

Sky this Month

December 2025

By David Mills

MOON

FULL MOON

Moon

- The full Moon is on December 4th at 11:15 p.m.
- The moon rises at 3:53 p.m. on December 4th.
- This month's full moon is the Super Cold Moon
- The 3rd of 4 supermoons of the year.

Moon

Type: **moon**
Magnitude: **-12.95** (reduced to **-8.58** by **34.27** Airmasses)
Absolute Magnitude: 0.21
Mean Opposition Magnitude: -12.74
RA/Dec (J2000.0): 4h38m43.78s/+26°16'45.6"
RA/Dec (on date): 4h40m19.76s/+26°19'52.5"
HA/Dec: 16h04m38.30s/+26°43'21.7" (apparent)
Az./Alt.: +51°28'57.7"/+0°19'36.2" (apparent)
Gal. long./lat.: +173°28'17.1"/-13°34'48.4"
Supergal. long./lat.: +347°45'48.9"/-36°31'13.7"
Ecl. long./lat. (J2000.0): +71°48'42.1"/+4°06'49.9"
Ecl. long./lat. (on date): +72°10'29.3"/+4°07'09.6"
Ecliptic obliquity (on date): +23°26'09.3"
Mean Sidereal Time: 20h43m33.6s
Apparent Sidereal Time: 20h43m33.8s
Rise: 15h56m
Transit: —
Set: 7h26m
Parallactic Angle: -38°49'26.8"
IAU Constellation: Tau
Zodiac: ♐ 10°4'
Hourly motion: +0°44'40" towards 78.7°
Hourly motion: dα=+0°48'37" dδ=+0°09'45"
Elongation: 175°48'29.6"
Elong. in Ecl.Long.: E179°12'07"
Phase angle: +4°10'53.9"
Illuminated: 99.9%
Distance from Sun: 0.988 AU (147.789 M km)
Distance: 0.002387 AU (357109.032 km)
Light time: 0h00m01.2s
Orbital velocity: 1.102 km/s
Heliocentric velocity: 31.320 km/s
Sidereal period: 27.32 days (0.075 a)
Synodic period: 29.53 days (0.081 a)
Apparent diameter: +0°33'27.02"
Diameter: 3474.8 km
Sidereal day: 655h43m11.6s
Mean solar day: 708h44m02.9s
Equatorial rotation velocity: 4.624 m/s
Moon age: 14.7 days old (Waxing Gibbous)
Position angle of bright limb: -18°47'34"
Position Angle of axis: +351°57'44"
Libration: +6°35'39" towards +9°24'08" (S!!)
Libration: +1°04'38"/-6°30'20"
Subsolar point: +2°24'23"/-1°31'32"
Colongitude: +87°35'37"
Albedo: 0.12
Solar Az./Alt.: +232°54'37"/+4°17'59"



Moon

Date and Time

Date and Time

Julian Day

2025-12-04

16:01:07

16

1

7





NEW MOON

Moon

- The New Moon is on December 19th , at 8:43 p.m.
- The Moon is southeast of the sun.
- This month's New Moon is the New Wolf Moon

Moon

Type: **moon**
Magnitude: **-2.98**
Absolute Magnitude: 0.21
Mean Opposition Magnitude: -12.74
RA/Dec (J2000.0): 17h48m58.81s/-28°34'31.5"
RA/Dec (on date): 17h50m37.89s/-28°35'02.7"
HA/Dec: 8h37m10.14s/-28°35'02.7"
Az./Alt.: +273°52'08.5"/-47°03'59.4"
Gal. long./lat.: +0°41'24.3"/-0°26'35.0"
Supergal. long./lat.: +186°31'29.0"/+42°55'27.7"
Ecl. long./lat. (J2000.0): +267°34'15.6"/-5°09'33.7"
Ecl. long./lat. (on date): +267°56'06.4"/-5°09'53.9"
Ecliptic obliquity (on date): +23°26'09.2"
Mean Sidereal Time: 2h27m47.7s
Apparent Sidereal Time: 2h27m48.0s
Rise: 7h50m
Transit: 11h52m
Set: 15h53m
Parallactic Angle: +54°24'25.6"
IAU Constellation: Sgr
Zodiac: ♏ 27°39'
Hourly motion: +0°36'12" towards 84.4°
Hourly motion: dα=+0°40'59" dδ=+0°03'59"
Elongation: 5°11'03.4"
Elong. in Ecl.Long.: W0°29'11"
Phase angle: +174°48'04.8"
Illuminated: 0.2%
Distance from Sun: 0.981 AU (146.789 M km)
Distance: 0.002728 AU (408129.362 km)
Light time: 0h00m01.4s
Orbital velocity: 0.979 km/s
Heliocentric velocity: 29.290 km/s
Sidereal period: 27.32 days (0.075 a)
Synodic period: 29.53 days (0.081 a)
Apparent diameter: +0°29'16.12"
Diameter: 3474.8 km
Sidereal day: 655h43m11.6s
Mean solar day: 708h44m02.9s
Equatorial rotation velocity: 4.624 m/s
Moon age: 0.0 days old (New Moon)
Position angle of bright limb: +6°19'36"
Position Angle of axis: +1°06'56"
Libration: +6°44'42" towards +200°23'20" (NNE!!)
Libration: -2°20'60"/+6°19'21"
Subsolar point: +177°36'19"/-1°30'40"
Colongitude: +272°23'41"
Albedo: 0.12
Solar Az./Alt.: +279°11'07"/-43°28'28"



Date and Time

2025-12-19

Julian Day

20:45:26

Moon

- The planet Venus is south and slightly west of the sun.
- Mars is northeast of the sun. Both Mars and Venus are close to solar conjunction.
- Mercury is southwest of the sun near the star Antares.

Moon

Type: **moon**
Magnitude: **-2.98**
Absolute Magnitude: 0.21
Mean Opposition Magnitude: -12.74
RA/Dec (J2000.0): 17h49m07.56s/-28°34'19.3"
RA/Dec (on date): 17h50m46.64s/-28°34'50.2"
HA/Dec: 8h40m13.26s/-28°34'50.2"
Az./Alt.: +274°26'56.7"/-47°36'32.8"
Gal. long./lat.: +0°42'34.1"/-0°28'07.5"
Supergal. long./lat.: +186°33'48.8"/+42°56'22.0"
Ecl. long./lat. (J2000.0): +267°36'11.0"/-5°09'19.3"
Ecl. long./lat. (on date): +267°58'01.8"/-5°09'39.5"
Ecliptic obliquity (on date): +23°26'09.2"
Mean Sidereal Time: 2h30m59.6s
Apparent Sidereal Time: 2h30m59.9s
Rise: 7h54m
Transit: 11h52m
Set: 15h49m
Parallactic Angle: +54°20'44.2"
IAU Constellation: Sgr
Zodiac: ♏ 27°41'
Hourly motion: +0°36'18" towards 84.5°
Hourly motion: $\text{d}\alpha=+0^{\circ}41'06''$ $\text{d}\delta=+0^{\circ}03'57''$
Elongation: 5°10'39.4"
Elong. in Ecl.Long.: W0°27'24"
Phase angle: +174°48'28.9"
Illuminated: 0.2%
Distance from Sun: 0.981 AU (146.789 M km)
Distance: 0.002728 AU (408166.774 km)
Light time: 0h00m01.4s
Orbital velocity: 0.979 km/s
Heliocentric velocity: 29.290 km/s
Sidereal period: 27.32 days (0.075 a)
Synodic period: 29.53 days (0.081 a)
Apparent diameter: +0°29'15.96"
Diameter: 3474.8 km
Sidereal day: 655h43m11.6s
Mean solar day: 708h44m02.9s
Equatorial rotation velocity: 4.624 m/s
Moon age: 0.0 days old (New Moon)
Position angle of bright limb: +5°59'15"
Position Angle of axis: +1°06'15"
Libration: +6°44'43" towards +200°24'39" (NNE!!)
Libration: -2°21'08"/+6°19'18"
Subsolar point: +177°34'42"/-1°30'40"
Colongitude: +272°25'18"
Albedo: 0.12
Solar Az./Alt.: +279°49'55"/-44°02'13"

Date and Time

Date and Time

Julian Day

2025-12-19

20:48:37

MERCURY

Mercury

- On December 1st, Mercury rises at 5:49 a.m. in early pre-dawn eastern sky.
- Mercury rises 90 minutes before sunrise.
- Mercury reaches its greatest western elongation on December 4th.

Mercury

Type: **planet**
Magnitude: **0.01** (reduced to **4.76** by **37.84** Airmasses)
Absolute Magnitude: -0.60
RA/Dec (J2000.0): 15h15m31.47s/-15°22'52.9"
RA/Dec (on date): 15h16m58.51s/-15°28'40.5"
HA/Dec: 19h01m40.73s/-15°05'09.5" (apparent)
Az./Alt.: +111°26'34.3"/+0°06'44.2" (apparent)
Gal. long./lat.: +346°42'52.1"/+34°57'57.3"
Supergal. long./lat.: +143°39'56.3"/+27°31'55.6"
Ecl. long./lat. (J2000.0): +230°36'00.7"/+2°36'43.8"
Ecl. long./lat. (on date): +230°57'48.0"/+2°36'27.3"
Ecliptic obliquity (on date): +23°26'09.3"
Mean Sidereal Time: 10h17m05.9s
Apparent Sidereal Time: 10h17m06.1s
Rise: 5h47m
Transit: 10h47m
Set: 15h47m
Parallactic Angle: -43°37'28.6"
IAU Constellation: Lib
Zodiac: ♐ 19°14'
Hourly motion: +0°00'43" towards 102.2°
Hourly motion: dα=+0°00'43" dδ=-0°00'09"
Elongation: 18°43'00.2"
Elong. in Ecl.Long.: W18°32'24"
Phase angle: +104°09'36.7"
Illuminated: 37.8%
Distance from Sun: 0.326 AU (48.819 M km)
Distance: 0.854 AU (127.771 M km)
Light time: 0h07m06.2s
Orbital velocity: 56.082 km/s
Sidereal period: 87.97 days (0.241 a)
Synodic period: 115.88 days (0.317 a)
Apparent diameter: +0°00'07.88"
Equatorial diameter: 4881.1 km
Sidereal day: 1407h30m27.0s
Mean solar day: 4222h26m51.1s
Equatorial rotation velocity: 3.026 m/s
Position Angle of axis: +22°06'18"
Center point: L_s=+76°05'20" φ_c:-2°53'14"
Subsolar point: L_s=+180°15'47" φ_s:+0°02'01"
Albedo: 0.06
Solar Az./Alt.: +103°44'22"/-17°32'36"
Lunar Az./Alt.: +313°19'25"/-23°40'41"



Zubenelgenubi

Date and Time

Julian Day

2025-12-01

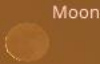
5:48:09

Mercury

- On December 18th, Mercury and old Moon rise in a close conjunction at 7:00 a.m. In the eastern sky.
- Moonrise is less than 40 minutes before sunrise.

Mercury

Type: **planet**
Magnitude: **-0.53** (reduced to **0.56** by **8.46** Airmasses)
Absolute Magnitude: -0.60
RA/Dec (J2000.0): 16h27m14.96s/-20°37'24.5"
RA/Dec (on date): 16h28m47.07s/-20°40'55.9"
HA/Dec: 20h08m28.40s/-20°34'34.0" (apparent)
Az./Alt.: +127°04'35.1"/+6°21'36.5" (apparent)
Gal. long./lat.: +356°12'16.1"/+19°14'27.8"
Supergal. long./lat.: +160°21'59.0"/+38°39'42.7"
Ecl. long./lat. (J2000.0): +248°22'19.3"/+1°05'30.0"
Ecl. long./lat. (on date): +248°44'09.8"/+1°05'10.8"
Ecliptic obliquity (on date): +23°26'09.2"
Mean Sidereal Time: 12h36m54.2s
Apparent Sidereal Time: 12h36m54.5s
Rise: 6h15m
Transit: 10h53m
Set: 15h30m
Parallactic Angle: -37°34'58.8"
IAU Constellation: Oph
Zodiac: ♎ 7°11'
Hourly motion: +0°03'31" towards 103.4°
Hourly motion: $\text{d}\alpha=+0^{\circ}03'39''$ $\text{d}\delta=-0^{\circ}00'52''$
Elongation: 18°07'08.0"
Elong. in Ecl Long.: W18°05'13"
Phase angle: +46°59'25.1"
Illuminated: 84.1%
Distance from Sun: 0.419 AU (62.607 M km)
Distance: 1.221 AU (182.616 M km)
Light time: 0h10m09.1s
Orbital velocity: 44.134 km/s
Sidereal period: 87.97 days (0.241 a)
Synodic period: 115.88 days (0.317 a)
Apparent diameter: +0°00'05.51"
Equatorial diameter: 4881.1 km
Sidereal day: 1407h30m27.0s
Mean solar day: 4222h26m51.1s
Equatorial rotation velocity: 3.026 m/s
Position Angle of axis: +15°29'03"
Center point: $L_{\star}=+162^{\circ}54'50''$ $\phi_{\star}:-3^{\circ}30'22''$
Subsolar point: $L_{\star}=+209^{\circ}48'07''$ $\phi_{\star}:+0^{\circ}00'15''$
Albedo: 0.06
Solar Az./Alt.: +115°23'45"/-7°38'59"
Lunar Az./Alt.: +130°53'30"/+0°55'02"



Date and Time

Date and Time

Julian Day

2025-12-18

7:06:44

Mercury

- On December 31st, Mercury rises at 7:03 a.m. in the late eastern twilight sky. Less than 30 minutes before sunrise.

Mercury

Type: **planet**
Magnitude: **-0.59** (reduced to **4.14** by **37.62** Airmasses)
Absolute Magnitude: -0.60
RA/Dec (J2000.0): 17h49m14.51s/-23°55'48.2"
RA/Dec (on date): 17h50m50.24s/-23°56'19.0"
HA/Dec: 19h41m24.68s/-23°31'39.4" (apparent)
Az./Alt.: +124°02'54.4"/+0°07'28.7" (apparent)
Gal. long./lat.: +4°42'13.8"/+1°53'50.4"
Supergal. long./lat.: +184°03'10.1"/+47°13'49.4"
Ecl. long./lat. (J2000.0): +267°32'30.1"/-0°30'49.4"
Ecl. long./lat. (on date): +267°54'22.9"/-0°31'09.7"
Ecliptic obliquity (on date): +23°26'09.2"
Mean Sidereal Time: 13h30m43.0s
Apparent Sidereal Time: 13h30m43.3s
Rise: 7h02m
Transit: 11h24m
Set: 15h45m
Parallactic Angle: -40°17'52.8"
IAU Constellation: Sgr
Zodiac: ♏ 27°42'
Hourly motion: +0°03'49" towards 94.8"
Hourly motion: dα=+0°04'09" dδ=-0°00'21"
Elongation: 12°10'23.7"
Elong. in Ecl.Long.: W12°09'44"
Phase angle: +26°40'59.1"
Illuminated: 94.7%
Distance from Sun: 0.462 AU (69.078 M km)
Distance: 1.374 AU (205.520 M km)
Light time: 0h11m25.5s
Orbital velocity: 39.378 km/s
Sidereal period: 87.97 days (0.241 a)
Synodic period: 115.88 days (0.317 a)
Apparent diameter: +0°00'04.90"
Equatorial diameter: 4881.1 km
Sidereal day: 1407h30m27.0s
Mean solar day: 4222h26m51.1s
Equatorial rotation velocity: 3.026 m/s
Position Angle of axis: +6°21'36"
Center point: L_s=+223°26'50" φ_c:-3°56'34"
Subsolar point: L_s=+249°51'37" φ_s:-0°01'07"
Albedo: 0.06
Solar Az./Alt.: +114°31'07"/-8°01'49"
Lunar Az./Alt.: +329°06'50"/-15°27'26"



Date and Time

Date and Time

Julian Day

2025-12-31

7:03:17

VENUS

Venus

- On December 1st, Venus rises at 6:46 a.m. in the morning twilight eastern sky.
- Venus rises 45 minutes before sunrise.

Venus - Morning Star

Type: planet
Magnitude: -3.92 (reduced to 0.39 by 33.78 Airmasses)
Absolute Magnitude: -5.18
Color Index (B-V): 0.91
RA/Dec (J2000.0): 15h53m49.46s/-19°34'29.5"
RA/Dec (on date): 15h55m19.83s/-19°39'07.6"
HA/Dec: 19h22m07.68s/-19°17'03.4" (apparent)
Az./Alt.: +117°52'38.9"/+0°21'34.3" (apparent)
Gal. long./lat.: +351°16'37.6"/+25°43'10.4"
Supergal. long./lat.: +153°18'13.1"/+33°10'54.8"
Ecl. long./lat. (J2000.0): +240°27'54.9"/+0°41'18.8"
Ecl. long./lat. (on date): +240°49'41.8"/+0°41'00.3"
Ecliptic obliquity (on date): +23°26'09.3"
Mean Sidereal Time: 11h16m02.6s
Apparent Sidereal Time: 11h16m02.8s
Rise: 6h44m
Transit: 11h26m
Set: 16h08m
Parallactic Angle: -42°05'08.4"
IAU Constellation: Lib
Zodiac: ♐ 28°49'
Hourly motion: +0°03'08" towards 102.9°
Hourly motion: dα=+0°03'14" dδ=-0°00'44"
Elongation: 8°44'36.3"
Elong. in Ecl.Long.: W8°42'59"
Phase angle: +11°57'00.3"
Illuminated: 98.9%
Distance from Sun: 0.724 AU (108.294 M km)
Distance: 1.683 AU (251.746 M km)
Light time: 0h13m59.7s
Orbital velocity: 34.993 km/s
Sidereal period: 224.70 days (0.615 a)
Synodic period: 583.92 days (1.599 a)
Apparent diameter: +0°00'09.92"
Equatorial diameter: 12103.6 km
Sidereal day: 5832h26m37.0s
Mean solar day: 2802h00m22.2s
Equatorial rotation velocity: 1.811 m/s
Position Angle of axis: +12°30'17"
Center point: L_s=+240°20'57" φ_s: +0°22'50"
Subsolar point: L_s=+228°25'38" φ_s: -0°25'20"
Albedo: 0.77
Solar Az./Alt.: +113°17'20"/-7°35'15"
Lunar Az./Alt.: +327°11'49"/-29°53'41"

Date and Time

Date and Time

Julian Day

2025-12-01

6:46:56

Venus

- On December 11th, Venus rises at 7:10 a.m. in the eastern sky.
- Venus is still moving East or Retrograde motion towards the sun.
- The planet is rising less than 30 minutes before actual sunrise.
Now getting lost in the solar glare.

Venus - Morning Star



Type: **planet**
Magnitude: **-3.92** (reduced to **0.86** by **38.07** Airmasses)
Absolute Magnitude: **-5.18**
Color Index (B-V): **0.91**
RA/Dec (J2000.0): 16h46m43.03s/-22°03'47.4"
RA/Dec (on date): 16h48m15.43s/-22°06'37.6"
HA/Dec: 19h32m03.93s/-21°42'05.0" (apparent)
Az./Alt.: +121°13'21.2"/+0°05'59.9" (apparent)
Gal. long./lat.: +358°02'01.0"/+14°49'05.3"
Supergal. long./lat.: +165°51'06.8"/+40°51'51.8"
Ecl. long./lat. (J2000.0): +253°03'46.6"/+0°18'19.3"
Ecl. long./lat. (on date): +253°25'35.9"/+0°17'59.4"
Ecliptic obliquity (on date): +23°26'09.3"
Mean Sidereal Time: 12h18m47.2s
Apparent Sidereal Time: 12h18m47.5s
Rise: 7h09m
Transit: 11h40m
Set: 16h10m
Parallactic Angle: -41°12'07.9"
IAU Constellation: Oph
Zodiac: ♏-12°4'
Hourly motion: +0°03'09" towards 98.3°
Hourly motion: dα=+0°03'21" dδ=-0°00'29"
Elongation: 6°17'21.6"
Elong. in Ecl. Long.: W6°16'55"
Phase angle: +8°33'14.9"
Illuminated: 99.4%
Distance from Sun: 0.725 AU (108.492 M km)
Distance: 1.696 AU (253.707 M km)
Light time: 0h14m06.3s
Orbital velocity: 34.929 km/s
Sidereal period: 224.70 days (0.615 a)
Synodic period: 583.92 days (1.599 a)
Apparent diameter: +0°00'09.84"
Equatorial diameter: 12103.6 km
Sidereal day: 5832h26m37.0s
Mean solar day: 2802h00m22.2s
Equatorial rotation velocity: 1.811 m/s
Position Angle of axis: +7°52'38"
Center point: L_☉=+267°47'18" φ_☉: +0°36'06"
Subsolar point: L_☉=+259°14'24" φ_☉: +0°18'41"
Albedo: 0.77
Solar Az./Alt.: +117°15'50"/-5°20'11"
Lunar Az./Alt.: +207°36'58"/+47°28'19"



Venus

Date and Time

2025

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12

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11

Julian Day

7

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10

:

12

MARS

Mars

- Mars is approaching solar conjunction not visible this month.

JUPITER

Jupiter

- On December 1st, Jupiter is high in the western sky at sunrise.

Jupiter

Jupiter

Type: **planet**
Magnitude: **-2.54** (reduced to **-2.33** by **1.56** Airmasses)
Absolute Magnitude: -9.40
Mean Opposition Magnitude: -2.70
Color Index (B-V): **0.96**
RA/Dec (J2000.0): 7h44m14.69s/+21°26'21.8"
RA/Dec (on date): 7h45m46.89s/+21°22'39.0"
HA/Dec: 3h39m05.73s/+21°23'25.9" (apparent)
Az./Alt.: +261°28'14.6"/+39°43'30.8" (apparent)
Gal. long./lat.: +198°47'14.2"/+20°50'46.4"
Supergal. long./lat.: +44°48'08.7"/-50°56'22.9"
Ecl. long./lat. (J2000.0): +114°08'16.1"/+0°09'26.8"
Ecl. long./lat. (on date): +114°30'02.9"/+0°09'45.0"
Ecliptic obliquity (on date): +23°26'09.3"
Mean Sidereal Time: 11h24m56.3s
Apparent Sidereal Time: 11h24m56.6s
Rise: 19h41m
Transit: 3h17m
Set: 10h49m
Parallactic Angle: +49°28'34.6"
IAU Constellation: Gem
Zodiac: ♊ 26°26'
Hourly motion: +0°00'10" towards 280.8°
Hourly motion: $\text{d}\alpha = 0^{\circ}00'10"$ $\text{d}\delta = +0^{\circ}00'02"$
Elongation: 135°03'00.2"
Elong. in elong. W135°03'00"
Phase angle: +7°41'52.2"
Illuminated: 99.5%
Distance from Sun: 5.201 AU (778.028 M km)
Distance: 4.456 AU (666.618 M km)
Light time: 0h37m03.6s
Orbital velocity: 13.069 km/s
Sidereal period: 4331.87 days (11.860 a)
Synodic period: 398.89 days (1.092 a)
Apparent diameter: +0°00'44.24"
Equatorial diameter: 142984.0 km
Sidereal day: 9h55m40.6s
Mean solar day: 9h55m44.0s
Equatorial rotation velocity: 12.568 km/s
Position Angle of axis: +11°48'20"
Center point: $L_{\text{J1a}} = +178^{\circ}57'38"$ $\phi_{\text{J1a}} = +1^{\circ}22'40"$
Subsolar point: $L_{\text{J1a}} = +186^{\circ}39'29"$ $\phi_{\text{J1a}} = +1^{\circ}36'09"$
Albedo: 0.51
Solar Az./Alt.: +114°45'38"/-6°08'19"
Lunar Az./Alt.: +329°26'46"/-30°39'23"

Date and Time

Date and Time

Julian Day

2025-12-01

6:55:49

Jupiter

- On December 1st, Jupiter rises at 7:42 p.m. in the northeastern sky.
- Jupiter is now 6 weeks away from opposition to Earth.

Jupiter

Type: **planet**
Magnitude: **-2.54** (reduced to **1.70** by **33.09** Airmasses)
Absolute Magnitude: -9.40
Mean Opposition Magnitude: -2.70
Color Index (B-V): **0.96**
RA/Dec (J2000.0): 7h44m06.04s/+21°26'48.2"
RA/Dec (on date): 7h45m38.27s/+21°23'05.7"
HA/Dec: 16h30m59.88s/+21°45'02.5" (apparent)
Az./Alt.: +59°16'44.5"/+0°24'25.4" (apparent)
Gal. long./lat.: +198°45'59.6"/+20°49'04.4"
Supergal. long./lat.: +44°44'54.0"/-50°56'37.2"
Ecl. long./lat. (J2000.0): +114°06'12.7"/+0°09'31.7"
Ecl. long./lat. (on date): +114°27'59.6"/+0°09'50.0"
Ecliptic obliquity (on date): +23°26'09.3"
Mean Sidereal Time: 0h15m14.7s
Apparent Sidereal Time: 0h15m14.9s
Rise: 19h41m
Transit: 3h17m
Set: 10h49m
Parallactic Angle: -41°29'03.7"
IAU Constellation: Gem
Zodiac: ♊ 26°24'
Hourly motion: +0°00'10" towards 282.4°
Hourly motion: dα=-0°00'10" dδ=+0°00'02"
Elongation: 135°37'17.5"
Elong. in Ecl.Long.: W135°37'18"
Phase angle: +7°37'09.3"
Illuminated: 99.6%
Distance from Sun: 5.201 AU (778.057 M km)
Distance: 4.450 AU (665.762 M km)
Light time: 0h37m00.7s
Orbital velocity: 13.068 km/s
Sidereal period: 4331.87 days (11.860 a)
Synodic period: 398.89 days (1.092 a)
Apparent diameter: +0°00'44.30"
Equatorial diameter: 142984.0 km
Sidereal day: 9h55m40.6s
Mean solar day: 9h55m44.0s
Equatorial rotation velocity: 12.568 km/s
Position Angle of axis: +11°47'29"
Center point: L_{IIIc}=+283°17'26" φ_c: +1°22'38"
Subsolar point: L_{IIIc}=+290°54'31" φ_s: +1°36'02"
Albedo: 0.51
Solar Az./Alt.: +270°39'52"/-33°03'22"
Lunar Az./Alt.: +142°11'32"/+54°15'52"

Date and Time

Date and Time

Julian Day

2025-12-01

19:44:01

Jupiter

- On December 7th, Jupiter and the Gibbous Moon share a wide conjunction.
- Both rise together at 7:30 p.m. in the northeastern sky.

Jupiter

Type: **planet**
Magnitude: **-2.58** (reduced to **-1.15** by **10.95** Airmasses)
Absolute Magnitude: -9.40
Mean Opposition Magnitude: -2.70
Color Index (B-V): **0.96**
RA/Dec (J2000.0): 7h42m12.07s/+21°32'24.9"
RA/Dec (on date): 7h43m44.53s/+21°28'45.7"
HA/Dec: 16h58m37.66s/+21°36'13.6" (apparent)
Az./Alt.: +64°06'08.7"/+4°39'02.2" (apparent)
Gal. long./lat.: +198°29'48.1"/+20°26'36.4"
Supergal. long./lat.: +44°02'09.3"/-50°59'45.0"
Ecl. long./lat. (J2000.0): +113°39'07.7"/+0°10'28.0"
Ecl. long./lat. (on date): +114°00'56.4"/+0°10'46.2"
Ecliptic obliquity (on date): +23°26'09.3"
Mean Sidereal Time: 0h41m51.1s
Apparent Sidereal Time: 0h41m51.4s
Rise: 19h15m
Transit: 2h52m
Set: 10h25m
Parallactic Angle: -43°49'31.4"
IAU Constellation: Gem
Zodiac: ♊ 25°56'
Hourly motion: +0°00'13" towards 281.7°
Hourly motion: dα=-0°00'13" dδ=+0°00'03"
Elongation: 142°09'36.2"
Elong. in Ecl.Long.: W142°09'37"
Phase angle: +6°40'11.2"
Illuminated: 99.7%
Distance from Sun: 5.203 AU (778.384 M km)
Distance: 4.390 AU (656.732 M km)
Light time: 0h36m30.6s
Orbital velocity: 13.063 km/s
Sidereal period: 4331.87 days (11.860 a)
Synodic period: 398.89 days (1.092 a)
Apparent diameter: +0°00'44.91"
Equatorial diameter: 142984.0 km
Sidereal day: 9h55m40.6s
Mean solar day: 9h55m44.0s
Equatorial rotation velocity: 12.568 km/s
Position Angle of axis: +11°36'26"
Center point: L_{IIIa}=+107°26'42" φ_c: +1°22'27"
Subsolar point: L_{IIIa}=+114°06'49" φ_s: +1°34'38"
Albedo: 0.51
Solar Az./Alt.: +270°02'46"/-33°37'25"
Lunar Az./Alt.: +58°34'41"/+1°53'46"

Date and Time

Date and Time

Julian Day

2025-12-17

19:46:57

Jupiter

- On December 31st, Jupiter is well placed in the western sky at sunrise.

Jupiter

Type: **planet**
Magnitude: **-2.67** (reduced to **-2.11** by **4.34** Airmasses)
Absolute Magnitude: -9.40
Mean Opposition Magnitude: -2.70
Color Index (B-V): **0.96**
RA/Dec (J2000.0): 7h31m11.82s/+22°01'22.4"
RA/Dec (on date): 7h32m45.15s/+21°58'05.4"
HA/Dec: 6h11m31.88s/+22°00'53.5" (apparent)
Az./Alt.: +287°59'58.4"/+13°12'16.6" (apparent)
Gal. long./lat.: +196°59'39.0"/+18°15'50.8"
Supergal. long./lat.: +39°54'43.8"/-51°14'27.7"
Ecl. long./lat. (J2000.0): +111°03'11.0"/+0°14'04.3"
Ecl. long./lat. (on date): +111°25'03.8"/+0°14'22.7"
Ecliptic obliquity (on date): +23°26'09.2"
Mean Sidereal Time: 13h44m29.8s
Apparent Sidereal Time: 13h44m30.1s
Rise: 17h27m
Transit: 1h06m
Set: 8h41m
Parallactic Angle: +47°14'22.0"
IAU Constellation: Gem
Zodiac: ♊ 23°11'
Hourly motion: +0°00'19" towards 279.0°
Hourly motion: $\text{d}\alpha = 0^{\circ}00'21''$ $\text{d}\delta = 0^{\circ}00'03''$
Elongation: 168°39'30.2"
Elong. in Ecl.Long.: W168°39'38"
Phase angle: +2°07'35.3"
Illuminated: 100.0%
Distance from Sun: 5.212 AU (779.662 M km)
Distance: 4.244 AU (634.892 M km)
Light time: 0h35m17.8s
Orbital velocity: 13.041 km/s
Sidereal period: 4331.87 days (11.860 a)
Synodic period: 398.89 days (1.092 a)
Apparent diameter: +0°00'46.45"
Equatorial diameter: 142984.0 km
Sidereal day: 9h55m40.6s
Mean solar day: 9h55m44.0s
Equatorial rotation velocity: 12.568 km/s
Position Angle of axis: +10°31'42"
Center point: $L_{\text{11e}} = +24^{\circ}02'18''$ $\phi_{\text{e}}: +1^{\circ}23'04''$
Subsolar point: $L_{\text{11s}} = +26^{\circ}09'48''$ $\phi_{\text{s}}: +1^{\circ}29'04''$
Albedo: 0.51
Solar Az./Alt.: +116°47'17"/-5°48'51"
Lunar Az./Alt.: +331°58'47"/-16°34'46"

Date and Time

Date and Time

Julian Day

2025-12-31

7:17:2

Jupiter

- On December 31st, Jupiter rises at 5:30 p.m. in the northeastern sky.
- Visible all night.

Jupiter

Type: **planet**
Magnitude: **-2.67** (reduced to 1.75 by **34.74** Airmasses)
Absolute Magnitude: -9.40
Mean Opposition Magnitude: -2.70
Color Index (B-V): **0.96**
RA/Dec (J2000.0): 7h30m57.89s/+22°01'56.6"
RA/Dec (on date): 7h32m31.23s/+21°58'40.1"
HA/Dec: 16h27m16.81s/+22°21'37.2" (apparent)
Az./Alt.: +58°13'46.3"/+0°17'46.4" (apparent)
Gal. long./lat.: +196°57'47.3"/+18°13'05.1"
Supergal. long./lat.: +39°49'30.2"/-51°14'41.2"
Ecl. long./lat. (J2000.0): +110°59'54.2"/+0°14'08.3"
Ecl. long./lat. (on date): +111°21'47.2"/+0°14'26.7"
Ecliptic obliquity (on date): +23°26'09.2"
Mean Sidereal Time: 23h58m21.3s
Apparent Sidereal Time: 23h58m21.7s
Rise: 17h27m
Transit: 1h06m
Set: 8h41m
Parallactic Angle: -41°08'30.4"
IAU Constellation: Gem
Zodiac: ♊ 23°7'
Hourly motion: +0°00'19" towards 279.8°
Hourly motion: $\text{d}\alpha = -0^{\circ}00'21''$ $\text{d}\delta = +0^{\circ}00'04''$
Elongation: 169°08'33.3"
Elong. in Ecl.Long.: W169°08'42"
Phase angle: +2°02'12.1"
Illuminated: 100.0%
Distance from Sun: 5.212 AU (779.685 M km)
Distance: 4.243 AU (634.721 M km)
Light time: 0h35m17.2s
Orbital velocity: 13.041 km/s
Sidereal period: 4331.87 days (11.860 a)
Synodic period: 398.89 days (1.092 a)
Apparent diameter: +0°00'46.47"
Equatorial diameter: 142984.0 km
Sidereal day: 9h55m40.6s
Mean solar day: 9h55m44.0s
Equatorial rotation velocity: 12.568 km/s
Position Angle of axis: +10°30'18"
Center point: $L_{\text{J1a}} = +34^{\circ}04'30''$ $\phi_{\text{e}}: +1^{\circ}23'06''$
Subsolar point: $L_{\text{J1a}} = +36^{\circ}06'35''$ $\phi_{\text{s}}: +1^{\circ}28'58''$
Albedo: 0.51
Solar Az./Alt.: +245°25'56"/-7°55'60"
Lunar Az./Alt.: +87°30'35"/+35°52'10"

Date and Time

Date and Time

Julian Day

2025-12-31

17:20:13

SATURN

Saturn

- On December 1st, Saturn sets at 1:09 a.m. in the western sky.

Saturn

Type: **planet**
Magnitude: **0.92** (reduced to **5.46** by **35.88** Airmasses)
Absolute Magnitude: -8.88
Mean Opposition Magnitude: 0.67
Color Index (B-V): **1.22**
RA/Dec (J2000.0): 23h44m40.91s/-4°14'14.9"
RA/Dec (on date): 23h46m01.01s/-4°05'35.8"
HA/Dec: 5h44m09.10s/-3°43'44.1" (apparent)
Az./Alt.: +264°33'56.9"/+0°13'29.6" (apparent)
Gal. long./lat.: +85°10'38.8"/-62°06'42.5"
Supergal. long./lat.: +287°19'30.8"/+15°39'54.3"
Ecl. long./lat. (J2000.0): +354°48'11.1"/-2°22'00.9"
Ecl. long./lat. (on date): +355°09'58.7"/-2°22'01.7"
Ecliptic obliquity (on date): +23°26'09.3"
Mean Sidereal Time: 5h31m39.3s
Apparent Sidereal Time: 5h31m39.5s
Rise: 13h29m
Transit: 19h15m
Set: 1h05m
Parallactic Angle: +45°33'36.6"
IAU Constellation: Aqr
Zodiac: ♏ 26°30'
Hourly motion: +0°00'01" towards 33.0°
Hourly motion: $\dot{\alpha}$ =+0°00'01" $\dot{\delta}$ =+0°00'01"
Elongation: 105°51'01.6"
Elong. in Ecl.Long.: E105°51'51"
Phase angle: +5°42'50.4"
Illuminated: 99.8%
Distance from Sun: 9.528 AU (1425.374 M km)
Distance: 9.211 AU (1377.999 M km)
Light time: 1h16m36.5s
Orbital velocity: 9.660 km/s
Sidereal period: 10760.00 days (29.459 a)
Synodic period: 378.09 days (1.035 a)
Apparent diameter: +0°00'18.04", with rings: +0°00'42.03"
Equatorial diameter: 120536.0 km
Sidereal day: 10h39m22.4s
Mean solar day: 10h39m24.0s
Equatorial rotation velocity: 9.871 km/s
Position Angle of axis: +4°30'39"
Center point: L_{IIIe} =+288°09'02" ϕ_e : -0°23'33"
Subsolar point: L_{IIIe} =+283°07'41" ϕ_s : -3°08'54"
Albedo: 0.50
Solar Az./Alt.: +34°17'59"/-64°14'34"
Lunar Az./Alt.: +261°15'25"/+21°05'09"

Neptune

Saturn

W

Date and Time

Date and Time

Julian Day

2025-12-01

1:18:30

Saturn

- On December 1st, Saturn is high in the southeastern sky at sunset.

Saturn

Type: **planet**
Magnitude: **0.92** (reduced to **1.14** by **1.69** Airmasses)
Absolute Magnitude: -8.88
Mean Opposition Magnitude: 0.67
Color Index (B-V): **1.22**
RA/Dec (J2000.0): 23h44m41.68s/-4°14'00.7"
RA/Dec (on date): 23h46m01.79s/-4°05'21.5"
HA/Dec: 22h15m01.18s/-4°04'06.3" (apparent)
Az./Alt.: +146°51'36.7"/+36°12'35.0" (apparent)
Gal. long./lat.: +85°11'16.1"/-62°06'36.9"
Supergal. long./lat.: +287°19'48.5"/+15°39'47.5"
Ecl. long./lat. (J2000.0): +354°48'27.4"/-2°21'52.5"
Ecl. long./lat. (on date): +355°10'15.1"/-2°21'53.2"
Ecliptic obliquity (on date): +23°26'09.3"
Mean Sidereal Time: 22h01m00.6s
Apparent Sidereal Time: 22h01m00.8s
Rise: 13h29m
Transit: 19h15m
Set: 1h05m
Parallactic Angle: -23°05'39.4"
IAU Constellation: Aqr
Zodiac: ♏ 26°30'
Hourly motion: +0°00'01" towards 32.4°
Hourly motion: dα=+0°00'01" dδ=+0°00'01"
Elongation: 105°09'48.4"
Elong. in Ed.Long.: E105°10'36"
Phase angle: +5°43'56.6"
Illuminated: 99.7%
Distance from Sun: 9.528 AU (1425.342 M km)
Distance: 9.222 AU (1379.632 M km)
Light time: 1h16m42.0s
Orbital velocity: 9.660 km/s
Sidereal period: 10760.00 days (29.459 a)
Synodic period: 378.09 days (1.035 a)
Apparent diameter: +0°00'18.02", with rings: +0°00'41.98"
Equatorial diameter: 120536.0 km
Sidereal day: 10h39m22.4s
Mean solar day: 10h39m24.0s
Equatorial rotation velocity: 9.871 km/s
Position Angle of axis: +4°30'38"
Center point: L_{IIIc}=+123°41'04" φ_c: -0°23'48"
Subsolar point: L_{IIIb}=+118°38'38" φ_s: -3°09'32"
Albedo: 0.50
Solar Az./Alt.: +248°39'25"/-9°38'35"
Lunar Az./Alt.: +106°38'25"/+34°26'00"

Moon

Saturn



SE

S

Date and Time

Date and Time

Julian Day

2025-12-1

17:30:9

Saturn

- On December 26th, Saturn and waxing first quarter moon rise together in a close conjunction high in the southern sky at sunset.
- Saturn and the first quarter Moon are less than 3 degrees apart. Saturn is southeast of the moon.

Saturn

Type: planet
Magnitude: 1.00 (reduced to 1.19 by 1.50 Airmasses)
Absolute Magnitude: -8.88
Mean Opposition Magnitude: 0.67
Color Index (B-V): 1.22
RA/Dec (J2000.0): 23h47m12.61s/-3°51'54.2"
RA/Dec (on date): 23h48m33.00s/-3°43'12.5"
HA/Dec: 23h45m07.69s/-3°42'05.7" (apparent)
Az./Alt.: +175°00'49.8"/+41°52'57.1" (apparent)
Gal. long./lat.: +86°44'34.2"/-62°08'09.1"
Supergal. long./lat.: +287°53'26.1"/+15°10'33.5"
Ecl. long./lat. (J2000.0): +355°31'48.9"/-2°16'32.5"
Ecl. long./lat. (on date): +355°53'41.9"/-2°16'33.0"
Ecliptic obliquity (on date): +23°26'09.2"
Mean Sidereal Time: 23h33m40.1s
Apparent Sidereal Time: 23h33m40.4s
Rise: 11h51m
Transit: 17h39m
Set: 23h27m
Parallactic Angle: -3°34'25.8"
IAU Constellation: Aqr
Zodiac: ♏ 27°8'
Hourly motion: +0°00'07" towards 62.2°
Hourly motion: dα=+0°00'07" dδ=+0°00'03"
Elongation: 80°29'31.3"
Elong. in Ecl.Long.: E80°29'04"
Phase angle: +5°50'52.5"
Illuminated: 99.7%
Distance from Sun: 9.520 AU (1424.188 M km)
Distance: 9.633 AU (1441.080 M km)
Light time: 1h20m06.9s
Orbital velocity: 9.668 km/s
Sidereal period: 10760.00 days (29.459 a)
Synodic period: 378.09 days (1.035 a)
Apparent diameter: +0°00'17.25", with rings: +0°00'40.19"
Equatorial diameter: 120536.0 km
Sidereal day: 10h39m22.4s
Mean solar day: 10h39m24.0s
Equatorial rotation velocity: 9.871 km/s
Position Angle of axis: +4°27'41"
Center point: L_{IIIc}=+229°37'07" φ_c: -0°49'02"
Subsolar point: L_{IIIb}=+224°25'25" φ_s: -3°32'12"
Albedo: 0.50
Solar Az./Alt.: +244°47'47"/-7°44'12"
Lunar Az./Alt.: +178°20'25"/+43°57'39"



SE

S

SW

Date and Time

Date and Time

Julian Day

2025-12-26

17:24:15

Saturn

- On December 31st, Saturn sets at 11:07 p.m. in the western evening sky.

Saturn

Type: **planet**
Magnitude: **1.01** (reduced to **5.65** by **36.82** Airmasses)
Absolute Magnitude: -8.88
Mean Opposition Magnitude: 0.67
Color Index (B-V): **1.22**
RA/Dec (J2000.0): 23h48m13.84s/-3°44'08.3"
RA/Dec (on date): 23h49m34.26s/-3°35'26.1"
HA/Dec: 5h46m27.72s/-3°13'09.2" (apparent)
Az./Alt.: +265°20'00.1"/+0°10'11.5" (apparent)
Gal. long./lat.: +87°21'07.5"/-62°09'31.1"
Supergal. long./lat.: +288°05'50.1"/+14°58'18.2"
Ecl. long./lat. (J2000.0): +355°48'55.8"/-2°15'29.3"
Ecl. long./lat. (on date): +356°10'49.6"/-2°15'29.7"
Ecliptic obliquity (on date): +23°26'09.2"
Mean Sidereal Time: 5h37m32.9s
Apparent Sidereal Time: 5h37m33.2s
Rise: 11h32m
Transit: 17h20m
Set: 23h09m
Parallactic Angle: +45°35'52.2"
IAU Constellation: Aqr
Zodiac: ♏ 27°23'
Hourly motion: +0°00'09" towards 63.3°
Hourly motion: $d\alpha$ =+0°00'08" $d\delta$ =+0°00'04"
Elongation: 75°26'35.0"
Elong. in Ecl.Long.: E75°25'53"
Phase angle: +5°44'19.8"
Illuminated: 99.7%
Distance from Sun: 9.518 AU (1423.946 M km)
Distance: 9.718 AU (1453.784 M km)
Light time: 1h20m49.3s
Orbital velocity: 9.669 km/s
Sidereal period: 10760.00 days (29.459 a)
Synodic period: 378.09 days (1.035 a)
Apparent diameter: +0°00'17.10", with rings: +0°00'39.84"
Equatorial diameter: 120536.0 km
Sidereal day: 10h39m22.4s
Mean solar day: 10h39m24.0s
Equatorial rotation velocity: 9.871 km/s
Position Angle of axis: +4°26'29"
Center point: L_{IIIc} =+156°35'54" ϕ_c : -0°58'03"
Subsolar point: L_{IIIb} =+151°29'24" ϕ_s : -3°36'58"
Albedo: 0.50
Solar Az./Alt.: +320°40'12"/-64°24'35"
Lunar Az./Alt.: +224°58'07"/+67°07'22"



Date and Time

Date and Time					Julian Day				
2025	–	12	–	31	23	:	7	:	29

Saturn

- On December 31st, Saturn is well placed in the southern sky at sunset.

Saturn

Type: **planet**
Magnitude: **1.01** (reduced to **1.20** by **1.49** Airmasses)
Absolute Magnitude: -8.88
Mean Opposition Magnitude: 0.67
Color Index (B-V): **1.22**
RA/Dec (J2000.0): 23h48m10.91s/-3°44'30.7"
RA/Dec (on date): 23h49m31.33s/-3°35'48.5"
HA/Dec: 0h06m17.91s/-3°34'42.1" (apparent)
Az./Alt.: +182°07'05.9"/+42°06'02.4" (apparent)
Gal. long./lat.: +87°19'22.3"/-62°09'27.4"
Supergal. long./lat.: +288°05'14.5"/+14°58'53.4"
Ecl. long./lat. (J2000.0): +355°48'06.6"/-2°15'32.4"
Ecl. long./lat. (on date): +356°10'00.4"/-2°15'32.8"
Ecliptic obliquity (on date): +23°26'09.2"
Mean Sidereal Time: 23h55m49.0s
Apparent Sidereal Time: 23h55m49.4s
Rise: 11h32m
Transit: 17h20m
Set: 23h09m
Parallactic Angle: +1°31'07.9"
IAU Constellation: Aqr
Zodiac: ♏ 27°22'
Hourly motion: +0°00'09" towards 62.9°
Hourly motion: dα=+0°00'08" dδ=+0°00'04"
Elongation: 75°40'17.6"
Elong. in Ecl.Long.: E75°39'36"
Phase angle: +5°44'40.4"
Illuminated: 99.7%
Distance from Sun: 9.519 AU (1423.957 M km)
Distance: 9.714 AU (1453.211 M km)
Light time: 1h20m47.4s
Orbital velocity: 9.669 km/s
Sidereal period: 10760.00 days (29.459 a)
Synodic period: 378.09 days (1.035 a)
Apparent diameter: +0°00'17.11", with rings: +0°00'39.85"
Equatorial diameter: 120536.0 km
Sidereal day: 10h39m22.4s
Mean solar day: 10h39m24.0s
Equatorial rotation velocity: 9.871 km/s
Position Angle of axis: +4°26'32"
Center point: L_{IIIc}=+324°43'26" φ_c: -0°57'37"
Subsolar point: L_{IIIb}=+319°36'38" φ_s: -3°36'45"
Albedo: 0.50
Solar Az./Alt.: +245°00'58"/-7°31'20"
Lunar Az./Alt.: +87°06'24"/+35°25'45"



Date and Time

Date and Time

Julian Day

2025-12-31

17:26:41

URANUS

Uranus

- On December 1st, Uranus sets at 6:41 a.m. just before sunrise in the western sky.
- Uranus is less than 3 degrees southeast of M45 – The Pleiades

Uranus

Type: **planet**
Magnitude: **5.62** (reduced to **10.07** by **34.96** Airmasses)
Absolute Magnitude: -7.19
Mean Opposition Magnitude: 5.52
Color Index (B-V): **0.74**
RA/Dec (J2000.0): 3h45m54.80s/+19°39'31.8"
RA/Dec (on date): 3h47m24.98s/+19°44'25.0"
HA/Dec: 7h21m59.21s/+20°07'08.5" (apparent)
Az./Alt.: +298°24'44.4"/+0°16'56.0" (apparent)
Gal. long./lat.: +169°43'18.6"/-26°57'30.9"
Supergal. long./lat.: +332°08'07.7"/-31°35'57.2"
Ecl. long./lat. (J2000.0): +58°39'47.8"/-0°12'28.7"
Ecl. long./lat. (on date): +59°01'34.7"/-0°12'10.6"
Ecliptic obliquity (on date): +23°26'09.3"
Mean Sidereal Time: 11h10m51.1s
Apparent Sidereal Time: 11h10m51.4s
Rise: 15h51m
Transit: 23h15m
Set: 6h44m
Parallactic Angle: +42°05'50.0"
IAU Constellation: Tau
Zodiac: ♉ 26°51'
Hourly motion: +0°00'06" towards 258.1°
Hourly motion: dα=-0°00'06" dδ=-0°00'01"
Elongation: 169°28'59.0"
Elong. in Ecl.Long.: E169°29'06"
Phase angle: +0°31'44.3"
Illuminated: 100.0%
Distance from Sun: 19.496 AU (2916.492 M km)
Distance: 18.525 AU (2771.333 M km)
Light time: 2h34m04.2s
Orbital velocity: 6.709 km/s
Sidereal period: 30685.00 days (84.011 a)
Synodic period: 369.66 days (1.012 a)
Apparent diameter: +0°00'03.80", with rings: +0°00'14.54"
Equatorial diameter: 51118.0 km
Sidereal day: 17h14m24.0s
Mean solar day: 17h14m22.5s
Equatorial rotation velocity: 2587.521 m/s
Position Angle of axis: +279°33'01"
Center point: L_☉=+247°24'19" φ_☉: +69°38'56"
Subsolar point: L_☉=+248°01'06" φ_☉: +70°08'02"
Albedo: 0.66
Discovered: 17 March 1781 (W. Herschel)
Solar Az./Alt.: +112°26'08"/-8°26'25"
Lunar Az./Alt.: +325°54'12"/-29°25'37"



Date and Time

Date and Time

Julian Day

2025

-

12

-

1

6

:

41

:

46

Uranus

- On December 1st, Uranus is well placed in the eastern sky at sunset.
- Uranus is less than 3 degrees southwest of M45

Uranus

Type: **planet**
Magnitude: **5.63** (reduced to **8.84** by **24.52** Airmasses)
Absolute Magnitude: -7.19
Mean Opposition Magnitude: 5.52
Color Index (B-V): **0.74**
RA/Dec (J2000.0): 3h50m56.84s/+19°54'59.3"
RA/Dec (on date): 3h52m26.98s/+19°59'42.5"
HA/Dec: 16h43m06.03s/+20°16'17.7" (apparent)
Az./Alt.: +62°22'03.8"/+1°11'54.8" (apparent)
Gal. long./lat.: +170°28'30.1"/-25°57'05.8"
Supergal. long./lat.: +333°10'28.2"/-32°25'53.1"
Ecl. long./lat. (J2000.0): +59°52'30.6"/-0°12'44.1"
Ecl. long./lat. (on date): +60°14'12.7"/-0°12'25.2"
Ecliptic obliquity (on date): +23°26'09.3"
Mean Sidereal Time: 20h34m28.1s
Apparent Sidereal Time: 20h34m28.3s
Rise: 18h53m
Transit: 2h23m
Set: 9h48m
Parallactic Angle: -42°31'34.4"
IAU Constellation: Tau
Zodiac: ♉ 28°6'
Hourly motion: +0°00'06" towards 258.9°
Hourly motion: dα=-0°00'06" dδ=-0°00'01"
Elongation: 159°32'53.3"
Elong. in Ecl.Long.: W159°32'57"
Phase angle: +1°01'07.9"
Illuminated: 100.0%
Distance from Sun: 19.501 AU (2917.269 M km)
Distance: 18.568 AU (2777.710 M km)
Light time: 2h34m25.4s
Orbital velocity: 6.707 km/s
Sidereal period: 30685.00 days (84.011 a)
Synodic period: 369.66 days (1.012 a)
Apparent diameter: +0°00'03.80", with rings: +0°00'14.51"
Equatorial diameter: 51118.0 km
Sidereal day: 17h14m24.0s
Mean solar day: 17h14m22.5s
Equatorial rotation velocity: 2587.521 m/s
Position Angle of axis: +281°16'08"
Center point: L_z=+210°38'41" φ_z: +70°46'04"
Subsolar point: L_s=+209°29'56" φ_s: +69°49'31"
Albedo: 0.66
Discovered: 17 March 1781 (W. Herschel)
Solar Az./Alt.: +260°09'54"/-11°06'46"
Lunar Az./Alt.: +129°57'12"/+28°08'43"



Date and Time

Date and Time

Julian Day

2025-11-01

19:01:48

Uranus

- On December 31st , Uranus sets at 4:39 a.m. in the western sky.
- On the same night, the Moon and M45 share a close conjunction.

Uranus

Type: **planet**
Magnitude: **5.66** (reduced to **10.45** by **38.22** Airmasses)
Absolute Magnitude: -7.19
Mean Opposition Magnitude: 5.52
Color Index (B-V): **0.74**
RA/Dec (J2000.0): 3h41m29.82s/+19°25'42.0"
RA/Dec (on date): 3h43m00.15s/+19°30'44.5"
HA/Dec: 7h22m14.86s/+19°55'04.6" (apparent)
Az./Alt.: +298°19'22.9"/+0°05'30.8" (apparent)
Gal. long./lat.: +169°02'42.8"/-27°50'19.7"
Supergal. long./lat.: +331°14'23.3"/-30°51'29.5"
Ecl. long./lat. (J2000.0): +57°35'51.5"/-0°12'03.0"
Ecl. long./lat. (on date): +57°57'44.3"/-0°11'45.3"
Ecliptic obliquity (on date): +23°26'09.2"
Mean Sidereal Time: 11h06m47.8s
Apparent Sidereal Time: 11h06m48.1s
Rise: 13h50m
Transit: 21h13m
Set: 4h40m
Parallactic Angle: +42°04'28.6"
IAU Constellation: Tau
Zodiac: ♉ 25°45'
Hourly motion: +0°00'04" towards 257.9°
Hourly motion: dα=-0°00'04" dδ=-0°00'01"
Elongation: 137°59'40.9"
Elong. in Ecl.Long.: E137°59'42"
Phase angle: +1°56'05.6"
Illuminated: 100.0%
Distance from Sun: 19.490 AU (2915.703 M km)
Distance: 18.748 AU (2804.727 M km)
Light time: 2h35m55.6s
Orbital velocity: 6.710 km/s
Sidereal period: 30685.00 days (84.011 a)
Synodic period: 369.66 days (1.012 a)
Apparent diameter: +0°00'03.76", with rings: +0°00'14.37"
Equatorial diameter: 51118.0 km
Sidereal day: 17h14m24.0s
Mean solar day: 17h14m22.5s
Equatorial rotation velocity: 2587.521 m/s
Position Angle of axis: +278°10'02"
Center point: L_c=+118°39'56" φ_c: +68°39'21"
Subsolar point: L_s=+120°45'59" φ_s: +70°26'44"
Albedo: 0.66
Discovered: 17 March 1781 (W. Herschel)
Solar Az./Alt.: +91°11'55"/-32°53'04"
Lunar Az./Alt.: +302°37'06"/+1°40'34"



Date and Time

Julian Day

2025-12-31

4:39:46

Uranus

- On December 31st, Uranus is well placed in the eastern sky at sunset.
- The moon also shares a close conjunction with M45 and Uranus at sunset.

Uranus

Type: **planet**
Magnitude: **5.66** (reduced to **5.87** by **1.64** Airmasses)
Absolute Magnitude: -7.19
Mean Opposition Magnitude: 5.52
Color Index (B-V): **0.74**
RA/Dec (J2000.0): 3h41m26.19s/+19°25'30.6"
RA/Dec (on date): 3h42m56.53s/+19°30'33.2"
HA/Dec: 20h15m51.12s/+19°31'24.7" (apparent)
Az./Alt.: +99°20'21.9"/+37°36'25.9" (apparent)
Gal. long./lat.: +169°02'08.9"/-27°51'03.1"
Supergal. long./lat.: +331°13'39.5"/-30°50'52.6"
Ecl. long./lat. (J2000.0): +57°34'58.8"/-0°12'02.5"
Ecl. long./lat. (on date): +57°56'51.8"/-0°11'44.8"
Ecliptic obliquity (on date): +23°26'09.2"
Mean Sidereal Time: 23h58m43.2s
Apparent Sidereal Time: 23h58m43.5s
Rise: 13h50m
Transit: 21h13m
Set: 4h40m
Parallactic Angle: -48°31'42.5"
IAU Constellation: Tau
Zodiac: ♉ 25°44'
Hourly motion: +0°00'04" towards 258.8°
Hourly motion: $\text{d}\alpha = -0^{\circ}00'04"$ $\text{d}\delta = -0^{\circ}00'01"$
Elongation: 137°26'19.8"
Elong. in Ecl. long.: E137°26'21"
Phase angle: +1°57'20.2"
Illuminated: 100.0%
Distance from Sun: 19.490 AU (2915.689 M km)
Distance: 18.755 AU (2805.640 M km)
Light time: 2h35m58.6s
Orbital velocity: 6.710 km/s
Sidereal period: 30685.00 days (84.01 ~~Jupiter~~ years)
Synodic period: 369.66 days (1.012 a)
Apparent diameter: +0°00'03.76", with rings: +0°00'14.37"
Equatorial diameter: 51118.0 km
Sidereal day: 17h14m24.0s
Mean solar day: 17h14m22.5s
Equatorial rotation velocity: 2587.521 m/s
Position Angle of axis: +278°08'56"
Center point: $L_{\text{c}} = +26^{\circ}34'06"$ $\phi_{\text{c}} = +68^{\circ}38'32"$
Subsolar point: $L_{\text{s}} = +28^{\circ}41'27"$ $\phi_{\text{s}} = +70^{\circ}27'04"$
Albedo: 0.66
Discovered: 17 March 1781 (W. Herschel)
Solar Az./Alt.: +245°29'31"/-7°59'33"
Lunar Az./Alt.: +87°34'04"/+35°55'58"

Date and Time

Date and Time

Julian Day

2025-12-31

17:29:35

NEPTUNE

Neptune

- On December 1st, Neptune sets at 1:28 a.m. in the western sky.
- Neptune is 2.50 degrees west of Saturn. Use Saturn as a guide post.

Neptune

Type: **planet**
Magnitude: **7.74** (reduced to **12.43** by **37.20** Airmasses)
Absolute Magnitude: -6.87
Mean Opposition Magnitude: 7.84
RA/Dec (J2000.0): 23h58m36.22s/-1°37'31.8"
RA/Dec (on date): 23h59m56.14s/-1°28'51.1"
HA/Dec: 5h54m50.94s/-1°06'25.7" (apparent)
Az./Alt.: +268°18'29.8"/+0°08'53.5" (apparent)
Gal. long./lat.: +94°18'26.5"/-61°31'31.7"
Supergal. long./lat.: +290°57'21.3"/+13°06'30.0"
Ecl. long./lat. (J2000.0): +359°01'59.0"/-1°21'09.0"
Ecl. long./lat. (on date): +359°23'46.3"/-1°21'08.2"
Ecliptic obliquity (on date): +23°26'09.3"
Mean Sidereal Time: 5h56m18.8s
Apparent Sidereal Time: 5h56m19.0s
Rise: 13h32m
Transit: 19h29m
Set: 1h29m
Parallactic Angle: +45°41'06.9"
IAU Constellation: Psc
Zodiac: ♏ 29°59'
Hourly motion: +0°00'01" towards 253.6°
Hourly motion: dα=-0°00'01" dδ=-0°00'00"
Elongation: 110°04'15.4"
Elong. in Ecl.Long.: E110°04'36"
Phase angle: +1°46'33.8"
Illuminated: 100.0%
Distance from Sun: 29.886 AU (4470.812 M km)
Distance: 29.533 AU (4418.036 M km)
Light time: 4h05m37.0s
Orbital velocity: 5.470 km/s
Sidereal period: 60189.00 days (164.789 a)
Synodic period: 367.49 days (1.006 a)
Apparent diameter: +0°00'02.31", with rings: +0°00'05.88"
Equatorial diameter: 49528.0 km
Sidereal day: 16h06m36.0s
Mean solar day: 16h06m36.6s
Equatorial rotation velocity: 2.683 km/s
Position Angle of axis: +317°27'11"
Center point: L_☉=+349°51'40" φ_☉: -20°10'19"
Subsolar point: L_☉=+348°04'28" φ_☉: -19°35'45"
Albedo: 0.62
Discovered: 23 September 1846 (J.G. Galle)
Solar Az./Alt.: +45°11'34"/-61°25'41"
Lunar Az./Alt.: +265°40'08"/+16°55'38"

Neptune

Date and Time

Date and Time

Julian Day

2025-12-01

1:23:05

Neptune

- On December 1st, Neptune is well placed in the southeastern sky at sunset.
- The planet Saturn is 2.50 degrees west of Neptune and can be used as a guidepost to find the planet.

Neptune

Type: **planet**
Magnitude: **7.74** (reduced to **7.96** by **1.69** Airmasses)
Absolute Magnitude: -6.87
Mean Opposition Magnitude: 7.84
RA/Dec (J2000.0): 23h58m35.47s/-1°37'35.2"
RA/Dec (on date): 23h59m55.40s/-1°28'54.4"
HA/Dec: 21h53m32.66s/-1°27'42.1" (apparent)
Az./Alt.: +139°28'00.9"/+36°15'40.6" (apparent)
Gal. long./lat.: +94°18'02.2"/-61°31'30.0"
Supergal. long./lat.: +290°57'14.7"/+13°06'39.8"
Ecl. long./lat. (J2000.0): +359°01'47.3"/-1°21'07.6"
Ecl. long./lat. (on date): +359°23'34.7"/-1°21'06.8"
Ecliptic obliquity (on date): +23°26'09.3"
Mean Sidereal Time: 21h53m25.3s
Apparent Sidereal Time: 21h53m25.5s
Rise: 13h32m
Transit: 19h29m
Set: 1h29m
Parallactic Angle: -27°43'39.7"
IAU Constellation: Psc
Zodiac: ♏ 29°58'
Hourly motion: +0°00'01" towards 254.9°
Hourly motion: dα=-0°00'01" dδ=-0°00'00"
Elongation: 109°23'54.8"
Elong. in Ecl.Long.: E109°24'15"
Phase angle: +1°46'59.8"
Illuminated: 100.0%
Distance from Sun: 29.886 AU (4470.809 M km)
Distance: 29.544 AU (4419.653 M km)
Light time: 4h05m42.4s
Orbital velocity: 5.470 km/s
Sidereal period: 60189.00 days (164.789 a)
Synodic period: 367.49 days (1.006 a)
Apparent diameter: +0°00'02.31", with rings: +0°00'05.87"
Equatorial diameter: 49528.0 km
Sidereal day: 16h06m36.0s
Mean solar day: 16h06m36.6s
Equatorial rotation velocity: 2.683 km/s
Position Angle of axis: +317°27'15"
Center point: L_s=+345°21'22" φ_c:-20°10'24"
Subsolar point: L_s=+343°33'45" φ_s:-19°35'40"
Albedo: 0.62
Discovered: 23 September 1846 (J.G. Galle)
Solar Az./Alt.: +247°25'01"/-8°23'14"
Lunar Az./Alt.: +105°08'50"/+33°08'34"



Saturn

SE

S

Date and Time

Date and Time

Julian Day

2025-12-01

17:22:35

Neptune

- On December 31st, Neptune sets at 11:27 p.m. in the western sky.

Neptune

Type: **planet**
Magnitude: **7.78** (reduced to **12.58** by **38.26** Airmasses)
Absolute Magnitude: -6.87
Mean Opposition Magnitude: 7.84
RA/Dec (J2000.0): 23h58m59.36s/-1°33'42.6"
RA/Dec (on date): 0h00m19.66s/-1°24'59.4"
HA/Dec: 5h55m27.50s/-1°02'05.7" (apparent)
Az./Alt.: +268°27'58.9"/+0°05'22.7" (apparent)
Gal. long./lat.: +94°32'49.4"/-61°30'31.7"
Supergal. long./lat.: +291°02'48.2"/+13°02'02.5"
Ecl. long./lat. (J2000.0): +359°08'48.6"/-1°19'56.8"
Ecl. long./lat. (on date): +359°30'42.1"/-1°19'56.0"
Ecliptic obliquity (on date): +23°26'09.2"
Mean Sidereal Time: 5h57m20.7s
Apparent Sidereal Time: 5h57m21.0s
Rise: 11h35m
Transit: 17h31m
Set: 23h28m
Parallactic Angle: +45°41'18.3"
IAU Constellation: Psc
Zodiac: ♑ 0°4'
Hourly motion: +0°00'02" towards 63.6°
Hourly motion: dα=+0°00'02" dδ=+0°00'01"
Elongation: 78°45'06.3"
Elong. in Ecl.Long.: E78°44'55"
Phase angle: +1°50'58.0"
Illuminated: 100.0%
Distance from Sun: 29.885 AU (4470.693 M km)
Distance: 30.061 AU (4497.060 M km)
Light time: 4h10m00.6s
Orbital velocity: 5.469 km/s
Sidereal period: 60189.00 days (164.789 a)
Synodic period: 367.49 days (1.006 a)
Apparent diameter: +0°00'02.27", with rings: +0°00'05.77"
Equatorial diameter: 49528.0 km
Sidereal day: 16h06m36.0s
Mean solar day: 16h06m36.6s
Equatorial rotation velocity: 2.683 km/s
Position Angle of axis: +317°24'31"
Center point: L_s=+10°25'33" φ_c: -20°09'14"
Subsolar point: L_s=+8°34'31" φ_s: -19°31'46"
Albedo: 0.62
Discovered: 23 September 1846 (J.G. Galle)
Solar Az./Alt.: +330°29'16"/-66°24'29"
Lunar Az./Alt.: +233°20'30"/+64°32'56"



W

Date and Time

Date and Time

Julian Day

2025-12-31

23:27:14

Neptune

- On December 31st, Neptune is high in the southern sky at sunset.

Neptune

Type: **planet**
Magnitude: **7.78** (reduced to **7.97** by **1.43** Airmasses)
Absolute Magnitude: -6.87
Mean Opposition Magnitude: 7.84
RA/Dec (J2000.0): 23h58m58.74s/-1°33'47.4"
RA/Dec (on date): 0h00m19.03s/-1°25'04.2"
HA/Dec: 0h12m30.23s/-1°24'02.6" (apparent)
Az./Alt.: +184°21'43.7"/+44°12'50.3" (apparent)
Gal. long./lat.: +94°32'27.2"/-61°30'32.1"
Supergal. long./lat.: +291°02'40.7"/+13°02'10.2"
Ecl. long./lat. (J2000.0): +359°08'38.1"/-1°19'57.4"
Ecl. long./lat. (on date): +359°30'31.5"/-1°19'56.6"
Ecliptic obliquity (on date): +23°26'09.2"
Mean Sidereal Time: 0h12m49.2s
Apparent Sidereal Time: 0h12m49.5s
Rise: 11h35m
Transit: 17h31m
Set: 23h28m
Parallactic Angle: +3°07'17.0"
IAU Constellation: Psc
Zodiac: ♑ 0°4'
Hourly motion: +0°00'02" towards 62.9°
Hourly motion: $\dot{\alpha}$ =+0°00'02" $\dot{\delta}$ =+0°00'01"
Elongation: 78°59'35.7"
Elong. in Ecl.Long.: E78°59'24"
Phase angle: +1°51'03.3"
Illuminated: 100.0%
Distance from Sun: 29.885 AU (4470.694 M km)
Distance: 30.057 AU (4496.448 M km)
Light time: 4h09m58.5s
Orbital velocity: 5.469 km/s
Sidereal period: 60189.00 days (164.789 a)
Synodic period: 367.49 days (1.006 a)
Apparent diameter: +0°00'02.27", with rings: +0°00'05.77"
Equatorial diameter: 49528.0 km
Sidereal day: 16h06m36.0s
Mean solar day: 16h06m36.6s
Equatorial rotation velocity: 2.683 km/s
Position Angle of axis: +317°24'35"
Center point: L_{\odot} =+242°27'52" ϕ_{\odot} :-20°09'17"
Subsolar point: L_{\odot} =+240°36'44" ϕ_{\odot} :-19°31'48"
Albedo: 0.62
Discovered: 23 September 1846 (J.G. Galle)
Solar Az./Alt.: +247°47'12"/-10°18'02"
Lunar Az./Alt.: +89°50'54"/+38°22'53"



Date and Time

Date and Time

Julian Day

2025-12-31

17:43:38

DEEP SKY

COMET UPDATE

COMET 31/ATLAS

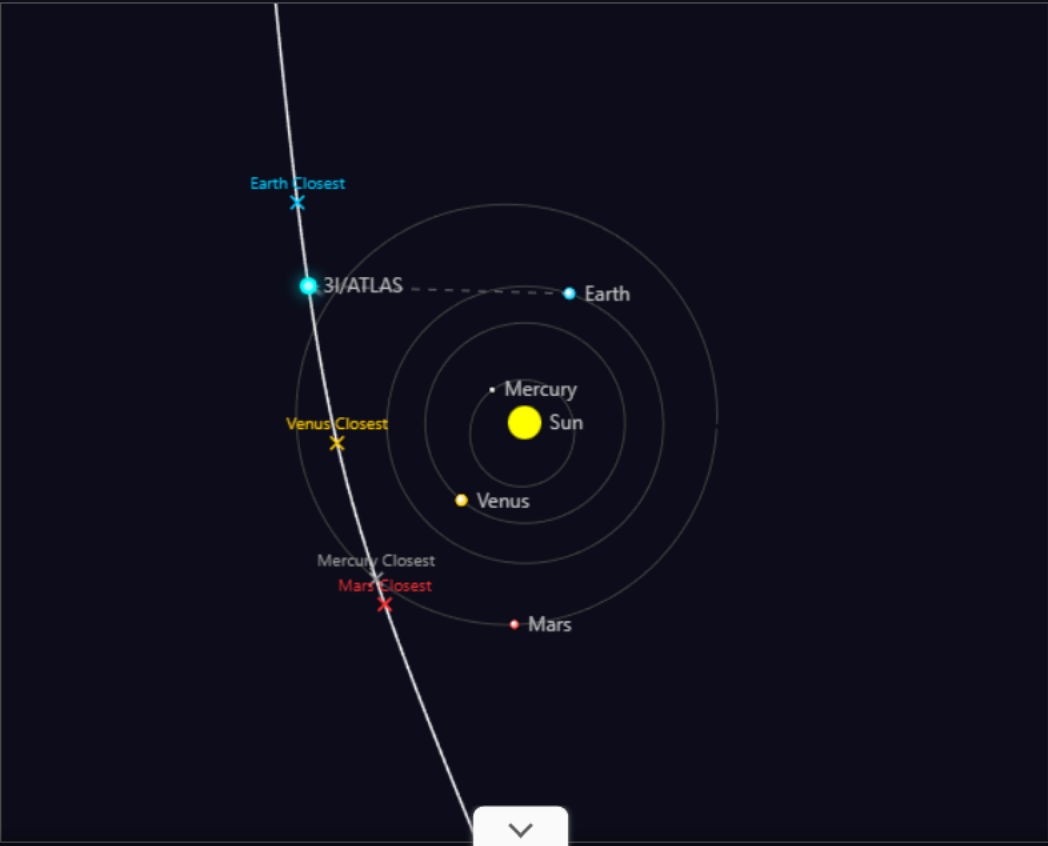
31/ATLAS Tracker

2D Tracker 3D Tracker About & Theories Origin Story What If?

View

Change your perspective. Pan by dragging and zoom with your scroll wheel or by pinching.

Focus On



Flight Notes

Visual cues and quick jumps to important moments in the comet's journey.

Cyan glow on comet means it's above the ecliptic plane.
Purple glow means below.

The colored 'X' markers show the comet's closest approach to each planet.

Key Events

Neptune Closest
01/01/2025 - 2,674,816,842 mi
Saturn Closest
05/28/2025 - 923,178,372 mi
Mars Closest
10/03/2025 - 18,145,265 mi
Mercury Closest
08/2025 - 108,001,748 mi
Venus Closest
02/2025 - 69,370,876 mi

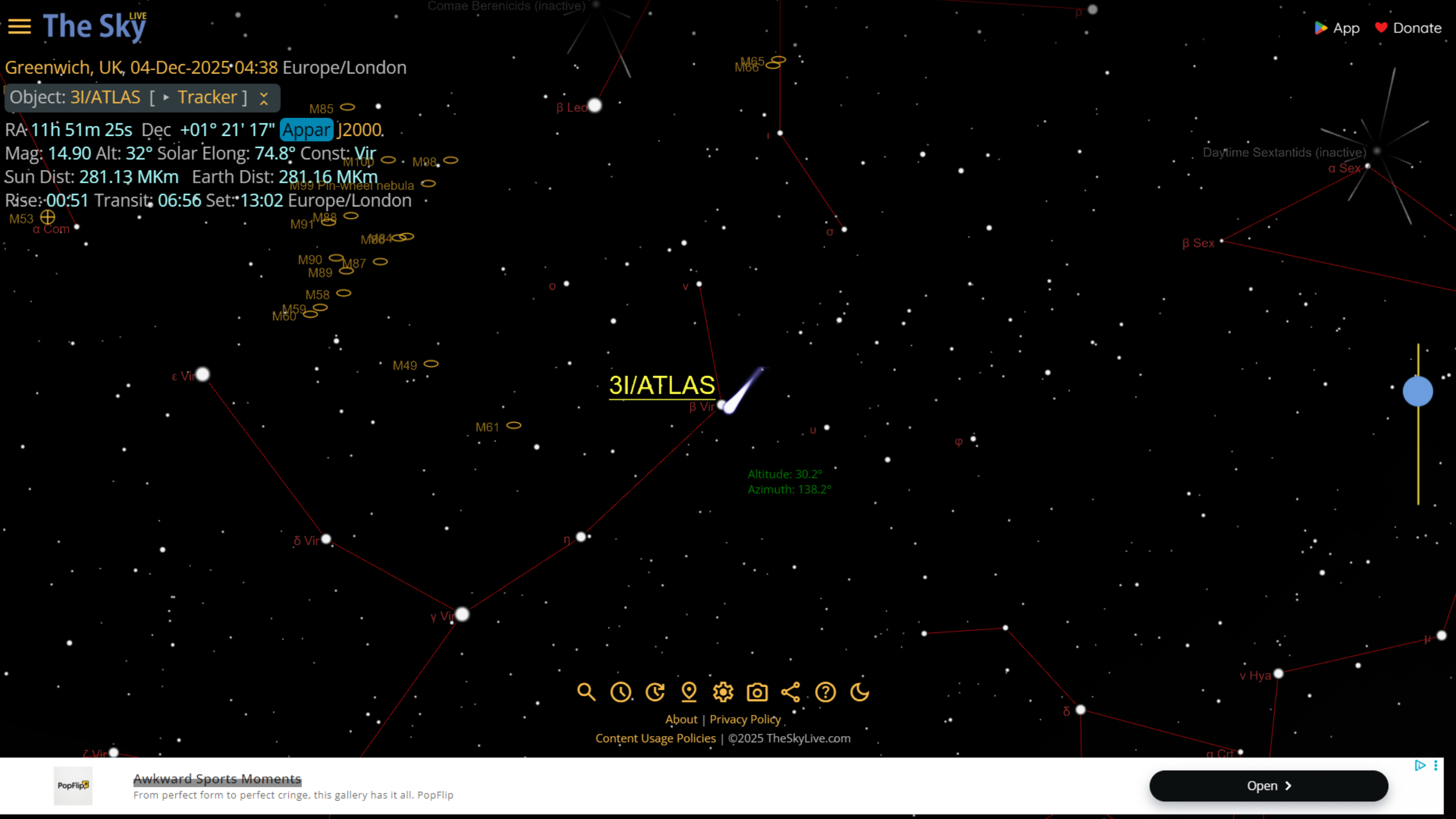
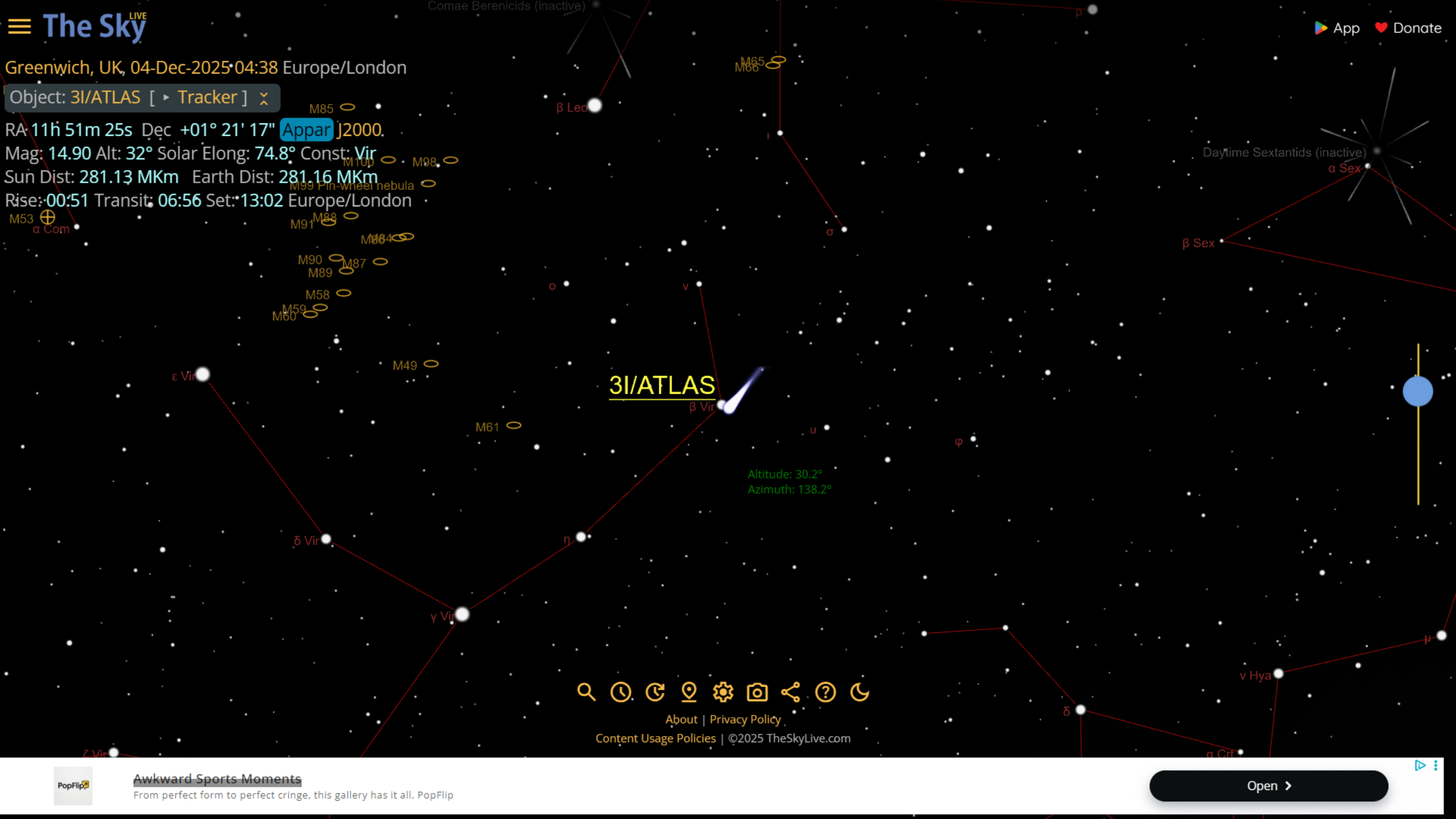
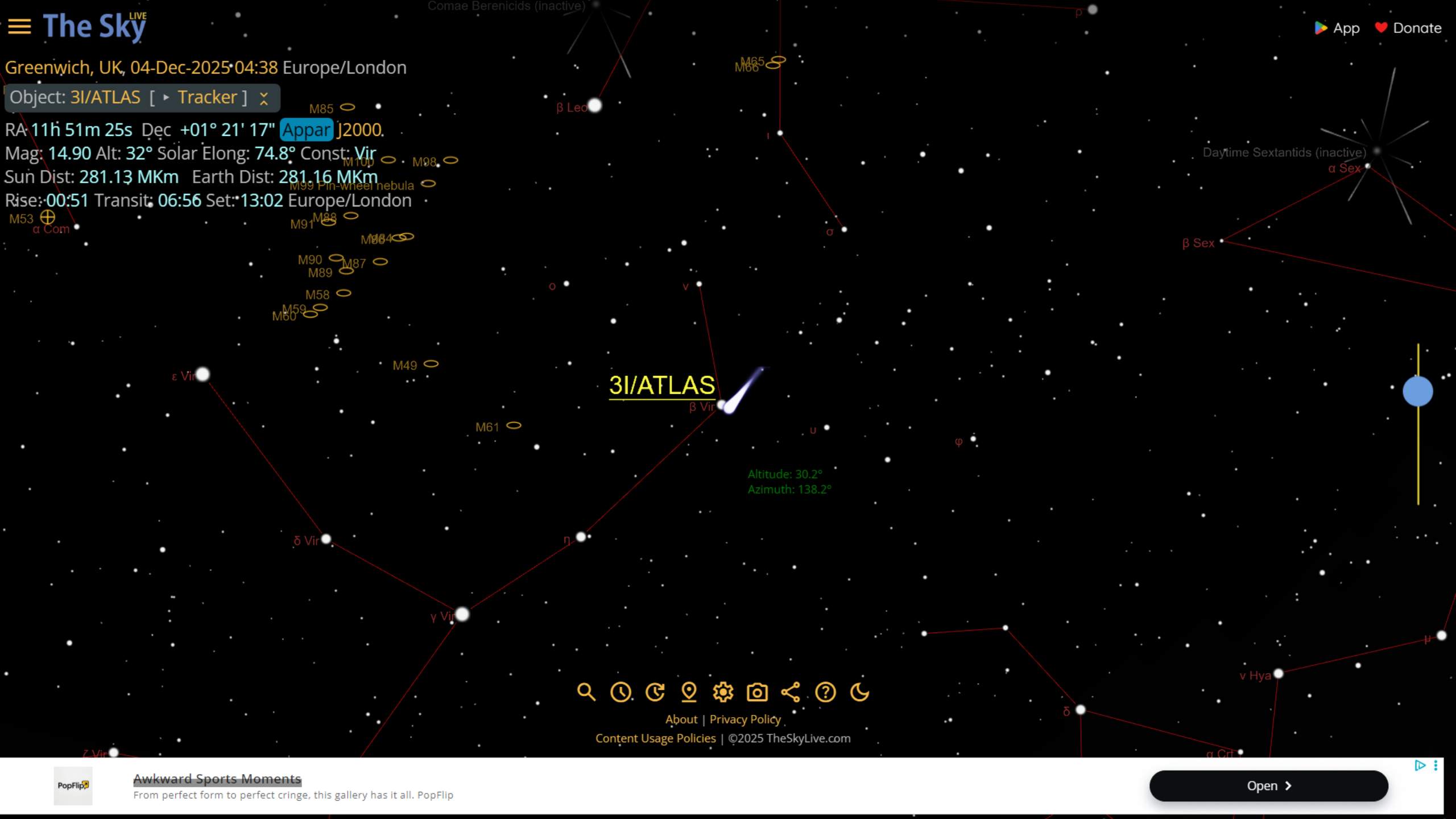
Proximity to 31/ATLAS

A live-updating list of the planets currently closest to the comet.



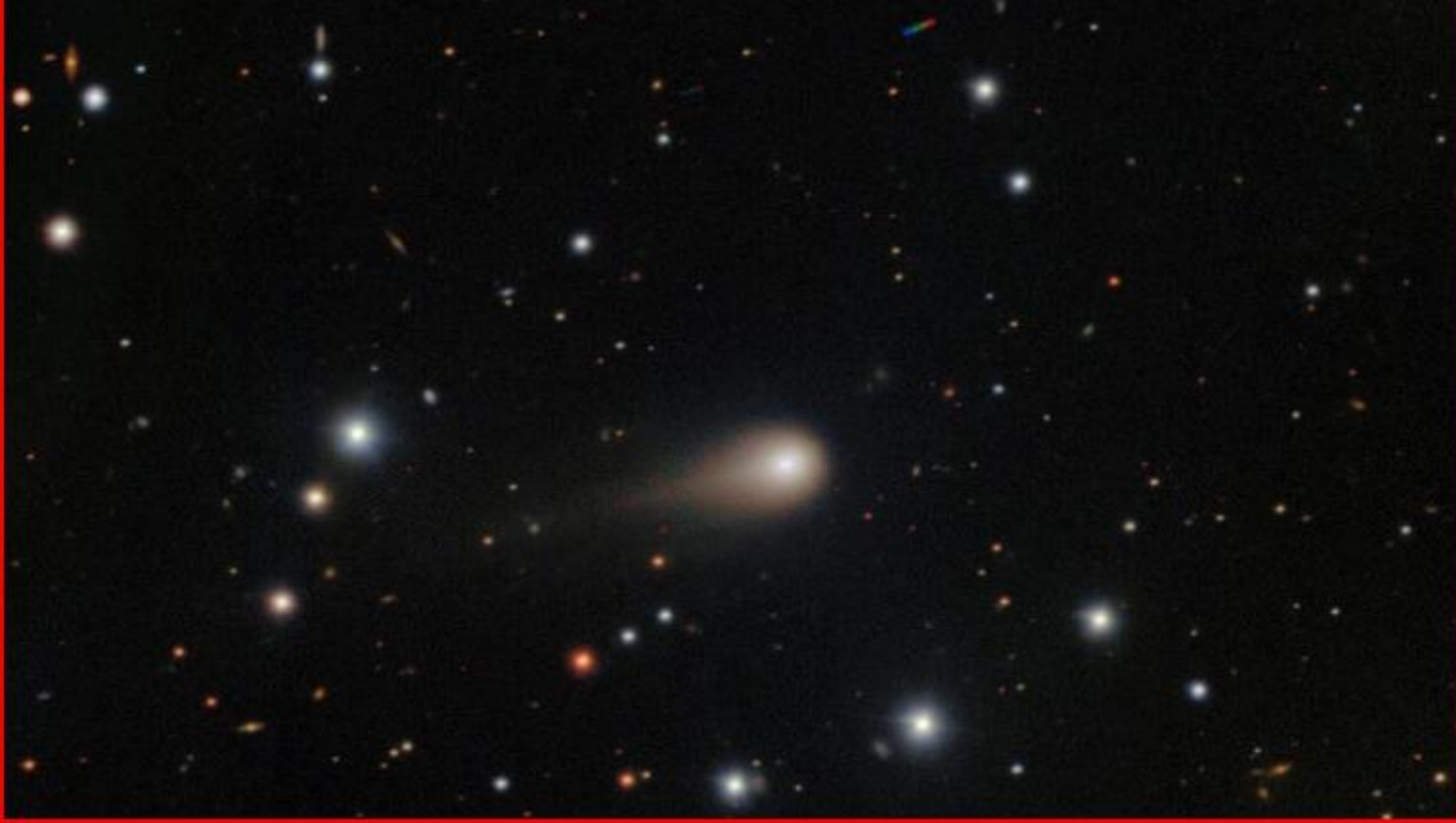
COMET 31/ATLAS

- How to spot 31/ATLAS
- Timing: Best viewed in the early pre-dawn hours, from now through late December.
- Location: Look east-northeast low on the horizon, just below Regulus, the bright white star marking the heart of Leo the Lion.
- Gear needed: A telescope with at least a 30-cm (12-inch) aperture is essential due to the comet's distance and faintness. Binoculars won't cut it for most viewers.



COMET 31/ATLAS

- Interstellar comet one time visit only. Closest approach to Earth on December 19th, 2025.
- Distance: 167 million miles from Earth near the orbit of Mars.
- Not visible to the naked eye, needs a telescope.
- Magnitude: +11 to +13 very dim.
- Constellation: Leo - Early morning to pre-dawn northeastern skies.
- Photo taken by NASA space probes near Mars.



That is the Sky this Month

By David Mills