Select start of calculation:

Date: 17 September 2014

Time: 20 : 50 : 09 . 00 in TDT Now

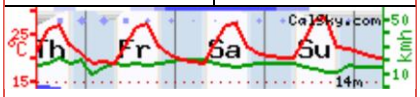
Select duration: 30 Minutes go!

geipan

espoey, France

Easting:	-1.4748
Northing:	43.4929
Time zone:	CET/ CEST

Astronomer



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.

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
- [x] Lunar Phenomena
- [x] The Sun
- [ ] Asteroids (6 months)
- [ ] Comets

Earth orbiting satellites

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

Daily reoccurring events

- [ ] Graphical night calendar
- [x] Sun and Moon
- [x] 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

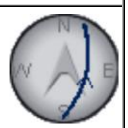
- [ ] Star chart
- [ ] Milky Way
- [ ] Galaxies
- [ ] Open Star Clusters
- [ ] Globular Star Clusters
- [ ] Nebula

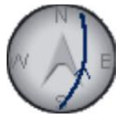
go!

Wednesday 17 September 2014

Time (24-hour clock)	Object (Link)	Event

	Observer Site	espoey, France WGS84: Lon: -1d28m29.43s Lat: +43d29m34.62s Alt: 63m All times in CET or CEST (during summer)
20h50m09s	USA 26/DMSP 5D-2/F8 (18123 1987-053-A) →Ground track →Star chart	 **Appears** **20h34m34s** 9.0mag az: 14.7° NNE horizon **Culmination** **20h42m25s** **5.9mag** az:103.5° **ESE** **h:77.8°** distance: 858.4km height above Earth: 841.3km elevation of Sun: -6° angular velocity: 0.48°/s **at Meridian** **20h44m03s** 6.5mag az:180.0° S h:46.6° **Disappears** **20h50m10s** 9.2mag az:191.9° SSW horizon
20.8h	☿Mercury	Magnitude= 0.1mag Best seen from 20.4h -20.9h (h_{top}=5° at WSW at 20.4h) (in constellation Virgo) RA=13h12m36s Dec=-10°05.2' (J2000) Distance=1.039AU Elongation= 26° Phase k=64% Diameter=6.5"
20.8h	♂Mars	Magnitude= 0.7mag Best seen from 20.4h -22.8h (h_{top}=19° at SSW at 20.4h) (in constellation Scorpius) RA=16h00m02s Dec=-22°03.7' (J2000) Distance=1.466AU Elongation= 68° Phase k=87% Diameter=6.4" planetographic latitude of the Earth=10.5°
20.8h	♄Saturn	Magnitude= 0.6mag Best seen from 20.4h -22.5h (h_{top}=19° at SW at 20.4h) (in constellation Libra) RA=15h08m54s Dec=-15°32.3' (J2000) Distance=10.484AU Elongation= 55° Diameter=15.8" planetocentric latitude of the Earth=22.0°
20h52m23s	Cosmos 1154 Rocket (11683 1980-008-B) →Ground track →Star chart	 **Appears** **20h48m10s** 6.3mag az:185.1° S horizon **at Meridian** **20h50m53s** 4.1mag az:180.0° S h:19.5° **Culmination** **20h52m23s** **2.0mag** az: 98.7° **E** **h:69.9°** distance: 302.0km height above Earth: 284.5km elevation of Sun: -8° angular velocity: 1.51°/s **Disappears** **20h56m38s** 6.4mag az: 12.5° NNE horizon Time uncertainty of about 6 seconds
20h53.2m	⛢Uranus	Rise Azimuth= 82.0°, E (in constellation Pisces)
20h55m15s	Cosmos 1943 Rocket (19120 1988-039-B) →Ground track →Star chart	 **Appears** **20h48m53s** 5.6mag az:150.4° SSE horizon **Culmination** **20h55m15s** **4.5mag** az: 96.7° **E** **h:13.9°** distance: 2188.5km height above Earth: 841.3km elevation of Sun: -8° angular velocity: 0.20°/s **Disappears** **21h01m39s** 5.7mag az: 43.6° NE horizon
20h55m45s	Cosmos 2084 Rocket (20666 1990-055-D) →Ground track →Star chart	 **Appears** **20h49m28s** 8.0mag az:206.7° SSW horizon **at Meridian** **20h54m41s** 4.7mag az:180.0° S h:44.3° **Culmination** **20h55m45s** **4.1mag** az:123.4° **ESE** **h:61.3°** distance: 646.5km height above Earth: 573.9km elevation of Sun: -9° angular velocity: 0.69°/s **Disappears** **21h02m15s** 7.3mag az: 40.7° NE horizon
20h56.8m	☿Mercury	Set Azimuth=256.5°, WSW (in constellation Virgo)

20h56m51s	USA 182/Lacrosse 5 (28646 2005-016-A) →Ground track →Star chart	 **Appears** **20h51m17s** 5.5mag az:166.7° SSE horizon **Culmination** **20h56m51s** **4.3mag** az:116.7° **ESE** **h:10.9°** distance: 2122.8km height above Earth: 712.5km elevation of Sun: -9° angular velocity: 0.21°/s **Disappears** **20h57m33s** 4.3mag az:108.5° ESE h:10.7°
20h58m	Twilight	Sun 9° below horizon
21h01m46s	ERS-1 Rocket (21610 1991-050-F) →Ground track →Star chart	 **Appears** **20h54m28s** 6.7mag az:167.2° SSE horizon **at Meridian** **21h00m37s** 4.1mag az:180.0° S h:54.2° **Culmination** **21h01m46s** **3.9mag** az:256.1° **WSW** **h:80.3°** distance: 770.9km height above Earth: 761.1km elevation of Sun: -10° angular velocity: 0.57°/s **Disappears** **21h09m07s** 7.7mag az:345.5° NNW horizon
21h06m26s	Spot 5 Rocket (27422 2002-021-B) →Ground track →Star chart	 **Appears** **20h59m30s** 6.4mag az:144.9° SE h:1.6° **Culmination** **21h06m26s** **4.1mag** az: 69.3° **ENE** **h:43.1°** distance: 1103.5km height above Earth: 799.1km elevation of Sun: -10° angular velocity: 0.40°/s **at Meridian** **21h11m14s** 6.6mag az: 0.0° N h:10.7° **Disappears** **21h13m47s** 7.6mag az:353.5° N horizon
21h07m10s	Cosmos 2221 (22236 1992-080-A) →Ground track →Star chart	 **Appears** **21h01m03s** 6.3mag az:160.3° SSE horizon **Culmination** **21h07m10s** **4.0mag** az: 89.8° **E** **h:28.6°** distance: 1122.3km height above Earth: 607.3km elevation of Sun: -11° angular velocity: 0.40°/s **Disappears** **21h13m17s** 6.7mag az: 19.6° NNE horizon
21h12m25s	Object13-37DRk (39211 2013-037-D) →Ground track →Star chart	 **Appears** **21h09m28s** 5.7mag az:134.4° SE h:11.9° **Culmination** **21h12m25s** **4.3mag** az: 71.0° **ENE** **h:33.7°** distance: 814.3km height above Earth: 484.8km elevation of Sun: -12° angular velocity: 0.55°/s **at Meridian** **21h16m38s** 7.3mag az: 0.0° N h:4.8° **Disappears** **21h17m45s** 7.8mag az:356.3° N horizon
21h14m32s	USA 62/NOSS 2-1C (20692 1990-050-D) →Ground track →Star chart	 **Appears** **21h08m28s** 7.7mag az:192.7° SSW horizon **at Meridian** **21h11m19s** 6.3mag az:180.0° S h:13.9° **Culmination** **21h14m32s** **4.8mag** az:116.6° **ESE** **h:36.6°** distance: 975.0km height above Earth: 625.5km elevation of Sun: -12° angular velocity: 0.47°/s **Disappears** **21h21m36s** 7.6mag az: 42.6° NE horizon
21h15m	**Twilight**	**Dusk**
21h15m10s	Geosats eclipse season	Geostationary satellites get totally eclipsed tonight. They disappear completely in the shadow of Earth at about the same spot on the celestial sphere one after the other, about one satellite or cluster every 5 minutes. With a little patience this can be easily observed through a smaller telescope. • Umbral shadow eclipse: Satellites disappear at RA=23h33m

		Dec=-6.1° and reappear at RA= 0h39m Dec=-5.9° Duration=65.5 minutes • Penumbral eclipse: Satellites start fading at RA=23h31m Dec=-6.1°, full brightness: RA= 0h41m Dec=-5.9° Duration=69.9 minutes, duration of fading until total eclipse: 2.2 minutes • **Optimal coordinates** to look for geostationary satellites at this time: RA=23h31m Dec=-6.1°, az=109.4° h=10.9° (Penumbra eclipse begin) The Sun is at Dec= 2.1°, flare angle=8.6° • There is no optimal time to observe geostationary satellites. Observe them whenever you like during the night.
21h15m42s	USA 61/NOSS 2-1B (20691 1990-050-C) →Ground track →Star chart	 **Appears** **21h09m39s** 7.7mag az:192.4° SSW horizon **at Meridian** **21h12m27s** 6.4mag az:180.0° S h:13.6° **Culmination** **21h15m42s** **4.8mag** az:116.5° **ESE** **h:36.4°** distance: 981.0km height above Earth: 626.0km elevation of Sun: -12° angular velocity: 0.47°/s **Disappears** **21h22m46s** 7.7mag az: 42.7° NE horizon
21h15m43s	Meteor 1-24 Rocket (08800 1976-032-B) →Ground track →Star chart	 **Appears** **21h07m57s** 8.1mag az:349.9° N horizon **at Meridian** **21h14m40s** 4.8mag az: 0.0° N h:58.9° **Culmination** **21h15m43s** **4.2mag** az: 80.1° **E** **h:84.1°** distance: 800.8km height above Earth: 797.1km elevation of Sun: -12° angular velocity: 0.52°/s **Disappears** **21h23m21s** 7.2mag az:170.0° S horizon

21 Items/Events: Export to Outlook/iCal Print E-mail
Used satellite data set is from 17 September 2014

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.

Best seen between / h_{max}
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.

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.

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.

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.

Remarks

These calculations are based on mean observed radiants and rates. For exceptional outbursts, these special predictions will be included as well.

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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