

International Geophysical Calendar for 1984

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

	S	M	T	W	T	F	S		S	M	T	W	T	F	S	
	1	2	3	4	5	6	7		1	2	3	4	5	6	7	
	8	9	10*	11*	12	13	14		8	9	10	11	12	13	14	
JANUARY	15	16	17+	18+	19+	20	21		15	16	17	18	19	20	21	JULY
	22	23	24	25	26	27	28		22	23	24	25**+26*	27	28		
	29	30	31	1	2	3	4		29	30	31	1	2	3	4	
	5	6	7*	8**+	9	10	11		5	6	7	8	9	10	11	
FEBRUARY	12	13	14	15	16	17	18		12	13	14	15	16	17	18	AUGUST
	19	20	21	22	23	24	25		19	20	21	22**+23*	24	25		
	26	27	28	29	1	2	3		26	27	28	29	30	31	1	
	4	5	6*	7**+	8	9	10		2	3	4	5	6	7	8	
MARCH	11	12	13	14	15	16	17		9	10	11	12	13	14	15	
	18	19	20	21	22	23	24		16	17	18	19**+	20*	21	22	SEPTEMBER
	25	26	27	28	29	30	31		23	24	25	26	27	28	29	
	1	2	3*	4**+	5	6	7		30	1	2	3	4	5	6	
APRIL	8	9	10	11	12	13	14		7	8	9	10	11	12	13	
	15	16	17	18	19	20	21		14	15	16	17**+	18*	19	20	OCTOBER
	22	23	24	25	26	27	28		21	22	23	24	25	26	27	
	29	30	1	2	3	4	5		28	29	30	31	1	2	3	
	6	7	8*	9**+	10	11	12		4	5	6	7	8	9	10	
MAY	13	14	15	16	17	18	19		11	12	13	14**+	15*	16	17	NOVEMBER
	20	21	22	23	24	25	26		18	19	20	21	22	23	24	
	27	28	29	30	31	1	2		25	26	27	28	29	30	1	
	3	4	5	6	7	8	9		2	3	4	5	6	7	8	
JUNE	10	11	12	13	14	15	16		9	10	11	12	13	14	15	
	17	18	19	20	21	22	23		16	17	18	19**+	20*	21	22	DECEMBER
	24	25	26+	27**+	28**+	29	30		23	24	25	26	27	28	29	
	S	M	T	W	T	F	S		30	31	1	2	3	4	5	
	6	7	8	9	10	11	12		6	7	8	9	10	11	12	
	13	14	15+	16**+	17**+	18	19		13	14	15+	16**+	17**+	18	19	1985
	20	21	22	23	24	25	26		20	21	22	23	24	25	26	JANUARY
	27	28	29	30	31				27	28	29	30	31			
	S	M	T	W	T	F	S		S	M	T	W	T	F	S	

- 17** Regular World Day (RWD)
- 18** Priority Regular World Day (PRWD)
- 15** Quarterly World Day (QWD)
also a PRWD and RWD
- 4** Regular Geophysical Day (RGD)
- 6 7** World Geophysical Interval (WGI)
- 17+** Incoherent Scatter Coordinated
Observation Day and Coordinated
Tidal Observation Day

- 30** Day of Solar Eclipse
- 4 5** Airglow and Aurora Period
- 10*** Dark Moon Geophysical Day (DMGD)

NOTES:
 1. Days with unusual meteor shower activity are: Northern Hemisphere Jan. 3, 4; Apr 21, 22; May 2-5; Jun 8-12, 27-29; Jul 27-29; Aug 10-13; Oct 19-22; Nov 2, 3, 17; Dec 12-15, 21, 22, 1984. Southern Hemisphere May 2-5; Jun 8-12, 20, 21; Jul 26-30; Oct 19-22; Nov 2, 3, 17; Dec 5-7, 12-15, 1984.

2. Middle Atmosphere Program (MAP) began 1 Jan 1982 and runs through 1985.

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 **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 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 Monday of the selected month, and normally shift from year to year. In 1984 the **WGI** will be February, May, August and November.

The **Solar Eclipses** are: May 30 (annular) beginning in the equatorial Pacific Ocean, crossing Mexico, SE United States, Atlantic Ocean and ending in N. Africa (the partial zone ranges from NW S. America to arctic Canada, Greenland, Scandinavia); November 22-23 (total) beginning in New Guinea, crossing north of New Zealand, and ending west of Chile (the partial zone includes the Philippine Islands, Australia, Indonesia, west Antarctica and the extreme south of S. America).

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 for Northern Hemisphere meteor showers are: Jan 3, 4; April 21-22; May 2-5; Jun 8-12, 27-29; Jul 27-29; Aug 10-13; Oct 19-22; Nov 2, 3, 17; Dec 12-15, 21, 22, 1984. The dates for Southern Hemisphere meteor showers are: May 2-5; Jun 8-12, 20, 21; Jul 26-30; Oct 19-22; Nov 2, 3, 17; Dec 5-7, 12-15, 1984. Note that the meteor showers that come in the first week of May and the third week in October are of particular interest (fragments of Halley's comet) because of the approach of Halley's comet in 1986.

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 by MONSEE and elsewhere to provide additional analyzed data for particular events studied in the ICSU Scientific Committee on Solar-Terrestrial Physics (SCOSTEP) programs.

RECOMMENDED SCIENTIFIC PROGRAMS PLANNING EDITION

(The following material was reviewed in 1983 by spokesmen of IAGA, WMO and URSI as suitable for coordinated geophysical programs in 1984.)

Airglow and Aurora Phenomena. Airglow and auroral observatories 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 7-day 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 of ionospheric, auroral and magnetospheric observations at high latitudes during northern winter.

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 4 January 1984 at 1800 UT, 11 January at 0000 UT, 18 January at 0600 UT, 25 January at 1200 UT, etc. (beginning hour shifts six hours each week, but is always on Wednesday). Minimum program is at the same time on PRWD beginning with 18 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).

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 (FAGS) of the International Council of Scientific Unions (ICSU). The IUWDS coordinates the international aspects of the world days program and rapid data interchange.

This Calendar for 1984 has been drawn up by H.E. Coffey, of the IUWDS Steering Committee, in close association with A.H. Shapley, member of MONSEE of SCOSTEP, and spokesmen for the various scientific disciplines in SCOSTEP, IAGA and URSI. Similar Calendars have been issued annually beginning with the IGY, 1957-58, and have been published in various widely available scientific publications.

Published for the International Council of Scientific Unions and with financial assistance of UNESCO.

Additional copies are available upon request to IUWDS Chairman, Dr. P. Simon, Ursigrammes Observatoire, 92190 Meudon, France, or IUWDS Secretary for World Days, Miss H.E. Coffey, WDC-A for Solar-Terrestrial Physics, NOAA, E/GC2, 325 Broadway, Boulder, Colorado 80303, USA.

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) all stations should make soundings at least every quarter hour. Stations which normally record at every quarter should, if possible, record more frequently on **RWDs**, particularly at high latitudes; (b) all stations are encouraged to make f-plots on **RWDs**; f-plots should be made for high latitude stations, and for 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) copies of hourly ionograms with appropriate scales for **QWDs** are to be sent to WDCs; (d) 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 Aurora Phenomena**.

For incoherent scatter observation program, every effort should be made to obtain measurements at least on the **Incoherent Scatter Coordinated Observation Days**, and intensive series should be attempted whenever possible in **WGIs** or the **Airglow and Aurora Periods**. Give Apr 4, Jul 25 and Dec 19 lower priority if you must compensate for the extended 3-day periods in Jan, Jun 1984, and Jan 1985. The need for collateral VI observations with not more than quarter-hourly spacing at least during all observation periods is stressed. Dr. M.J. Baron (USA), URSI Working Group G.5, is coordinating special drifts.

For the ionospheric drift or wind measurement by the various radio techniques, observations are recommended to be concentrated on the weeks including **RWDs**.

For traveling ionosphere disturbances propose 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.

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 rocket sondes, 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.

Middle Atmosphere Program (MAP). MAP runs from 1 January 1982 through 1985. Techniques for observing the middle atmosphere should concentrate or center their observations on the **RGDs**, **PRWDs**, and **QWDs**. It is recommended that observing runs for studies of planetary waves and tides be at least 10 days centered on the **PRWDs** and **QWDs**. Non-continuous studies of stratospheric warmings and the effects of geomagnetic activity on the middle atmosphere must be initiated by **STRATWARM** and **MAGSTORM** alerts, respectively. For more detail see the "Recommended Scientific Programs" on the reverse of the **Middle Atmosphere Dynamics Calendar for 1984**, which will be published as a special edition of the **IGC for 1984**.

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.

For URSI/IAGA Coordinated Tidal Observations Program (CTOP) contact Dr. R.G. Roper (USA) for the 1984 Calendar.