

# International Geophysical Calendar 2006 (FINAL)

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

	S	M	T	W	T	F	S		S	M	T	W	T	F	S		
JANUARY	1	2	3	4	5	6	7										JULY
	8	9	10	11	12	13	14 <sup>F</sup>		2	3	4	5	6	7	8		
	15	16	17	18	19	20	21		9	10	11 <sup>F</sup>	12	13	14	15		
	22	23	24	25*	26*	27	28		16	17	18	19	20	21	22		
FEBRUARY	29 <sup>N</sup>	30	31	1	2	3	4		23	24	25 <sup>N</sup>	26*	27	28	29		AUGUST
	5	6	7	8	9	10	11		30	31	1	2	3	4	5		
	12	13 <sup>F</sup>	14	15	16	17	18		6	7	8	9 <sup>F</sup>	10	11	12		
	19	20	21	22*	23*	24	25		13	14	15	16	17	18	19		
	26	27	28 <sup>N</sup>	1	2	3	4		20	21	22*	23 <sup>N</sup>	24	25	26		
MARCH	5	6+	7+	8+	9+	10+	11+		27	28	29	30	31	1	2		SEPTEMBER
	12+	13+	14 <sup>F</sup>	15+	16+	17+	18+		3	4	5	6	7 <sup>F</sup>	8	9		
	19+	20+	21+	22+	23+	24+	25+		10	11	12	13	14	15	16		
	26+	27+	28+	29+	30+	31+	1+		17	18	19	20+	21+	22 <sup>N</sup>	23		
APRIL	2+	3+	4+	5+	6+	7	8		24	25	26	27	28	29	30		
	9	10	11	12	13 <sup>F</sup>	14	15		1	2	3	4	5	6	7 <sup>F</sup>		OCTOBER
	16	17	18	19	20	21	22		8	9	10	11	12	13	14		
	23	24	25	26*	27 <sup>N</sup>	28	29		15	16	17	18*	19*	20	21		
MAY	30	1	2	3	4	5	6		22 <sup>N</sup>	23	24	25	26	27	28		
	7	8	9	10	11	12	13 <sup>F</sup>		29	30	31	1	2	3	4		NOVEMBER
	14	15	16	17	18	19	20		5 <sup>F</sup>	6	7	8	9	10	11		
	21	22	23	24*	25*	26	27 <sup>N</sup>		12	13	14	15*	16*	17	18		
	28	29	30	31	1	2	3		19	20 <sup>N</sup>	21	22	23	24	25		
JUNE	4	5	6	7	8	9	10		26	27	28	29	30	1	2		DECEMBER
	11 <sup>F</sup>	12	13	14	15	16	17		3	4	5 <sup>F</sup>	6	7	8	9		
	18	19	20	21*	22*	23	24		10	11	12	13	14	15	16		
	25 <sup>N</sup>	26+	27+	28+	29+	30+			17	18	19	20 <sup>N</sup>	21*	22	23		
	S	M	T	W	T	F	S		24	25	26	27	28	29	30		
									31	1	2	3 <sup>F</sup>	4	5	6		2007
									7	8	9	10	11	12	13		JANUARY
									14	15	16	17*	18*	19 <sup>N</sup>	20		
									21	22	23	24	25	26	27		
									28	29	30	31					
									S	M	T	W	T	F	S		
									N	NEW MOON			F	FULL MOON			

17 Regular World Day (RWD)

15 Priority Regular World Day (PRWD)

18 Quarterly World Day (QWD)  
also a PRWD and RWD

4 Regular Geophysical Day (RGD)

16 17 World Geophysical Interval (WGI)

26+ Incoherent Scatter Coordinated Observation Day

29 Day of Solar Eclipse: Mar 29 and Sep 22

26 27 Airglow and Aurora Period

25\* Dark Moon Geophysical Day (DMGD)

### NOTES on other dates and programs of interest:

1. Days with significant meteor shower activity are: Northern Hemisphere 4 Jan; 21-23 Apr; 4-5 May; 6-11, 27-29 Jun; 11-13 Aug; 21-22 Oct; 13-15, 21-23 Dec 2006. Southern Hemisphere 4-5 May; 6-11, 27-29 Jun; 27 Jul-2 Aug; 21-22 Oct; 13-15 Dec 2006. These can be studied for their own geophysical effects or may be "geophysical noise" to other experiments.

2. GAW (Global Atmosphere Watch) -- early warning system for changes in greenhouse gases, ozone layer, and long range transport of pollutants. (See Explanations.)

3. CAWSES (Climate and Weather of the Sun-Earth System) -- SCOSTEP Program 2004-2008. Theme areas: Solar Influence on Climate; Space Weather: Science and Applications; Atmospheric Coupling Processes; Space Climatology; and Capacity Building and Education. (See Explanations.)

4. + Incoherent Scatter Coordinated Observations Days (see Explanations) starting at 1300 UT on the first day of the intervals indicated, and ending at 1600 UT on the last day of the intervals:  
World Month 6 Mar-6 Apr 2006 -- Assimilative Models, support CAWSES, LTCS, CVS, CPEA, M-I Coupling, GEM, & MST;  
26-30 Jun CVS, MST, CAWSES (CEDAR is Jun 19-23); 20-22 Sep GPS-Radar: wide F-region coverage with topside at AO and JRO.  
See [http://people.ece.cornell.edu/wes/URSI\\_ISWG/2006WDSchedule.htm](http://people.ece.cornell.edu/wes/URSI_ISWG/2006WDSchedule.htm).

where CAWSES= Climate and Weather of the Sun-Earth System S. Basu --(sbasu@cawses.bu.edu);

CEDAR = Coupling, Energetics & Dynamics of Atmospheric Regions (<http://cedarweb.hao.ucar.edu/>);

CPEA = Coupling Processes in the Equatorial Atmosphere (S. Fukao -- fukao@kurasc.kyoto-u.ac.jp);

See [http://people.ece.cornell.edu/URSI\\_ISWG/CPEA-panf.pdf](http://people.ece.cornell.edu/URSI_ISWG/CPEA-panf.pdf)

CVS = Convection Variability-- Ionospheric Convection & Variability Studies (Shun-Rong Zhang -- shunrong@haystack.mit.edu);

GEM = Geospace Environment Modeling (<http://www-ssc.igpp.ucla.edu/gem/>);

GPS-Radar = Global Plasma Structuring-Radar Experiment (J. Foster -- jcf@haystack.mit.edu);

M-I Coupling = Magnetosphere-Ionosphere Coupling-Storm/Substorm Effects Mid & Low Latitude Iono. (C. Huang -- cshuang@haystack.mit.edu);

MST = Studies of the Mesosphere, Stratosphere, and Troposphere--Coordinated D- and E-region campaigns in high resolution MST mode (G. Lehmacher -- glehmac@clemsun.edu);

AO = Arecibo Obs (<http://www.naic.edu/aisr/olmon2/omframedoc.html>);

JRO = Jicamarca Radio Obs ([http://jro.igpp.gob.pe/english/radar/operation/real-time\\_en.php](http://jro.igpp.gob.pe/english/radar/operation/real-time_en.php));

World Month = month-long observations for model validation and studies of long period waves (W. Swartz -- wes@ece.cornell.edu)

# 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 Space Environment Service (ISES)** with the advice of spokesmen for the various scientific disciplines.

## The Solar Eclipses are:

a.) 29 March 2006 (total) eclipse will be visible in Brazil, Ghana, Togo, Benin, Nigeria, Niger, N.W. Chad, Libya, the N.W. tip of Egypt, Turkey, N.W. Georgia, S.W. Russia, Kazakstan, Russia south of Novosibirsk, ends in the N.W. tip of Mongolia. Maximum duration 4 min 7s in Libya; 3min 45s in Turkey. Partial phase in Africa (except southeast), all Europe, Asia as far south as Pakistan and mid-India.  
b.) 22 September 2006 (annular) eclipse visible in Guyana, Suriname, French Guiana, the South Atlantic Ocean and ends south west of the Kerguelen Islands. Maximum duration 7 min 9 s. >5 min in S. America. Partial phases visible in eastern half of S. America and S.W. half of Africa.  
(Description by Dr. Jay Pasachoff, Williams College, Chair of IAU WG on Solar Eclipses, jmp@williams.edu based on maps from Fred Espenak, NASA GSFC. See <http://sunearth.gsfc.nasa.gov/eclipse/SEcat/SEdecade2001.html> and [http://www.williams.edu/Astronomy/IAU\\_eclipses](http://www.williams.edu/Astronomy/IAU_eclipses). See also IAU Program Group on Public Education at the Times of Eclipses: <http://www.eclipses.info/>.)

**Meteor Showers** (selected by R. Hawkes, Mount Allison Univ, Canada (rhawkes@mta.ca)) include important visual showers and also unusual showers observable mainly by radio and radar techniques. The dates are given in Note 1 under the Calendar.

## Definitions:

Time = Universal Time (UT);

Regular Geophysical Days (RGD) = each Wednesday;

Regular World Days (RWD) = Tuesday, Wednesday and Thursday near the middle of the month (see calendar);

Priority Regular World Days (PRWD) = the Wednesday RWD;

Quarterly World Days (QWD) = PRWD in the WGI;

World Geophysical Intervals (WGI) = 14 consecutive days each season (see calendar);

**ALERTS** = occurrence of unusual solar or geophysical conditions, broadcast once daily soon after 0400 UT;

**STRATWARM** = stratospheric warmings;

Retrospective World Intervals (RWI) = MONSEE study intervals

For more detailed explanations of the definitions, please see one of the following or contact H. Coffey (address below): [URSI Information Bulletin](#); [COSPAR Information Bulletin](#); [IAGA News](#); [IUGG Chronicle](#); [WMO Bulletin](#); [IAU Information Bulletin](#); [Geomagnetism and Aeronomy \(Russia\)](#); [Journal of Atmospheric and Terrestrial Physics \(UK\)](#); [ISES homepage](#)

<http://www.ises-spaceweather.org/>.

**Priority recommended programs for measurements not made continuously** (in addition to unusual ALERT periods):

**Aurora and Airglow** — Observation periods are New Moon periods, especially the 7 day intervals on the calendar;

**Atmospheric Electricity** — Observation periods are the RGD each Wednesday, beginning on 5 January 2006 at 0000 UT, 11 January at 0600 UT, 18 January at 1200 UT, 25 January at 1800 UT, etc. Minimum program is PRWDs.

The **International Space Environment Service (ISES)** is a permanent scientific service of the International Union of Radio Science (URSI), with the participation of the International Astronomical Union (IAU) and the International Union of Geodesy and Geophysics (IUGG). ISES adheres to the Federation of Astronomical and Geophysical Data Analysis Services (FAGS) of the International Council for Science (ICSU). The ISES coordinates the international aspects of the world days program and rapid data interchange.

This Calendar for 2006 has been drawn up by H.E. Coffey, of the ISES Steering Committee, in association with spokesmen for the various scientific disciplines in SCOSTEP, IAGA, URSI and other ICSU organizations. Similar Calendars are issued annually beginning with the IGY, 1957-58, and are published in various widely available scientific publications. PDF versions are available online at [ftp://ftp.ngdc.noaa.gov/STP/SOLAR\\_DATA/IGC\\_CALENDAR](ftp://ftp.ngdc.noaa.gov/STP/SOLAR_DATA/IGC_CALENDAR).

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**Additional copies are available upon request to either ISES Director, Dr. David Boteler, Geomagnetic Laboratory, Natural Resources Canada, 7 Observatory Crescent, Ottawa, Ontario, Canada, K1A0Y3, FAX (613)824-9803, e-mail dboteler@NRCan.gc.ca, or ISES Secretary for World Days, Ms. Helen Coffey, WDC-A for Solar-Terrestrial Physics, NOAA E/GC2, 325 Broadway, Boulder, Colorado 80305, USA, Fax number (303)497-6513, e-mail Helen.E.Coffey@noaa.gov.**

The calendar is available on-line at <http://www.ises-spaceweather.org/>.

**Geomagnetic Phenomena** — At the minimum, need observation periods and data reduction on RWDs and during **MAGSTORM Alerts**.

**Ionospheric Phenomena** — Quarter-hourly ionograms; more frequently on RWDs, particularly at high latitude sites; f-plots on RWDs; hourly ionogram scaled parameters to WDCs on QWDs; continuous observations for solar eclipse in the eclipse zone. See **Airglow and Aurora**.

**Incoherent Scatter** — Observations on Incoherent Scatter Coordinated Days; also intensive series on WGIS or Airglow and Aurora periods. **Special programs:** Dr. Wes Swartz, School of Electr. & Computer Eng., Cornell University, Ithaca, NY 14853 USA; tel. 607-255-7120; Fax 607-255-6236; e-mail wes@ece.cornell.edu. URSI Working Group G.5. See

[http://people.ece.cornell.edu/wes/URSI\\_ISWG/2006WDSchedule.htm](http://people.ece.cornell.edu/wes/URSI_ISWG/2006WDSchedule.htm).

**Ionospheric Drifts** — During weeks with RWDs.

**Traveling Ionosphere Disturbances** — special periods, probably PRWD or RWDs.

**Ionospheric Absorption** — Half-hourly on RWDs; continuous on solar eclipse days for stations in eclipse zone and conjugate area. Daily measurements during Absorption Winter Anomaly at temperate latitude stations (Oct-Mar Northern Hemisphere; Apr-Sep Southern Hemisphere).

**Backscatter and Forward Scatter** — RWDs at least.

**Mesospheric D region electron densities** — RGD around noon.

**ELF Noise Measurements of earth-ionosphere cavity resonances** — WGIS.

**All Programs** — Appropriate intensive observations during unusual meteor activity.

**Meteorology** — Especially on RGDs. On WGIS and STRATWARM Alert Intervals, please monitor on Mondays and Fridays as well as Wednesdays.

**GAW (Global Atmosphere Watch)** -- WMO program to integrate monitoring of atmospheric composition. Early warning system of changes in atmospheric concentrations of greenhouse gases, ozone, and pollutants (acid rain and dust particles). WMO, 41 avenue Giuseppe-Motta, P.O. Box 2300, 1211 Geneva 2, Switzerland.

**Solar Phenomena** — Solar eclipse days, RWDs, and during **PROTON/FLARE ALERTS**.

**CAWSES (Climate and Weather of the Sun-Earth System)** -- SCOSTEP Program 2004-2008. Focus on fully utilizing past, present, and future data; and improving space weather forecasting, the design of space- and Earth-based technological systems, and understanding the solar-terrestrial influences on Global Change. Contact is Su. Basu (sbasu@bu.edu), Chair of CAWSES Science Steering Group. Program "theme" areas: Solar Influence on Climate; Space Weather: Science and Applications; Atmospheric Coupling Processes; Space Climatology; and Capacity Building and Education. See <http://www.bu.edu/cawses/>.

**Space Research, Interplanetary Phenomena, Cosmic Rays, Aeronomy** — QWDs, RWD, Airglow and Aurora periods.