Select start of calculation:
Date: 3 July 2015
Time: 01 : 00 : 00 . 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!

Friday 3 July 2015

Time (24-hour clock)	Object (Link)	Event
	Observer Site	Couëron, France, France WGS84: Lon: -1d43m43.86s Lat: +47d12m39.60s Alt: 61m All times in CET or CEST (during summer)
1h00m00s	Cosmos 1782 (16986 1986-074-A) →Ground track →Star chart	**Appears** **0h52m49s** 10.0mag az:353.9° N horizon **at Meridian** **0h55m27s** 8.0mag az: 0.0° N h:12.7° **Culmination** **0h59m03s** **3.8mag** az: 78.0° **ENE** **h:56.3°** distance: 665.1km height above Earth: 563.1km elevation of Sun: -18° angular velocity: 0.63°/s **Disappears** **1h00m23s** 4.0mag az:136.8° SE h:36.9°
1h00m	Sun	End astronomical twilight
1h01m07s	Helios 1B (25977 1999-064-A) →Ground track →Star chart	**Appears** **0h59m22s** 4.8mag az:167.9° SSE h:36.2° **at Meridian** **1h00m49s** 4.1mag az:180.0° S h:77.5° **Culmination** **1h01m07s** **4.2mag** az:255.7° **WSW** **h:86.9°** distance: 631.1km height above Earth: 630.3km elevation of Sun: -18° angular velocity: 0.71°/s **Disappears** **1h07m42s** 11.0mag az:346.5° NNW horizon
1h04m38s	Resurs DK-1 (29228 2006-021-A) →Ground track →Star chart	**Appears** **0h58m19s** 9.8mag az:335.6° NNW horizon **at Meridian** **1h02m41s** 6.1mag az: 0.0° N h:25.4° **Culmination** **1h04m38s** **4.1mag** az: 55.3° **NE** **h:42.1°** distance: 815.0km height above Earth: 572.9km elevation of Sun: -18° angular velocity: 0.52°/s **Disappears** **1h06m36s** 4.3mag az:111.3° ESE h:24.8°

1h08m36s	Landsat 5 (14780 1984-021-A) →Ground track →Star chart	**Appears** **1h07m22s** 4.3mag az:184.6° S h:41.2° **Culmination** **1h08m36s** **4.1mag** az:257.4° **WSW** **h:71.8°** distance: 583.0km height above Earth: 556.4km elevation of Sun: -18° angular velocity: 0.77°/s **Disappears** **1h14m49s** 10.9mag az:345.1° NNW horizon
1h10m41s	Cosmos 1689 Rocket (16111 1985-090-B) →Ground track →Star chart	**Appears** **1h10m06s** 3.1mag az:206.3° SSW h:51.7° **Culmination** **1h10m41s** **3.2mag** az:258.6° **WSW** **h:64.4°** distance: 482.8km height above Earth: 438.7km elevation of Sun: -18° angular velocity: 0.94°/s **Disappears** **1h15m59s** 10.0mag az:345.0° NNW horizon
1h13m00s	USA 62/NOSS 2-1C (20692 1990-050-D) →Ground track →Star chart	**Appears** **1h12m03s** 4.5mag az:161.9° SSE h:40.5° **Culmination** **1h13m00s** **4.4mag** az:121.7° **ESE** **h:48.9°** distance: 797.5km height above Earth: 620.3km elevation of Sun: -19° angular velocity: 0.57°/s **Disappears** **1h20m17s** 8.9mag az: 43.1° NE horizon
1h14m30s	USA 61/NOSS 2-1B (20691 1990-050-C) →Ground track →Star chart	**Appears** **1h13m34s** 4.5mag az:161.1° SSE h:40.9° **Culmination** **1h14m30s** **4.4mag** az:121.7° **ESE** **h:48.8°** distance: 797.8km height above Earth: 620.2km elevation of Sun: -19° angular velocity: 0.57°/s **Disappears** **1h21m47s** 8.9mag az: 43.1° NE horizon
1h16m15s	**Yaogan 1 LM Rocket (29093 2006-015-B)** →Ground track →Star chart	**Appears** **1h15m41s** **2.5mag** **az:226.6° SW** **h:41.9°** **Culmination** **1h16m15s** **2.6mag** **az:260.4° W** **h:47.5°** **distance: 584.2km height above Earth: 442.3km elevation of Sun: -19°** **angular velocity: 0.77°/s** **Disappears** **1h21m39s** **9.0mag** **az:342.6° NNW** **horizon**
1h17m23s	ADEOS 2 H2A Rocket (27601 2002-056-E) →Ground track →Star chart	**Appears** **1h14m10s** 4.4mag az:216.9° SW h:16.9° **Culmination** **1h17m23s** **4.3mag** az:266.2° **W** **h:29.4°** distance: 1475.5km height above Earth: 838.4km elevation of Sun: -19° angular velocity: 0.30°/s **Disappears** **1h24m49s** 9.0mag az:337.5° NNW horizon
1h19m15s	Okean 3 (21397 1991-039-A) →Ground track →Star chart	**Appears** **1h12m50s** 10.8mag az:350.7° N horizon **at Meridian** **1h18m35s** 4.7mag az: 0.0° N h:62.7° **Culmination** **1h19m15s** **4.0mag** az: 81.1° **E** **h:85.4°** distance: 589.5km height above Earth: 587.9km elevation of Sun: -19° angular velocity: 0.71°/s **Disappears** **1h20m32s** 4.3mag az:166.8° SSE h:43.9°
1h22m24s	NOSS 2-1 (E) (20642 1990-050-E) →Ground track →Star chart	**Appears** **1h21m17s** 4.5mag az:172.9° S h:41.9° **Culmination** **1h22m24s** **4.4mag** az:122.9° **ESE** **h:55.2°** distance: 757.7km height above Earth: 635.3km elevation of Sun: -19° angular velocity: 0.60°/s **Disappears** **1h29m54s** 9.0mag az: 42.5° NE horizon
1h25m51s	Cosmos 2098 Rocket (20775 1990-078-B) →Ground track →Star chart	**Appears** **1h25m44s** 4.3mag az: 92.1° E h:27.2° **Culmination** **1h25m51s** **4.4mag** az: 88.4° **E** **h:27.3°** distance: 845.3km height above Earth: 428.8km elevation of Sun: -19° angular velocity: 0.55°/s **Disappears** **1h31m20s** 9.1mag az: 17.6° NNE horizon
1h26m08s	USA 194/NOSS 3-4A (31701 2007-027-A) →Ground track →Star chart	**Appears** **1h16m59s** 9.2mag az:315.8° NW horizon **Culmination** **1h26m08s** **5.1mag** az:242.8° **WSW** **h:40.1°** distance: 1597.2km height above Earth: 1129.0km elevation of Sun: -19° angular velocity: 0.25°/s **Disappears** **1h29m28s** 5.4mag az:194.1° SSW h:26.1°
1h26m15s	USA 194-2/NOSS 3-4C (31708 2007-027-C) →Ground track →Star chart	**Appears** **1h17m05s** 9.2mag az:315.9° NW horizon **Culmination** **1h26m15s** **5.1mag** az:242.7° **WSW** **h:40.5°** distance: 1588.4km height above Earth: 1128.6km elevation of Sun: -19° angular velocity: 0.26°/s **Disappears** **1h29m35s** 5.4mag az:193.7° SSW h:26.2°
1h27m03s	Yaogan 9A (36413 2010-009-A) →Ground track →Star chart	**Appears** **1h18m11s** 7.9mag az:231.7° SW horizon **Culmination** **1h27m03s** **5.9mag** az:316.2° **NW** **h:61.1°** distance: 1144.0km height above Earth: 1022.1km elevation of Sun: -19° angular velocity: 0.38°/s **at Meridian** **1h28m17s** 6.4mag az: 0.0° N h:52.2° **Disappears** **1h36m35s** 9.5mag az: 40.7° NE horizon
1h27m14s	Yaogan 9B (36414 2010-009-B) →Ground track →Star chart	**Appears** **1h18m22s** 8.0mag az:232.9° SW horizon **Culmination** **1h27m14s** **6.0mag** az:316.8° **NW** **h:59.2°** distance: 1163.7km height above Earth: 1023.6km elevation of Sun: -19° angular velocity: 0.37°/s **at Meridian** **1h28m32s** 6.5mag az: 0.0° N h:50.3° **Disappears** **1h36m46s** 9.5mag az: 40.8° NE horizon
1h27m23s	Yaogan 9C (36415 2010-009-C) →Ground track →Star chart	**Appears** **1h18m32s** 7.9mag az:231.7° SW horizon **Culmination** **1h27m23s** **5.9mag** az:316.1° **NW** **h:61.2°** distance: 1143.0km height above Earth: 1021.8km elevation of Sun: -19° angular velocity: 0.38°/s

		at Meridian **1h28m38s** 6.4mag az: 0.0° N h:52.3° **Disappears** **1h36m55s** 9.5mag az: 40.7° NE horizon	
	1h27m29s	Cosmos 1606 (15369 1984-111-A) →Ground track →Star chart	**Appears** **1h21m28s** 10.1mag az:355.6° N horizon **at Meridian** **1h23m09s** 8.8mag az: 0.0° N h:7.2° **Culmination** **1h27m29s** **4.1mag** az: 76.7° **ENE** **h:45.8°** distance: 715.8km height above Earth: 531.3km elevation of Sun: -19° angular velocity: 0.59°/s **Disappears** **1h28m28s** 4.0mag az:118.8° ESE h:36.7° Time uncertainty of about 2 seconds
	1h29m22s	Cosmos 2428 (31792 2007-029-A) →Ground track →Star chart	**Appears** **1h21m08s** 9.3mag az:331.9° NNW horizon **Culmination** **1h29m22s** **3.4mag** az:244.6° **WSW** **h:85.3°** distance: 865.6km height above Earth: 863.2km elevation of Sun: -19° angular velocity: 0.48°/s **at Meridian** **1h29m43s** 3.3mag az:180.0° S h:79.2° **Disappears** **1h32m03s** 4.0mag az:158.5° SSE h:33.4°

21 Items/Events: Export to Outlook/iCal Print E-mail
Used satellite data set is from 1 July 2015

Hide glossary

Glossary:

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.

Astronomical Twilight
The astronomical twilight comprises the interval when the central point of the sun's disk is between 12° and 18° below mathematical horizon. The times in CalSky are the moments of beginning/end of the astronomical twilight, i.e., the moments the Sun reaches a depression of 18° below the horizon. If the Sun is below this angle, no brightening of the sky can be observed.

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.

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.

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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Create new default account/Logout

Software Version: 21 July 2015
Database updated 17 min ago
Current Users: 113, Runtime: 4s

24 Jul 2015, 15:49 UTC
598 minutes left for this session / Mode
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