De

Intro | **Calendar** | **Sun** | **Moon** | **Planets** | **Comets** | **Asteroids** | **Meteors** | **Deep-Sky** | **Satellites**

| *Astro-Calendar* | User Profile · Space Weather · Ocean Tides · Meteo · Star chart ·
Graphical Day&Night Calendar · Weather Balloons · Islam. Prayer Times

→ Nightvision-Mode   → E-mail & Alert Manager

Select start of calculation:

Date: 6 | August | 2015

Time: 22 : 00 : 05 . 00 ☐ in TDT   Now

Select duration: 30 Minutes   go!

The Calendar-Sky

The astronomical calendar contains **thousands of events per day** for every point on Earth. We know that you only care for a very few of these events and hence we let you personalize your own Astro-Calendar. You may primarily do so by switching to your appropriate user level, and by selecting some of the three dozens categories.

In parentheses are forced limits for the maximum calculation interval. The celestial calendar is to be found further below on this page and will appear within some seconds after pressing the *Go!*-Button (depending on the complexity of your selections). The calendar is created especially for you. The higher your user level, the more complex objects you selected, the longer it does take to calculate. *Please do not press the reload-button*; the calculations will take significantly longer.

Calendar and Timekeeping
- ☐ Space Calendar: Birthdays, Rocket Launches
- ☐ Local Events (Talks, Exhibitions)
- ☐ NASA TV Guide
- ☐ Local Telescope Dealers
- ☐ Public Holidays
- ☐ Saint's Day
- ☐ Zodiac of today. Change of Zodiac
- ☐ Islamic, Indian, Persian and Hebrew Calendar
- ☐ Week Number
- ☐ Sundials / GPS Time / Current Time Definitions
- ☐ Julian Day Number
- ☐ Sidereal Time
- ☐ Local Magnetic Field

General events
- ☐ Lunar Occultations (2 months)
- ☐ Planetary Conjunctions
- ☐ Lunar Eclipses
- ☐ Solar Eclipses and Transits
- ☐ Meteor Showers
- ☐ Planetary Phenomena
- ☐ Lunar Phenomena
- ☐ The Sun
- ☐ Asteroids (6 months)
- ☐ Comets

Earth orbiting satellites
- ☑ Space Station ISS (1 month)
- ☑ short duration Flares of Iridium satellites (14 days)
- ☑ Passes of other bright satellites (*1 day, slow!*)

Daily reoccurring events
- ☐ Graphical night calendar
- ☐ Sun and Moon
- ☐ Planets
- ☐ Asteroids
- ☐ Comets
- ☐ Meteor Showers
- ☐ Polar Star Transits
- ☐ Weather Balloons

Dimmer and more difficult objects
- ☐ Jupiter: Great Red Spot and satellite events
- ☐ Jupiter's Satellites: position
- ☐ Saturn: Satellite events and storms
- ☐ Saturn's Satellites: position
- ☐ Zodiacal light/Gegenschein
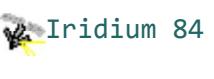- ☐ Variable Stars (3 months)
- ☐ Supernovae
- ☐ Binary Stars

Deep sky objects
- ☐ Star chart
- ☐ Milky Way
- ☐ Galaxies
- ☐ Open Star Clusters
- ☐ Globular Star Clusters
- ☐ Nebula

go!

Thursday 6 August 2015

Time (24-hour clock)	Object (Link)	Event
🌀	Observer Site	Aix en Pce, France WGS84: Lon: +5d26m50.74s Lat: +43d31m47.07s Alt: 258m All times in CET or CEST (during summer)
🌀 22h00m05s	🛰️💫🛰️USA 234/FIA Radar 2 (38109 2012-014-A) →Ground track →Star chart	**Appears 21h50m58s 6.7mag az: 49.0° NE** horizon **Culmination 22h00m01s 4.0mag az:139.6° SE h:85.5°** distance: 1109.6km height above Earth: 1107.0km elevation of Sun: -11° angular velocity: 0.37°/s **at Meridian 22h00m11s 4.0mag az:180.0° S** h:84.2° **Disappears 22h09m02s 7.2mag az:229.9° SW** horizon
🌀 22h00m05s	🛰️💫🛰️Cosmos 2506 (40699 2015-029-A) →Ground track →Star chart	**Appears 21h48m57s 6.6mag az:170.0° S** h:0.9° **at Meridian 21h53m54s 4.5mag az:180.0° S** h:35.3° **Culmination 21h55m56s 4.1mag az:257.4° WSW h:73.7°** distance: 757.3km height above Earth: 730.2km elevation of Sun: -10° angular velocity: 0.58°/s **Disappears 22h03m06s 8.7mag az:345.3° NNW** horizon
🌀 22h00m05s	🛰️💫🛰️IGS 5 H2A Rocket (36105 2009-066-B) →Ground track →Star chart	**Appears 21h50m19s 5.8mag az:174.2° S** h:1.2° **at Meridian 21h53m04s 4.6mag az:180.0° S** h:15.9° **Culmination 21h56m08s 3.3mag az:259.3° W** h:62.7° distance: 616.3km height above Earth: 553.5km elevation of Sun: -10° angular velocity: 0.73°/s **Disappears 22h02m11s 7.9mag az:344.9° NNW** horizon
🌀 22h01m08s	🛰️💫🛰️Object 84A (40353 2014-084-A) →Ground track →Star chart	**Appears 21h55m19s 8.3mag az:344.7° NNW** horizon **at Meridian 21h59m07s 5.5mag az: 0.0° N** h:23.6° **Culmination 22h01m08s 3.2mag az: 68.0° ENE h:52.4°** distance: 610.4km height above Earth: 493.9km elevation of Sun: -11° angular velocity: 0.69°/s **Disappears 22h03m51s 4.6mag az:141.7° SE** h:16.5°
🌀 22h04m57s	🛰️💫🛰️Object13-37DRk (39211 2013-037-D)	**Appears 22h02m03s 5.5mag az:150.8° SSE** h:14.3° **Culmination 22h04m57s 3.7mag az: 74.0° ENE h:57.3°**

	→Ground track
	→Star chart
		distance: 564.8km height above Earth: 482.4km
		 elevation of Sun: -12° angular velocity: 0.80°/s
		at Meridian 22h07m15s 6.5mag az: 0.0° N
		  h:19.3°
		Disappears 22h10m26s 8.7mag az:351.4° N
		  horizon

☢ 22h05m46s	Cosmos
	1939
	Rocket
	(19046
	1988-032-B)
	→Ground track
	→Star chart
		Appears 22h01m46s 5.7mag az:162.0° SSE
		 h:10.2°
		Culmination 22h05m46s 3.5mag az: 75.9° ENE
		 h:79.1°
		 distance: 575.6km height above Earth: 566.4km
		 elevation of Sun: -12° angular velocity: 0.78°/s
		at Meridian 22h06m43s 4.5mag az: 0.0° N
		  h:50.7°
		Disappears 22h11m52s 8.6mag az:349.2° N
		  horizon

☢ 22h06m07s	Yaogan 20
	Rocket
	(40112
	2014-047-D)
	→Ground track
	→Star chart
		Appears 21h57m04s 10.0mag az:320.4° NW
		  horizon
		Culmination 22h06m07s 4.3mag az:239.4° WSW
		 h:61.2°
		 distance: 1187.2km height above Earth: 1062.5km
		 elevation of Sun: -12° angular velocity: 0.34°/s
		at Meridian 22h08m26s 4.3mag az:180.0° S
		  h:40.9°
		Disappears 22h12m59s 5.6mag az:161.3° SSE
		 h:10.1°

☢ 22h07m36s	Iridium 84	Flare from solar panels **Magnitude= 1.6mag** Azimuth=126.7° SE altitude= 16.3° in constellation Aquarius RA=20h58.1m Dec=-12°50' Flare angle=4.08° **Flare center line**, **closest point** →MapIt: Longitude=4.152°E Latitude=+43.635° (WGS84) **Distance=105.0 km** Azimuth=276.9° W Peak Magnitude=-2.3mag Satellite above: longitude=19.8°E latitude=+31.8° height above Earth=780.9 km distance to satellite=1923.6 km Altitude of Sun=-12.1°

☢ 22h08m25s	USA
	173-2/NOSS 3-2C
	(28097
	2003-054-C)
	→Ground track
	→Star chart
		Appears 22h00m16s 6.8mag az:184.9° S
		   horizon
		at Meridian 22h01m57s 6.4mag az:180.0° S
		  h:6.1°
		Culmination 22h08m25s 4.8mag az:113.3° ESE
		 h:34.1°
		 distance: 1551.4km height above Earth: 982.1km
		 elevation of Sun: -12° angular velocity: 0.28°/s
		Disappears 22h17m11s 7.4mag az: 43.2° NE
		  horizon

☢ 22h12m54s	Cosmos 2487	**Appears 22h07m02s 9.6mag az:340.2° NNW** horizon

	(39194 2013-032-A) →Ground track →Star chart	**Culmination 22h12m54s 4.0mag az:251.4° WSW** **h:89.7°** distance: 494.4km height above Earth: 494.6km elevation of Sun: -13° angular velocity: 0.86°/s **at Meridian 22h12m55s 3.9mag az:180.0° S** h:89.1° **Disappears 22h15m39s 5.6mag az:161.9° SSE** h:17.3°
⌖ 22h15m47s	Cosmos 1892 Rocket (18422 1987-088-B) →Ground track →Star chart	**Appears 22h09m11s 9.0mag az:353.6° N** horizon **at Meridian 22h12m48s 7.0mag az: 0.0° N** h:19.8° **Culmination 22h15m47s 4.2mag az: 80.5° E** **h:68.6°** distance: 654.8km height above Earth: 614.1km elevation of Sun: -13° angular velocity: 0.64°/s **Disappears 22h19m08s 5.8mag az:162.2° SSE** h:16.4°
⌖ 22h16m16s	Cosmos 1844 Rocket (17974 1987-041-B) →Ground track →Star chart	**Appears 22h13m32s 4.7mag az:140.4° SE** h:17.0° **Culmination 22h16m16s 4.4mag az:101.7° ESE** **h:24.4°** distance: 1642.3km height above Earth: 834.8km elevation of Sun: -13° angular velocity: 0.27°/s **Disappears 22h23m31s 6.7mag az: 36.8° NE** horizon
⌖ 22h16m44s	Iridium 10	Flare from solar panels **Magnitude= 1.6mag** Azimuth=132.0° SE altitude= 18.9° in constellation Aquarius RA=20h44.0m Dec=-13°38' Flare angle=4.33° **Flare center line, closest point** →MapIt: Longitude=1.815°E Latitude=+43.746° (WGS84) **Distance=293.0 km Azimuth=276.0° W Peak Magnitude=-2.3mag** Satellite above: longitude=17.6°E latitude=+31.9° height above Earth=780.9 km distance to satellite=1787.1 km Altitude of Sun=-13.4°
⌖ 22h17m39s	Cosmos 1455 Rocket (14033 1983-037-B) →Ground track →Star chart	**Appears 22h14m25s 5.4mag az:156.8° SSE** h:15.8° **Culmination 22h17m39s 4.2mag az: 92.1° E** h:41.3° distance: 911.4km height above Earth: 635.0km elevation of Sun: -14° angular velocity: 0.49°/s **Disappears 22h24m10s 7.9mag az: 15.8° NNE** horizon
⌖ 22h18m12s	Metop A	Flare from left forward looking ASCAT **Magnitude= 1.4mag** Azimuth= 78.1° ENE altitude= 66.6° in constellation Cygnus

		RA=19h50.5m Dec=+43°45' Flare angle=6.44° **Flare center line**, **closest point** →MapIt: Longitude=6.709°E Latitude=+43.738° (WGS84) **Distance=104.1 km** Azimuth= 76.7° ENE Peak Magnitude=-5.1mag Satellite above: longitude=9.3°E latitude=+44.0° height above Earth=825.8 km distance to satellite=890.2 km Altitude of Sun=-13.6° This is an experimental flare prediction. Brightness estimate may be unreliable. Please report a successful observation (Object/site coordinates/date/measured time/accuracy/magnitude).

22h23m30s	USA 182/Lacrosse 5 (28646 2005-016-A)
	→Ground track
	→Star chart
		Appears 22h16m22s 9.6mag az:313.6° NW
		  horizon
		at Meridian 22h22m16s 4.6mag az: 0.0° N
		   h:28.1°
		Culmination 22h23m30s **3.9mag** az: 27.4° **NNE**
		 h:31.7°
		 distance: 1227.0km height above Earth: 721.6km
		 elevation of Sun: -14° angular velocity: 0.34°/s
		Disappears 22h27m28s 4.3mag az: 87.2° E
		   h:12.7°

22h25m22s	ISS
	→Ground track
	→Star chart
		Appears 22h20m21s 1.7mag az:277.8° W
		  horizon
		Culmination 22h25m22s **-1.1mag** az:348.3° **NNW**
		 h:22.4°
		 distance: 926.0km height above Earth: 407.3km
		 elevation of Sun: -15° angular velocity: 0.48°/s
		at Meridian 22h25m46s -1.4mag az: 0.0° N
		   h:21.9°
		Disappears 22h30m19s -0.5mag az: 58.4° ENE h:0.7°

22h25m29s	SJ 11-03 Rocket (37731 2011-030-B) →Ground track →Star chart	**Appears** 22h23m11s 3.6mag az:116.7° ESE h:21.2° **Culmination** 22h25m29s **3.3mag** az: 68.5° **ENE** **h:33.6°** distance: 1127.5km height above Earth: 685.8km elevation of Sun: -15° angular velocity: 0.39°/s **at Meridian** 22h30m51s 6.6mag az: 0.0° N h:4.9° **Disappears** 22h32m06s 7.2mag az:356.4° N horizon

22h29m31s	USA 173/NOSS 3-2A (28095 2003-054-A)
	→Ground track
	→Star chart
		Appears 22h21m03s 6.9mag az:199.0° SSW
		 horizon
		at Meridian 22h26m47s 4.9mag az:180.0° S
		   h:31.9°
		Culmination 22h29m31s **4.2mag** az:118.8° **ESE**
		 h:55.1°
		 distance: 1162.7km height above Earth: 983.8km
		 elevation of Sun: -15° angular velocity: 0.38°/s
		Disappears 22h38m45s 7.5mag az: 39.9° NE
		  horizon

20 Items/Events: ⚙ Export to Outlook/iCal 🖬 🖨 Print ✉ E-mail
Used satellite data set is from 5 August 2015

☐ Hide glossary

Glossary:

Altitude/alt/h
Angular separation of the object from the local mathematical horizon. This accounts for refraction as well.

Appears
Local time at which the satellite appears visually. The first figure indicates the **visual brightness** of the object. The smaller the number, the brighter and more eye-catching it appears to an observer. The units are astronomical magnitudes [m]. **Azimuth** is given in degrees counting from geographic north clockwise to the east direction. The three-character direction code is given as well. In case the satellite exits from the Earth shadow and comes into the glare of the Sun, the elevation above horizon is given in degrees for this event. If this figure is omitted, the satellite is visible straight from the horizon.

at Meridian
Time of the transit of the meridian, i.e. the satellite is due South or due North. At this time, the satellite will not reach its highest point of the pass. Look for culmination.

Azimuth/az
Azimuth direction of the object is given in degrees counting from geographic north (0°) clockwise to the east direction. East is 90°, south 180°, and west 270°. The three-character direction code is given as well. For example, NNW stands for north-north-west.

Culmination
Time at which the satellite reaches his highest point in the sky as seen from the observer. For description of the figures see **Appears**.
Visually "better" passes of satellites are indicated by highlighting the information. The selection within the list of all possible transits is coupled with the observer level, the daylight, and several other conditions.

Dec., declination, DE
One coordinate used to indicate the position on the sky. It is the angular distance of the object from the celestial equator. North pole, close to Polaris, is 90° north.

Disappears
Local time of visual disappearance of the satellite. This may either be the time at which the satellite moves below the observer's horizon or the entry of the object in the shadow of Earth (the elevation is given for this event). The low Earth orbiting (LEO) satellites are usually visible for about 10 seconds more than the listed time, when they start fading rapidly.

Flare angle
The angle between the direction of the mirrored image of the Sun and the observer. For bright flares, this angle must be as small as possible (i.e., the observer should be as close to the center line as possible).

Flare
The communication antennas and the solar panels reflect the sunlight almost as a perfect mirror. In case the observer lays within this reflected beam, the satellite suddenly appears very bright, as bright as the Moon in the first quarter; the light is even strong enough to cast shadows. Since the sunlight is bundled, the duration of the whole event is short, and lasts about 10 seconds. The indicated time is the center of the flare event; hence the satellite can be spotted some seconds earlier. Due to the shortness of the event, it is important to look in the right direction at the right time.

International Space Station ISS
The manned ISS is according to NASA the biggest and most complex scientific project in history. During twilight passed, the space station is easily seen by everyone as a strikingly bright and silently running star. It crosses the sky in a few minutes basically from west to east.

Iridium
Wireless worldwide communication system, which consists of 66 satellites that are in low Earth orbits. The user who has a rather small phone directly contacts one of the satellites, i.e., one of the three **Main Mission Antennas MMA** (the three panels in the bottom of the image with a size of about 1x2m^2). The satellites constellation consists of 6 planes with 11 satellites each (and some spares). Hence, another

Iridium satellite passes at about the same place in the sky every 8 minutes.

Magnitude/Mag

Brightness of an object considered as a point source of light, on a logarithmic scale.\ Visual limiting magnitude is about 6mag, whereas the brightest star Sirius reaches -1.4mag. The Hubble Space Telescope can image objects as dim as 29mag.

R.A., right ascension, RA

One coordinate used to indicate the position on the sphere. It is the angular distance of the object from the spring equinox measured along the celestial equator, expressed in hours of arc.

Sat above

Geographic coordinates of the sub-satellite point (in WGS84 coordinates). This is the point on Earth, from which the satellite is in the zenith at the indicated time. The altitude of the satellite from this point is given as "**alt**".

Time and Date

Date of validity of calculated output in local time and date, taking into account daylight saving time as well (see the current time zone on the left of the Earth icon on top right of almost all pages). The time is given as hours:minutes:seconds, or 00h00m00s. The time may also be rounded and given in decimal form, in order to correspond to the accuracy of the calculation: e.g., 10.1h means that the event will take place at about 5 minutes past 10 o'clock. This may also happen for days: 4.3d corresponds to the fourth day at around 7 o'clock. The start time is taken as selected by you, i.e., this is *not* necessarily at midnight. For intervals shorter than one day, decimal days are given. Times are given in 24 hour format (0h00m is midnight, 12h: noon, 18h: 6 pm.)

WGS84 / Geographical Coordinates

Geographical coordinates are given by the angles longitude (Lon), latitude (Lat), and altitude in meters (Alt). A place north of the equator at marked by N or +, places south of the equator by S or -. The longitude from the meridian of Greenwich is counted positive towards east (E). Places west from Greenwich are marked W or by -. The geographical coordinates refer to an ellipsoid, which fits the true shape of the Earth (geoid). The geoid corresponds to calm sea surface. The keyword "Geographic:" uses the local ellipsoid as reference system. WGS84 mark coordinates referring to the WGS84 ellipsoid. The difference in altitude to the geoid sums up to 100 meters and is called geoid undulation. This is corrected for when tagged "MSL" (mean sea level), such that the origin of the height system is at sea level.

🔺 Top

Create new default account/Logout

Happy User Donation

Software Version: 28 September 2015
Database updated 11 min ago
Current Users: 327, Runtime: 2.5s

20 Oct 2015, 12:43 UTC
598 minutes left for this session 🔳