

International Geophysical Calendar for 1977

(See other side for information on the use of this Calendar)

JANUARY							FEBRUARY							MARCH						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
						1			1	2	3	4	5			1	2	3	4	5
2	[3	4	5	6	7	8	6	7	8	9	10	11	12	6	7	8	9	10	11	12
9	10	11	12	13	14	15	13	14	(15)	(16)	(17)	18	19	13	14	(15)	(16)	(17)	18	19
16	17	(18)	(19)	(20)	21	22	20	21	22	23	24	25	26	20	21	22	23	24	25	26
23	24	25	26	27	28	29	27	28						27	28	29	30	31		
30	31																			

APRIL							MAY							JUNE						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
					1	2	1	2	3	[4]	[5]	6	7				1	2	3	4
3	4	5	6	7	8	9	8	9	10	11	12	13	14	5	6	7	[8]	[9]	[10]	[11]
10	11	12	13	14	15	16	15	16	(17)	(18)	(19)	20	21	[12]	13	(14)	(15)	(16)	17	18
17	(18)	(19)	(20)	(21)	22	23	22	23	24	25	26	27	28	19	20	21	22	23	24	25
24	25	26	27	28	29	30	29	30	31					26	27	28	29	30		

JULY							AUGUST							SEPTEMBER							
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
					1	2			1	2	3	4	5	6					1	2	3
3	4	5	6	7	8	9	7	8	9	10	11	12	13	4	5	6	7	8	9	10	
10	11	12	13	14	15	16	14	15	(16)	(17)	(18)	19	20	[11]	12	(13)	(14)	(15)	16	17	
17	18	(19)	(20)	(21)	22	23	21	22	23	24	25	26	27	18	19	20	21	22	23	24	
24	25	26	27	28	[29]	[30]	28	29	30	31				25	26	27	28	29	30		
[31]																					

OCTOBER							NOVEMBER							DECEMBER							
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
						1				1	2	3	4	5					1	2	3
2	3	4*	5*	6	7	8	6	7	8	9*	10*	11	12	[4]	[5]	[6]	[7]	[8]	9	10	
9	10	(11)	(12)	(13)	14	15	13	14	(15)	(16)	(17)	18	19	[11]	[12]	[13]	[14]	15	16	17	
16	17	18	19	(20)	(21)	(22)	20	21	22	23	24	25	26	18	19	20	21	22	23	24	
23	24	25	26	27	28	29	27	28	29	30				25	26	27	28	29	30	31	
30	31																				

JANUARY 1978

S	M	T	W	T	F	S
1	2	[3	4	5	6	7
8	9	10	11	12	13	14
15	16	(17)	(18)	(19)	20	21
22	23	24	25	26	27	28
29	30	31				

- (18) Regular World Day (RWD)
- (19) Priority Regular World Day (PRWD)
- (16) Quarterly World Day (QWD) also a PRWD and RWD
- 2 Regular Geophysical Day (RGD)
- [18] Day of Solar Eclipse

- 19* Dark Moon Geophysical Day (DMGD)
- [9-10] World Geophysical interval (WGI)
- [3] Day with unusual meteor shower activity, Northern Hemisphere
- 5] Day with unusual meteor shower activity, Southern Hemisphere
- [16-17] Airglow and Aurora Period

1. N-MAC (noon-midnight auroral correlations) periods are: Jan. 12-26, Mar. 10-24, Nov. 5-19 and Dec. 4-18, 1977.
2. IAGA/URSI Working Group on Passive Electromagnetic Probing of the Magnetosphere international campaign June 21-July 20, 1977.
3. Special Satellite Periods identified by Satellite Situation Center: Jan. 3, 0700—Jan. 5, 1000; Jan. 27, 0300—Jan. 28, 2300; Feb. 3, 1000—Feb. 4, 0800; Mar. 5, 1200—Mar. 7, 1800; Apr. 13, 0000—Apr. 15, 0000; Jun. 25, 2000—Jun. 28, 0600; Jul. 10, 1800—Jul. 11, 0800; Aug. 3, 2000—Aug. 5, 1800; Aug. 13, 0000—Aug. 14, 1200; Aug. 28, 1700—Aug. 29, 0900; Oct. 13, 1900—Oct. 16, 0600; Oct. 16, 0400—Oct. 18, 1200; Oct. 26, 1100—Oct. 27, 0100; Nov. 21, 0300—Nov. 23, 0600; Nov. 24, 2000—Nov. 26, 0600; Nov. 27, 1400—Nov. 30, 0500; Dec. 13, 1800—Dec. 15, 2300; Dec. 23, 0300—Dec. 23, 1800; Dec. 27, 1900—Dec. 30, 0600.

EXPLANATIONS

This Calendar continues the series begun for the IGY years 1957-58, and is issued annually to recommend dates for solar and geophysical observations which cannot be carried out continuously. Thus, the amount of observational data in existence tends to be larger on Calendar days. The recommendations on data reduction and especially the flow of data to **World Data Centers (WDCs)** in many instances emphasize Calendar days. The Calendar is prepared by the **International Ursigram and World Days Service (IUWDS)** with the advice of spokesmen for the various scientific disciplines. For greater detail concerning explanations or recommendations your attention is called to information published periodically in **STP Notes, IAGA News, IUGG Chronicle, URSI Information Bulletin** or other scientific journals.

The definitions of the designated days remain as described on previous Calendars. **Universal Time (UT)** is the standard of time for all world days. **Regular Geophysical Days (RGD)** are each Wednesday. **Regular World Days (RWD)** are three consecutive days each month, always Tuesday, Wednesday and Thursday near the middle of the month. **Priority Regular World Days (PRWD)** are the RWD which fall on Wednesdays. **Quarterly World Days (QWD)** are one day each quarter and are the PRWD which fall in the **World Geophysical Intervals (WGI)**. The WGI are fourteen consecutive days in each season, beginning on a Monday of the selected month, and normally shift from year to year. In 1977 the WGI will be in February, May, August and November.

The **Solar Eclipses** are April 18 (annular) beginning in the Indian Ocean, crossing southern Africa, ending in Atlantic Ocean just off Brazil, and October 12 (total) beginning in Colombia, S. America, crossing Pacific Ocean north of Hawaii, ending in Pacific Ocean south of western end of Aleutian Islands. Geophysical stations in the eclipse zones and their conjugate areas treat these days as world days and undertake special programs to study eclipse effects on the earth's atmosphere.

Meteor Showers (selected by P. M. Millman, Ottawa) include important visual showers and also unusual showers observable mainly by radio and radar techniques. The dates are coded to indicate whether the shower is observable in the northern or southern hemisphere.

The occurrence of unusual solar or geophysical conditions is announced or forecast by the IUWDS through various types of geophysical "Alerts" which are widely distributed by telegram and radio broadcast on a current schedule. Stratospheric warmings (**STRATWARM**) are also designated. The meteorological telecommunications network coordinated by WMO carries these worldwide Alerts once daily soon after 0400 UT. For definitions of Alerts see IUWDS "Synoptic Codes for Solar and Geophysical Data, Third Revised Edition 1973" and its amendments. **Retrospective World Intervals** are selected and announced in **STP Notes** and elsewhere to provide additional analyzed data for particular events studied in the ICSU Special Committee on Solar-Terrestrial Physics (SCOSTEP) programs.

RECOMMENDED SCIENTIFIC PROGRAMS OPERATIONAL EDITION

(The following material was reviewed in 1976 by spokesmen of SCOSTEP and at the International Symposium on Solar-Terrestrial Physics as suitable for coordinated geophysical programs in 1977.)

Airglow and Auroral Phenomena. Airglow and auroral observations operate with their full capacity around the New Moon periods. However, for progress in understanding the mechanism of, inter alia, low latitude aurora, the coordinated use of all available techniques, optical and radio, from the ground and in space is required. Thus, for the airglow and aurora periods on the Calendar, ionosonde, incoherent scatter, special satellite or balloon observations, etc., are especially encouraged. Periods of approximately two weeks' duration centered on the new moon are proposed for high resolution studies of ionospheric, auroral and magnetospheric observations at high latitudes during northern winter. Correlations between dayside and nightside phenomena are particularly important, hence the name N-MAC for noon-midnight auroral correlations. See dates below Calendar.

Atmospheric Electricity. Not-continuous measurements and data reduction for continuous measurements of atmospheric electric current density, field, conductivities, space charges, ion number densities, ionosphere potentials, condensation nuclei, etc.; both at ground as well as with radiosondes, aircraft, rockets; should be done with first priority on the **RGD** each Wednesday, beginning on 5 January 1977 at 1200 UT, 12 January at 1800 UT, 19 January at 0000 UT, 26 January at 0600 UT, 2 February at 1200 UT, etc. (beginning hour shifts six hours each week, but is always on a Wednesday). Minimum program is at the same time on **PRWD** beginning with 19 January at 0000 UT. Data reduction for continuous measurements should be extended, if possible, to cover at least the full **RGD** including, in addition, at least 6 hours prior to indicated beginning time. Measurements prohibited by bad weather should be done 24 hours later. Results on sferics and ELF are wanted with first priority for the same hours, short-period measurements centered around the minutes 35-50 of the hours indicated. **Priority Weeks** are the weeks which contain a **PRWD**, minimum priority weeks are the ones with a **QWD**. The World Data Centre for Atmospheric Electricity, 7 Karbysheva, Leningrad 194018, USSR, is the collection point for data and information on measurements.

Geomagnetic Phenomena. It has always been a leading principle for geomagnetic observatories that operations should be as continuous as possible and the great majority of stations undertake the same program without regard to the Calendar.

Stations equipped for making magnetic observations, but which cannot carry out such observations and reductions on a continuous schedule are encouraged to carry out such work at least on **RWD** (and during times of **MAGSTORM** Alert).

Ionospheric Phenomena. Special attention is continuing on particular events which cannot be forecast in advance with reasonable certainty. These will be identified by Retrospective World Intervals. The importance of obtaining full observational coverage is therefore stressed even if it is possible to analyze the

detailed data only for the chosen events. In the case of vertical incidence sounding, the need to obtain quarter-hourly ionograms at as many stations as possible is particularly stressed and takes priority over recommendation (a) below when both are not practical.

For the vertical incidence (VI) sounding program, the summary recommendations are: (a) soundings to be made at five minute intervals on **RWDs** for stations normally making observations every quarter hour; all other stations are recommended to make at least quarter-hourly observations on **RWDs**; (b) f-plots are made for high latitude stations and for the so-called "representative" stations at lower latitudes for all days (i.e., including **RWDs** and **WGIs**), (Continuous records of ionospheric parameters are acceptable in place of f-plots at temperate and low latitude stations); (c) profile parameters hc, qc or recommended similar parameters to be determined and sent to WDCs for **RWDs** for all stations except those undertaking full profile programs or producing monthly median profiles; (d) copies of hourly ionograms with appropriate scales for **RWDs** are to be sent to WDCs; (e) stations in the eclipse zone and its conjugate area should take continuous observations on solar eclipse days and special observations on adjacent days. See also recommendations under **Airglow and Auroral Phenomena**.

For incoherent scatter observation program, every effort should be made to obtain measurements at least on the **Dark Moon Geophysical Days (DMGD)** and intensive series should be attempted whenever possible in **WGIs** or the **Airglow and Aurora Periods**. The need for collateral VI observations with not more than quarter-hourly spacing at least during all observation periods is stressed. Dr. P. Bauer (France), URSI Working Group G.8, is coordinating special programs.

For the ionospheric drift or wind measurement by the various radio techniques, observations are recommended to be concentrated on the weeks including **RWDs**. Special periods are designated by Dr. K. Sprenger (GDR), URSI Working Group G.2.

For traveling ionosphere disturbances Dr. J. Testud (France), URSI Working Group G.2, proposes special periods for coordinated measurements of gravity waves induced by magnetospheric activity, probably on selected **PRWD** and **RWD**.

For the ionospheric absorption program half-hourly observations are made at least on all **RWDs** and half-hourly tabulations sent to WDCs. Observations should be continuous on **solar eclipse** days for stations in eclipse zone and in its conjugate area. Special efforts should be made to obtain daily absorption measurements at temperate latitude stations during the period of Absorption Winter Anomaly, particularly on days of abnormally high or abnormally low absorption (approximately October-March, Northern Hemisphere; April-September, Southern Hemisphere).

For back-scatter and forward-scatter programs, observations should be made and analyzed on all **RWDs** at least.

For synoptic observations of mesospheric (D region) electron densities, several groups have agreed on using the **RGD** for the hours around noon. Dr. C. F. Sechrist (U.S.A.) is coordinator for the D-region Winter Anomaly Program continuing through January 1977 with rocket experiments at Wallops Island.

For ELF noise measurements involving the earth-ionosphere cavity resonances any special effort should be concentrated during the **WGIs**.

It is recommended that more intensive observations in all programs be considered on days of **unusual meteor activity**.

Meteorology. Particular efforts should be made to carry out an intensified program on the **RGD** — each Wednesday, UT. A desirable goal would be the scheduling of meteorological rocketsondes, ozone sondes and radiometer sondes on these days, together with maximum-altitude rawinsonde ascents at both 0000 and 1200 UT.

During **WGI** and **STRATWARM** Alert intervals, intensified programs are also desirable, preferably by the implementation of **RGD**-type programs (see above) on Mondays and Fridays, as well as on Wednesdays.

Solar Phenomena. Observatories making specialized studies of solar phenomena, particularly using new or complex techniques, such that continuous observation or reporting is impractical, are requested to make special efforts to provide to WDCs data for **solar eclipse days, RWDs**, and during **PROTON/FLARE ALERTS**. The attention of those recording solar noise spectra, solar magnetic fields and doing specialized optical studies is particularly drawn to this recommendation.

Space Research, Interplanetary Phenomena, Cosmic Rays, Aeronomy. Experimenters should take into account that observational effort in other disciplines tends to be intensified on the days marked on the Calendar, and schedule balloon and rocket experiments accordingly if there are no other geophysical reasons for choice. In particular it is desirable to make rocket measurements of ionospheric characteristics on the same day at as many locations as possible; where feasible, experimenters should endeavor to launch rockets to monitor at least normal conditions on the **Quarterly World Days (QWD)** or on **RWDs**, since these are also days when there will be maximum support from ground observations. Also, special efforts should be made to assure recording of telemetry on **QWD** and **Airglow and Aurora Periods** of experiments on satellites and of experiments on spacecraft in orbit around the sun. In addition for intervals identified by the IMS Satellite Situation Center as times of special satellite positions, relevant IMS spacecraft should make every effort to acquire data. For monthly updates of IMS programs consult IMS Newsletters of the Temporary IMS Central Information Exchange Office, WDC-A for STP, D63, NOAA, Boulder, CO 80302 U.S.A.

For the URSI/IAGA Working Group on Passive Electromagnetic Probing of the Magnetosphere augmented synoptic recordings are called for June 21-July 20. At those stations equipped for direction finding two special five-day campaigns will be designated. For the first continuous recordings for several hours each day near dawn are to be made, for second recordings are to be made near dusk. Purpose is to identify the relatively large east-west plasma drifts expected near these local times.

The **International Ursigram and World Days Service (IUWDS)** is a permanent scientific service of the International Union of Radio Science (URSI), with the participation of the International Astronomical Union and the International Union Geodesy and Geophysics. IUWDS adheres to the Federation of Astronomical and Geophysical Services of the International Council of Scientific Unions. The IUWDS coordinates the international aspects of the world days program and rapid data interchange, and also publishes subsequently **Condensed Calendar Records** of solar and geophysical indices and events, published in **STP Notes**.

This Calendar for 1977 has been drawn up by J. V. Lincoln, of the IUWDS Steering Committee, in close association with A. H. Shapley, Chairman of MONSEE of SCOSTEP, and spokesmen for the various scientific disciplines in SCOSTEP and COSPAR. Similar Calendars have been issued annually beginning with the IGY, 1957-58, and have been published in various widely available scientific publications.

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