




**Select start of calculation:**

Date:    


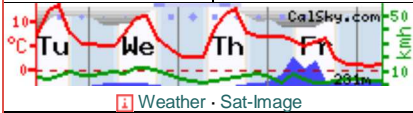
Time:  :  :  .   in TDT 

**Select duration:**



**geipan**  
*paris, France* 

Easting: 5.2086  
Northing: 45.6976  
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.











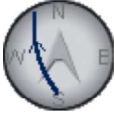



In parentheses are forced limits for the maximum calculation interval. The celestial calendar is to be found further below on this page and will appear within some seconds after pressing the *Go!*-Button (depending on the complexity of your selections). The calendar is created especially for you. The 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><b>Calendar and Timekeeping</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Space Calendar: 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. 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 / 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 checked="" 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 Streams</li> <li><input checked="" type="checkbox"/> Planetary Phenomena</li> <li><input checked="" type="checkbox"/> Lunar Phenomena</li> <li><input type="checkbox"/> The Sun</li> <li><input checked="" 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 checked="" 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 checked="" type="checkbox"/> Sun and Moon</li> <li><input checked="" type="checkbox"/> Planets</li> <li><input type="checkbox"/> Asteroids</li> <li><input type="checkbox"/> Comets</li> <li><input type="checkbox"/> Meteor Streams</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"/> 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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### Wednesday 15 June 2011



















Time (24-hour clock)	Object (Link)	Event																														
	Observer Site	paris, France WGS84: Lon: +5d12m31.01s Lat: +45d41m51.40s Alt: 281m All times in CET or CEST (during summer)																														
	 USA 32/Singlet SBWASS R1 (19460 1988-078-A) →Ground track →Star chart	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;"><b>Appears</b></td> <td style="width: 15%;"><b>23h30m44s</b></td> <td style="width: 15%;">10.5mag</td> <td style="width: 15%;">az:351.4° N</td> <td style="width: 40%;"></td> </tr> <tr> <td></td> <td>horizon</td> <td></td> <td></td> <td></td> </tr> <tr> <td><b>Culmination</b></td> <td><b>23h38m19s</b></td> <td><b>5.1mag</b></td> <td>az:268.6° W</td> <td></td> </tr> <tr> <td></td> <td><b>h:65.4°</b></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>distance: 859.0km</td> <td>height above Earth: 790.1km</td> <td>elevation of Sun: -16°</td> <td>angular velocity: 0.49°/s</td> </tr> <tr> <td><b>Disappears</b></td> <td><b>23h42m19s</b></td> <td>6.2mag</td> <td>az:190.4° S</td> <td>h:17.3°</td> </tr> </table> 	<b>Appears</b>	<b>23h30m44s</b>	10.5mag	az:351.4° N			horizon				<b>Culmination</b>	<b>23h38m19s</b>	<b>5.1mag</b>	az:268.6° W			<b>h:65.4°</b>					distance: 859.0km	height above Earth: 790.1km	elevation of Sun: -16°	angular velocity: 0.49°/s	<b>Disappears</b>	<b>23h42m19s</b>	6.2mag	az:190.4° S	h:17.3°
<b>Appears</b>	<b>23h30m44s</b>	10.5mag	az:351.4° N																													
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<b>Disappears</b>	<b>23h42m19s</b>	6.2mag	az:190.4° S	h:17.3°																												






















 23.7h	 Saturn	Magnitude= 0.8mag Best seen from 22.1h - 2.6h ( $h_{top}=39^\circ$ at SSW at 22.1h) (in constellation Virgo) RA=12h41m49s Dec= $-1^\circ43.4'$ (J2000) Distance=9.305AU Elongation= $106^\circ$ Diameter=17.8" planetocentric latitude of the Earth= $7.3^\circ$
 23h46m11s	 Iridium 39	Flare from MMA0 (Front antenna) Magnitude= 2.5mag Azimuth= $256.8^\circ$ WSW altitude= $27.9^\circ$ in constellation Leo  RA=11h37.0m Dec= $+11^\circ11'$ Flare angle= $2.27^\circ$ Flare center line, closest point -MapIt: Longitude= $3.821^\circ$ E Latitude= $+45.804^\circ$ (WGS84) Distance=108.3 km Azimuth= $276.8^\circ$ W Peak Magnitude= $-6.6$ mag Satellite above: longitude= $8.3^\circ$ W latitude= $+42.9^\circ$ height above Earth= $782.9$ km distance to satellite= $1434.1$ km Altitude of Sun= $-16.3^\circ$
 23h48m00s	 ERS-2 (23560 1995-021-A) -Ground track -Star chart	Appears 23h44m45s 4.8mag az: $176.7^\circ$ S h: $22.9^\circ$ at Meridian 23h45m32s 4.4mag az: $180.0^\circ$ S h: $31.2^\circ$ Culmination 23h48m00s 3.9mag az: $257.3^\circ$ WSW h: $71.3^\circ$ distance: 822.5km height above Earth: 784.3km elevation of Sun: $-16^\circ$ angular velocity: $0.53^\circ/s$ Disappears 23h55m29s 10.1mag az: $344.7^\circ$ NNW horizon 
 23h48m08s	 Terra (25994 1999-068-A) -Ground track -Star chart	Appears 23h45m15s 3.6mag az: $179.3^\circ$ S h: $23.7^\circ$ at Meridian 23h45m25s 3.5mag az: $180.0^\circ$ S h: $25.4^\circ$ Culmination 23h48m08s 2.7mag az: $257.9^\circ$ WSW h: $68.5^\circ$ distance: 755.8km height above Earth: 708.7km elevation of Sun: $-16^\circ$ angular velocity: $0.58^\circ/s$ Disappears 23h55m10s 9.0mag az: $344.7^\circ$ NNW horizon 
 23h54m17s	 Cosmos 1833 Rocket (17590 1987-027-B) -Ground track -Star chart	Appears 23h46m17s 10.0mag az: $336.8^\circ$ NNW horizon at Meridian 23h51m44s 5.9mag az: $0.0^\circ$ N h: $29.0^\circ$ Culmination 23h54m17s 4.0mag az: $57.7^\circ$ ENE h: $48.5^\circ$ distance: 1080.4km height above Earth: 844.4km elevation of Sun: $-17^\circ$ angular velocity: $0.38^\circ/s$ Disappears 23h57m42s 4.6mag az: $122.9^\circ$ ESE h: $22.0^\circ$ 
















## Thursday 16 June 2011

Time (24-hour clock)	Object (Link)	Event
 0h04m10s	 Korons-Foton Rocket (33505 2009-003-B) -Ground track -Star chart	Appears 0h02m44s 4.4mag az: $170.0^\circ$ S h: $37.6^\circ$ Culmination 0h04m10s 3.9mag az: $96.5^\circ$ E h: $71.0^\circ$ distance: 579.5km height above Earth: 550.7km elevation of Sun: $-18^\circ$ angular velocity: $0.76^\circ/s$ Disappears 0h10m18s 9.4mag az: $11.4^\circ$ NNE horizon 
 0h08m39s	 NOSS 1 (D) (08836 1976-038-D) -Ground track -Star chart	Appears 0h01m50s 9.6mag az: $225.5^\circ$ SW horizon Culmination 0h08m39s 6.5mag az: $309.8^\circ$ NW h: $58.2^\circ$ distance: 566.5km height above Earth: 488.2km elevation of Sun: $-18^\circ$ angular velocity: $0.79^\circ/s$ at Meridian 0h09m24s 7.1mag az: $0.0^\circ$ N h: $45.5^\circ$ Disappears 0h13m42s 10.1mag az: $35.5^\circ$ NE horizon 
 0h09m16s	 Cosmos 1300 (12785 1981-082-A) -Ground track -Star chart	Appears 0h03m08s 10.2mag az: $347.2^\circ$ NNW horizon Culmination 0h09m16s 3.9mag az: $264.7^\circ$ W h: $59.6^\circ$ distance: 634.5km height above Earth: 555.0km elevation of Sun: $-18^\circ$ angular velocity: $0.67^\circ/s$ Disappears 0h10m52s 4.2mag az: $198.7^\circ$ SSW h: $32.8^\circ$ 
 0h09m	 Sun	End astronomical twilight

 0h11m39s	 Cosmos 1726 (16495 1986-006-A) -Ground track -Star chart	<b>Appears</b> 0h05m51s 8.8mag az: 1.8° N horizon <b>Culmination</b> 0h11m39s 4.6mag az: 72.5° ENE h:25.1° distance: 1117.3km height above Earth: 548.1km elevation of Sun: -18° angular velocity: 0.38°/s <b>Disappears</b> 0h12m50s 4.4mag az:100.3° E h:21.8°	
 0h12m58s	 Lacrosse 4 Rocket (26474 2000-047-B) -Ground track -Star chart	<b>Appears</b> 0h06m29s 9.0mag az:334.8° NNW horizon <b>at Meridian</b> 0h10m42s 5.6mag az: 0.0° N h:20.4° <b>Culmination</b> 0h12m58s 3.6mag az: 49.9° NE h:33.0° distance: 1008.1km height above Earth: 599.8km elevation of Sun: -18° angular velocity: 0.41°/s <b>Disappears</b> 0h15m17s 3.7mag az:101.3° ESE h:19.7°	
 0h13m32s	 93036AVP (35973 1993-036-AVP) -Ground track -Star chart	<b>Appears</b> 0h08m18s 11.6mag az:336.3° NNW horizon <b>Culmination</b> 0h13m32s 4.4mag az:250.4° WSW h:72.1° distance: 428.9km height above Earth: 409.6km elevation of Sun: -18° angular velocity: 1.01°/s <b>Disappears</b> 0h13m58s 4.3mag az:194.3° SSW h:59.7°	
 0h14m49s	 Seasat (10967 1978-064-A) -Ground track -Star chart	<b>Appears</b> 0h07m34s 7.6mag az: 27.1° NNE horizon <b>at Meridian</b> 0h14m46s 3.1mag az: 0.0° N h:88.0° <b>Culmination</b> 0h14m49s 3.1mag az:298.9° WNW h:89.0° distance: 757.6km height above Earth: 757.8km elevation of Sun: -18° angular velocity: 0.57°/s <b>Disappears</b> 0h18m20s 4.6mag az:209.8° SSW h:19.8°	
 0h21m26s	 Cosmos 1602 Rocket (15332 1984-105-B) -Ground track -Star chart	<b>Appears</b> 0h14m47s 10.5mag az:353.8° N horizon <b>at Meridian</b> 0h17m49s 8.3mag az: 0.0° N h:14.9° <b>Culmination</b> 0h21m26s 4.4mag az: 79.1° E h:61.3° distance: 710.0km height above Earth: 631.6km elevation of Sun: -19° angular velocity: 0.59°/s <b>Disappears</b> 0h22m54s 4.7mag az:142.0° SE h:38.7°	
 0h22m50s	 Cosmos 2251 Rocket (22676 1993-036-B) -Ground track -Star chart	<b>Appears</b> 0h20m17s 4.9mag az:185.8° S h:30.9° <b>at Meridian</b> 0h21m09s 4.5mag az:180.0° S h:43.2° <b>Culmination</b> 0h22m50s 4.1mag az:108.3° ESE h:72.5° distance: 808.7km height above Earth: 775.9km elevation of Sun: -19° angular velocity: 0.53°/s <b>Disappears</b> 0h30m27s 8.9mag az: 23.7° NNE horizon	
 0h27m42s	 USA 133/Lacrosse 3	<b>Flare from SAR Antenna Magnitude= 3.4mag</b> Azimuth=303.1° WNW altitude= 5.6° in constellation Cancer RA= 8h59.7m Dec=+26°46' Flare angle=5.72° (Flare center not on earth) Satellite above: longitude=21°W latitude=+53° height above Earth=658.1 km distance to satellite=2423.6 km Altitude of Sun=-19.1° This is an experimental flare prediction. Brightness estimate may be unreliable. Please report a successful observation (Object/site coordinates/date/measured time/accuracy/magnitude).	
 0.5h	 Pluto	Magnitude=14.0mag Best seen from 0.5h - 3.8h (h <sub>top</sub> =26° at S at 2.5h) (in constellation Sagittarius) RA=18h26m43s Dec=-18°47.0' (J2000) Distance=31.054AU Elongation=167° Diameter=0.1"	
 0h30m59s	 Cosmos 2369 Rocket (26070 2000-006-B) -Ground track -Star chart	<b>Appears</b> 0h29m56s 4.1mag az:118.9° ESE h:22.9° <b>Culmination</b> 0h30m59s 4.1mag az:102.0° ESE h:24.2° distance: 1657.1km height above Earth: 839.7km elevation of Sun: -19° angular velocity: 0.26°/s <b>Disappears</b> 0h38m13s 7.1mag az: 37.3° NE horizon	

0h33m08s	 USA 133/Lacrosse 3 (25017 1997-064-A) →Ground track →Star chart	<b>Appears</b> 0h26m16s 7.9mag az:306.1° NW horizon <b>Culmination</b> 0h33m08s 3.3mag az:228.7° SW h:44.4° distance: 895.3km height above Earth: 655.9km elevation of Sun: -19° angular velocity: 0.46°/s <b>Disappears</b> 0h34m10s 3.3mag az:193.4° SSW h:38.0°	
0h44m28s	 Cosmos 1220 (12054 1980-089-A) →Ground track →Star chart	<b>Appears</b> 0h38m32s 8.2mag az:320.0° NW horizon <b>Culmination</b> 0h44m28s 2.6mag az:239.4° WSW h:51.3° distance: 619.9km height above Earth: 494.8km elevation of Sun: -20° angular velocity: 0.68°/s <b>Disappears</b> 0h44m45s 2.5mag az:221.2° SW h:49.8°	
0h45m53s	 Lacrosse 5 Rocket (28647 2005-016-B) →Ground track →Star chart	<b>Appears</b> 0h45m25s 1.7mag az:181.2° S h:60.5° <b>at Meridian</b> 0h45m26s 1.7mag az:180.0° S h:61.1° <b>Culmination</b> 0h45m53s 1.7mag az:136.3° SE h:68.3° distance: 550.3km height above Earth: 514.7km elevation of Sun: -20° angular velocity: 0.79°/s <b>Disappears</b> 0h52m10s 6.3mag az: 51.7° NE horizon	
0h46m44s	 EO 1 Del DPAF (26623 2000-075-E) →Ground track →Star chart	<b>Appears</b> 0h45m25s 4.6mag az:134.8° SE h:41.4° <b>Culmination</b> 0h46m44s 4.5mag az: 73.2° ENE h:62.8° distance: 707.5km height above Earth: 636.9km elevation of Sun: -20° angular velocity: 0.63°/s <b>at Meridian</b> 0h49m07s 7.2mag az: 0.0° N h:25.7° <b>Disappears</b> 0h53m16s 10.8mag az:350.3° N horizon	
0h48m45s	 ISS →Ground track →Star chart	<b>Appears</b> 0h43m45s 0.3mag az:281.4° WNW horizon <b>Culmination</b> 0h48m45s -1.3mag az:355.3° N h:26.8° distance: 784.4km height above Earth: 389.6km elevation of Sun: -20° angular velocity: 0.55°/s <b>at Meridian</b> 0h48m53s -1.3mag az: 0.0° N h:26.7° <b>Disappears</b> 0h53m45s -0.0mag az: 69.2° ENE horizon	
0h56m31s	 ADEOS 2 H2A Rocket (27601 2002-056-E) →Ground track →Star chart	<b>Appears</b> 0h54m29s 3.4mag az:201.5° SSW h:33.9° <b>Culmination</b> 0h56m31s 3.2mag az:260.0° W h:53.9° distance: 976.6km height above Earth: 811.9km elevation of Sun: -20° angular velocity: 0.45°/s <b>Disappears</b> 1h04m14s 8.9mag az:342.5° NNW horizon	
0h56m58s	 USA 62/NOSS 2-1C (20692 1990-050-D) →Ground track →Star chart	<b>Appears</b> 0h47m24s 10.2mag az:316.4° NW horizon <b>Culmination</b> 0h56m58s 6.4mag az:242.4° WSW h:42.9° distance: 1789.4km height above Earth: 1330.8km elevation of Sun: -20° angular velocity: 0.22°/s <b>Disappears</b> 1h01m01s 6.7mag az:192.3° SSW h:27.3°	
0h57m10s	 USA 61/NOSS 2-1B (20691 1990-050-C) →Ground track →Star chart	<b>Appears</b> 0h47m30s 10.2mag az:316.6° NW horizon <b>Culmination</b> 0h57m10s 6.4mag az:242.2° WSW h:44.0° distance: 1776.6km height above Earth: 1341.2km elevation of Sun: -20° angular velocity: 0.22°/s <b>Disappears</b> 1h01m17s 6.7mag az:191.0° S h:27.6°	
0h57m13s	 NOSS 2-1 (E) (20642 1990-050-E) →Ground track →Star chart	<b>Appears</b> 0h47m28s 10.3mag az:316.7° NW horizon <b>Culmination</b> 0h57m13s 6.4mag az:242.4° WSW h:44.0° distance: 1793.1km height above Earth: 1354.1km elevation of Sun: -20° angular velocity: 0.22°/s <b>Disappears</b> 1h01m23s 6.7mag az:191.1° S h:27.5°	

0h58m24s	 Yaogan 5 LM Rocket (33457 2008-064-B) -Ground track -Star chart	<b>Appears</b> 0h58m24s 3.1mag az: 64.8° ENE h:62.7° <b>Disappears</b> 1h03m24s 9.8mag az:351.1° N horizon	
1h01.6m	 Neptune	Rise Azimuth=106.2°, ESE (in constellation Aquarius)	
1h06m01s	 Cosmos 1315 Rocket (12904 1981-103-B) -Ground track -Star chart	<b>Appears</b> 1h05m28s 3.4mag az:148.0° SSE h:58.9° <b>Culmination</b> 1h06m01s 3.5mag az: 98.1° E h:69.0° distance: 589.6km height above Earth: 553.8km elevation of Sun: -21° angular velocity: 0.76°/s <b>Disappears</b> 1h12m12s 9.4mag az: 13.5° NNE horizon	
1h06m02s	 USA 161/Adv KH 11-4 (26934 2001-044-A) -Ground track -Star chart	<b>Appears</b> 1h03m45s 5.4mag az:104.2° ESE h:14.8° <b>Culmination</b> 1h06m02s 5.4mag az: 67.9° ENE h:20.8° distance: 1437.5km height above Earth: 640.0km elevation of Sun: -21° angular velocity: 0.31°/s <b>Disappears</b> 1h11m27s 9.4mag az: 2.9° N horizon	
1h11m38s	 Cosmos 1455 (14032 1983-037-A) -Ground track -Star chart	<b>Appears</b> 1h05m38s 9.5mag az:342.2° NNW horizon <b>Culmination</b> 1h11m38s 4.2mag az:268.7° W h:33.8° distance: 937.9km height above Earth: 565.2km elevation of Sun: -21° angular velocity: 0.45°/s <b>Disappears</b> 1h12m32s 4.1mag az:241.5° WSW h:30.2°	
1h16m47s	 Cosmos 2455 (36095 2009-063-A) -Ground track -Star chart	<b>Appears</b> 1h15m36s 4.4mag az:122.4° ESE h:21.1° <b>Culmination</b> 1h16m47s 4.4mag az:105.8° ESE h:22.4° distance: 1856.1km height above Earth: 912.4km elevation of Sun: -21° angular velocity: 0.23°/s <b>Disappears</b> 1h24m19s 7.3mag az: 43.3° NE horizon	
1h17m08s	 USA 160-2/NOSS 3-1C (26907 2001-040-C) -Ground track -Star chart	<b>Appears</b> 1h12m08s 5.7mag az:225.0° SW h:18.2° <b>Culmination</b> 1h17m08s 4.4mag az:310.1° NW h:77.3° distance: 1059.1km height above Earth: 1037.2km elevation of Sun: -21° angular velocity: 0.40°/s <b>at Meridian</b> 1h17m47s 4.7mag az: 0.0° N h:70.7° <b>Disappears</b> 1h26m48s 8.7mag az: 39.0° NE horizon	
1h17m14s	 USA 160/NOSS 3-1A (26905 2001-040-A) -Ground track -Star chart	<b>Appears</b> 1h12m17s 5.7mag az:224.7° SW h:18.5° <b>Culmination</b> 1h17m14s 4.4mag az:309.9° NW h:78.0° distance: 1057.3km height above Earth: 1037.5km elevation of Sun: -21° angular velocity: 0.40°/s <b>at Meridian</b> 1h17m51s 4.6mag az: 0.0° N h:71.6° <b>Disappears</b> 1h26m53s 8.7mag az: 39.0° NE horizon	
1h18m40s	 Cosmos 1862 (18152 1987-055-A) -Ground track -Star chart	<b>Appears</b> 1h18m07s 4.3mag az:123.7° ESE h:47.5° <b>Culmination</b> 1h18m40s 4.4mag az: 94.3° E h:51.6° distance: 711.9km height above Earth: 572.3km elevation of Sun: -21° angular velocity: 0.63°/s <b>Disappears</b> 1h24m52s 10.1mag az: 14.0° NNE horizon	
1h21m52s	 USA 144 Deb (25746 1999-028-C) -Ground track -Star chart	<b>Appears</b> 1h01m55s 7.1mag az:220.4° SW horizon <b>Culmination</b> 1h21m52s 5.7mag az:310.6° NW h:81.0° distance: 3048.9km height above Earth: 3023.8km elevation of Sun: -21° angular velocity: 7.39'/s <b>at Meridian</b> 1h23m22s 5.8mag az: 0.0° N h:76.4° <b>Disappears</b> 1h43m37s 9.0mag az: 42.8° NE horizon	
1h24m34s	 Cosmos 1400 Rocket (13403 1982-079-B)	<b>Appears</b> 1h23m38s 3.7mag az:215.8° SW h:51.4° <b>Culmination</b> 1h24m34s 3.7mag az:281.7° WNW h:72.2°	

	<p>→Ground track →Star chart</p>	<p>distance: 620.5km height above Earth: 593.6km elevation of Sun: -21° angular velocity: 0.71°/s  <b>at Meridian</b> 1h26m33s 6.2mag az: 0.0° N h:30.8°  <b>Disappears</b> 1h31m05s 9.9mag az: 9.5° N horizon</p>	
<p>☉ 1h27m01s</p>	<p> USA 224/KH (37348) 2011-002-A)                      →Ground track →Star chart</p>	<p><b>Appears</b> 1h24m49s 6.7mag az:123.3° ESE h:27.2°  <b>Culmination</b> 1h27m01s 6.4mag az: 72.0° ENE h:42.3°                      distance: 1005.9km height above Earth: 716.6km elevation of Sun: -21° angular velocity: 0.44°/s  <b>at Meridian</b> 1h31m32s 10.4mag az: 0.0° N h:7.9°  <b>Disappears</b> 1h33m11s 11.6mag az:354.9° N horizon</p>	
<p>☉ 1h29m18s</p>	<p> NOSS 3-4 Rocket (31702) 2007-027-B)                      →Ground track →Star chart</p>	<p><b>Appears</b> 1h21m00s 7.8mag az:322.5° NW horizon  <b>at Meridian</b> 1h27m54s 4.5mag az: 0.0° N h:44.2°  <b>Culmination</b> 1h29m18s 3.7mag az: 45.3° NE h:54.7°                      distance: 1036.0km height above Earth: 870.7km elevation of Sun: -21° angular velocity: 0.40°/s  <b>Disappears</b> 1h33m47s 4.6mag az:119.4° ESE h:16.5°</p>	
<p>☉ 1h31m08s</p>	<p> Cosmos 2219 (22219) 1992-076-A)                      →Ground track →Star chart</p>	<p><b>Appears</b> 1h23m05s 9.2mag az:331.4° NNW horizon  <b>Culmination</b> 1h31m08s 3.9mag az:248.1° WSW h:68.2°                      distance: 898.3km height above Earth: 842.1km elevation of Sun: -21° angular velocity: 0.46°/s  <b>Disappears</b> 1h33m00s 4.1mag az:180.4° S h:41.7°</p>	
<p>☉ 1h32m03s</p>	<p> Rubin 2 Dnpr Rocket (27610) 2002-058-F)                      →Ground track →Star chart</p>	<p><b>Appears</b> 1h31m45s 4.4mag az:135.0° SE h:48.3°  <b>Culmination</b> 1h32m03s 4.4mag az:120.4° ESE h:49.3°                      distance: 775.6km height above Earth: 606.5km elevation of Sun: -21° angular velocity: 0.58°/s  <b>Disappears</b> 1h38m37s 9.1mag az: 40.9° NE horizon</p>	
<p>☉ 1h35m28s</p>	<p> USA 143/(Milstar 2-1) (25724) 1999-023-A)                      →Ground track →Star chart</p>	<p><b>Appears</b> horizon  <b>Culmination</b> 1h35m28s 5.9mag az:190.5° S h:32.2°                      distance: 4159.4km height above Earth: 2908.0km elevation of Sun: -21° angular velocity: 5.24'/s  <b>at Meridian</b> 1h37m26s 6.0mag az:180.0° S h:31.5°  <b>Disappears</b> 2h02m04s 7.8mag az:130.1° SE horizon</p>	
<p>☉ 1h36m57s</p>	<p> 93036BMD (37500) 1993-036-BMD)                      →Ground track →Star chart</p>	<p><b>Appears</b> horizon  <b>at Meridian</b> 1h36m53s 4.5mag az: 0.0° N h:85.7°  <b>Culmination</b> 1h36m57s 4.5mag az: 69.1° ENE h:88.4°                      distance: 456.3km height above Earth: 456.4km elevation of Sun: -21° angular velocity: 0.94°/s  <b>Disappears</b> 1h36m58s 4.5mag az:102.8° ESE h:88.1°</p>	
<p>☉ 1h37m17s</p>	<p> Cosmos 1953 Rocket (19211) 1988-050-B)                      →Ground track →Star chart</p>	<p><b>Appears</b> horizon  <b>at Meridian</b> 1h36m34s 4.8mag az: 0.0° N h:62.2°  <b>Culmination</b> 1h37m17s 4.1mag az: 81.6° E h:85.6°                      distance: 616.2km height above Earth: 614.8km elevation of Sun: -21° angular velocity: 0.68°/s  <b>Disappears</b> 1h38m10s 4.2mag az:165.0° SSE h:56.0°</p>	
<p>☉ 1h39.7m</p>	<p> Sun</p>	<p>Lower Transit Altitude=-21.0°</p>	

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

Used satellite data set is from 18 June 2011

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.

#### Astronomical Twilight

The times 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.



#### Best seen between / h<sub>max</sub>

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<sub>max</sub> 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.

#### 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.

#### 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 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.

#### 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.

#### 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.

#### Rise, Transit, Culmination, Set

Rise and set times are for a mathematical horizon. Transit is the moment when the celestial object crosses the south meridian (for the northern hemisphere, north otherwise), i.e., it stands exactly in south (north) direction. There it reaches (for objects other than stars: almost) its highest point on its diurnal journey. Culmination is the event of the highest point. Times are listed only if they fall within the chosen interval, starting at the start time. Missing values indicate that the event does not take place at the underlying interval.

#### 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 22 min ago  
Current Users: 160, Runtime: 2.1s

18 Feb 2014, 16:24 UTC  
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