



**Select start of calculation:**

Date:

Time:  :  :  .   in TDT

**Select duration:**

## 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.








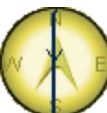



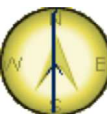

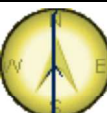
In parentheses are forced limits for the maximum calculation interval. The celestial calendar is to be found further below on this page and will appear within some seconds after pressing the *Go!*-Button (depending on the complexity of your selections). The calendar is created especially for you. The 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.


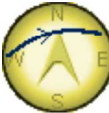












<p><b>Calendar and Timekeeping</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Space Calendar:</li> <li><input type="checkbox"/> Birthdays, Rocket Launches</li> <li><input type="checkbox"/> Local Events (Talks, Exhibitions)</li> <li><input type="checkbox"/> NASA TV Guide</li> <li><input type="checkbox"/> Local Telescope Dealers</li> <li><input type="checkbox"/> Public Holidays</li> <li><input type="checkbox"/> Saint's Day</li> <li><input type="checkbox"/> Zodiac of today.</li> <li><input type="checkbox"/> Change of Zodiac</li> <li><input type="checkbox"/> Islamic, Indian, Persian and Hebrew Calendar</li> <li><input type="checkbox"/> Week Number</li> <li><input type="checkbox"/> Sundials / GPS Time /</li> <li><input type="checkbox"/> Current Time Definitions</li> <li><input type="checkbox"/> Julian Day Number</li> <li><input type="checkbox"/> Sidereal Time</li> <li><input type="checkbox"/> Local Magnetic Field</li> </ul>	<p><b>General events</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Lunar Occultations (2 months)</li> <li><input type="checkbox"/> Planetary Conjunctions</li> <li><input type="checkbox"/> Lunar Eclipses</li> <li><input type="checkbox"/> Solar Eclipses and Transits</li> <li><input type="checkbox"/> Meteor Showers</li> <li><input type="checkbox"/> Planetary Phenomena</li> <li><input type="checkbox"/> Lunar Phenomena</li> <li><input checked="" type="checkbox"/> The Sun</li> <li><input type="checkbox"/> Asteroids (6 months)</li> <li><input type="checkbox"/> Comets</li> </ul>	<p><b>Earth orbiting satellites</b></p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Space Station ISS (1 month)</li> <li><input type="checkbox"/> short duration Flares of Iridium satellites (14 days)</li> <li><input checked="" type="checkbox"/> Passes of other bright satellites (1 day, slow!)</li> </ul> <p><b>Daily reoccurring events</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Graphical night calendar</li> <li><input type="checkbox"/> Sun and Moon</li> <li><input type="checkbox"/> Planets</li> <li><input type="checkbox"/> Asteroids</li> <li><input type="checkbox"/> Comets</li> <li><input type="checkbox"/> Meteor Showers</li> <li><input type="checkbox"/> Polar Star Transits</li> <li><input type="checkbox"/> Weather Balloons</li> </ul>	<p><b>Dimmer and more difficult objects</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Jupiter: Great Red Spot and satellite events</li> <li><input type="checkbox"/> Jupiter's Satellites: position</li> <li><input type="checkbox"/> Saturn: Satellite events and storms</li> <li><input type="checkbox"/> Saturn's Satellites: position</li> <li><input type="checkbox"/> Zodiacal light/Gegenschein</li> <li><input type="checkbox"/> Variable Stars (3 months)</li> <li><input type="checkbox"/> Supernovae</li> <li><input type="checkbox"/> Binary Stars</li> </ul> <p><b>Deep sky objects</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Star chart</li> <li><input type="checkbox"/> Milky Way</li> <li><input type="checkbox"/> Galaxies</li> <li><input type="checkbox"/> Open Star Clusters</li> <li><input type="checkbox"/> Globular Star Clusters</li> <li><input type="checkbox"/> Nebula</li> </ul>
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### Saturday 11 April 2015

Time (24-hour clock)	Object (Link)	Event
	Observer Site	meythet, France WGS84: Lon: +6d05m31.49s Lat: +45d54m56.17s Alt: 499m All times in CET or CEST (during summer)

<p>20h30m00s</p>	 <p>USA 26/DMSF 5D-2/F8 (18123 1987-053-A) →Ground track →Star chart</p>	<p><b>Appears</b> 20h21m34s 9.2mag az: 12.8° NNE horizon  <b>at Meridian</b> 20h28m22s 6.5mag az: 0.0° N h:60.4°  <b>Culmination</b> 20h29m22s 6.3mag az:286.4° WNW h:81.1°                      distance: 849.5km height above Earth: 840.9km elevation                      of Sun: -3° angular velocity: 0.49°/s  <b>Disappears</b> 20h37m08s 9.2mag az:199.6° SSW horizon</p>	
<p>20h30m00s</p>	 <p>USA 143/(Milstar 2-1) (25724 1999-023-A) →Ground track →Star chart</p>	<p><b>Appears</b> 20h21m31s 7.9mag az:239.3° WSW horizon  <b>at Meridian</b> 20h29m38s 5.1mag az:180.0° S h:18.6°  <b>Culmination</b> 20h29m48s 5.1mag az:178.1° S h:18.6°                      distance: 2377.5km height above Earth: 1104.3km                      elevation of Sun: -3° angular velocity: 0.20°/s  <b>Disappears</b> 20h37m12s 5.8mag az:122.2° ESE h:3.3°</p>	
<p>20h30m00s</p>	 <p>Cosmos 1626 (15494 1985-009-A) →Ground track →Star chart</p>	<p><b>Appears</b> 20h21m30s 6.8mag az: 5.2° N horizon  <b>Culmination</b> 20h26m53s 4.4mag az: 70.2° ENE h:18.5°                      distance: 1293.2km height above Earth: 518.9km elevation                      of Sun: -2° angular velocity: 0.34°/s  <b>Disappears</b> 20h32m01s 5.8mag az:134.2° SE h:1.0°</p>	
<p>20h30m00s</p>	 <p>Cosmos 1869 Rocket (18215 1987-062-B) →Ground track →Star chart</p>	<p><b>Appears</b> 20h21m46s 8.4mag az:350.7° N horizon  <b>at Meridian</b> 20h28m11s 4.5mag az: 0.0° N h:78.0°  <b>Culmination</b> 20h28m29s 4.4mag az: 81.7° E h:88.2°                      distance: 628.6km height above Earth: 628.9km elevation                      of Sun: -2° angular velocity: 0.69°/s  <b>Disappears</b> 20h35m04s 7.4mag az:172.4° S horizon</p>	
<p>20h30m00s</p>	 <p>Cosmos 1222 Rocket (12072 1980-093-B) →Ground track →Star chart</p>	<p><b>Appears</b> 20h22m37s 6.9mag az:346.5° NNW horizon  <b>Culmination</b> 20h26m31s 2.6mag az:260.8° W h:64.9°                      distance: 264.9km height above Earth: 241.3km elevation                      of Sun: -2° angular velocity: 1.67°/s  <b>at Meridian</b> 20h28m02s 4.1mag az:180.0° S h:15.7°  <b>Disappears</b> 20h30m21s 5.9mag az:174.9° S horizon</p>	
<p>20h30m00s</p>	 <p>Cosmos 2242 Rocket (22627 1993-024-B) →Ground track →Star chart</p>	<p><b>Appears</b> 20h17m38s 7.5mag az:172.4° S horizon  <b>Culmination</b> 20h24m07s 4.5mag az: 93.3° E h:47.7°                      distance: 816.2km height above Earth: 626.0km elevation                      of Sun: -1° angular velocity: 0.54°/s  <b>Disappears</b> 20h30m39s 7.8mag az: 14.7° NNE horizon</p>	
<p>20h30m00s</p>	 <p>Cassiope (39266 2013-055-B) →Ground track →Star chart</p>	<p><b>Appears</b> 20h24m05s 8.0mag az:191.8° SSW horizon  <b>Culmination</b> 20h28m32s 4.5mag az:281.3° WNW h:81.4°                      distance: 376.3km height above Earth: 372.8km elevation                      of Sun: -2° angular velocity: 1.23°/s  <b>at Meridian</b> 20h29m09s 5.0mag az: 0.0° N h:52.1°  <b>Disappears</b> 20h34m01s 8.6mag az: 10.9° N horizon</p>	

<p>☉ 20h30m00s</p>	 Soyuz TMA16M (40542 2015-016-A) →Ground track →Star chart	<p><b>Appears</b> 20h25m07s 10.5mag az:276.5° W horizon  <b>Culmination</b> 20h28m36s 3.9mag az:347.9° NNW h:18.2°                      distance: 581.8km height above Earth: 205.3km elevation of Sun: -2° angular velocity: 0.80°/s  <b>at Meridian</b> 20h28m52s 3.7mag az: 0.0° N h:17.8°  <b>Disappears</b> 20h32m04s 5.0mag az: 59.4° ENE horizon</p>	
<p>☉ 20h34m26s</p>	 GOSAT Rocket (33500 2009-002-J) →Ground track →Star chart	<p><b>Appears</b> 20h28m03s 5.9mag az: 9.3° N horizon  <b>at Meridian</b> 20h31m42s 4.5mag az: 0.0° N h:20.2°  <b>Culmination</b> 20h34m26s 3.5mag az:288.2° WNW h:55.8°                      distance: 710.7km height above Earth: 599.6km elevation of Sun: -4° angular velocity: 0.60°/s  <b>Disappears</b> 20h40m37s 5.9mag az:206.5° SSW horizon</p>	
<p>☉ 20h34m49s</p>	 IGS 5 H2A Rocket (36105 2009-066-B) →Ground track →Star chart	<p><b>Appears</b> 20h30m18s 5.4mag az:119.6° ESE h:2.8°  <b>Culmination</b> 20h34m49s 4.5mag az: 63.6° ENE h:16.6°                      distance: 1477.1km height above Earth: 566.2km elevation of Sun: -4° angular velocity: 0.29°/s  <b>Disappears</b> 20h40m06s 6.7mag az: 3.8° N horizon</p>	
<p>☉ 20h37m05s</p>	 Cosmos 1346 Rocket (13121 1982-027-B) →Ground track →Star chart	<p><b>Appears</b> 20h30m44s 7.9mag az:348.8° N horizon  <b>at Meridian</b> 20h36m53s 3.8mag az: 0.0° N h:81.0°  <b>Culmination</b> 20h37m05s 3.7mag az: 79.9° E h:88.4°                      distance: 569.3km height above Earth: 569.6km elevation of Sun: -4° angular velocity: 0.76°/s  <b>Disappears</b> 20h43m19s 6.8mag az:170.4° S horizon</p>	
<p>☉ 20h39m18s</p>	 Spot 5 Rocket (27422 2002-021-B) →Ground track →Star chart	<p><b>Appears</b> 20h31m48s 6.6mag az:163.6° SSE horizon  <b>Culmination</b> 20h39m18s 3.9mag az: 75.2° ENE h:88.0°                      distance: 793.5km height above Earth: 793.5km elevation of Sun: -5° angular velocity: 0.54°/s  <b>at Meridian</b> 20h39m32s 4.0mag az: 0.0° N h:82.3°  <b>Disappears</b> 20h46m51s 7.9mag az:347.2° NNW horizon</p>	
<p>☉ 20h40m44s</p>	 USA 144 Deb (25746 1999-028-C) →Ground track →Star chart	<p><b>Appears</b> 20h19m05s 9.9mag az:313.1° NW horizon  <b>at Meridian</b> 20h37m44s 6.3mag az: 0.0° N h:61.2°  <b>Culmination</b> 20h40m44s 5.9mag az: 41.1° NE h:67.6°                      distance: 3326.8km height above Earth: 3160.1km elevation of Sun: -5° angular velocity: 6.81'/s  <b>Disappears</b> 20h59m33s 6.8mag az:125.6° SE h:6.4°</p>	
<p>☉ 20h45m51s</p>	 Aureole 2 Rocket (07004 1973-107-B) →Ground track →Star chart	<p><b>Appears</b> 20h40m12s 7.9mag az:341.1° NNW horizon  <b>at Meridian</b> 20h44m29s 4.8mag az: 0.0° N h:35.7°  <b>Culmination</b> 20h45m51s 3.5mag az: 67.2° ENE h:62.6°                      distance: 586.1km height above Earth: 526.1km elevation of Sun: -6° angular velocity: 0.75°/s  <b>Disappears</b> 20h52m18s 6.7mag az:152.5° SSE horizon</p>	

<p>20h46m49s</p>	<p> Iridium 53</p>	<p>Flare from solar panels Magnitude= 0.2mag Azimuth=134.0° SE altitude= 14.3° in constellation Crater RA=11h36.7m Dec=-16°54' Flare angle=2.57° Flare center line, closest point →MapIt: Longitude=7.697°E Latitude=+46.455° (WGS84) Distance=137.3 km Azimuth= 63.5° ENE Peak Magnitude=-2.5mag Satellite above: longitude=19.9°E latitude=+34.9° height above Earth=781.7 km distance to satellite=2038.4 km Altitude of Sun=-5.8°</p> 
<p>20h50m46s</p>	<p> Fengyun 3A Rocket (32959 2008-026-B) →Ground track →Star chart</p>	<p>Appears 20h43m40s 7.5mag az: 17.6° NNE horizon Culmination 20h50m46s 4.1mag az:101.8° ESE h:58.2° distance: 824.6km height above Earth: 714.6km elevation of Sun: -7° angular velocity: 0.52°/s at Meridian 20h54m55s 6.1mag az:180.0° S h:13.0° Disappears 20h57m41s 7.2mag az:185.7° S horizon</p> 
<p>20h51m41s</p>	<p> Cosmos 2455 (36095 2009-063-A) →Ground track →Star chart</p>	<p>Appears 20h43m11s 6.5mag az:211.8° SSW horizon Culmination 20h51m41s 3.3mag az:302.1° WNW h:85.5° distance: 915.7km height above Earth: 913.7km elevation of Sun: -7° angular velocity: 0.48°/s at Meridian 20h51m57s 3.3mag az: 0.0° N h:81.6° Disappears 21h00m16s 6.1mag az: 32.9° NNE horizon</p> 
<p>20h52m26s</p>	<p> Shijian 7 LM Rocket (28738 2005-024-B) →Ground track →Star chart</p>	<p>Appears 20h46m24s 5.6mag az:159.9° SSE horizon Culmination 20h52m26s 2.5mag az: 74.7° ENE h:69.9° distance: 587.4km height above Earth: 555.0km elevation of Sun: -7° angular velocity: 0.74°/s at Meridian 20h54m04s 4.1mag az: 0.0° N h:33.3° Disappears 20h58m30s 6.9mag az:349.9° N horizon</p> 
<p>20h55m41s</p>	<p> Iridium 84</p>	<p>Flare from solar panels Magnitude=-1.7mag Azimuth=138.9° SE altitude= 18.2° in constellation Crater RA=11h20.8m Dec=-15°50' Flare angle=0.90° Flare center line, closest point →MapIt: Longitude=5.586°E Latitude=+45.793° (WGS84) Distance=41.5 km Azimuth=251.0° WSW Peak Magnitude=-2.6mag Satellite above: longitude=17.2°E latitude=+34.5° height above Earth=781.6 km distance to satellite=1821.9 km Altitude of Sun=-7.3°</p> 
<p>20h55m59s</p>	<p> NOSS 6 (A) (14690 1984-012-A) →Ground track →Star chart</p>	<p>Appears 20h50m58s 8.8mag az:190.4° S horizon at Meridian 20h52m54s 7.8mag az:180.0° S h:8.1° Culmination 20h55m59s 6.0mag az:119.1° ESE h:24.9° distance: 891.0km height above Earth: 423.0km elevation of Sun: -7° angular velocity: 0.53°/s Disappears 21h01m07s 8.6mag az: 48.3° NE horizon Time uncertainty of about 3 minutes</p> 

<p>20h58m15s</p>	 <p>ASTEX (05560 1971-089-A) →Ground track →Star chart</p>	<p><b>Appears</b> 20h51m00s 7.8mag az: 4.7° N horizon  <b>at Meridian</b> 20h57m10s 4.8mag az: 0.0° N h:55.3°  <b>Culmination</b> 20h58m15s 4.3mag az:277.1° W h:85.3°                      distance: 733.1km height above Earth: 731.4km elevation of Sun: -8° angular velocity: 0.58°/s  <b>Disappears</b> 21h05m24s 7.3mag az:189.2° S horizon</p>	
<p>20h58m46s</p>	 <p>NOSS 7 (D) (16623 1986-014-D) →Ground track →Star chart</p>	<p><b>Appears</b> 20h53m31s 8.8mag az:185.8° S horizon  <b>at Meridian</b> 20h54m44s 8.3mag az:180.0° S h:4.6°  <b>Culmination</b> 20h58m46s 6.4mag az:117.4° ESE h:22.2°                      distance: 1063.8km height above Earth: 472.7km elevation of Sun: -8° angular velocity: 0.44°/s  <b>Disappears</b> 21h04m07s 8.7mag az: 49.5° NE horizon                      Time uncertainty of about 21 minutes</p>	
<p>20h59m</p>	<p>FENGYUN 1C DEB Cat:36725 1999-025EAX</p>	<p>Forecasted Decay of the small earth orbiting object in the atmosphere (may not be visible even when observed from a favoured place).                      Estimated uncertainty: +/-15 days.                      Orbit data for calculation from 28.01.2015 03:46:29 UTC (Decay date history).                      Visibility latitude interval: +/-80.6 deg</p>	
<p>20h59m03s</p>	 <p>Cosmos 44 Rocket (00877 1964-053-B) →Ground track →Star chart</p>	<p><b>Appears</b> 20h52m03s 7.7mag az:213.9° SW horizon  <b>Culmination</b> 20h59m03s 4.0mag az:305.0° NW h:89.7°                      distance: 665.0km height above Earth: 665.5km elevation of Sun: -8° angular velocity: 0.67°/s  <b>at Meridian</b> 20h59m04s 4.0mag az: 0.0° N h:89.4°  <b>Disappears</b> 21h06m06s 7.2mag az: 36.3° NE horizon</p>	

25 Items/Events: [Export to Outlook/iCal](#) [Print](#) [E-mail](#)

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.

### **Forecasted Decay:**

All Earth orbiting satellites are exposed to atmospheric drag, which lowers the orbit. Usually, this is countermeasured by frequent firings of the rocket engines - as long there is propulsion available. At an altitude of about 120 km, the objects are destroyed in the atmosphere by a fiery play; the over 100 km long light trace is visible even at daylight. Predications however are difficult. CalSky calculates the evolution of the satellite elements and the time of final decay based on [SatEvo](#) by Alan Pickup.

### **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<sup>2</sup>). 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.

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Database updated 29 min ago  
Current Users: 349, Runtime: 2.2s

14 Apr 2015, 9:31 UTC  
598 minutes left for this session  / Mode  
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