


Select start of calculation:

Date: 


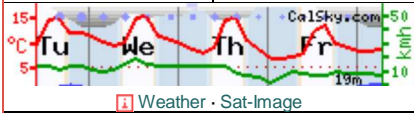
Time: : : . in TDT  


Select duration:

geipan

Le Taillan, France 

Easting: -0.6694
 Northing: 44.9046
 Time zone: CET/
 CEST

 Weather · Sat-Image

Local Sponsors: Your name?

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>Calendar and Timekeeping</p> <ul style="list-style-type: none"> <input type="checkbox"/> Space Calendar: Birthdays, Rocket Launches <input type="checkbox"/> Local Events (Talks, Exhibitions) <input type="checkbox"/> NASA TV Guide <input type="checkbox"/> Local Telescope Dealers <input type="checkbox"/> Public Holidays <input type="checkbox"/> Saint's Day <input type="checkbox"/> Zodiac of today. Change of Zodiac <input type="checkbox"/> Islamic, Indian, Persian and Hebrew Calendar <input type="checkbox"/> Week Number <input type="checkbox"/> Sundials / GPS Time / Current Time Definitions <input type="checkbox"/> Julian Day Number <input type="checkbox"/> Sidereal Time <input type="checkbox"/> Local Magnetic Field 	<p>General events</p> <ul style="list-style-type: none"> <input type="checkbox"/> Lunar Occultations (2 months) <input checked="" type="checkbox"/> Planetary Conjunctions <input type="checkbox"/> Lunar Eclipses <input type="checkbox"/> Solar Eclipses and Transits <input type="checkbox"/> Meteor Streams <input checked="" type="checkbox"/> Planetary Phenomena <input checked="" type="checkbox"/> Lunar Phenomena <input type="checkbox"/> The Sun <input checked="" type="checkbox"/> Asteroids (6 months) <input type="checkbox"/> Comets 	<p>Earth orbiting satellites</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Space Station ISS (1 month) <input checked="" type="checkbox"/> short duration Flares of Iridium satellites (14 days) <input type="checkbox"/> Passes of other bright satellites (1 day, slow!) <p>Daily reoccurring events</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Sun and Moon <input checked="" type="checkbox"/> Planets <input type="checkbox"/> Asteroids <input type="checkbox"/> Comets <input type="checkbox"/> Meteor Streams <input type="checkbox"/> Polar Star Transits <input type="checkbox"/> Weather Balloons 	<p>Dimmer and more difficult objects</p> <ul style="list-style-type: none"> <input type="checkbox"/> Jupiter: Great Red Spot and satellite events <input type="checkbox"/> Jupiter's Satellites: position <input type="checkbox"/> Saturn: Satellite events and storms <input type="checkbox"/> Saturn's Satellites: position <input type="checkbox"/> Zodiacal light/Gegenschein <input type="checkbox"/> Variable Stars (3 months) <input type="checkbox"/> Supernovae <input type="checkbox"/> Binary Stars <p>Deep sky objects</p> <ul style="list-style-type: none"> <input type="checkbox"/> Milky Way <input type="checkbox"/> Galaxies <input type="checkbox"/> Open Star Clusters <input type="checkbox"/> Globular Star Clusters <input type="checkbox"/> Nebula
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Sunday 15 December 2013

Time (24-hour clock)	Object (Link)	Event
	Observer Site	Le Taillan, France WGS84: Lon: -0d40m09.86s Lat: +44d54m16.74s Alt: 66m All times in CET or CEST (during summer)
 17.8h	 Venus	Magnitude=-4.7mag Best seen from 11.0h -19.9h (h _{top} =24° at S at 15.5h) (in constellation Sagittarius) RA=20h01m25s Dec=-21°37.1' (J2000) Distance=0.353AU Elongation= 34° Phase k=18% Diameter=47.3"

 17h56m	 Sun	End civil twilight
 18h13m25s	 ISS →Ground track →Star chart	Appears 18h07m57s 4.6mag az:241.4° WSW horizon Culmination 18h13m25s -4.0mag az:330.8° NNW h:81.0° distance: 430.0km height above Earth: 425.1km elevation of Sun: -9° angular velocity: 1.03°/s at Meridian 18h13m30s -4.0mag az: 0.0° N h:79.7° Disappears 18h16m26s -2.1mag az: 58.5° ENE h:12.7°
 18h14m	 Sun	Sun 9° below horizon
 18h25m52s	 Iridium 86	Flare from MMA1 (Right antenna) Magnitude=-6.1mag Azimuth=194.0° SSW altitude= 26.6° in constellation Aquarius RA=22h08.8m Dec=-17°20' Flare angle=0.10° Flare center line, closest point →MapIt: Longitude=0.631°W Latitude=+44.906° (WGS84) Distance=3.0 km Azimuth= 86.5° E Peak Magnitude=-6.4mag Satellite above: longitude=3.8°W latitude=+34.5° height above Earth=781.3 km distance to satellite=1472.1 km Altitude of Sun=-10.9°
 18h28m	Occultation of star by (2249) Yamamoto	Asteroid (2249) Yamamoto, 16.1 mag, occults 2UCAC 37484971, 11.4 mag Duration: 3.3 seconds. Magnitude drop: 4.7 mag. Visibility: Japan, E Russia, China, SW Asia, Africa; Altitude=17.8° Azimuth=84.6° (Source: asteroidoccultation.com)
 18.5h	 Uranus	Magnitude= 5.8mag Best seen from 18.5h - 1.6h (h _{top} =48° at S at 19.9h) (in constellation Cetus) RA= 0h31m56s Dec= +2°41.3' (J2000) Distance=19.763AU Elongation=105° Diameter=3.5"
 18h33m	 Sun	Dusk

9 Items/Events:  Export to Outlook/iCal  Print  E-mail
Used satellite data set is from 14 December 2013

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.

Asteroid

Solid body which revolves around the Sun and it is neither a planet, nor a comet. More casually: in the solar system thousands, if not even hundreds of thousands of mountain-large to mountain-range large floating rocks. Particularly many gather between Mars and Jupiter. In addition, beyond the orbit of Neptune a gigantic supply of such bodies seem to exist.

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

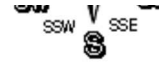
Azimuth direction of the object is given in degrees counting from geographic north (0°) clockwise to the east direction. East is 90°, south 180°, and west 270°. The three-character direction code is given as well. For example, NNW stands for north-north-west.

Best seen between / hmax

This is the best visibility time interval of the object, and the time is rounded to the next decimal hour; e.g. 6.4h corresponds to about 6:15 (hh:mm) to 6:20, and 18.9h to about 18:50 to 18:55. The calculation takes into account the magnitude of the object (required elevation above horizon), and the elevation of the Sun. The time



is given in local civil time (LCT), i.e., the time zone and definitions as selected by you. h_{\max} is the maximum altitude over the horizon, that the object reaches during this time period.



Civil Twilight

The times are the moments of beginning/end of the civil twilight, i.e., the moments the Sun reaches a depression of 6° below the horizon. On clear weather, no significant dim-out can be distinguished compared to the time of sunset/sunrise.

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.

Dawn and Dusk: nautical Twilight

In CalSky, is taken as the moments of nautical twilight, i.e., the moments the Sun reaches a depression of 12° below the horizon. Not astronomically trained people will recognize the brightening of the horizon at these times.

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.

Diameter

Diameter is the geocentric apparent angular diameter of a celestial object (topocentric for artificial satellites). The value is given in seconds of arc for planets and satellites, and in minutes of arc for Sun and Moon.

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.

Duration

Duration of the umbral phase at the geographical point given (WGS84).

Elongation

The elongation is the angular separation a celestial body and the central body (Sun, for moons: Jupiter or Saturn), as seen from the Earth mass center.

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 $1 \times 2 \text{ m}^2$). 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.

J2000, precession, nutation

The plains of ecliptic and equator shift with time by perturbations from the Sun, Moon and planets. The long-term shift is called precession; the short periodic variations are called nutation. The given celestial coordinates are referred to the true direction of the vernal equinox and the true obliquity of the ecliptic to the standard reference time 1 January 2000. For this date many star charts and coordinate tables are printed.

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.

Occultation

As the Moon moves along the ecliptic in a month, it happens to cover stars and sometimes planets. Observations of such events are impressive, since stars disappear suddenly, whereas planets (due to a considerable apparent diameter) hide away slowly.

Phase

Ratio of the illuminated fraction of the apparent planetary or lunar disk to its entire area.

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 is 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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[Create new default account/Logout](#)

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Software Version: 3 January 2014
Database updated 18 min ago
Current Users: 142

7 Jan 2014, 12:21 UTC
583 minutes left for this session  / Mode for our
sponsors

