

[Intro](#) | [Calendar](#) | [Sun](#) | [Moon](#) | [Planets](#) | [Comets](#) | [Asteroids](#) | [Meteors](#) | [Deep-Sky](#) | [Satellites](#)



[Astro-Calendar](#) | [User Profile](#) · [Space Weather](#) · [Ocean Tides](#) · [Meteo](#) · [Weather](#)

[Balloons](#) · [Islam](#) · [Prayer Times](#)



→ [Nightvision-Mode](#)

→ [E-mail & Alert Manager](#)

Select start of calculation:

Date:

Time: : : . in TDT

Select duration:

geipan handschuheim, France

Easting: 7:43
 Northing: 48:28
 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> <p>Space Calendar:</p> <ul style="list-style-type: none"> <input type="checkbox"/> 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) short duration Flares of <input checked="" type="checkbox"/> Iridium satellites (14 days) <input checked="" type="checkbox"/> Passes of other bright satellites (1 day, slow!) <p>Daily reoccurring events</p> <ul style="list-style-type: none"> <input type="checkbox"/> Sun and Moon <input 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"> Jupiter: Great Red <input type="checkbox"/> 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
--	--	---	--




























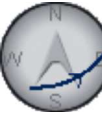








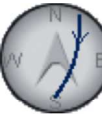
Saturday 7 June 2014













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






















	Observer Site	handschuheim, France WGS84: Lon: +7d43m00.00s Lat: +48d28m00.00s Alt: 192m All times in CET or CEST (during summer)
 2h30m48s	 Cosmos 1184 Rocket (11822 1980-044-B) →Ground track →Star chart	Appears 2h23m37s 9.8mag az:351.0° N horizon at Meridian 2h26m58s 7.4mag az: 0.0° N h:19.7° Culmination 2h29m19s 4.1mag az: 76.5° ENE h:60.5° distance: 541.3km height above Earth: 476.7km elevation of Sun: -17° angular velocity: 0.79°/s Disappears 2h30m52s 4.6mag az:146.1° SE h:30.1°
 2h30m48s	 USA 173-2/NOSS 3-2C (28097 2003-054-C) →Ground track →Star chart	Appears 2h22m34s 5.4mag az:159.4° SSE h:20.6° Culmination 2h25m48s 5.3mag az:114.1° ESE h:31.9° distance: 1661.0km height above Earth: 1013.1km elevation of Sun: -18° angular velocity: 0.26°/s Disappears 2h34m36s 9.4mag az: 45.6° NE horizon
 2h30m48s	 Cosmos 2333 Rocket (24298 1996-051-B) →Ground track →Star chart	Appears 2h22m23s 4.6mag az:242.6° WSW h:14.8° Culmination 2h26m45s 4.0mag az:307.9° NW h:40.6° distance: 1217.1km height above Earth: 850.6km elevation of Sun: -18° angular velocity: 0.36°/s at Meridian 2h29m25s 5.9mag az: 0.0° N h:25.5° Disappears 2h34m43s 9.2mag az: 25.7° NNE horizon
 2h31m05s	 USA 181/NOSS 3-3A (28537 2005-004-A) →Ground track →Star chart	Appears 2h21m12s 8.8mag az:317.8° NW horizon at Meridian 2h30m53s 5.2mag az: 0.0° N h:84.4° Culmination 2h31m05s 5.1mag az: 49.1° NE h:86.3° distance: 1182.8km height above Earth: 1180.9km elevation of Sun: -17° angular velocity: 0.34°/s Disappears 2h41m31s 7.6mag az:139.9° SE horizon
 2h31m12s	 USA 181-2/NOSS 3-3C (28541 2005-004-C) →Ground track →Star chart	Appears 2h21m19s 8.8mag az:317.8° NW horizon at Meridian 2h30m58s 5.2mag az: 0.0° N h:83.7° Culmination 2h31m12s 5.1mag az: 49.0° NE h:85.9° distance: 1183.2km height above Earth: 1180.8km elevation of Sun: -17° angular velocity: 0.34°/s Disappears 2h41m38s 7.6mag az:139.7° SE horizon
 2h31m12s	 Cosmos 2084 Rocket (20666 1990-055-D) →Ground track →Star chart	Appears 2h29m19s 4.8mag az:217.0° SW h:33.2° at Meridian 2h31m04s 4.0mag az:180.0° S h:82.5° Culmination 2h31m12s 4.1mag az:130.8° SE h:85.1° distance: 599.1km height above Earth: 597.3km elevation of Sun: -17° angular velocity: 0.74°/s Disappears 2h37m54s 9.9mag az: 43.2° NE horizon
 2h31m29s	 USA 141/ATEX (25615 1998-055-C) →Ground track →Star chart	Appears 2h24m17s 11.2mag az:348.7° NNW horizon Culmination 2h31m29s 6.1mag az:271.4° W h:46.3° distance: 985.1km height above Earth: 745.0km elevation of Sun: -17° angular velocity: 0.42°/s















		Disappears 2h33m43s 6.5mag az:215.6° SW h:27.9°	
2h32m29s	 IGS 02 (29393 2006-037-A) →Ground track →Star chart	Appears 2h31m19s 3.1mag az:169.9° S h:40.2° at Meridian 2h32m11s 2.5mag az:180.0° S h:73.6° Culmination 2h32m29s 2.6mag az:256.7° WSW h:86.1° distance: 477.0km height above Earth: 476.2km elevation of Sun: -17° angular velocity: 0.94°/s Disappears 2h38m05s 8.4mag az:347.2° NNW horizon Time uncertainty of about 5 seconds	
2h34m25s	 Cosmos 1782 Rocket (16987 1986-074-B) →Ground track →Star chart	Appears 2h32m21s 5.0mag az:172.4° S h:30.6° Culmination 2h34m25s 4.4mag az: 96.5° E h:69.9° distance: 668.6km height above Earth: 632.0km elevation of Sun: -17° angular velocity: 0.67°/s Disappears 2h41m07s 11.1mag az: 12.1° NNE horizon	
2h38m13s	 Cosmos 1603 (15333 1984-106-A) →Ground track →Star chart	Appears 2h34m59s 5.3mag az:211.7° SSW h:26.6° Culmination 2h38m13s 4.4mag az:298.0° WNW h:82.8° distance: 848.7km height above Earth: 843.0km elevation of Sun: -17° angular velocity: 0.52°/s at Meridian 2h38m41s 4.6mag az: 0.0° N h:75.0° Disappears 2h46m19s 10.8mag az: 28.1° NNE horizon	
2h39m20s	 NOSS 3-6 Rocket (38770 2012-048-N) →Ground track →Star chart	Appears 2h37m56s 2.4mag az:191.9° SSW h:36.6° at Meridian 2h38m29s 2.0mag az:180.0° S h:48.3° Culmination 2h39m20s 2.0mag az:125.2° SE h:63.4° distance: 583.2km height above Earth: 526.4km elevation of Sun: -17° angular velocity: 0.77°/s Disappears 2h45m14s 7.9mag az: 41.5° NE horizon	
2h39m39s	 NOSS 1 (J) (08884 1976-038-J) →Ground track →Star chart	Appears 2h34m35s 10.6mag az:318.4° NW horizon at Meridian 2h39m36s 5.8mag az: 0.0° N h:86.4° Culmination 2h39m39s 5.7mag az: 49.5° NE h:87.7° distance: 395.3km height above Earth: 395.2km elevation of Sun: -17° angular velocity: 1.14°/s Disappears 2h41m10s 7.0mag az:138.0° SE h:27.5° Time uncertainty of about 25 seconds	
2h43m15s	 Cosmos 1975 Rocket (19574 1988-093-B) →Ground track →Star chart	Appears 2h36m41s 9.2mag az:347.5° NNW horizon Culmination 2h43m15s 3.7mag az:263.9° W h:66.0° distance: 666.6km height above Earth: 614.4km elevation of Sun: -17° angular velocity: 0.63°/s Disappears 2h45m12s 4.4mag az:191.2° S h:31.0°	
2h45m41s	 USA 161/Adv KH 11-4 (26934 2001-044-A) →Ground track →Star chart	Appears 2h43m41s 4.4mag az:128.2° SE h:15.6° Culmination 2h45m41s 4.2mag az: 71.0° ENE h:31.9° distance: 707.6km height above Earth: 400.9km elevation of Sun: -17° angular velocity: 0.64°/s at Meridian 2h49m32s 8.2mag az: 0.0° N h:4.5°	






















		Disappears 2h50m34s 8.6mag az:356.4° N horizon	
2h47m42s	 Egypsat 2 Rocket (39679 2014-021-B) →Ground track →Star chart	Appears 2h45m06s 3.2mag az:219.7° SW h:26.8° at Meridian 2h47m09s 2.3mag az:180.0° S h:56.3° Culmination 2h47m42s 2.3mag az:149.3° SSE h:60.3° distance: 792.8km height above Earth: 699.6km elevation of Sun: -17° angular velocity: 0.55°/s Disappears 2h55m02s 6.9mag az: 67.5° ENE horizon	
2h49m59s	 Cosmos 1626 (15494 1985-009-A) →Ground track →Star chart	Appears 2h48m07s 3.9mag az:162.1° SSE h:27.0° Culmination 2h49m59s 3.4mag az: 95.4° E h:55.2° distance: 630.8km height above Earth: 527.7km elevation of Sun: -16° angular velocity: 0.71°/s Disappears 2h55m57s 9.9mag az: 13.9° NNE horizon	
2h52m13s	 SJ 11-02 (37765 2011-039-A) →Ground track →Star chart	Appears 2h49m19s 5.6mag az:171.9° S h:24.0° at Meridian 2h50m57s 4.6mag az:180.0° S h:49.2° Culmination 2h52m12s 4.4mag az:256.4° WSW h:78.7° distance: 720.4km height above Earth: 707.9km elevation of Sun: -16° angular velocity: 0.61°/s Disappears 2h59m16s 9.6mag az:345.5° NNW horizon	
2h53m47s	 USA 209/STSS Demo SV-2 (35938 2009-052-B) →Ground track →Star chart	Appears 2h42m34s 9.6mag az:307.7° NW horizon Culmination 2h53m47s 6.3mag az:224.3° SW h:73.7° distance: 1398.2km height above Earth: 1352.4km elevation of Sun: -16° angular velocity: 0.29°/s at Meridian 2h54m43s 6.3mag az:180.0° S h:67.6° Disappears 3h04m52s 8.8mag az:140.3° SE horizon	
2h55m12s	 USA 240/OTV-3/X-37B (39025 2012-071-A) →Ground track →Star chart	Appears 2h55m12s 3.5mag az:141.4° SE h:25.5° Disappears 2h59m10s 6.4mag az:102.9° ESE horizon	
3h01m37s	 USA 224/KH (37348 2011-002-A) →Ground track →Star chart	Appears 2h58m25s 5.4mag az:222.3° SW h:20.6° Culmination 3h01m37s 5.2mag az:267.1° W h:31.2° distance: 1659.4km height above Earth: 997.7km elevation of Sun: -16° angular velocity: 0.25°/s Disappears 3h09m43s 8.5mag az:338.8° NNW horizon Time uncertainty of about 9 seconds	
3h03m40s	 IGS 6 Rocket (37814 2011-050-B) →Ground track →Star chart	Appears 3h02m07s 3.6mag az:211.7° SSW h:28.5° Culmination 3h03m40s 3.3mag az:261.6° W h:41.8° distance: 811.5km height above Earth: 567.2km elevation of Sun: -16° angular velocity: 0.55°/s Disappears 3h09m45s 7.7mag az:341.1° NNW horizon Time uncertainty of about 2 seconds	

























 3h04m13s	 USA 208/STSS Demo SV-1 (35937 2009-052-A) →Ground track →Star chart	Appears 2h53m03s 9.6mag az:308.0° NW horizon Culmination 3h04m13s 6.3mag az:226.3° SW h:67.3° distance: 1443.5km height above Earth: 1351.8km elevation of Sun: -16° angular velocity: 0.28°/s at Meridian 3h05m37s 6.4mag az:180.0° S h:58.3° Disappears 3h15m15s 8.8mag az:144.1° SE horizon	
 3h04m29s	 USA 81/SBWASS R3/Singleton 3 (21949 1992-023-A) →Ground track →Star chart	Appears 2h57m44s 9.6mag az:342.2° NNW horizon Culmination 3h04m29s 6.4mag az:279.7° W h:21.5° distance: 1692.9km height above Earth: 794.2km elevation of Sun: -16° angular velocity: 0.24°/s Disappears 3h07m06s 6.4mag az:243.1° WSW h:15.1°	
 3h05m07s	 Egyptosat 2 (39678 2014-021-A) →Ground track →Star chart	Appears 3h02m03s 5.4mag az:225.8° SW h:23.0° at Meridian 3h04m41s 4.3mag az:180.0° S h:61.0° Culmination 3h05m07s 4.3mag az:150.4° SSE h:64.3° distance: 776.8km height above Earth: 708.3km elevation of Sun: -16° angular velocity: 0.57°/s Disappears 3h12m31s 9.1mag az: 67.6° ENE horizon	
 3h06m16s	 Abrixas Rocket (25723 1999-022-C) →Ground track →Star chart	Appears 3h04m29s 4.2mag az:231.6° SW h:27.8° at Meridian 3h06m03s 3.2mag az:180.0° S h:58.3° Culmination 3h06m16s 3.2mag az:161.6° SSE h:59.7° distance: 550.9km height above Earth: 481.4km elevation of Sun: -15° angular velocity: 0.81°/s Disappears 3h12m06s 7.9mag az: 78.6° ENE horizon	
 3h06m31s	 Cosmos 389 Rocket (04814 1970-113-B) →Ground track →Star chart	Appears 3h04m46s 4.2mag az:213.5° SSW h:29.2° Culmination 3h06m31s 3.6mag az:283.8° WNW h:60.8° distance: 593.9km height above Earth: 524.4km elevation of Sun: -15° angular velocity: 0.76°/s at Meridian 3h09m02s 6.9mag az: 0.0° N h:20.2° Disappears 3h12m32s 10.0mag az: 9.2° N horizon	
 3h07m22s	 Iridium 52	Flare from MMA2 (Left antenna) Magnitude=-4.0mag Azimuth=303.7° WNW altitude= 33.1° in constellation Canes Venatici RA=12h44.5m Dec=+45°51' Flare angle=0.52° Flare center line, closest point →MapIt: Longitude=7.480°E Latitude=+48.446° (WGS84) Distance=17.6 km Azimuth=262.7° W Peak Magnitude=-6.7mag Satellite above: longitude=4.2°W latitude=+52.6° height above Earth=784.9 km distance to satellite=1286.9 km Altitude of Sun=-15.4°	
 3h15m25s	 Aqua (27424 2002-022-A) →Ground track →Star chart	Appears 3h08m26s 9.9mag az: 17.6° NNE horizon Culmination 3h15m25s 3.7mag az: 99.9° E h:51.7° distance: 876.5km height above Earth: 708.8km elevation of Sun: -15° angular velocity: 0.48°/s	


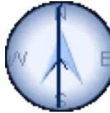



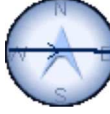

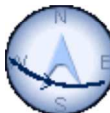
		Disappears 3h19m01s 4.6mag az:172.5° S h:16.3°	
3h21m02s	 NOSS 1 (D) (08836 1976-038-D) →Ground track →Star chart	Appears 3h16m13s 9.6mag az:312.5° NW horizon Culmination 3h21m02s 5.8mag az:234.6° SW h:36.5° distance: 624.7km height above Earth: 390.5km elevation of Sun: -14° angular velocity: 0.72°/s Disappears 3h21m52s 6.1mag az:197.0° SSW h:29.7° Time uncertainty of about 25 seconds	
3h21m23s	 ISS →Ground track →Star chart	Appears 3h16m08s -0.2mag az:289.8° WNW horizon Culmination 3h21m23s -3.5mag az:214.4° SW h:34.0° distance: 702.1km height above Earth: 417.2km elevation of Sun: -14° angular velocity: 0.63°/s at Meridian 3h22m17s -3.2mag az:180.0° S h:28.3° Disappears 3h26m37s -0.5mag az:138.7° SE horizon	
3h26m03s	 Aura	Flare from HIRDLS(?) Instrument (Test 2) Magnitude= 3.2mag Azimuth=165.6° SSE altitude= 24.0° in constellation Sagittarius RA=19h53.1m Dec=-16°21' Flare angle=9.21° Flare center line, closest point →MapIt: Longitude=10.400°E Latitude=+46.675° (WGS84) Distance=283.0 km Azimuth=133.7° SE Peak Magnitude=-2.1mag Satellite above: longitude=11.6°E latitude=+39.9° height above Earth=707.4 km distance to satellite=1436.0 km Altitude of Sun=-14.1° This is an experimental flare prediction. Brightness estimate may be unreliable. Please report a successful observation (Object/site coordinates/date/measured time/accuracy/magnitude).	
3h26m54s	 USA 215/FIA Radar 1 (37162 2010-046-A) →Ground track →Star chart	Appears 3h17m58s 7.1mag az:107.6° ESE horizon Culmination 3h26m54s 4.6mag az: 25.4° NNE h:66.0° distance: 1196.3km height above Earth: 1108.5km elevation of Sun: -14° angular velocity: 0.35°/s at Meridian 3h27m24s 4.6mag az: 0.0° N h:63.6° Disappears 3h35m52s 7.0mag az:303.3° WNW horizon	
3h27m25s	 Yaogan 14 (38257 2012-021-A) →Ground track →Star chart	Appears 3h25m55s 4.8mag az:213.7° SSW h:24.8° Culmination 3h27m25s 4.4mag az:262.3° W h:36.8° distance: 762.9km height above Earth: 484.2km elevation of Sun: -14° angular velocity: 0.59°/s Disappears 3h32m55s 8.6mag az:340.4° NNW horizon	
3h29m18s	 Astra 2E Tk (39287 2013-056-C) →Ground track →Star chart	Appears 3h11m00s 9.1mag az:295.1° WNW horizon Culmination 3h29m18s 4.4mag az:225.7° SW h:42.9° distance: 1277.1km height above Earth: 929.2km elevation of Sun: -14° angular velocity: 0.38°/s at Meridian 3h30m51s 4.3mag az:180.0° S h:31.9° Disappears 3h34m18s 6.1mag az:143.5° SE horizon	

 3h31m04s	 Cosmos 1441 (13818 1983-010-A) →Ground track →Star chart	Appears 3h26m18s 8.4mag az:340.3° NNW horizon Culmination 3h31m04s 3.9mag az:263.9° W h:34.6° distance: 614.1km height above Earth: 367.2km elevation of Sun: -14° angular velocity: 0.70°/s Disappears 3h31m59s 4.1mag az:224.2° SW h:27.0°	
 3h33m55s	 Cosmos 1943 (19119 1988-039-A) →Ground track →Star chart	Appears 3h29m44s 5.2mag az:204.5° SSW h:19.0° at Meridian 3h33m44s 3.9mag az:180.0° S h:83.8° Culmination 3h33m55s 3.9mag az:116.5° ESE h:87.3° distance: 854.5km height above Earth: 853.8km elevation of Sun: -13° angular velocity: 0.51°/s Disappears 3h42m07s 11.1mag az: 28.8° NNE horizon	
 3h35m31s	 Cosmos 1782 (16986 1986-074-A) →Ground track →Star chart	Appears 3h29m17s 8.7mag az:349.6° N horizon Culmination 3h35m31s 3.5mag az:261.5° W h:86.8° distance: 557.7km height above Earth: 557.1km elevation of Sun: -13° angular velocity: 0.76°/s at Meridian 3h35m58s 3.4mag az:180.0° S h:69.2° Disappears 3h39m01s 5.4mag az:173.2° S h:13.4°	
 3h36m38s	 Echostar 16 Tk (39010 2012-065-C) →Ground track →Star chart	Appears 3h32m41s 6.3mag az:284.6° WNW horizon Culmination 3h36m38s 3.2mag az:198.9° SSW h:58.0° distance: 564.2km height above Earth: 485.1km elevation of Sun: -13° angular velocity: 0.94°/s at Meridian 3h36m50s 3.3mag az:180.0° S h:56.5° Disappears 3h46m12s 8.5mag az:118.1° ESE horizon	
 3h36m48s	 USA 238-B/NOSS-3 6(B) (38773 2012-048-P) →Ground track →Star chart	Appears 3h29m10s 6.5mag az:249.3° WSW h:7.5° Culmination 3h36m48s 5.4mag az:324.1° NW h:46.9° distance: 1463.1km height above Earth: 1134.5km elevation of Sun: -13° angular velocity: 0.29°/s at Meridian 3h38m29s 6.3mag az: 0.0° N h:40.2° Disappears 3h46m24s 10.8mag az: 43.9° NE horizon	
 3h36m53s	 USA 238/NOSS-3 6(A) (38758 2012-048-A) →Ground track →Star chart	Appears 3h29m17s 6.4mag az:249.1° WSW h:7.6° Culmination 3h36m53s 5.4mag az:324.0° NW h:47.1° distance: 1457.6km height above Earth: 1134.0km elevation of Sun: -13° angular velocity: 0.30°/s at Meridian 3h38m34s 6.2mag az: 0.0° N h:40.4° Disappears 3h46m29s 10.8mag az: 43.9° NE horizon	
 3h39m04s	 Cosmos 1263 Rocket (12389 1981-033-B) →Ground track →Star chart	Appears 3h34m16s 7.8mag az:352.3° N horizon at Meridian 3h37m43s 4.9mag az: 0.0° N h:26.4° Culmination 3h39m04s 2.2mag az: 80.4° E h:72.4° distance: 354.1km height above Earth: 338.5km elevation of Sun: -13° angular velocity: 1.24°/s Disappears 3h41m03s 3.8mag az:164.3° SSE h:16.2° Time uncertainty of about 1 seconds	

<p>3h42m57s</p>	 <p>Cosmos 2369 Rocket (26070 2000-006-B) →Ground track →Star chart</p>	<p>Appears 3h35m01s 6.8mag az:327.5° NNW horizon Culmination 3h42m57s 3.2mag az:251.1° WSW h:45.5° distance: 1134.0km height above Earth: 852.2km elevation of Sun: -13° angular velocity: 0.37°/s Disappears 3h48m16s 4.8mag az:180.1° S h:10.3°</p>	
<p>3h48m18s</p>	 <p>USA 173/NOSS 3-2A (28095 2003-054-A) →Ground track →Star chart</p>	<p>Appears 3h42m56s 5.6mag az:223.3° SW h:15.6° Culmination 3h48m18s 4.4mag az:311.6° NW h:83.7° distance: 1033.8km height above Earth: 1028.7km elevation of Sun: -12° angular velocity: 0.42°/s at Meridian 3h48m36s 4.5mag az: 0.0° N h:80.6° Disappears 3h57m59s 11.3mag az: 42.2° NE horizon</p>	
<p>3h50m35s</p>	 <p>NOSS 4 (A) (13791 1983-008-A) →Ground track →Star chart</p>	<p>Appears 3h48m26s 6.9mag az:219.1° SW h:19.8° at Meridian 3h50m32s 5.4mag az:180.0° S h:86.7° Culmination 3h50m35s 5.5mag az:129.7° SE h:87.8° distance: 430.6km height above Earth: 430.5km elevation of Sun: -12° angular velocity: 1.10°/s Disappears 3h56m09s 13.3mag az: 41.9° NE horizon Time uncertainty of about 4 minutes</p>	
<p>3h54m21s</p>	 <p>Haiyang1B LM Rocket (31114 2007-010-B) →Ground track →Star chart</p>	<p>Appears 3h46m36s 9.4mag az: 13.2° NNE horizon at Meridian 3h53m53s 3.6mag az: 0.0° N h:75.2° Culmination 3h54m21s 3.3mag az:285.8° WNW h:85.9° distance: 812.3km height above Earth: 810.6km elevation of Sun: -12° angular velocity: 0.51°/s Disappears 3h59m04s 5.0mag az:198.1° SSW h:12.9°</p>	
<p>3h57m37s</p>	 <p>Lacrosse 5 Rocket (28647 2005-016-B) →Ground track →Star chart</p>	<p>Appears 3h51m43s 5.6mag az:305.2° NW horizon at Meridian 3h57m02s 3.9mag az: 0.0° N h:35.3° Culmination 3h57m37s 4.0mag az: 23.7° NNE h:37.9° distance: 753.0km height above Earth: 488.4km elevation of Sun: -11° angular velocity: 0.59°/s Disappears 4h03m17s 6.0mag az:102.5° ESE horizon Time uncertainty of about 1 seconds</p>	
<p>3h58m18s</p>	 <p>Meteor 1-29 (11251 1979-005-A) →Ground track →Star chart</p>	<p>Appears 3h53m29s 6.7mag az:158.2° SSE h:3.1° Culmination 3h58m18s 4.2mag az: 73.9° ENE h:66.9° distance: 517.5km height above Earth: 479.3km elevation of Sun: -11° angular velocity: 0.86°/s at Meridian 3h59m51s 6.2mag az: 0.0° N h:30.6° Disappears 4h03m54s 8.7mag az:349.4° N horizon</p>	
<p>3h59m50s</p>	 <p>ZY 1 Rocket (38039 2011-079-B) →Ground track →Star chart</p>	<p>Appears 3h56m29s 4.9mag az:180.2° S h:11.6° Culmination 3h59m50s 3.0mag az:258.7° WSW h:55.6° distance: 626.1km height above Earth: 525.9km elevation of Sun: -11° angular velocity: 0.71°/s Disappears 4h05m58s 7.7mag az:342.6° NNW horizon</p>	

 4h10m17s	 SAR Lupe 4 Rocket (32751 2008-014-B) →Ground track →Star chart	Appears 4h05m21s 10.5mag az: 16.1° NNE horizon Culmination 4h10m17s 4.1mag az:102.9° ESE h:65.7° distance: 415.9km height above Earth: 381.2km elevation of Sun: -10° angular velocity: 1.03°/s at Meridian 4h11m50s 4.9mag az:180.0° S h:24.5° Disappears 4h13m09s 6.0mag az:186.2° S h:10.5°	
 4h13m36s	 Cosmos 2455 (36095 2009-063-A) →Ground track →Star chart	Appears 4h05m19s 6.6mag az:321.3° NW horizon Culmination 4h13m36s 3.4mag az:246.0° WSW h:43.8° distance: 1243.6km height above Earth: 915.7km elevation of Sun: -10° angular velocity: 0.34°/s at Meridian 4h18m16s 4.6mag az:180.0° S h:14.9° Disappears 4h21m50s 5.7mag az:170.1° S horizon	
 4h15m57s	 Yaogan 9A (36413 2010-009-A) →Ground track →Star chart	Appears 4h06m11s 8.7mag az:317.8° NW horizon at Meridian 4h15m37s 5.8mag az: 0.0° N h:81.0° Culmination 4h15m57s 5.8mag az: 48.5° NE h:84.0° distance: 1159.8km height above Earth: 1154.6km elevation of Sun: -10° angular velocity: 0.36°/s Disappears 4h26m11s 8.4mag az:138.7° SE horizon	
 4h16m06s	 Yaogan 9B (36414 2010-009-B) →Ground track →Star chart	Appears 4h06m20s 8.7mag az:317.8° NW horizon at Meridian 4h15m54s 5.7mag az: 0.0° N h:84.5° Culmination 4h16m06s 5.7mag az: 49.0° NE h:86.4° distance: 1157.4km height above Earth: 1155.6km elevation of Sun: -9° angular velocity: 0.36°/s Disappears 4h26m21s 8.4mag az:139.8° SE horizon	
 4h16m16s	 Yaogan 9C (36415 2010-009-C) →Ground track →Star chart	Appears 4h06m30s 8.7mag az:317.8° NW horizon at Meridian 4h15m57s 5.8mag az: 0.0° N h:80.9° Culmination 4h16m16s 5.8mag az: 48.5° NE h:84.0° distance: 1160.3km height above Earth: 1155.0km elevation of Sun: -9° angular velocity: 0.36°/s Disappears 4h26m31s 8.4mag az:138.7° SE horizon	
 4h16m17s	 USA 173-2/NOSS 3-2C (28097 2003-054-C) →Ground track →Star chart	Appears 4h10m00s 5.9mag az:234.4° SW h:10.7° Culmination 4h16m17s 4.7mag az:316.6° NW h:65.6° distance: 1124.0km height above Earth: 1038.3km elevation of Sun: -9° angular velocity: 0.39°/s at Meridian 4h17m18s 5.2mag az: 0.0° N h:57.9° Disappears 4h26m00s 12.2mag az: 42.5° NE horizon	
 4h16m21s	 Okean-0 Rocket (25861 1999-039-B) →Ground track →Star chart	Appears 4h09m53s 8.8mag az: 19.5° NNE horizon Culmination 4h16m21s 3.7mag az: 97.9° E h:39.9° distance: 942.0km height above Earth: 641.8km elevation of Sun: -9° angular velocity: 0.45°/s Disappears 4h22m34s 5.2mag az:175.3° S h:1.3°	

 4h17m28s	 USA 161/Adv KH 11-4 (26934 2001-044-A) →Ground track →Star chart	Appears 4h16m09s 4.4mag az:240.7° WSW h:11.7° Culmination 4h17m28s 4.4mag az:268.4° W h:14.3° distance: 1210.9km height above Earth: 400.4km elevation of Sun: -9° angular velocity: 0.37°/s Disappears 4h21m54s 6.8mag az:330.0° NNW horizon	
 4h19m06s	 NOSS 3-6 Rocket (38770 2012-048-N) →Ground track →Star chart	Appears 4h14m39s 4.7mag az:263.0° W h:4.3° Culmination 4h19m06s 4.1mag az:324.4° NW h:20.8° distance: 1189.8km height above Earth: 512.8km elevation of Sun: -9° angular velocity: 0.38°/s at Meridian 4h20m51s 5.5mag az: 0.0° N h:15.7° Disappears 4h24m33s 9.7mag az: 32.5° NNE horizon	
 4h20m22s	 SJ 11-02 Rocket (37766 2011-039-B) →Ground track →Star chart	Appears 4h16m22s 5.3mag az:200.0° SSW h:10.2° Culmination 4h20m22s 4.2mag az:263.6° W h:31.9° distance: 1120.0km height above Earth: 656.8km elevation of Sun: -9° angular velocity: 0.39°/s Disappears 4h26m48s 7.5mag az:338.0° NNW horizon	
 4h21m23s	 NOSS 4 (E) (13844 1983-008-E) →Ground track →Star chart	Appears 4h18m23s 7.6mag az:201.9° SSW h:11.4° at Meridian 4h20m21s 6.2mag az:180.0° S h:34.4° Culmination 4h21m23s 6.1mag az:126.1° SE h:50.3° distance: 547.8km height above Earth: 430.8km elevation of Sun: -9° angular velocity: 0.86°/s Disappears 4h26m50s 14.1mag az: 44.8° NE horizon Time uncertainty of about 2 minutes	
 4h21m25s	 USA 181/NOSS 3-3A (28537 2005-004-A) →Ground track →Star chart	Appears 4h12m30s 8.1mag az:312.5° NW horizon Culmination 4h21m25s 6.0mag az:248.7° WSW h:25.9° distance: 2158.8km height above Earth: 1196.1km elevation of Sun: -9° angular velocity: 11.5'/s Disappears 4h30m42s 7.5mag az:184.9° S horizon	
 4h21m32s	 USA 181-2/NOSS 3-3C (28541 2005-004-C) →Ground track →Star chart	Appears 4h12m36s 8.1mag az:312.6° NW horizon Culmination 4h21m32s 6.0mag az:248.6° WSW h:26.1° distance: 2149.4km height above Earth: 1196.1km elevation of Sun: -9° angular velocity: 11.5'/s Disappears 4h30m50s 7.5mag az:184.6° S horizon	
 4h22m48s	 Cosmos 1943 Rocket (19120 1988-039-B) →Ground track →Star chart	Appears 4h14m50s 6.7mag az:331.5° NNW horizon at Meridian 4h22m44s 3.0mag az: 0.0° N h:87.3° Culmination 4h22m48s 3.0mag az: 63.0° ENE h:88.8° distance: 825.6km height above Earth: 825.6km elevation of Sun: -9° angular velocity: 0.52°/s Disappears 4h30m46s 5.8mag az:154.0° SSE horizon	
 4h23m56s	 Orbcomm FM38 Rocket (33066	Appears 4h19m28s 5.8mag az:228.8° SW h:10.9° at Meridian 4h23m21s 4.2mag az:180.0° S	

	2008-031-G) →Ground track →Star chart	h:46.9° Culmination 4h23m56s 4.3mag az:154.9° SSE h:49.9° distance: 843.3km height above Earth: 666.2km elevation of Sun: -9° angular velocity: 0.53°/s Disappears 4h30m58s 9.3mag az: 75.7° ENE horizon	
4h25m58s	 Cosmos 1300 Rocket (12786 1981-082-B) →Ground track →Star chart	Appears 4h21m07s 6.5mag az:191.4° SSW h:7.6° Culmination 4h25m58s 4.3mag az:279.8° W h:81.0° distance: 633.3km height above Earth: 626.4km elevation of Sun: -8° angular velocity: 0.70°/s at Meridian 4h27m14s 5.7mag az: 0.0° N h:46.6° Disappears 4h32m40s 9.8mag az: 9.4° N horizon	
4h27m49s	 Helios 1B Rocket (25979 1999-064-C) →Ground track →Star chart	Appears 4h22m58s 5.6mag az:185.9° S h:5.7° Culmination 4h27m49s 3.6mag az:261.2° W h:41.7° distance: 860.5km height above Earth: 601.7km elevation of Sun: -8° angular velocity: 0.51°/s Disappears 4h34m06s 7.5mag az:340.4° NNW horizon	
4h27m57s	 Egyptsat 2 Rocket (39679 2014-021-B) →Ground track →Star chart	Appears 4h21m00s 5.0mag az:263.7° W h:1.9° Culmination 4h27m57s 2.8mag az:349.2° N h:65.7° distance: 760.2km height above Earth: 700.1km elevation of Sun: -8° angular velocity: 0.58°/s at Meridian 4h28m05s 2.9mag az: 0.0° N h:65.3° Disappears 4h35m14s 7.6mag az: 75.4° ENE horizon	
4h30m23s	 USA 240/OTV- 3/X-37B (39025 2012-071-A) →Ground track →Star chart	Appears 4h27m20s 4.8mag az:255.4° WSW h:7.2° Culmination 4h30m23s 3.5mag az:195.7° SSW h:22.6° distance: 845.7km height above Earth: 370.4km elevation of Sun: -8° angular velocity: 0.54°/s at Meridian 4h30m53s 3.6mag az:180.0° S h:21.6° Disappears 4h35m08s 6.3mag az:126.1° SE horizon	

68 Items/Events: [Export to Outlook/iCal](#) [Print](#) [E-mail](#)
Used satellite data set is from 7 June 2014

Hide glossary

Glossary:

Altitude/alt/h

Angular separation of the object from the local mathematical horizon. This accounts for refraction as well.

Appears

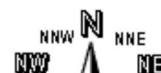
Local time at which the satellite appears visually. The first figure indicates the **visual brightness** of the object. The smaller the number, the brighter and more eye-catching it appears to an observer. The units are astronomical magnitudes [m]. **Azimuth** is given in degrees counting from geographic 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.



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.

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.

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.

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.

Remarks

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

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.

▲ Top

This material is ©1998-2014 by [Arnold Barmettler \(Imprint / Privacy policy / Disclaimers\)](#). Hard copies may be made for personal use only. No electronic copy may be located elsewhere for public access. All pages are dynamically generated. The usage of web copy tools is strictly prohibited. Commercial usage of the data only with written approval by the author. If you have any questions or comments, or plan to use results from *CalSky* in your publications or products, please [contact us](#) by e-mail. [Credits](#). *Dieser Service wird in der Schweiz entwickelt und betrieben; Sie können uns auch gerne auf Deutsch schreiben.*

[Create new default account/Logout](#)

Software Version: 28 May 2014
Database updated 9 min ago
Current Users: 214, Runtime: 2.2s

18 Jun 2014, 12:42 UTC
585 minutes left for this session / Mode
for our sponsors