International Council of Scientific Unions

SPECIAL COMMITTEE
ON
SOLAR-TERRESTRIAL PHYSICS

76-5

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INTERNATIONAL MAGNETOSPHERIC STUDY
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JOE H. ALLEN, HEAD, TEMPORARY IMS CENTRAL INFORMATION EXCHANGE OFFICE
WORLD DATA CENTER A FOR STP, D64 NOAA, BOULDER, COLORADO 80302, USA

IMS NEWSLETTER

CONTENTS

These IMS Newsletters (sent to some 1700 participants and others interested) give summaries of plans and actualities, and information on whom to contact on what subject. The IMS is four months old and there has been much activity, many successful campaigns, some failures and some postponements. The data from the hundreds of participating monitoring stations is beginning to arrive at the World Data Centers. We would welcome information on availability of data from the many GBR campaigns and particularly from satellites during the special IMS periods. Send to national contacts who will forward to IMSCIE Office. ---JHA April 29

IMSCIE Office: Telex 45897 SOLTERWARN BDR
Telephone: 303-499-1000 x6501 (FTS 323-6501)
European Information (P. Simon): Telex 200590 CNET OBS B MEUDO

PROGRAM PLANS FOR MAY 1976

Special IMS Periods

No special IMS intervals were selected during the month of May 1976, as of 29 April NL printing. See calendar on page 7 for days of special observational interest for particular programs. Next special IMS interval is scheduled for June 23-26. Note that Regular World Days in May are May 16, 19 and 20.

GBR Campaigns: (numbers refer to program details in IMS Bulletin No 2 or in references in these NLs)

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

--- to May 15; #0070; Davis (formerly Vaiana); White Sands; Rocket - solar X-rays, spectrometer, notes
--- to May 31; A-18; Woolliscroft; S. Uist; Rockets (2) - +ion mass spectrometer, coord A-19 Apr note
--- to May 31; A-19; Williams; S. Uist; Rocket - Lyman- , e-density, coord A-18, Apr notes
May 1 to Jun 30; #0090; Horton; Woomera; Rockets (2) - 1, neutral atm species; 2, airglow, ozone, notes
May 27 to Jun 10; A-22; Jefferies (formerly Peek); Kauai; Rocket - Ba injection and other exper, notes

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

May 1...31; #0458; Charakchyan; Mirny, Murmansk, Moscow, Alma Ata; Balloons - daily launch, cosmic rays
May 5 to Aug 25; #0162; Y. Corcuff; Gen Belgrano, Halley Bay; Surface; weekly VLF obser, see notes
May 18 to May 20; #0004; Bauer;IISN; Surface - E-field meas in quiet time, dates may change

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

--- to Sep 30; #0115; R.W. Smith; Jordanstown; Surface - airglow interferom, intermittant operation
(we have not received full information on Surface campaigns)

Notes on Program Plans for May 1976

#0090; Horton has two launch programs: (1) Similar to Feb-Mar launch carrying mass spectrometer, to study neutral atmospheric species to 140 km; (2) To study airglow and ozone with dusk/dark launch.
A-22; Jefferies (formerly Peek) launching Ba inject exper previously cancelled at Poker Flat (A-14). Injection perpendicular to local B-field. Also carries experiments of Koons (A-20), electrostatic exp; and Whalen (see A-13 note), particles.
#0162; Y. Corcuff, Charcosset, Cazeneuve, Bullough participating in IPPDYP (see NL 76-3, pg 4) for program of coordinated VLF direction finding obs at Ben Belgrano and Halley Bay. Observations on each Wednesday from 0200-0300 UT, May - August.

PROGRAM PLANS FOR JUNE 1976

Special IMS Periods

Jun 23 1400 UT to Jun 26 1700 UT IMP-8, Vela 5B, Vela 6A - Neutral Sheet

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GBR Campaigns: (numbers refer to program details in IMS Bulletin No. 2 or in references in these NLs)

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

--- to Jun 10; A-22; Jefferies (formerly Peek); Kauai; Rocket - Ba injection and other exper, notes
--- to Jun 30; #0090; Horton; Woomera; Rockets (2) - 1, neutral atm species; 2, airglow, ozone, notes
Jun 1 to Jun 30; #0311; Ungstrup; Andoya; Balloons (4) - E-fields, X-rays, riometers, see note below
Jun 1 to Jun 30; #0263,0311; Olesen, Ungstrup; Sdr Stromfjord; Rockets (2) - Complex exper, see note

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

Jun 1 to Aug 15; A-20; Koons, et al; New Zealand area and N. conjugate; Surface- VLF exper, satel, note
Jun 1...30; #0458; Charakchyan; Mirny, Murmansk, Moscow, Alma Ata; Balloons - daily launch, cosmic rays
Jun 2, 9, 16, 23, 30; #0162; Y. Corcuff; Gen Belgrano, Halley Bay; Surface; weekly VLF obser see May note
Jun 22 to Jun 24; #0004; Bauer; IISN; Surface - General thermospheric meas by incon scat radar network

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

--- to Sep 30; #0115; R.W. Smith; Jordanstown; Surface - airglow interferom, intermittant operation
(we have not received full information on Surface campaigns)

Notes on Program Plans for June 1976

Refined Times of Special IMS Periods for June. Start and end times of the periods listed above and in the SCOSTEP Special Announcement shift a few hours as the result of recomputations given in the IMS Satellite Situation Center Report No 6 (pg 14) by Vette. Refined UT times are (changed times underlined): Jun 23 1600 to Jun 26 1700.

#0311; Ungstrup, 4 balloons to launch from Andoya and drift N. of Iceland and across Greenland. Will carry exper to meas E-fields, X-rays and riometers. Telemetry to Andoya, Iceland and W. coast of Greenland.
#0263, 0311; Olesen and Ungstrup, 2 rocket exper to launch from Sdr Stromfjord to meas: E-field; ELF, VLF waves; ionospheric currents; particle precipitation; plasma density and temperature; daughter payload will meas part precip & plasma density. Launch criteria: (1) cleft (cusp) near and N. of Sdr Stromfjord, (2) Strong ionospheric currents above Sdr Stromfjord and Godnavn with backscatter echoes on 12 MHz & slant sporadic E traces indicating ionosphere with 2-stream instability of Farley and Buneman.
A-20; Koons, Morgan, Dowden (0167), Unwin (0313), Keys (0323) multi-national VLF program. VLF signals from portable transmitter to broadcast from New Zealand. Receivers to operate at Dunedin NZ, and in N conjugate region near Cold Bay, AL. Photometers and riometers at Lauder, NZ. VLF & particle data to be obtained from satel ISIS II and SSS when over transmitter & conjugate region.

PROGRAM RESCHEDULE

Haerendel (#0183) announces that PORCUPINE I-2 will be launched March/April 1977 if cause of ARIES failure is established and corrected. Schedule of PORCUPINE II-1 and 2 is dependent on GEOS shift plan but may be Sept 1977 or March/April 1978.

PROGRAM PLANS FOR JULY 1976

SPECIAL IMS PERIODS

Jul	7	0700 UT	to	Jul	8	1900 UT	IMP-J,IMP-H - Neutral Sheet; IMP-J,VELA 5B,VELA 6A - Magnetopause
Jul	9	2000 UT	to	Jul	10	0800 UT	IMP-H, HAWKEYE 1 - Magnetopause
Jul	22	0600 UT	to	Jul	22	1800 UT	IMP-H, VELA 6A, VELA 5B - Magnetopause
Jul	31	2000 UT	to	Aug	3	0400 UT	IMP-J, VELA 5B, VELA 6A - Neutral Sheet

GBR Campaigns: (numbers refer to program details in IMS Bulletin No. 2 or in references in these NLs)

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

Jul 1 to Jul 31; #0005; Bland; Fort Churchill; Balloon - cosmic rays and particles, cosmic ray telescope
Jul 1 to Jul 31; A-18; Woolliscroft; South Dist; Rocket - +ion mass spectrometer
Jul 1 to Jul 31; A-19; Williams; South Dist; Rocket - Lyman α, e-density
Jul 1 to Jul 31; #0005; Dickinson; South Dist; Rocket - neutral oxygen & e-concentrations
Jul 1 to Dec 31; #0019; Jakimiec; USSR; Rocket - solar X-ray exper, cooperative with Interkosmos program

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

--- to Aug 15; A-20; Koons, et al; New Zealand area and N. conjugate; Surface- VLF exper, satel, note
Jul 1...31; #0458; Charakchyan; Mirny, Murmansk, Moscow, Alma Ata; Balloons - daily launch, cosmic rays
Jul 7, 14, 21, 28; #0162; Y. Corcuff; Gen Belgrano, Halley Bay; Surface; weekly VLF obser see May note
Jul 13 to Jul 15; #0004; Bauer; IISN; Surface - thermal tides in 100-130 km altitude region, see NL 76-3

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

--- to Sep 30; #0115; R.W. Smith; Jordanstown; Surface - airglow interferom, intermittant operation
(we have not received full information on Surface campaigns)

Notes on Program Plans for July 1976

Refined Times of Special IMS Periods for July. Start and end times of the periods listed above and in the SCOSTEP Special Announcement shift a few hours as the result of recomputations given in the IMS Satellite Situation Center Report No 6 (pg 14) by Vette. Refined UT times are (changed times underlined): Jul 7 0800 to Jul 8 2000; Jul 9 2100 to Jul 10 1000; Jul 22 0600 to Jul 22 2000; Jul 31 2300 to Aug 3 0400.

NEW PROGRAMS

R.A. Greenwald (A-26) has informed TIMSCIE Office of the near completion of a new auroral backscatter radar system near Trondheim, Norway. Operation of the 50kW,140MHz system is planned to begin in July. A duplicate radar system near Sauvamaki, Finland will provide overlapping coverage upon completion in Spring of 1977. They will probe the ionosphere above a 250,000 sq km region of N. Scandinavia that includes the launch sites of Andoya (ANDENES) and Kiruna (ESRANGE) and many observatories. Operation will be continuous and measurements will have a spatial resolution of 400 sq km and temporal resolution of 10 to 100 sec. Data will be used in comparative studies with ground based magnetometers, all-sky cameras, photometers, rocket and satellite experiments, the proposed Lindau ionospheric heating exper and the EISCAT incoherent scatter radar. Details are available from Greenwald at MPI fur Aeronomie, Postfach 20, D-3411 Katlenburg-Lindau 3 FRG, telefon (05556)411, telex 0965527 AERLI D.

A. Korschunow (#0220) has updated the information on his instruments and observation program at Furstenfeldbruk observatory. Testing of filters to eliminate artificial "noise" has been successful for the new mu-metal induction magnetometer system. The first relatively clear recordings of Pc-1 pulsations occurred in Jan 1976. Testing during hours 2200 to 0500 UT will continue through June. Beginning in July continuous recording will occur during "World Geophysical Intervals, WGI" and/or during "Airglow and Aurora Periods, AAP" as given by the International Geophysical Calendar for 1976. No present coordination of observations with satellite or rocket experiments exists but informal discussions with staff of observatories at Chambon-la-Foret and Nagycenk are in progress. Observations of shifting wave packages of Pc-1's with respect to onset times would be possible for these similarly equipped observatories at about the same geomagnetic latitudes but longitudinally spaced. Magnetic pulsations at Furstenfeldbruk are registered by direct pen recording with a chart speed of 3 mm/min.

R.A. Goldberg (A-24) reports a series of coordinated rocket launches scheduled for Poker Flat in Sep-Oct 1976. Other participants are: Hilsenrath (A-25), Heath (#0337), Kruger, Barcus, Williamson, Hale, Szuszczewicz, and Jones. Project will be auroral zone version of Antarqui program of May 75 in Peru. High-altitude rockets will carry GM counters, X-ray monitors, NRL ion temp and density probe, exper to measure ozone, temp, press, and wind vel. Low-alt launches to measure conductivity below 75 km. Balloons will monitor cosmic rays and X-rays at 40 km. Objective will be to monitor bremstrallung X-ray as energy transfer mechanism from higher levels to stratosphere and lower mesosphere.

EISCAT project. Article by Taylor (Nature 259, Feb 5, 1976, pg 366) gives details of European Incoherent Scatter Organization formed by research organizations from six countries to construct and operate a large radar system in N. Scandinavia. Two transmitters will broadcast from Tromso area: VHF at 224 MHz, conventional monostatic, and UHF at 933 MHz, a multistatic radar. Both systems will have receivers at Tromso and remote UHF receivers will be built at Kiruna and Sodankyla. Construction is in progress and operation scheudled to begin mid-1978. T. Hagfors, Trondheim, is the first Director. Technical centre to be at Tromso and administrative offices at Kiruna. Operation will be shared between routine synoptic monitoring and special experiments by scientists of participating countries. French project scientist for EISCAT is P. Bauer (#0004).

SPECIAL REQUESTS

B.W. Currie, Canadian IMS Coordinator, sends word that discussions are now proceeding concerning the continued operation of Canadian ionosonde stations at Resolute Bay, Fort Churchill, Kenora, Ottawa and St John's. IMS researchers or others anticipating need of data from these stations, campaign or otherwise, should write B.W. Currie, Canadian IMS Coordinator, University of Saskatchewan, Saskatoon Canada S7N 0W0.

IMS/Satellite Situation Center Report No 2, Predicted Orbits for Hawkeye I mentioned that this high inclination satellite would not continue operation beyond July 1976 (pg 3) although if it was judged important for IMS, continued operation on a partial basis might be possible. On behalf of IMS

(Continued on page 4)

Steering Committee and US Panel on the IMS, TIMSCIE Office has been asked to request input on this subject. Anyone having used Hawkeye data or anticipating its use in support of IMS programs should communicate this information to F.L. Scarf, Bldg R5 Rm 1280, TRW, 1 Space Park, Redondo Beach, California 90278, USA.

GENERAL NEWS

From the IMS Satellite Situation Center we have received the following information provided by the Soviet IMS Commission at the recent Special IMS Meeting in Moscow. The two satellites described are to be launched during the IMS.

MAGIK. An Intercosmos spacecraft called MAGIK will be launched during the International Magnetospheric Study period.

The main scientific purpose of the experiment is to study the character of ionosphere-magnetosphere coupling by continuing experiments similar to those on Intercosmos-10. The satellite will have a high inclination elliptical orbit with low apogee. Both real time and stored data modes will be used.

The following measurements will be made:

1. geomagnetic field (3 components);
2. low energy particle fluxes and their angular distributions (electrons and positive ions, 100 ev - 50 Kev);
3. VLF waves (100 Hz - 16 KHz), electric and magnetic components. Simultaneous measurements with a separable module (subsatellite) will be made;
4. electrostatic fields of magnetospheric-ionospheric origin by a double-probe technique (3 components);
5. electron and ion densities and temperatures by several techniques;
6. ion and neutral composition of upper atmosphere.

The program of scientific measurements is being prepared by scientists from USSR, Soc Rep Romania, Soc Rep Czechoslovakia, and German Democratic Rep. The satellite measurements will be accompanied by simultaneous ground-based, balloon and rocket observations. The scientific coordinator of the satellite is I.A. Znulin (IZMIRAN).

IONOSONDE-IK. During International Magnetosphere Study period an Intercosmos spacecraft, Ionosonde-IK will be launched into a high inclination elliptical orbit with a low apogee.

The main scientific objectives of Ionosonde-IK:

1. The study of electron density distribution from the main ionization maximum of F region up to the satellite altitude with a top-side sounder, and the correlation of the time and space variations with solar activity, corpuscular fluxes and other geophysical phenomena.
2. Global mapping of basic ionospheric parameters and construction of a top-side ionosphere model.
3. The study of wave processes in magnetospheric plasma in the frequency range 100 Hz to 5 MHz.
4. The study of time and space variations of emissions in the 6300-6364 A bands and 3914 A and 5577A lines.
5. The study of time & space variations of charged particles with energies between 10 ev and 50 MeV and their ionospheric effect.
6. The study of time & space variations of local electron and ion densities and temperatures.

The program includes simultaneous ground-based observations at ionsopheric and solar stations of the USSR and other socialist countries.

The scientific coordinator of Ionosonde-IK experiments is V.V. Migulin (IZMIRAN). Scientists from the USSR Academy of Sciences, Bulgarian Academy of Sciences, CSSR Academy of Sciences, Polish Academy of Sci. are participating in the program.

Related SCOSTEP and other ICSU Programs

Many IMS participants are also involved in related programs organized under SCOSTEP or the scientific unions. In fact, many of the same campaigns and monitoring observations contribute to several programs . In Newsletter 76-2 we gave a very brief identification of ASHAY (Antarctic and Southern Hemisphere Aeronomy Year, S. Radicella, Av Benavidez 8175, Margezado,San Juan, Argentina, Chairman). In NL 76-3 we identified the IISN (International Incoherent Scatter Network, P.M. Bauer, #0004) which coordinates the programs 3 days per month of stations at St. Santin, Arecibo, Jicamarca, Millstone Hill and Chatanika. We also described IPPDYP (International Plasmapause-Plasmasphere Dynamics Program, D. Carpenter, #0192) which coordinates whistler and other VLF observations. Each of these programs have occassional newsletters or bulletins which give many details.

Some other international activities which indirectly support the IMS, and vice versa are:

STIP (Study of Travelling Interplanetary Phenomena) This is a very active SCOSTEP program. Dr M. Dryer is the convenor and M.A. Shea is the Secretary (Air Force Geophysics Laboratory, PHE, Hanscom AFB, Bedford, Mass. 01731, USA). There are 155 active participants who make direct or indirect measurements of interplanetary phenomena or carry out related theoretical work. There was a concentrated observational period, STIP Interval I: Sept-Oct 1975 and another STIP Interval II, is scheduled Mar 15 - May 15, 1976. These try to take account of favorable positions of interplanetary space probes which make more meaningful the indirect measurements from ground-based stations. There is a STIP Newsletter about twice a year which gives detailed information on plans and actualities and a section called "STIP SCRIPTS" with a wide variety of information about and opinions from participants. This is a vigorous program which should speed progress on the description and understanding of interplanetary phenomena which are some of the inputs to magnetosperic processes studied in the IMS.

WG III-1 on Magnetic Pulsations. This is a Working Group of IAGA Division III and has as Co-Chairmen B.J. Fraser (Physics Dept, Univ of Newcastle, NSW, 2308, Australia) and F. Glangeaud (CEPHAG, B.P. 15, 38040 Grenoble, CEDEX, France). This is an effort to pull together the scientific community studying magnetic pulsations by ground and satellite techniques, and to be a link to other groups within IAGA and to the general geophysical research community. Magnetic pulsations are a key tool for IMS Dr Fraser is collecting detailed information on the active workers and particular ideas for the program for the Seattle 1977 IAGA meetings.

MONSEE (Monitering of the SUN-Earth Environment). This is one of the major SCOSTEP programs which supports most other SCOSTEP and many URSI, IAGA, IAU and IUPAP activities. There is a MONSEE Bulletin about every three months. The major project is the compilation of a directory of STP monitoring activities for which information on some 1700 station programs is being compiled by WDC-A for STP. The Secretary of MONSEE Steering Committee is M.A. Shea (for address, see STIP, above).

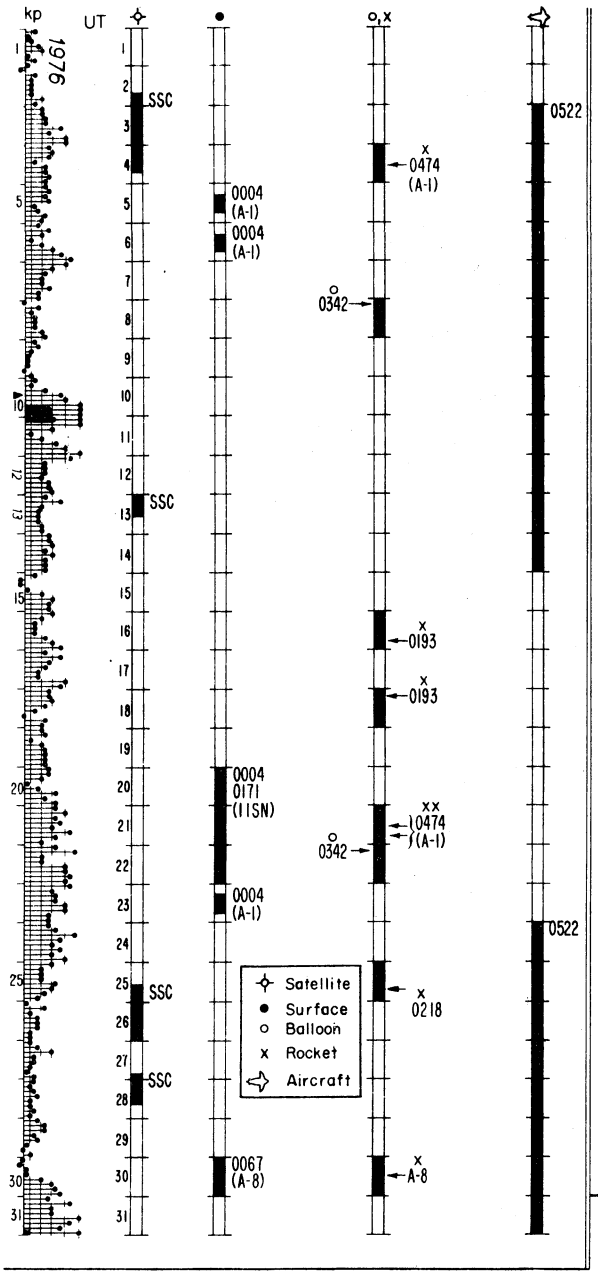
INAG (Ionosphere Network Advisory Group). This is a longstanding activity under URSI (W.R. Piggott,UK, Chairman; J.V. Lincoln, vice-Chairman and secretary, WDC-A for STP). The quarterly INAG Bulletin contains detailed technical and general information which tends to coordinate observations and data reduction and exchange for the 150-station ionosonde network. These provide important primary and collateral data for the IMS program.

Geomagnetic Meridian Project International Symposium

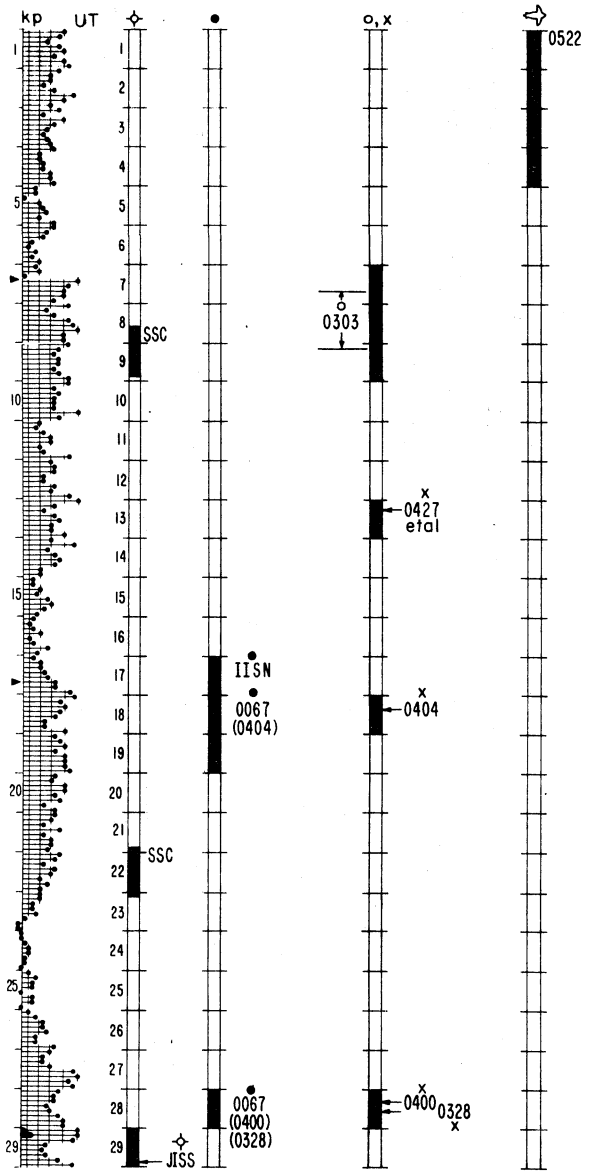
The GMP is a project under IAGA auspices to coordinate and intensify ground and satellite observations along geomagnetic meridians 105 and 145 E longitude. A.N. Zaitsev is general coordinator and the leaders of various aspects are Rokitiansky (USSR), Bostrom (Sweden), Holt (Norway), Bnargava (India), Coleman (USA), Raspopov, Pogrebnoy, Golovkov and Pudovkin (USSR). Most of these scientists and many others (including the head of the TIMSCIE Office) will participate in an International Symposium, May 24-29 in Leningrad to discuss the scientific and practical status of the work.

General Meetings on SCOSTEP activities with emphasis on the IMS will be held at Boulder, USA, June 2-5 just preceding the Int'l STP Symposium. National representatives will join members of SCOSTEP and its programmatic steering committees to review status and plans.

JANUARY 1976 CAMPAIGN ACTUALITIES
(Preliminary)



FEBRUARY 1976 CAMPAIGN ACTUALITIES
(Preliminary)



NOTES ON ACTUALITIES

Confirmed this campaign actualities for Jan-Feb 1976 shown above and listed here, followed by early information for March. Experimenters please relay actualities details to IMSCIB office for future newsletters. We are especially interested in April campaign results for those programs shown on the Simon-style GBR campaign calendar on page 7.

A-1; Offermann, combined rocket and balloon program at Arenosillo in southern Spain. During Jan/Feb a total of 49 rockets and 20 balloons launched carrying 23 experiments to measure electron dens and temp, ion dens, composition and mobility, neutral atmosphere dens, composition, temp, and selected trace constituents. Altitudes covered were 60-140 km. Supporting wind and temperature measurements in troposphere and stratosphere were made by met rockets and balloons. Objective was to study D-region winter anomaly and its dependence on atmospheric dynamics and neutral and ion chemistry. Coordinated measurements of mesosphere and lower thermosphere winds and temperatures, and D-region radiowave absorption were made by 12 ground based stations in W. Europe. For details contact D. Offermann, Univ Bonn, Nussallee 12, 53 Bonn 1, FRG; Telex 8 869 893.

#0522; Truttse, aircraft flights on Jan 3-14 from 50-70 deg N (Moscow region) at 2200-0600 LT with airglow photometers.

#0474; Rees, 3 rocket launches from Aresonillo (N37,355E). Daytime lithium thermite releases for neutral wind profile from 60-140 km in support of Offermann (A-1) winter Anomaly project. Launches were at:
Jan 4 1600 UT; Jan 21 1555 UT and 1615 UT.

#0304; Bauer, incoherent scatter radar at St Santin was operating to support Offermann project (A-1) as well as participating in IISW interval obser-

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(Continued from page 5)

vations. A-1 support times: Jan 5 0730-1730 UT, Jan 6 0730-1730 UT and Jan 23 0630-1730 UT. Data quality best for last period. IISN observations Jan 20 0300 to 22 1900 UT and also Feb 17 0300 to Feb 19 1900 UT. Good quality data.

#0342; Kulkarni, balloons from Aspendale on Jan 6 and 22 at mid-day. Carrying ozonesonde.

#0193, et al; Hirao, et al,2 launches at Kagoshima (1) rocket K-9M-54 at 0600 LT, Jan 17 to 367 km observed e-dens, thermal e-spect, e-temp, conjugate photoelectrons, airglow and geocoronal and interplanetary UV.
(2) rocket K-10-12 at 1420 LT, Jan 16 to 216 km observed E-field, energetic particle spect, solar LYA, neutral wind, e-dens, e-temp, ion comp, UV albedo and plasma wave excitation.

#0218, et al; Kodama, et al, launched rocket S-210 JA22 from Syowa at 2320 LT, Jan 25 to 119 km. Observed e-dens/temp, e-energy spect, NO dens.

A-8; Winckler, ECHO-IV launch from Poker Flat at 0944 UT, Jan 30. Complex rocket experiment with supporting ground auroral TV at launch site.

#0007, Baron, informs us that Chatanika incoherent scatter radar supported A-8 above and 4 other Poker Flat launches given below, as indicated.

#0427, et al; Kamada, et al, rocket S-310JA1 launch at 0945 LT Feb 13 from Syowa to 216 km altitude observed plasma waves, e-dens and e-energy spect

#0404; Cloutier, 2 launches at Poker Flat: 0705 UT Feb 18 and 1045 UT Mar 1; E&B-fields, particles. Supported by Chatanika incoherent scatter radar.

#0400; Berning (now Fitz), Blank, Ulwick, Stair at Poker Flat launched EXCEDE/SWIR 0546 UT Feb 28. Chatanika supported with observations.

#0328; Christensen, FERRET launched at Poker Flat 1212 UT Feb 26, carried instruments to measure EUV, ion mass spectrometer, ion and e-probes, photometers and magnetometer. Chatanika support.

ISS; Ogata (same address as #0105) project manager for Japanese IMS satellite launched 2130 UT, 29 Feb. To observe ionosphere, radio noise, ion/e-density/temperature and ion composition.

#0069, 0474; Holmgren, Rees, launch at Kiruna on 2 Mar at 2349 UT. TNT-Cesium and Tri-methyl-aluminium release. Injection-Trigger project: E-fields and neutral winds at 100-160 km.

#0096; Kreplin, launch of SOLRAD 11 A and B at 0238 UT on 15 March. See SSC Report on Active and Planned Spacecraft and Experiments, and detailed information in IMS Bulletin No 2 (0096).

#0004; IISN Program, Bauer reports that from March 16 0300 UT to March 18 1900 UT gravity wave observations at medium scale were performed with good results at Nancay, Mende and Monpazier.

A-17;Heppner launched 4 Nike Tomahawks each carried 4 cannisters of Barium for sequential release to monitor E-fields & neutral winds between 220-310 km and a trail generator for lower altitude neut winds from 100-80 km. Poker Flat launches were: 7 March 0643 UT; 27 March 1250 UT; 28 March 1300 UT; and 30 March 1230 UT, all payloads worked.

IMS DATA EXCHANGE AND THE WORLD DATA CENTERS

Plans for data exchange for the IMS programs are indicated under each of the project summaries in IMS Bulletin No 2, the Directory of Participants. Sometimes the plan is for scientist-to-scientist exchange of data and those having need for these kinds of data for their IMS studies should correspond with the address given. In many other cases, including most systematic monitoring programs, the data are to be made available through the World Data Centers (WDCs). The details of the data schedules and formats are given in the ICSU "Guide to International Data Exchange through the World Data Centers," last published in 1973 and available from the SCOSTEP Secretariat or any of the WDCs.

The WDC scheme, initiated for the IGY program, calls for the basic collections to be in three parallel centers - A, B,and C. This is both to protect against catastrophic loss of irreplaceable data and for the geographic convenience of data contributors and the users. The WDCs cover the whole range of geophysical disciplines -- solar-terrestrial, atmospheric, oceanic and solid earth. Principal WDCs having data relevant to the IMS are:

Multidisciplinary WDCs

World Data Center A for Solar-Terrestrial Physics
NOAA, Boulder, CO 80302 USA

World Data Center A for Rockets and Satellites
Goddard Space Flight Center
Code 601
Greenbelt, MD 20771 USA

World Data Center B2
Molodeznnaya 3
Moscow 117 296, USSR

Geomagnetism

World Data Center C1
Meteorological Institute
Lyngbyvej 100
2100 Copenhagen, Denmark

World Digital Data Center C1
Geomagnetism Unit
Institute of Geological Sciences
Herstmonceux Castle
Hailsham, Sussex BN27 1RP, UK

World Data Center C2
Kyoto University Library
Kyoto, 606, Japan

World Digital Data Center C2
Indian Institute of Geomagnetism
Colaba, Bombay 400 005, India

Ionosphere*

World Data Center C1
Appleton Laboratory
Ditton Park
Slough, Bucks., UK SL3 9JX

World Data Center C2
2-1, Nukui-Kitamachi 4-chome
Koganei-shi
Tokyo, 184, Japan

Aurora

World Data Center C1
Balfour Stewart Auroral Laboratory
University Department of Meteorology
Drummond Street
Edinburgh EH8 9UA, UK

World Data Center C1
Kiruna Geophysical Observatory
S981 01 Kiruna 1, Sweden

Airglow

World Data Center C1
Centre National de la Recherche Scientifique
98 Bis Boulevard Arago
75014 Paris, France

World Data Center C2
Tokyo Astronomical Observatory
Mitaka, Tokyo 181, Japan

Cosmic Rays

World Data Center C1
Space Physics Group
University of Umea
S-901 87 Umea, Sweden

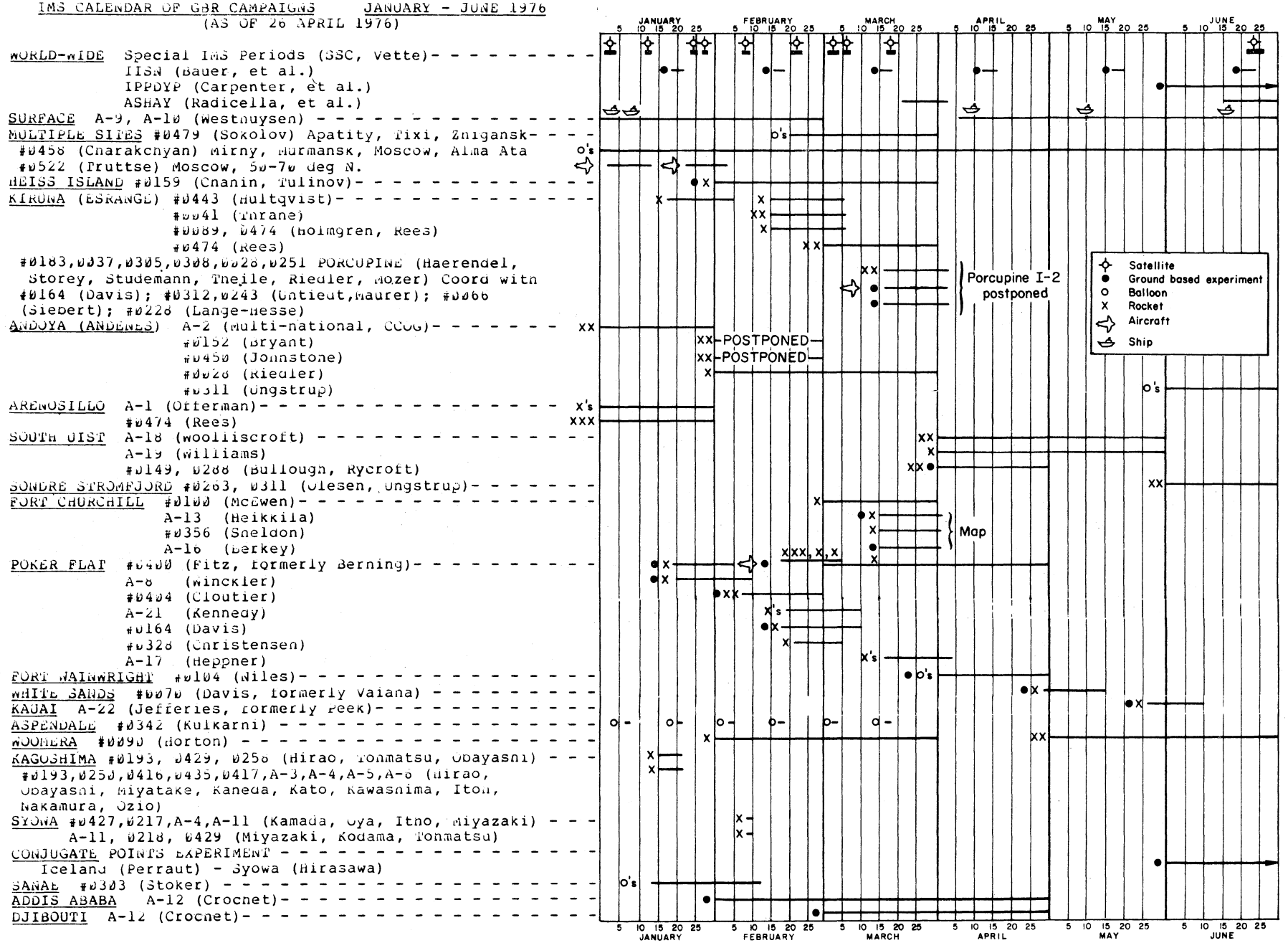
World Data Center C2
Cosmic Ray Laboratory
Institute of Physical and Chemical Research
Itabashi, Tokyo 173, Japan

Solar Activity*

World Data Center C1
Observatoire de Paris
92190 Meudon, France

* See the ICSU Guide for addresses of other WDC centers in Solar Activity and Ionosphere, most of which treat or analyze data collected by special arrangement (Freiburg, Zurich, Rome, Arcetri, Pic-du-Midi, Munich, Ondrejov, Toyokawa, Tokyo Univ, Crimea, Kiev)

IMS CALENDAR OF GBR CAMPAIGNS JANUARY - JUNE 1976
(AS OF 26 APRIL 1976)



IMS CALENDAR OF SSR CAMPAIGNS JULY - DECEMBER 1976
(AS OF 26 APRIL 1976)