Select start of calculation:
Date: 3 June 2013
Time: 22 : 00 : 00 Now
Select duration: 2 Hours go!

Bright Satellites

- Tracking of satellites all over the sky.
- Searching for satellites found within a certain area (given by celestial coordinates and diameter). This point is taken from the last starchart geometry. To change the center and diameter, click **here** (field of view must be at least 1° and at most 90°). Satellites a re sorted by ascending elongation from selected center point. For the listed events the conjunction must not take place during the selected time window, but the satellites must be within the search radius. If you are a astro photographer, you can also find the time interval where no LEO satellite will pass through your field of view.

Magnitude cutoff used for the following list: 2 Mag. (Manual selection) go!

Monday 3 June 2013

Time (24-hour clock)	Object (Link)	Event
	Observer Site	Assevillers, France WGS84: Lon: +2d50m06.60s Lat: +49d53m49.90s Alt: 124m All times in CET or CEST (during summer)
23h50m11s	ISS →Ground track →Star chart	Appears 23h45m01s -0.5mag az:221.7° SW horizon at Meridian 23h49m16s -3.1mag az:180.0° S h:26.5° Culmination 23h50m11s -3.4mag az:147.2° SSE h:31.4° distance: 736.8km height above Earth: 413.2km elevation of Sun: -13° angular velocity: 0.58°/s Disappears 23h55m23s -0.3mag az: 73.0° ENE horizon

2 Items/Events: Export to Outlook/iCal Print E-mail

☐ Hide glossary

Glossary:

Time
The local time in 24-hour format at which the satellite is visible at its best. The satellite may be observable *before* this time. 0:00 or 0h00m is midnight, 12h is noon, 18h is 6 pm. The time zone is the one indicated on the left of the Earth icon on top of (almost) each page. Daylight saving is applied automatically.

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.

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.

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.

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.

Magnitude/Mag:
The magnitude indicates the **visual brightness** of an object. The brightest star (Sirius) reaches -1.4m, whereas 6m is the limit of the unaided eye. Venus, the brightest planet, reaches -4m. The Moon at first quarter is -8m, about the same magnitude that the brightest Iridium flares can produce.

Object
The name and identification information of the satellite. Besides the name, the number in the catalog of the USSPACECOM is given (5-digits code), and the International Designator Code in the form launch year - launch number of the year - launch part (usually one launch produces several orbiting objects).

Spy Satellites:
Satellites with name **USA** are US military satellites (common names e.g., Keyhole KH, Lacrosse).

Close to Moon/Sun
The satellite is closer than 1.5 degrees from the center of the Moon or the Sun, but the satellite does not cross in front of the Moon/Sun. The direction and distance to the center line on Earth is given. *For the Sun, move to the indicated center line position and observer with proper equipment. By no means observe the Sun without special filters!*

Crosses the disk of Moon/Sun:
The satellite passes in front of the Moon or the Sun; the event may be observed using a small telescope (equipped with special mylar filters for the Sun only!), especially if the event takes place in broad daylight. The direction and distance to the center line on Earth is given. Moon phases are not checked for. The timing may slightly change due to the quality and age of the used orbital elements and active orbit maintenance. *By no means observe the Sun without special filters!* Please feel free to report successful observations!

Separation
Angular distance of an object (e.g., star) with regard of the reference object (e.g., main star or center of moon), measured among the center of figures. Often, this value is given for the closest distance among two objects.

Position Angle / PA
Angle, defining a position on an apparent disk or the position of e.g. a dimmer star (or the anti-solar point for lunar eclipses) with regard of the main star or the center of disk. It is counted around the reference points (center of disk/brighter star) from *celestial north* direction 0° to east (left) 90°, south 180° to west (right) 270° in coun ter clockwise direction.

Clock-face Direction
In a simple clock-face coordinate system with the clock face superimposed on the satellite itself, with 12:00 o'clock being at the top and 9:00 o'clock being at the left, the satellite will seem to move toward the given direction. This number is helpful when observing with binoculars.

Daylight pass
This satellite pass over the observer is taking place on broad daylight and cannot be observed without special equipment (automated guided telescope or radio ham equipment).

Radio pass
The satellite is not outside the shadow of Earth during the whole pass (hence not lighted by the Sun) and is therefore not visible. However, using radio equipment, the satellite can be detected.

Ascending/descending Orbit:
Satellites are orbiting around the earth center. Therefore the point on the Earth surface "below" the satellite (i.e., the sub-satellite point) crosses the equator twice every orbit. The part of the orbit with northernbound motion component is called ascending, and a southernbound motion is called descending.

Rise
The satellites rises above the horizon of the observer (cf. **Appear** for visual rising of the satellite).

Set
The satellites sets below the horizon of the observer, but may not have been visible before (cf. **Disappear**).

Side-look
Time at which the observer is passing exactly at the side of the satellite (as seen from the satellite).

Off-Nadir
Angle at which the observer appears from the nadir (down direction) as seen from the satellite.

Squint angle
Angle relative to the satellite orbit; flight direction is 0°. The angle is counted clockwise, with ri ght looking at 90° and left looking at 270°.

Range
Distance to the satellite.

0-Doppler / Zero-Doppler
Time at which the range between satellite and observer does not change, i.e., the range rate is zero.

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.

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Select start of calculation:
Date: 5 June 2013
Time: 22 : 00 : 00 Now
Select duration: 2 Hours go!

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Magnitude cutoff used for the following list: 2 Mag. (Manual selection) go!

Wednesday 5 June 2013

Time (24-hour clock)	Object (Link)	Event
	Observer Site	**Assevillers, France** **WGS84: Lon: +2d50m06.60s Lat: +49d53m49.90s Alt: 124m** **All times in CET or CEST (during summer)**
22h12m33s	ISS →Ground track →Star chart	**Appears** **22h07m57s** -0.5mag az:197.7° SSW horizon **at Meridian** **22h10m07s** -1.5mag az:180.0° S h:7.8° **Culmination** **22h12m33s** **-2.3mag** az:137.9° **SE** **h:14.3°** distance: 1239.6km height above Earth: 411.8km elevation of Sun: -3° angular velocity: 0.34°/s **Disappears** **22h17m11s** -0.6mag az: 78.3° ENE horizon
23h48m44s	**ISS** →Ground track →Star chart	**Appears** **23h43m24s** **-0.2mag** **az:239.9° WSW** horizon **at Meridian** **23h48m31s** **-4.1mag** **az:180.0° S** h:58.7° **Culmination** **23h48m44s** **-4.2mag** **az:156.1° SSE** **h:61.0°** **distance: 469.0km height above Earth: 414.0km elevation of Sun: -13° angular velocity: 0.90°/s** **Disappears** **23h54m07s** **-0.3mag** **az: 72.4° ENE** **horizon**

3 Items/Events: Export to Outlook/iCal Print E-mail

Hide glossary

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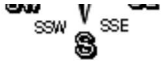

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