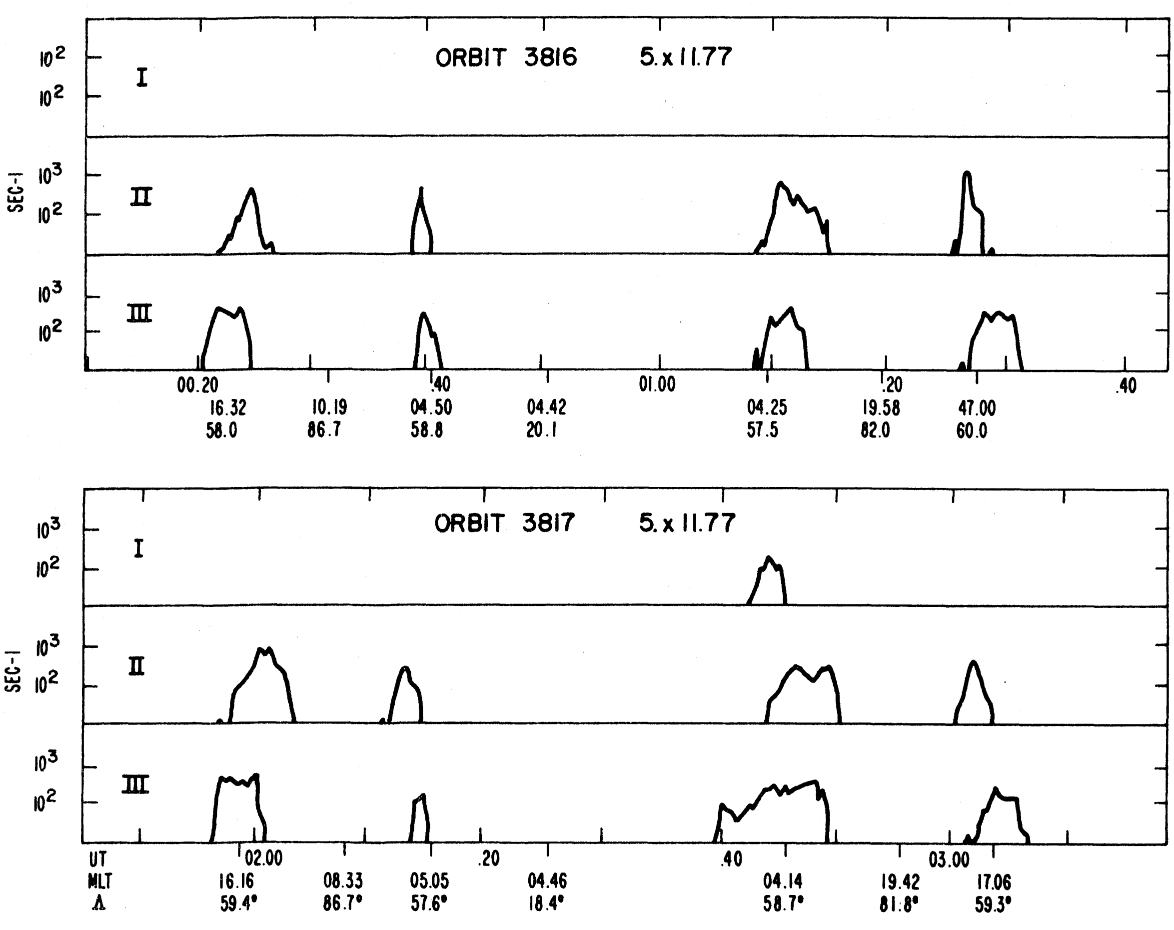
PRELIMINARY AU & AL AND COMMON-SCALE MAGNETOGRAMS

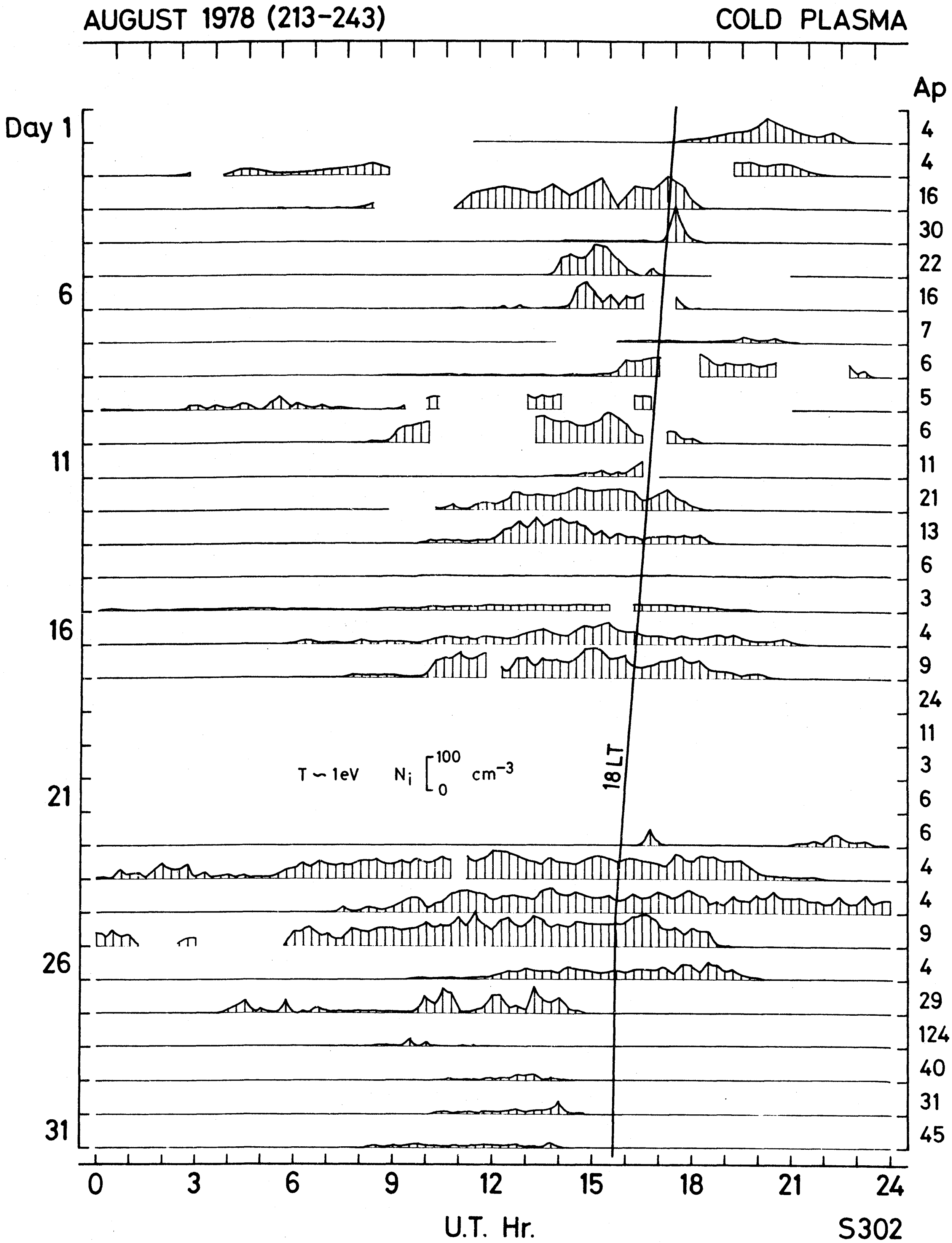
On pg. 8 of this NL are selected polar cap, auroral zone and mid-latitude common-scale magnetograms for the 48-hour interval beginning at 2100 UT on 28 July 1977. Also shown are the AU(5) and AL(5) traces from superposition of the auroral zone variations at the 5 given sites. This interval was selected at WDC-A for STP because it spans the times of interest which were first discussed at the IAGA Assembly in Seattle and which are now scheduled for intensive study at the forthcoming Coordinated Data Analysis Workshop (CDAW-2), 26-28 September 1979, at the IMS Satellite Situation Center/National Space Science Data Center/WDC-A for Rockets & Satellites at NASA's Goddard Spaceflight Center, Greenbelt, Maryland, USA.
Details about CDAW-2 are given in IMS NL 79-5, pg 9, and in earlier NLs referenced there. The 8 topical sub-groups defined for this CDAW and the leader(s) for each are given. Most data to be submitted for incorporation into the CDAW computer system should already be at the SSC. For example, the 1-minute digital samples for the stations and indices shown here are already on the computer and available for preliminary use.
WDC-A for STP plans to produce similar common-scale magnetograms and preliminary AE (AU & AL) indices for selected active intervals during 1978 were described and intervals illustrated in IMS NL 79-3, pgs 6 & 9. Digitizing of the analog magnetograms for these 10 48-hour active intervals is about 50% completed and the entire process should be finished by October 1979.

STATUS OF AE-INDEX DERIVATION AT WDC-A FOR STP

In recent months, many questions have been asked of WDC-A for STP/NGSDC staff as to when AE indices for 1975, 1976, 1977 and 1978 would be available. Tables of hourly average indices, computed from 1-min values, and daily plots of the high-resolution AE, AO, AU, & AL variations and other statistical figures are now ready to send to the printer for the first half of 1975. Values and figures for the second half of 1975 should be completed within a few months. The 1-min values are available on magnetic tape just before the figures are prepared for publication. Similarly, a month of "prompt" preliminary 1-min AE indices are ready for May 1976. Obviously, we are far behind our planned schedule for producing this important data product. Insufficient funding is only a part of the data center's problem but it is a problem. Cost to NGSDC/WDC-A for STP to derive the common-scale magnetograms and preliminary indices for the 2-day intervals is about $2000/interval (i.e. $1000/day) for the complete set of records shown here (see fig. pg 8). We are able to process 10 such intervals per year for publication in the Solar Geophysical Data and IAGA Bulletin 32 publications. Derivation of the more complete AE and associated indices using NGSDC's "factory" is more economical, costing about $4000/month of indices derived. Unfortunately, lack of experienced curve-followers, aging equipment, press of other high-priority data center services, and overall shortage of personnel have combined to greatly diminish our ability to derive these indices.
Written comments about the relative importance of having AE indices available, suggestions of short intervals for which the preliminary indices might be most useful and, when appropriate, willingness of one or a combination of institutions to defray the cost of AE-derivation would all be most helpful in resolving this difficult situation. As this is written, our staff is re-evaluating what can be done internally to respond to needs expressed by the IMS community (e.g. should we jump to 1978 for AE derivation). Any input on this matter will be greatly appreciated.

COSMOS-900 PARTICLE DATA




AUGUST 1978 (213-243)
COLD PLASMA
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S302

JAPANESE IMS GROUND-BASED OBSERVATIONS

I. Structure and Dynamics in the Plasmasphere, and II. Auroral Flares

Experiment	Method	Site (geomag lat. and long.)	Observer
ULF waves	high speed dynamic wave analyzer	Onagawa (28, 207)	T. Saito (A)
ULF waves	observatory network	Thompson (65, 321) etc.	T. Oguti (0414)
ULF waves	SQUID magnetometer	Fukuoka (23, 199)	T. Kitamura (C)
ULF waves	induction magnetometer	Memambetsu (34, 208) Kakioka (26, 206) Kanoya (21, 198) Chichijima (17, 209)	M. Kawamura (G)
Aurora	TV	Churchill (68, 322) Thompson (65, 321) etc.	T. Oguti (0414)
VLF	direction finder	Churchill (68, 322) Thompson (65, 321) etc.	T. Oguti (0414)
Whistler propagation	direction finder	Moshiri (34, 207)	T. Okada (B)
Whistler propagation	direction finder	Sakushima (24, 203) Shikoku (21, 198) Amami (18, 197)	M. Hayakawa (B)
ELF-VLF emission		Moshiri (34, 207)	J. Ohtsu (0262)
VLF emission	direction finder	Brorfelde (56, 98) Chambon-la-Foret (50, 85)	Y. Tanaka (B)
Electron density	whistler detector	Yamaoka (25, 203)	A. Kimpara (0216)
Electron density	whistler detector	Moshiri (34, 207) Sakushima (24, 203) Kagoshima (21, 198)	A. Iwai (B)
Polar ionosphere	VLF-signal phase	Toyokawa (25, 204) Showa (−70, 80)	T. Kamada (0247)
Whistler propagation	whistler detector	Sugadaira (26, 204)	T. Yoshino (0287)
VLF-HF emission	Satellite telemetry (Kyokko and others) (ISIS and Kyokko)	 Sugadaira (26, 204) Syowa (−70, 80)	 T. Yoshino (0287)
Ionospheric irregularities	LF, intensity and phase	Toyokawa (25, 204) Sakushima (24,204)	A. Iwata (0428)
F-region irregularities	HF Doppler	Sugadaira (26, 204)	T. Yoshino (0287) T. Okuzawa (D)
Lower ionosphere disturbance	VLF (NLK, NWC)	Nishinomiya (24, 203)	T. Sato (E)
Whistler mode VLF transmission	phase tracking receiver	Kyoto (25, 204)	T. Araki (0422)
Ionospheric plasma velocity	HF Doppler	Uji (24, 202)	T. Ogawa (0259)
Ionospheric E and F motions	HF Doppler	Kasugai (25, 204)	T. Yonezawa (I)
Ionospheric wind	meteor radar	Shigaraki (25, 204)	S. Kato (0417)
Ionospheric wind	meteor radar	Akita (30, 206)	T. Ishimine (F)
Lower ionosphere (SID)	VLF receiver	Inubo (26, 207)	S. Kato (F)
Ionosphere vertical sounding	ionosonde	Wakkanai (35, 207)	H. Ohyama (F)
Ionosphere vertical sounding	ionosonde	Akita (30, 206)	I. Ishimine (F)
Ionosphere vertical sounding	ionosonde	Kokubunji (26, 206)	R. Maeda (F)
Ionosphere vertical sounding	ionosonde	Yamagawa (20, 198)	H. Minakoshi (F)
Ionosphere vertical sounding	ionosonde	Okinawa (15, 196)	Y. Ishikawa (F)
HF field strength	HF receiver	Hiraiso (26, 207)	K. Marubashi (F)
Whistler	VLF receiver	Wakkanai (35, 207)	H. Ohyama (F)
Whistler	VLF receiver	Okinawa (15, 196)	Y. Ishikawa (F)
Ionospheric constituents	Lidar	Fukuoka (23, 199)	M. Hirono (C)

III. Geocorona

Experiment	Method	Site (geomag lat. and long.)	Observer
Geocorona! H and He	tilting photometer	Kakioka (26, 207)	K. Suzuki (J)
Magnetospheric glow	Fourier transform	Kakioka (26, 207)	M. Nakamura (0255)
Airglow	photometer	Niigata (28, 205)	B. Saito (0029)
Airglow	tilting filter photometer	Iriomote (13, 192)	M. Okuda (0418) T. Yamashita (K)
False zodiacal light	spectroscopy	Iriomote (13, 192)	H. Tanabe (0306)
Subtropical arc	Doppler temperature	Miyakojima (14, 194)	H. Kamiyama (0211)

IV. Interplanetary Field and Particles

Experiment	Method	Site (geomag lat. and long.)	Observer
Solar wind velocity	interplanetary scintillations	Toyokawa (25, 204) Fujigane (25, 205) Sugadaira (26, 204)	T. Kakinuma (0209)
Jovian magnetosphere	20.0030–24.5000 MHz emission	Zao (28, 207)	H. Oya (0217)
Jovian decameter waves		Sugadaira (26, 204)	T. Yoshino (0287)
Distant solar wind	comet photography	Hida (26, 205)	A. Hattori (0430)
Distant solar wind	comet photography	Dodaira (26, 206)	K. Tomita (H)
Cosmic ray moducation	underground telescope	Sakashita (26, 205)	K. Nagashima (0253)
Cosmic ray modulation	underground telescope	Misato (26, 204)	S. Mori (0247)
Cosmic ray modulation	neutron monitor	Fukushima (28, 208)	T. Kanno (0093)
Cosmic ray modulation	neutron monitor	Morioka (30, 208)	H. Takahashi (0420)

V. Solar Activities

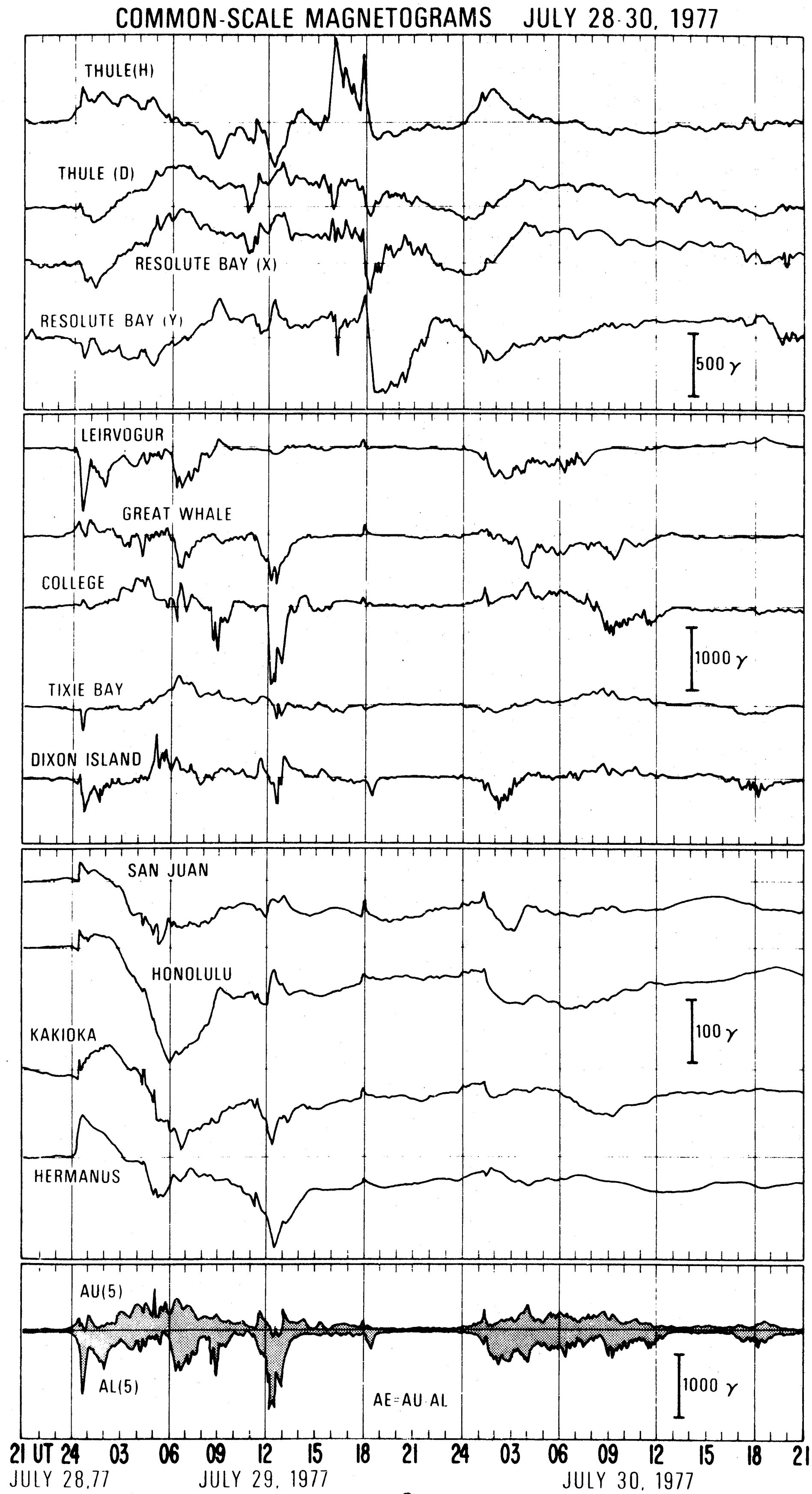
Experiment	Method	Site (geomag lat. and long.)	Observer
Solar active region	high resolution photography	Mitaka (26, 206)	F. Moriyama (0249)
Solar active region	8-cm radioheliograph, 9400-, 3750-, 2000- and 1000-MHz radiopolarimeter	Toyokawa (25, 204)	S. Enome (L)
Solar flare monitor	VLF-signal phase	Toyokawa (25, 204)	T. Kamada (0427)
Solar radio emission	6.0- and 37.5-GHz	Kasugai (25, 203)	A. Kimpara (0216)
Solar radio emission	70–600 MHz polarimeter 17 GHz interferometer 17 GHz polarimeter	Nobeyama (26, 206)	K. Kai (0412)
Solar radio emission	radio receiver	Hiraiso (26, 207)	K. Muranaga (F)

Numbers in parentheses after authors' names refer to IMS Bulletin No. 2.
(A): same as 0217, (B): same as 0262, (C): Kyushu University, (D): same as 0287, (E): Hyogo College of Medicine, (F): same as 0185, (G): same as 0227, (H): same as 0306, (I): same as 0216, (J): same as 0429, (K): Ryukyu University, (L): same as 0307.

PUBLICATIONS

The listing on pages 6 and 7 is extracted from the Japanese IMS Newsletter No. 6, of March 1979. Quoting from the preface to it, written by Prof. T. Obayashi, chairman of the Japanese IMS Committee, we read that "it describes Japanese contributions to the IMS, 1976-79. Japan's IMS program was started in 1975, with the following projects: I. Structure and Dynamics in the Plasmasphere, II. Auroral Flares, III. Geocorona, IV. Interplanetary Field and Particles, V. IMS Data Analysis System. Successful operations of EXOS-A,B and ISS-b spacecrafts in 1978 have led to much information on magnetospheric investigations. At the Syowa-base in Antarctica, various observations, including sounding rockets and satellite telemetry, have also been carried out. Preliminary results have been discussed in the IMS workshop in Tokyo, March 13-16, 1979." The Proceedings of this meeting have already been announced in NL 79-5, page 9. The person to ask for a free copy of these proceedings is A. Nishida, Institute of Space and

(continued on pg. 9)


COMMON-SCALE MAGNETOGRAMS JULY 28-30, 1977
THULE(H)
THULE (D)
RESOLUTE BAY (X)
RESOLUTE BAY (Y)
500 γ
LEIRVOGUR
GREAT WHALE
COLLEGE
1000 γ
TIXIE BAY
DIXON ISLAND
SAN JUAN
HONOLULU
KAKIOKA
100 γ
HERMANUS
AU(5)
AL(5)
AE=AU-AL
1000 γ
21 UT 24 03 06 09 12 15 18 21 24 03 06 09 12 15 18 21
JULY 28,77
JULY 29, 1977
JULY 30, 1977

(continued from pg. 7)
Aeronautical Science, University of Tokyo, 4-6-1 Komaba, Meguro-ku, Tokyo 153, Japan, and not Prof. T. Obayashi as incorrectly stated in NL 79-5.

We received another Japanese publication which is relevant to the IMS: the Solar Terrestrial Activity Chart, edited on March 1979 by the National Committee on Solar Terrestrial Physics of the Science Council of Japan. Again quoting from Prof. T. Obayashi's preface we learn that it displays basic STP parameters obtained by Japanese ground based stations during the IMS period (1976-1978). Each record, consisting of a single page plot for each solar rotation (from rotation number 1948 to 1987), contains (1) Solar Radio Emission, (2) Solar Wind (IPS measurements), (3) Cosmic Rays, (4) Geomagnetic Field, and (5) Ionospheric F-region Electron Density.

GMS "HIMAWARI" DATA --- A copy of the "Monthly Report of Meteorological Satellite Center" for October 1978, came to the IMSCIE Office from Tokyo. This contains the results of GMS observations: Nephanalysis, Cloud Wind Vectors, Cloud Amount, Cloud Top Height, Sea Surface Temperature, and Space Environment Monitoring. These latter consist of hourly average fluxes for the seven proton channels, five alpha particle channels and one electron channel. Energies sampled are above 1.2 MeV for protons, above 9 MeV for alpha particles and above 2 MeV for electrons. See NL 78-5 and 78-8 for some more details.

Yu. S. Tyupkin, in charge for the IMS data at the World Data Center in Moscow, has sent us a copy of the book "Results of the geomagnetic observations carried out by the expedition Siberia-IMS-76", edited by the USSR Academy of Sciences at Irkutsk, 1978. This project was described in NL 77-2, page 4, where we gave a map showing the locations of this 90° E meridian chain of eight observatories (roughly 160° geomagnetic meridian). The book consists of a listing of three minute values of HDZ components as sampled by a magneto-variation station, for the period February 21 to March 28, 1976. Daily plots of these values are also provided. These data will be available on magnetic tape and the WDC-A in Boulder will have a copy as soon as it is ready.

CORRECTION

With reference to the listing of instruments we published in NL 79-5, pages 6-7, J. G. Moore, AFGL Hanscom Field, informs us that the 35 mm All-Sky Camera listed for Thule has not been operating since April 1976.

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 16 Apr. 1979 - 21 May 1979 extracted from "Preliminary Report and Forecast of Solar Geophysical Data", published by SESC Boulder (see IMS NL 78-5).

Date	Begin	Max	End	Location		Imp	Reg	Cl
Apr16	0507	0514	0518	---	---	--	----	M1
Apr25	2130	2202	2219	N18	E38	SB	1705	M1
Apr27	0535	0556	0621	N14	E84	1N	1713	M1
Apr27	0636	0652	0730	N20	E16	1B	1705	X1
Apr27	1628	1645	1713	N19	E10	SB	1705	M3
May 1	0350	0402	0414	N15	E18	SN	1711	M1
May 2	1652	1701	1735	N23	W55	2B	1705	M9
May 6	2205	2208	2215	---	---	--	----	M2
May 6	2334	2338	2344	N23	E34	SB	1727	M2
May17	0114	0123	0131	S21	W69	SN	1729	M1
May17	1640	1648	1704	S21	W74	SB	1729	M2
May19	2032	2041	2058	N16	W84	1B	1743	M1
May19	2217	2229	2255	---	---	--	----	M1
May20	1307	1320	1335	---	---	--	----	M2
May20	1607	1624	1632	---	---	--	----	M1

(continued from pg. 4)
The following topics may be discussed:

GEOS-GBR correlation. Correlation between ground based optical (photometric, all-sky-camera and TV) observations and GEOS particle and field data. Pc-5 micropulsations seen on GEOS, STARE and magnetometer networks.

Break-up and other auroral events from ABC II, January 1979. As a first choice events from the evenings of January 27 (rocket flights at times given below and interesting auroral events, especially the breakup around 2100 UT, but also events earlier and later the same night) and January 30 (local auroral breakups at 2035, 2107 and 2118 UT) are proposed for the coordinated studies. Also events from January 28 (TRIAD and EXOS satellite passes around 2330 UT correlated with auroral events) and January 19 (ISIS pass at time of breakup 1953 UT) may be considered.

Events discussed at earlier workshops. The March 2, 1978 and February 15, 1977 events.

Rocket experiments during January 1979. First results from the Substorm-GEOS rocket series (January 27, 1713 UT, 2102 UT, 2152 UT), the British Petrel auroral pulsation rocket flights (January 27, 2005 UT and January 25, 2107 UT), and correlated ground based or satellite data.

TRIAD, ISIS and EXOS. Data from the European sector and correlated ground based observations.

STARE and other backscatter radar results.

Magnetometer networks, new results.

Planning of future activities and CCOG matters.

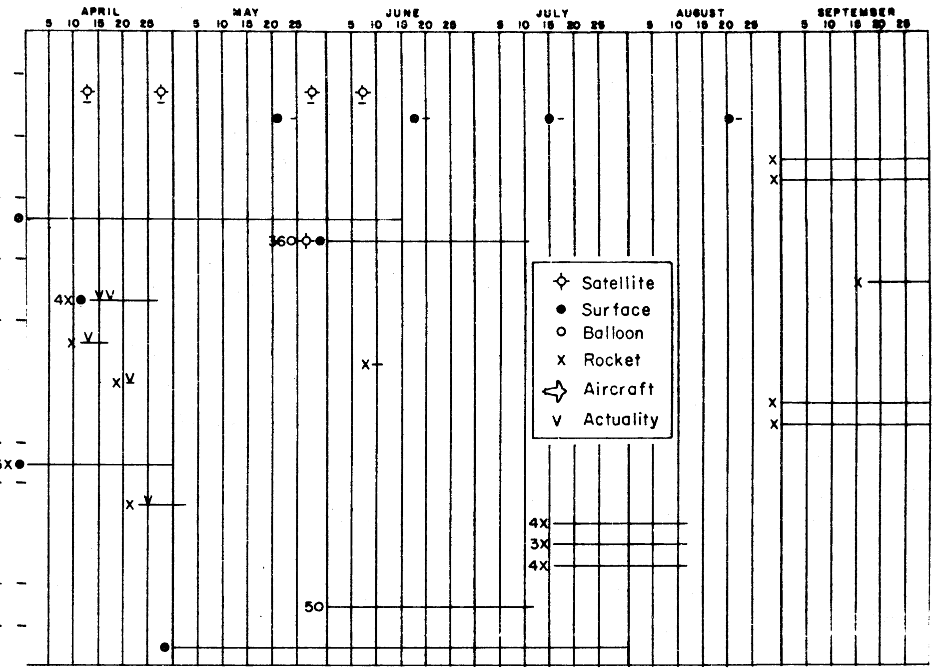
U. Fahleson (1933 - 1979)

The scientific community in the field of magnetospheric research has suffered a tragic loss by the death of Ulf Fahleson, at the early age of 46, on March 17, 1979. Ulf Fahleson graduated from the Royal Institute of Technology, Stockholm, in 1958 and worked for a short period at the National Defence Research Establishment. In 1960 he joined the Department of Plasma Physics of the Royal Institute of Technology, where he obtained his Tekn. Lic. (equivalent of Ph. D.) in 1966 and the (no longer obtainable) degree of Tekn. Dr. in 1973. In 1975 a personal position as Associate Professor, and later Professor, of Experimental Space Plasma Physics at the Royal Institute was created for him by the Swedish Board for Space Activities. In his early years at the Royal Institute, Ulf Fahleson worked on laboratory experiments. One of his results, together with Lars Bloch, was the experimental discovery of the phenomenon of critical velocity, previously postulated by Hannes Alfven in his theory of the origin of the planetary system. From about 1965 most of Ulf Fahleson's work was related to the problems of electric fields in space plasmas. In a number of pioneering papers he built a solid theoretical basis for the double-probe method of electric field measurements. The papers brought him international recognition and invitations to participate in foreign rocket programs. This was the beginning of a still continuing fruitful collaboration of the Department of Plasma Physics of the Royal Institute with, in particular, the Space Sciences Laboratory, University of California and the Space Science Department of ESTEC. Within this collaboration Ulf Fahleson has played a key role in the development of sophisticated methods of electric field measurements now being used in ISEE-1 and GEOS. Ulf Fahleson's great competence and sound scientific judgement was widely appreciated. He served in advisory committees and working groups in the US as well as in Europe, and at his death he was a member of ESA's Solar System Working Group. Ulf Fahleson has made scientific contributions of lasting importance in his field of research. He will be remembered not only for his scientific contributions but also for his rare personality. His kindness, gentle manner and warm friendship will long be remembered by a wide circle of personal friends in many countries.

Carl-Gunne Falthammar

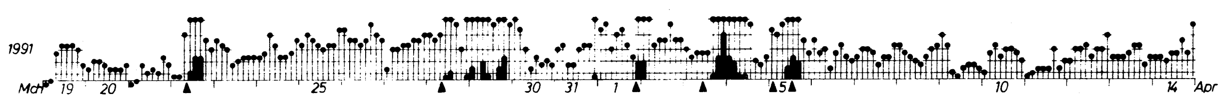
IMS CALENDAR OF GBR CAMPAIGNS APRIL 79 - SEPTEMBER 79
(As of 25 MAY 1979)

WORLD-WIDE- -
Special SSC-selected satellite periods
IISN (Bauer et al)
KIRUNA (ESRANGE)- -
Holmgren; "Ba-Geos (S29)"
"S27 (twilight)"
N. SCANDINAVIA- -
Siebert, Wedeken, Krenzien; "Geomagnetic Pulsations"
Ullaland; "SBARMO 79"
POKER FLAT- -
Ulwick; "EXCEDE II"
Heppner; "18.217-8GEX, 29.Ø11-2GEX"
WHITE SANDS -
MacQueen; "27.Ø33AS/US"
Rottman; "27.Ø28US"
Moore; "27.Ø38UEX"
Zipf; "33.ØØ5UA"
Wilshusen; "31.XXXUE"
USSR (HEISS IS.)- -
Avdyushine; "IPOCAMP 3"
UK (SOUTH UIST) -
Williams; "P2Ø1H"
Dickinson; "P197H,P2Ø9-211H"
Krankowsky; "P212-214H"
Williams; "P169-172H"
CANADA (MANITOBA) -
Wygand; Balloons
CANADA (Roberval) -
Tsuruda; GBR



SOLAR AND GEOMAGNETIC ACTIVITY MARCH 19 - MAY 11

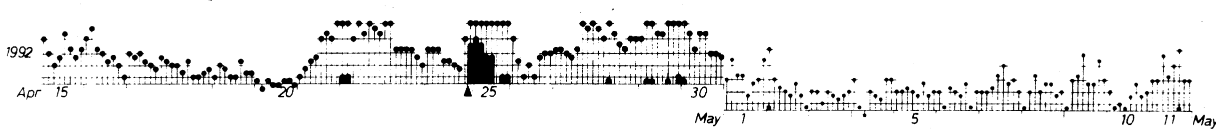
KP



ROTATION #1991

2800 MHZ FLUX OTTAWA	282	186	194	181	189	190	192	198	187	191	195	190	212	210	106	199	186	182	175	168	173	172	174	173	174	175	170
SS NO. BOULDER	251	222	187	256	207	220	164	166	200	197	211	197	173	213	229	197	216	160	107	120	102	86	110	146	143	166	188

KP



ROTATION #1992

2800 MHZ FLUX OTTAWA	167	172	169	155	158	154	160	161	161	161	161	160	174	182	190	194	178	178	163	173	166	171	175	184	178	171	175
SS NO. BOULDER	202	202	231	185	156	122	124	108	98	98	100	131	174	239	228	200	232	173	138	179	150	165	279	271	213	184	215