Sky this Month

September 2026

By David Mills

SPECIAL EVENTS

NASA - VIEW THE MOON

NASA – VIEW THE MOON

- September 19th is International – View the Moon Day

AUTUMN EQUINOX

AUTUMN EQUINOX

- September 22, 2026, at 8:06 p.m. EDT, the sun crosses the Earth's equator.
- At 6:50 p.m. the last sunset of summer will take place.
- The first official day of Fall will be September 23, 2026.

MOON

NEW MOON

New Moon

- The New Moon is on September 10th , at 11:00 p.m.
- This month's moon is the New Harvest Moon.
- The Moon is directly below the sun.

Moon

Type: **moon**
Magnitude: **-3.04**
Absolute Magnitude: 0.21
Mean Opposition Magnitude: -12.74
RA/Dec (J2000.0): 11h11m12.16s/+2°34'58.2"
RA/Dec (on date): 11h12m35.16s/+2°26'13.2"
HA/Dec: 9h57m34.65s/+2°26'13.2"
Az./Alt.: +321°07'38.2"/-35°51'19.9"
Gal. long./lat.: +254°17'40.2"/+55°41'04.3"
Supergal. long./lat.: +106°14'31.5"/-24°07'15.6"
Ecl. long./lat. (J2000.0): +167°46'20.3"/-2°26'34.7"
Ecl. long./lat. (on date): +168°08'51.1"/-2°26'31.4"
Ecliptic obliquity (on date): +23°26'08.9"
Mean Sidereal Time: 21h10m09.3s
Apparent Sidereal Time: 21h10m09.8s
Rise: 6h08m
Transit: 12h47m
Set: 19h12m
Parallactic Angle: +26°42'57.7"
IAU Constellation: Leo
Zodiac: ♍ 18°8'
Hourly motion: +0°42'37" towards 112.3°
Hourly motion: dα=+0°39'27" dδ=-0°16'12"
Elongation: 2°27'20.7"
Elong. in Ecl.Long.: W0°16'23"
Phase angle: +177°32'16.9"
Illuminated: 0.0%
Distance from Sun: 1.004 AU (150.244 M km)
Distance: 0.002542 AU (380293.219 km)
Light time: 0h00m01.3s
Orbital velocity: 1.048 km/s
Heliocentric velocity: 28.541 km/s
Sidereal period: 27.32 days (0.075 a)
Synodic period: 29.53 days (0.081 a)
Apparent diameter: +0°31'24.66"
Diameter: 3474.8 km
Sidereal day: 655h43m11.6s
Mean solar day: 708h44m02.9s
Equatorial rotation velocity: 4.624 m/s
Moon age: 29.5 days old (New Moon)
Position angle of bright limb: +29°19'24"
Position Angle of axis: +21°30'19"
Libration: +5°21'57" towards +114°12'04" (WNW!!)
Libration: +4°53'39"/+2°11'59"
Subsolar point: -174°50'38"/-0°32'27"
Colongitude: +264°50'38"
Albedo: 0.12
Solar Az./Alt.: +320°59'37"/-33°24'06"

Date and Time

Date and Time | Julian Day

2026 – 9 – 10 | 23 : 2 : 47

Full-screen mode [F11]

Earth, Peterborough, 188 m | FOV 30.8° | 18.85 FPS | 2026-09-10 23:02:48 UTC-04:00

Moon

- The planets Mercury, Venus and Saturn are east of the sun.
- All 3 planets are now visible in the evening sky.

- Jupiter and Mars are west of the sun. Both rise in the early morning sky.

Moon
Type: moon
Magnitude: -3.04
Absolute Magnitude: 0.21
Mean Opposition Magnitude: -12.74
RA/Dec (J2000.0): 11h11m18.87s/+2°34'17.1"
RA/Dec (on date): 11h12m41.87s/+2°25'32.1"
HA/Dec: 10h00m01.14s/+2°25'32.1"
Az./Alt.: +321°47'43.7"/-36°08'14.5"
Gal. long./lat.: +254°20'41.6"/+55°41'40.9"
Supergal. long./lat.: +106°15'49.2"/-24°05'53.3"
Ecl. long./lat. (J2000.0): +167°48'09.1"/-2°26'33.4"
Ecl. long./lat. (on date): +168°10'39.9"/-2°26'30.1"
Ecliptic obliquity (on date): +23°26'08.9"
Mean Sidereal Time: 21h12m42.5s
Apparent Sidereal Time: 21h12m43.0s
Rise: 6h08m
Transit: 12h47m
Set: 19h12m
Parallactic Angle: +26°17'50.7"
IAU Constellation: Leo
Zodiac: ♍ 18°10'
Hourly motion: +0°42'39" towards 112.3°
Hourly motion: dα=+0°39'30" dδ=-0°16'11"
Elongation: 2°27'08.6"
Elong. in Ecl.Long.: W0°14'41"
Phase angle: +177°32'29.0"
Illuminated: 0.0%
Distance from Sun: 1.004 AU (150.244 M km)
Distance: 0.002542 AU (380325.823 km)
Light time: 0h00m01.3s
Orbital velocity: 1.048 km/s
Heliocentric velocity: 28.541 km/s
Sidereal period: 27.32 days (0.075 a)
Synodic period: 29.53 days (0.081 a)
Apparent diameter: +0°31'24.50"
Diameter: 3474.8 km
Sidereal day: 655h43m11.6s
Mean solar day: 708h44m02.9s
Equatorial rotation velocity: 4.624 m/s
Moon age: 29.5 days old (New Moon)
Position angle of bright limb: +28°39'56"
Position Angle of axis: +21°30'26"
Libration: +5°22'04" towards +114°13'25" (WNW!!)
Libration: +4°53'42"/+2°12'08"
Subsolar point: -174°51'56"/-0°32'28"
Colongitude: +264°51'56"
Albedo: 0.12
Solar Az./Alt.: +321°40'26"/-33°41'13"
Arcturus
NW
N
N
Castor
Pollux
Mercury
Sun
Moon
Spica
Regulus
Venus
Jupiter
Mars
Procyon
Date and Time
Date and Time
Julian Day
2026 - 9 - 10
23 : 5 : 20
Full-screen mode [F11]
*Earth, Peterborough, 188 m
FOV 83.7°
59.98 FPS
2026-09-10 23:05:20 UTC-04:00

FULL MOON

Full Moon

- The full Moon is on September 26th, at 12:49 p.m.
- Moonrise is at 6:48 p.m. in the eastern evening twilight sky.
- This month's full moon is the Harvest Moon.

Moon

Type: **moon**
Magnitude: **-12.83** (reduced to **-8.51** by **33.82** Airmasses)
Absolute Magnitude: 0.21
Mean Opposition Magnitude: -12.74
RA/Dec (J2000.0): 0h22m17.12s/+4°53'03.2"
RA/Dec (on date): 0h23m40.11s/+5°02'00.5"
HA/Dec: 17h40m54.69s/+5°22'53.9" (apparent)
Az./Alt.: +82°49'14.7"/+0°21'24.2" (apparent)
Gal. long./lat.: +109°25'49.9"/-57°13'16.8"
Supergal. long./lat.: +298°58'46.9"/+9°10'55.0"
Ecl. long./lat. (J2000.0): +7°02'55.6"/+2°16'18.2"
Ecl. long./lat. (on date): +7°25'27.8"/+2°16'22.0"
Ecliptic obliquity (on date): +23°26'08.9"
Mean Sidereal Time: 18h03m09.0s
Apparent Sidereal Time: 18h03m09.5s
Rise: 18h49m
Transit: 0h38m
Set: 6h58m
Parallactic Angle: -45°29'52.2"
IAU Constellation: Psc
Zodiac: ♈ 7°25'
Hourly motion: +0°35'31" towards 62.2°
Hourly motion: dα=+0°31'31" dδ=+0°16'38"
Elongation: 175°47'06.8"
Elong. in Ecl.Long.: W176°26'52"
Phase angle: +4°12'15.1"
Illuminated: 99.9%
Distance from Sun: 1.005 AU (150.343 M km)

Distance: 0.002530 AU (378428.412 km)
Light time: 0h00m01.3s
Orbital velocity: 1.044 km/s
Heliocentric velocity: 30.748 km/s
Sidereal period: 27.32 days (0.075 a)
Synodic period: 29.53 days (0.081 a)
Apparent diameter: +0°31'33.95"
Diameter: 3474.8 km
Sidereal day: 655h43m11.6s
Mean solar day: 708h44m02.9s
Equatorial rotation velocity: 4.624 m/s
Moon age: 15.0 days old (Waning Gibbous)
Position angle of bright limb: +34°07'45"
Position Angle of axis: +337°50'26"
Libration: +6°20'09" towards +310°24'57" (SE!!)
Libration: -4°49'26"/-4°06'28"
Subsolar point: -7°55'59"/-0°53'02"
Colongitude: +97°55'59"
Albedo: 0.12
Solar Az./Alt.: +266°58'00"/+1°16'01"

Date and Time

Date and Time | Julian Day

2026 – 9 – 26 | 18 : 53 : 23

Full-screen mode [F11]

Earth, Peterborough, 188 m | FOV 6.87° | 40.35 FPS | 2026-09-26 18:53:23 UTC-04:00

MERCURY

Mercury

- On September 7th, Mercury returns to evening sky.
- Mercury hovers at the western horizon all month. Mercury is not visible from our latitude. Lost in the solar glare.
- Anyone travelling to lower latitudes will be able to see it clearly.

Mercury

Type: **planet**
Magnitude: **-0.86** (reduced to **3.28** by **32.29** Airmasses)
Absolute Magnitude: -0.60
RA/Dec (J2000.0): 11h43m22.42s/+2°54'06.4"
RA/Dec (on date): 11h44m45.20s/+2°45'09.7"
HA/Dec: 6h09m27.86s/+3°05'12.9" (apparent)
Az./Alt.: +273°51'39.2"/+0°27'52.1" (apparent)
Gal. long./lat.: +266°06'46.6"/+60°48'41.1"
Supergal. long./lat.: +108°32'56.1"/-16°22'38.3"
Ecl. long./lat. (J2000.0): +175°02'02.0"/+1°00'41.1"
Ecl. long./lat. (on date): +175°24'33.8"/+1°00'41.7"
Ecliptic obliquity (on date): +23°26'08.9"
Mean Sidereal Time: 17h55m34.6s
Apparent Sidereal Time: 17h55m35.2s
Rise: 7h33m
Transit: 13h49m
Set: 20h04m
Parallactic Angle: +45°39'06.4"
IAU Constellation: Vir
Zodiac: ♍ 25°24'
Hourly motion: +0°04'22" towards 116.6°
Hourly motion: dα=+0°03'54" dδ=-0°01'57"
Elongation: 10°04'41.2"
Elong. in Ecl.Long.: E10°01'39"
Phase angle: +25°02'44.3"
Illuminated: 95.3%
Distance from Sun: 0.417 AU (62.309 M km)
Distance: 1.369 AU (204.864 M km)
Light time: 0h11m23.4s
Orbital velocity: 44.363 km/s
Sidereal period: 87.97 days (0.241 a)
Synodic period: 115.88 days (0.317 a)
Apparent diameter: +0°00'04.91"
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: +27°36'41"
Center point: L_e=+53°20'52" ϕ_e: +4°36'56"
Subsolar point: L_s=+28°42'14" ϕ_s: +0°00'18"
Albedo: 0.06
Solar Az./Alt.: +282°46'59"/-4°39'31"
Lunar Az./Alt.: +323°12'50"/-16°30'21"

Date and Time

Date and Time | Julian Day

2026 – 9 – 7 | 20 : 0 : 32

Full-screen mode [F11]

Earth, Peterborough, 188 m | FOV 6.87° | 20.71 FPS | 2026-09-07 20:00:33 UTC-04:00

VENUS

Venus

- On September 1st, Venus is low on the southwestern horizon at sunset.

Venus - Evening Star

Type: **planet**
Magnitude: **-4.63** (reduced to **-3.85** by **6.03** Airmasses)
Absolute Magnitude: -5.18
Color Index (B-V): **0.91**
RA/Dec (J2000.0): 13h22m01.44s/-12°25'43.5"
RA/Dec (on date): 13h23m26.69s/-12°34'09.7"
HA/Dec: 4h13m38.21s/-12°29'47.3" (apparent)
Az./Alt.: +242°12'41.8"/+9°18'08.0" (apparent)
Gal. long./lat.: +314°32'04.4"/+49°45'09.8"
Supergal. long./lat.: +130°15'15.1"/+2°59'43.2"
Ecl. long./lat. (J2000.0): +203°35'34.0"/-3°31'10.0"
Ecl. long./lat. (on date): +203°58'03.0"/-3°31'19.4"
Ecliptic obliquity (on date): +23°26'08.9"
Mean Sidereal Time: 17h37m19.6s
Apparent Sidereal Time: 17h37m20.2s
Rise: 10h39m
Transit: 15h52m
Set: 21h05m
Parallactic Angle: +40°25'47.9"
IAU Constellation: Vir
Zodiac: ♎ 23°58'
Hourly motion: +0°01'58" towards 120.6"
Hourly motion: dα=+0°01'43" dδ=-0°01'01"
Elongation: 44°30'30.4"
Elong. in Ecl.Long.: E44°23'53"
Phase angle: +103°44'36.9"
Illuminated: 38.1%
Distance from Sun: 0.728 AU (108.940 M km)
Distance: 0.547 AU (81.771 M km)
Light time: 0h04m32.8s
Orbital velocity: 34.785 km/s
Sidereal period: 224.70 days (0.615 a)
Synodic period: 583.92 days (1.599 a)
Apparent diameter: +0°00'30.53"
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: +21°43'09"
Center point: L_s=+250°07'33" ϕ_s: +4°44'46"
Subsolar point: L_s=+354°08'30" ϕ_s: +2°28'39"
Albedo: 0.77
Solar Az./Alt.: +284°56'39"/-3°26'45"
Lunar Az./Alt.: +46°57'06"/-13°10'05"

Date and Time

Date and Time | Julian Day

2026 – 9 – 1 | 20 : 5 : 56

Venus

- On September 1st, Venus sets at 9:02 p.m. in the southwestern sky.

Venus - Evening Star

Type: **planet**
Magnitude: **-4.63** (reduced to **-0.24** by **34.49** Airmasses)
Absolute Magnitude: -5.18
Color Index (B-V): **0.91**
RA/Dec (J2000.0): 13h22m07.97s/-12°26'41.3"
RA/Dec (on date): 13h23m33.22s/-12°35'07.5"
HA/Dec: 5h09m20.97s/-12°13'28.1" (apparent)
Az./Alt.: +252°28'18.5"/+0°18'43.1" (apparent)
Gal. long./lat.: +314°34'13.2"/+49°43'55.4"
Supergal. long./lat.: +130°16'38.2"/+3°00'57.9"
Ecl. long./lat. (J2000.0): +203°37'24.4"/-3°31'28.0"
Ecl. long./lat. (on date): +203°59'53.4"/-3°31'37.4"
Ecliptic obliquity (on date): +23°26'08.9"
Mean Sidereal Time: 18h34m20.3s
Apparent Sidereal Time: 18h34m20.8s
Rise: 10h39m
Transit: 15h52m
Set: 21h05m
Parallactic Angle: +44°17'25.1"
IAU Constellation: Vir
Zodiac: ♎ 23°59'
Hourly motion: +0°01'58" towards 120.4°
Hourly motion: dα=+0°01'44" dδ=-0°01'01"
Elongation: 44°30'03.9"
Elong. in Ecl.Long.: E44°23'26"
Phase angle: +103°46'29.0"
Illuminated: 38.1%
Distance from Sun: 0.728 AU (108.940 M km)
Distance: 0.546 AU (81.727 M km)
Light time: 0h04m32.6s
Orbital velocity: 34.785 km/s
Sidereal period: 224.70 days (0.615 a)
Synodic period: 583.92 days (1.599 a)
Apparent diameter: +0°00'30.55"
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: +21°42'57"
Center point: L_e=+250°12'56" ϕ_e: +4°45'04"
Subsolar point: L_s=+354°15'46" ϕ_s: +2°28'43"
Albedo: 0.77
Solar Az./Alt.: +295°24'54"/-13°16'32"
Lunar Az./Alt.: +57°18'41"/-5°17'19"

Date and Time

Date and Time | Julian Day

2026 – 9 – 1 | 21 : 2 : 47

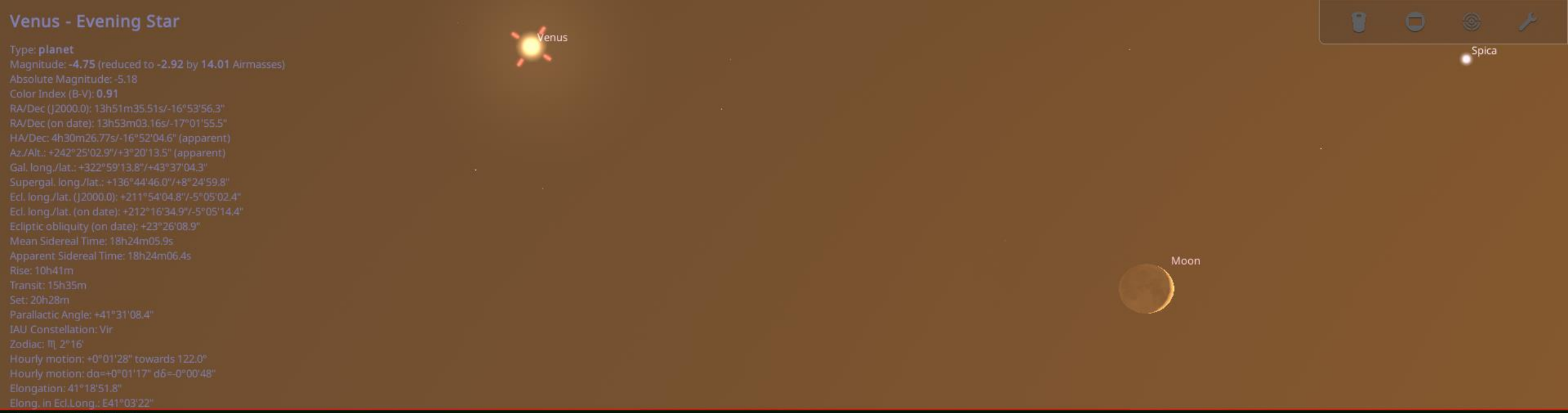
Venus

- On September 13th, Venus is in a wide conjunction with new baby crescent Moon.

- Both objects are low on the western horizon at sunset. The Moon is western and just below Venus on the horizon.

Venus - Evening Star

Type: **planet**
Magnitude: **-4.75** (reduced to **-2.92** by **14.01** Airmasses)
Absolute Magnitude: -5.18
Color Index (B-V): **0.91**
RA/Dec (J2000.0): 13h51m35.51s/-16°53'56.3"
RA/Dec (on date): 13h53m03.16s/-17°01'55.5"
HA/Dec: 4h30m26.77s/-16°52'04.6" (apparent)
Az./Alt.: +242°25'02.9"/+3°20'13.5" (apparent)
Gal. long./lat.: +322°59'13.8"/+43°37'04.3"
Supergal. long./lat.: +136°44'46.0"/+8°24'59.8"
Ecl. long./lat. (J2000.0): +211°54'04.8"/-5°05'02.4"
Ecl. long./lat. (on date): +212°16'34.9"/-5°05'14.4"
Ecliptic obliquity (on date): +23°26'08.9"
Mean Sidereal Time: 18h24m05.9s
Apparent Sidereal Time: 18h24m06.4s
Rise: 10h41m
Transit: 15h35m
Set: 20h28m
Parallactic Angle: +41°31'08.4"
IAU Constellation: Vir
Zodiac: ♍ 2°16'
Hourly motion: +0°01'28" towards 122.0°
Hourly motion: dα=+0°01'17" dδ=-0°00'48"
Elongation: 41°18'51.8"
Elong. in Ecl.Long.: E41°03'22"
Phase angle: +114°10'32.7"
Illuminated: 29.5%
Distance from Sun: 0.728 AU (108.917 M km)
Distance: 0.457 AU (68.441 M km)
Light time: 0h03m48.3s
Orbital velocity: 34.793 km/s
Sidereal period: 224.70 days (0.615 a)
Synodic period: 583.92 days (1.599 a)
Apparent diameter: +0°00'36.48"
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: +20°37'43"
Center point: L_e=+276°13'29" ϕ_e: +6°19'03"
Subsolar point: L_s=+30°54'19" ϕ_s: +2°38'17"
Albedo: 0.77
Solar Az./Alt.: +282°25'05"/-7°33'38"
Lunar Az./Alt.: +248°04'58"/+1°06'36"



Date and Time

Date and Time | Julian Day

2026 – 9 – 13 | 20 : 5 : 24

Venus

- On September 14th, Venus is in a wide conjunction with a waxing crescent Moon at sunset.

- Venus is low in the southwestern sky, the crescent Moon is higher in the sky to the south of Venus.

Venus - Evening Star

Type: **planet**
Magnitude: **-4.76** (reduced to **-3.87** by **6.92** Airmasses)
Absolute Magnitude: -5.18
Color Index (B-V): **0.91**
RA/Dec (J2000.0): 13h53m35.41s/-17°12'52.6"
RA/Dec (on date): 13h55m03.26s/-17°20'49.6"
HA/Dec: 3h58m10.56s/-17°15'40.6" (apparent)
Az./Alt.: +236°13'52.0"/+8°00'03.0" (apparent)
Gal. long./lat.: +323°28'08.2"/+43°09'53.7"
Supergal. long./lat.: +137°12'28.4"/+8°45'43.2"
Ecl. long./lat. (J2000.0): +212°27'42.4"/-5°12'40.4"
Ecl. long./lat. (on date): +212°50'12.6"/-5°12'52.5"
Ecliptic obliquity (on date): +23°26'08.9"
Mean Sidereal Time: 17h53m30.5s
Apparent Sidereal Time: 17h53m31.0s
Rise: 10h40m
Transit: 15h33m
Set: 20h25m
Parallactic Angle: +38°32'08.9"
IAU Constellation: Vir
Zodiac: ♍ 2°50'
Hourly motion: +0°01'24" towards 122.5°
Hourly motion: dα=+0°01'13" dδ=-0°00'47"
Elongation: 40°56'26.7"
Elong. in Ecl.Long.: E40°39'57"
Phase angle: +115°08'05.9"
Illuminated: 28.8%
Distance from Sun: 0.728 AU (108.911 M km)
Distance: 0.451 AU (67.401 M km)
Light time: 0h03m44.8s
Orbital velocity: 34.794 km/s
Sidereal period: 224.70 days (0.615 a)
Synodic period: 583.92 days (1.599 a)
Apparent diameter: +0°00'37.04"
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: +20°32'35"
Center point: L_c=+278°13'56" ϕ_c: +6°26'39"
Subsolar point: L_s=+33°53'47" ϕ_s: +2°38'19"
Albedo: 0.77
Solar Az./Alt.: +276°06'48"/-1°04'34"
Lunar Az./Alt.: +230°32'28"/+9°09'60"

Moon

Venus

SW

Date and Time

Date and Time | Julian Day

2026 – 9 – 14 | 19 : 30 : 57

Full-screen mode [F11]

Earth, Peterborough, 188 m | FOV 22.1° | 44.6 FPS | 2026-09-14 19:30:57 UTC-04:00

Venus

- On September 30th, Venus sets at 7:22 p.m. in the southwestern sky.

Venus - Evening Star

Type: **planet**
Magnitude: **-4.77** (reduced to **-0.21** by **35.98** Airmasses)
Absolute Magnitude: -5.18
Color Index (B-V): **0.91**
RA/Dec (J2000.0): 14h12m49.24s/-20°50'53.6"
RA/Dec (on date): 14h14m19.38s/-20°58'28.4"
HA/Dec: 4h32m35.32s/-20°35'06.3" (apparent)
Az./Alt.: +240°19'47.0"/+0°13'09.2" (apparent)
Gal. long./lat.: +327°19'54.5"/+38°08'13.9"
Supergal. long./lat.: +142°17'47.1"/+11°43'30.6"
Ecl. long./lat. (J2000.0): +218°00'33.7"/-7°03'44.7"
Ecl. long./lat. (on date): +218°23'05.1"/-7°03'58.4"
Ecliptic obliquity (on date): +23°26'08.9"
Mean Sidereal Time: 18h48m23.3s
Apparent Sidereal Time: 18h48m23.7s
Rise: 10h14m
Transit: 14h49m
Set: 19h24m
Parallactic Angle: +41°37'34.5"
IAU Constellation: Vir
Zodiac: ♍ 8°23'
Hourly motion: +0°00'17" towards 156.7°
Hourly motion: dα=+0°00'07" dδ=-0°00'15"
Elongation: 31°17'42.3"
Elong. in Ecl.Long.: E30°34'00"
Phase angle: +134°18'58.2"
Illuminated: 15.1%
Distance from Sun: 0.727 AU (108.752 M km)
Distance: 0.348 AU (52.027 M km)
Light time: 0h02m53.5s
Orbital velocity: 34.845 km/s
Sidereal period: 224.70 days (0.615 a)
Synodic period: 583.92 days (1.599 a)
Apparent diameter: +0°00'47.99"
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: +19°40'28"
Center point: L_e=+307°29'32" ϕ_e: +8°17'00"
Subsolar point: L_s=+82°56'25" ϕ_s: +2°22'38"
Albedo: 0.77
Solar Az./Alt.: +271°12'46"/-5°41'14"
Lunar Az./Alt.: +37°23'51"/-11°05'07"

Mercury

Venus

Date and Time

Date and Time | Julian Day

2026 – 9 – 30 | 19 : 22 : 47

Earth, Peterborough, 188 m | FOV 22.1° | 53.72 FPS | 2026-09-30 19:22:47 UTC-04:00

MARS

Mars

- On September 1st, Mars rises at 1:48 a.m. in the northeastern sky.

Mars

Type: **planet**
Magnitude: **1.21** (reduced to **5.83** by **36.58** Airmasses)
Absolute Magnitude: -1.52
Mean Opposition Magnitude: -2.01
Color Index (B-V): **1.45**
RA/Dec (J2000.0): 6h57m30.18s/+23°19'04.5"
RA/Dec (on date): 6h59m07.74s/+23°16'57.1"
HA/Dec: 16h19m51.43s/+23°41'06.4" (apparent)
Az./Alt.: +56°04'15.5"/+0°11'00.9" (apparent)
Gal. long./lat.: +192°32'33.5"/+11°39'39.4"
Supergal. long./lat.: +27°21'24.8"/-50°58'06.3"
Ecl. long./lat. (J2000.0): +103°10'48.0"/+0°32'02.3"
Ecl. long./lat. (on date): +103°33'18.1"/+0°32'22.3"
Ecliptic obliquity (on date): +23°26'08.9"
Mean Sidereal Time: 23h17m29.1s
Apparent Sidereal Time: 23h17m29.7s
Rise: 1h48m
Transit: 9h30m
Set: 17h13m
Parallactic Angle: -40°25'29.8"
IAU Constellation: Gem
Zodiac: ♋ 13°33'
Hourly motion: +0°01'35" towards 93.9°
Hourly motion: dα=+0°01'44" dδ=-0°00'07"
Elongation: 55°16'51.8"
Elong. in Ecl.Long.: W55°16'45"
Phase angle: +33°04'14.6"
Illuminated: 91.9%
Distance from Sun: 1.520 AU (227.429 M km)
Distance: 1.849 AU (276.578 M km)
Light time: 0h15m22.6s
Orbital velocity: 24.183 km/s
Sidereal period: 686.97 days (1.881 a)
Synodic period: 779.95 days (2.135 a)
Apparent diameter: +0°00'05.07"
Equatorial diameter: 6792.4 km
Sidereal day: 24h37m22.7s
Mean solar day: 24h39m35.2s
Equatorial rotation velocity: 240.729 m/s
Position Angle of axis: +340°35'29"
Center point: L_s=+55°04'04" ϕ_s: +8°30'06"
Subsolar point: L_s=+84°44'25" ϕ_s: -6°16'39"
Albedo: 0.15
Solar Az./Alt.: +11°03'59"/-36°49'37"
Lunar Az./Alt.: +122°32'58"/+47°29'11"

(1) Ceres

Mars

Date and Time

Date and Time | Julian Day

2026 – 9 – 1 | 1 : 49 : 6

Earth, Peterborough, 188 m | FOV 9.59° | 33.37 FPS | 2026-09-01 01:49:06 UTC-04:00

Mars

- On September 30th, Mars rises at 1:23 a.m. in the northeastern morning sky.

- Mars is at a stationary point in its orbit this month.

Mars

Type: **planet**
Magnitude: **1.05** (reduced to **5.55** by **35.45** Airmasses)
Absolute Magnitude: -1.52
Mean Opposition Magnitude: -2.01
Color Index (B-V): **1.45**
RA/Dec (J2000.0): 8h13m15.45s/+20°56'20.7"
RA/Dec (on date): 8h14m49.75s/+20°51'29.9"
HA/Dec: 16h32m26.86s/+21°14'38.9" (apparent)
Az./Alt.: +59°52'02.5"/+0°15'05.7" (apparent)
Gal. long./lat.: +201°59'11.7"/+26°57'52.9"
Supergal. long./lat.: +54°41'07.6"/-48°37'40.0"
Ecl. long./lat. (J2000.0): +120°51'59.4"/+0°59'54.8"
Ecl. long./lat. (on date): +121°14'32.8"/+1°00'12.1"
Ecliptic obliquity (on date): +23°26'08.9"
Mean Sidereal Time: 0h45m48.2s
Apparent Sidereal Time: 0h45m48.7s
Rise: 1h21m
Transit: 8h52m
Set: 16h22m
Parallactic Angle: -41°36'49.6"
IAU Constellation: Cnc
Zodiac: ♌ 1°14'
Hourly motion: +0°01'28" towards 100.1°
Hourly motion: dα=+0°01'32" dδ=-0°00'17"
Elongation: 65°50'41.1"
Elong. in Ecl.Long.: W65°50'26"
Phase angle: +35°55'56.9"
Illuminated: 90.5%
Distance from Sun: 1.557 AU (232.970 M km)
Distance: 1.671 AU (249.951 M km)
Light time: 0h13m53.7s
Orbital velocity: 23.602 km/s
Sidereal period: 686.97 days (1.881 a)
Synodic period: 779.95 days (2.135 a)
Apparent diameter: +0°00'05.61"
Equatorial diameter: 6792.4 km
Sidereal day: 24h37m22.7s
Mean solar day: 24h39m35.2s
Equatorial rotation velocity: 240.729 m/s
Position Angle of axis: +351°13'25"
Center point: L_s=+127°50'54" ϕ_s: +15°08'44"
Subsolar point: L_s=+160°48'59" ϕ_s: -0°01'29"
Albedo: 0.15
Solar Az./Alt.: +7°26'25"/-48°16'57"
Lunar Az./Alt.: +111°44'25"/+52°22'46"

Date and Time

Date and Time | Julian Day

2026 – 9 – 30 | 1 : 23 : 9

Earth, Peterborough, 188 m | FOV 9.9° | 16.78 FPS | 2026-09-30 01:23:09 UTC-04:00

JUPITER

Jupiter

- On September 1st, Jupiter rises at 4:27 a.m. in the pre-dawn northeastern sky.

Jupiter

Type: **planet**
Magnitude: **-1.80** (reduced to **2.16** by **30.75** Airmasses)
Absolute Magnitude: -9.40
Mean Opposition Magnitude: -2.70
Color Index (B-V): **0.96**
RA/Dec (J2000.0): 9h04m07.30s/+17°18'08.9"
RA/Dec (on date): 9h05m37.68s/+17°11'46.2"
HA/Dec: 16h51m45.65s/+17°31'51.6" (apparent)
Az./Alt.: +65°44'00.8"/+0°34'57.4" (apparent)
Gal. long./lat.: +211°01'57.7"/+36°54'27.9"
Supergal. long./lat.: +71°43'52.5"/-44°09'02.2"
Ecl. long./lat. (J2000.0): +133°24'23.2"/+0°31'38.5"
Ecl. long./lat. (on date): +133°46'53.5"/+0°31'52.8"
Ecliptic obliquity (on date): +23°26'08.9"
Mean Sidereal Time: 1h56m03.9s
Apparent Sidereal Time: 1h56m04.5s
Rise: 4h23m
Transit: 11h36m
Set: 18h49m
Parallactic Angle: -43°10'31.9"
IAU Constellation: Cnc
Zodiac: ♌ 13°46'
Hourly motion: +0°00'32" towards 105.4°
Hourly motion: dα=+0°00'32" dδ=-0°00'09"
Elongation: 25°09'54.8"
Elong. in Ecl.Long.: W25°09'35"
Phase angle: +4°38'48.9"
Illuminated: 99.8%
Distance from Sun: 5.297 AU (792.454 M km)
Distance: 6.193 AU (926.497 M km)
Light time: 0h51m30.5s
Orbital velocity: 12.829 km/s
Sidereal period: 4331.87 days (11.860 a)
Synodic period: 398.89 days (1.092 a)
Apparent diameter: +0°00'31.83"
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: +18°45'38"
Center point: L_{IIe}=+158°54'35" ϕ_e: +0°23'23"
Subsolar point: L_{IIs}=+163°33'21" ϕ_s: +0°27'39"
Albedo: 0.51
Solar Az./Alt.: +52°53'38"/-21°42'07"
Lunar Az./Alt.: +185°07'39"/+61°00'42"

Date and Time

Date and Time | Julian Day

2026 – 9 – 1 4 : 27 : 14

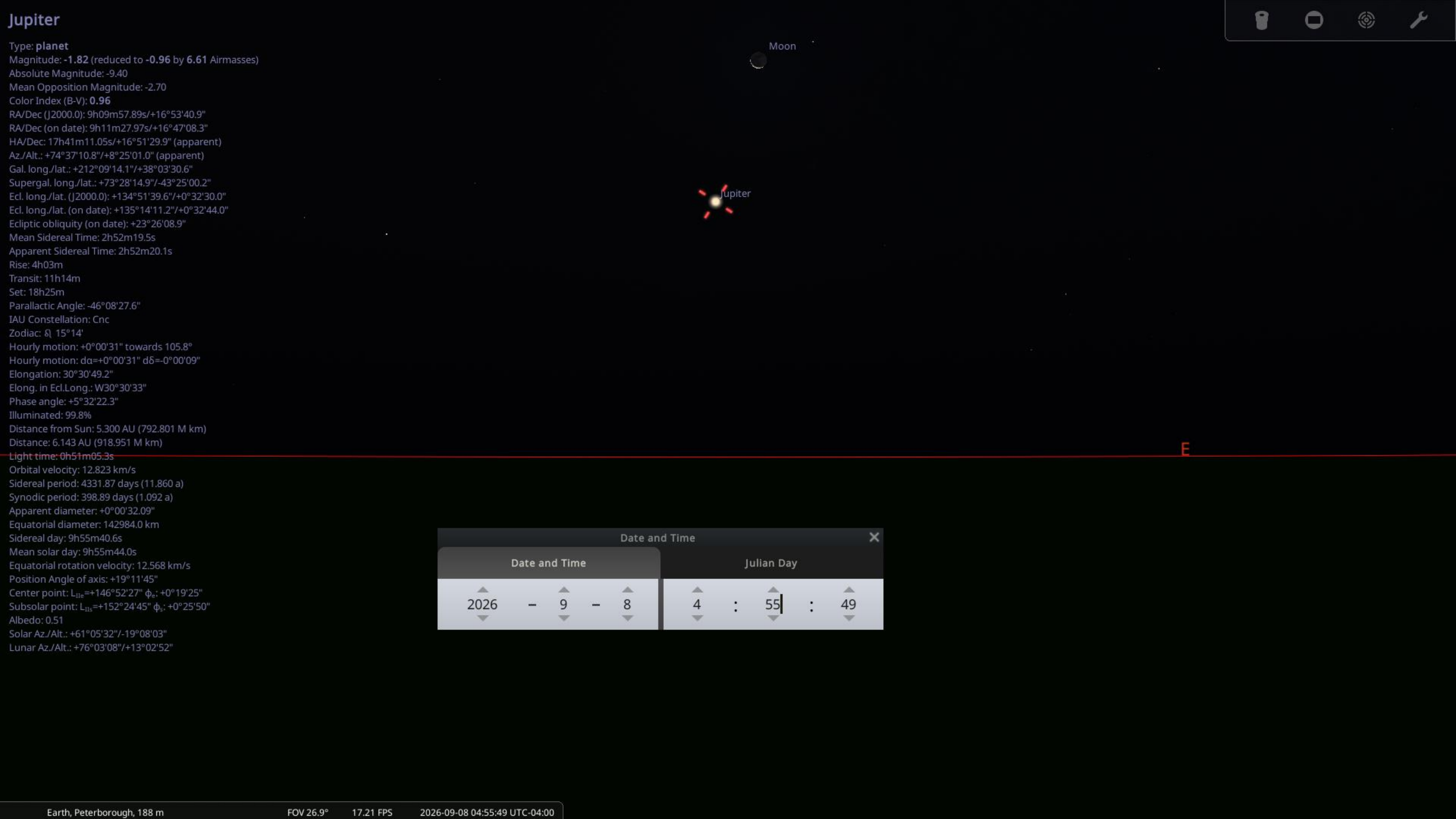
Jupiter

- On September 8th, Jupiter shares a close conjunction with a waning old crescent Moon.

- Both objects are well placed in the early morning northeastern sky at 5:00 a.m. The Moon is directly above Jupiter.

Jupiter

Type: **planet**
Magnitude: **-1.82** (reduced to **-0.96** by **6.61** Airmasses)
Absolute Magnitude: -9.40
Mean Opposition Magnitude: -2.70
Color Index (B-V): **0.96**
RA/Dec (J2000.0): 9h09m57.89s/+16°53'40.9"
RA/Dec (on date): 9h11m27.97s/+16°47'08.3"
HA/Dec: 17h41m11.05s/+16°51'29.9" (apparent)
Az./Alt.: +74°37'10.8"/+8°25'01.0" (apparent)
Gal. long./lat.: +212°09'14.1"/+38°03'30.6"
Supergal. long./lat.: +73°28'14.9"/-43°25'00.2"
Ecl. long./lat. (J2000.0): +134°51'39.6"/+0°32'30.0"
Ecl. long./lat. (on date): +135°14'11.2"/+0°32'44.0"
Ecliptic obliquity (on date): +23°26'08.9"
Mean Sidereal Time: 2h52m19.5s
Apparent Sidereal Time: 2h52m20.1s
Rise: 4h03m
Transit: 11h14m
Set: 18h25m
Parallactic Angle: -46°08'27.6"
IAU Constellation: Cnc
Zodiac: ♌ 15°14'
Hourly motion: +0°00'31" towards 105.8°
Hourly motion: dα=+0°00'31" dδ=-0°00'09"
Elongation: 30°30'49.2"
Elong. in Ecl.Long.: W30°30'33"
Phase angle: +5°32'22.3"
Illuminated: 99.8%
Distance from Sun: 5.300 AU (792.801 M km)
Distance: 6.143 AU (918.951 M km)
Light time: 0h51m05.3s
Orbital velocity: 12.823 km/s
Sidereal period: 4331.87 days (11.860 a)
Synodic period: 398.89 days (1.092 a)
Apparent diameter: +0°00'32.09"
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: +19°11'45"
Center point: L_{IIe}=+146°52'27" ϕ_e: +0°19'25"
Subsolar point: L_{IIs}=+152°24'45" ϕ_s: +0°25'50"
Albedo: 0.51
Solar Az./Alt.: +61°05'32"/-19°08'03"
Lunar Az./Alt.: +76°03'08"/+13°02'52"



Date and Time

Date and Time | Julian Day

2026 – 9 – 8 4 : 55 : 49

Jupiter

- On September 30th, Jupiter rises at 3:04 a.m. in the early morning northeastern sky.

Jupiter

Type: **planet**
Magnitude: **-1.87** (reduced to **1.77** by **27.99** Airmasses)
Absolute Magnitude: -9.40
Mean Opposition Magnitude: -2.70
Color Index (B-V): **0.96**
RA/Dec (J2000.0): 9h26m50.73s/+15°39'40.6"
RA/Dec (on date): 9h28m19.79s/+15°32'41.3"
HA/Dec: 17h00m37.65s/+15°51'00.6" (apparent)
Az./Alt.: +68°25'51.3"/+0°49'26.8" (apparent)
Gal. long./lat.: +215°37'02.5"/+41°21'01.8"
Supergal. long./lat.: +78°17'16.0"/-41°07'43.0"
Ecl. long./lat. (J2000.0): +139°05'43.2"/+0°35'35.4"
Ecl. long./lat. (on date): +139°28'16.7"/+0°35'48.1"
Ecliptic obliquity (on date): +23°26'08.9"
Mean Sidereal Time: 2h27m44.1s
Apparent Sidereal Time: 2h27m44.6s
Rise: 2h59m
Transit: 10h04m
Set: 17h10m
Parallactic Angle: -43°46'45.0"
IAU Constellation: Leo
Zodiac: ♌ 19°28'
Hourly motion: +0°00'27" towards 106.7°
Hourly motion: dα=+0°00'27" dδ=-0°00'08"
Elongation: 47°41'05.4"
Elong. in Ecl.Long.: W47°40'55"
Phase angle: +8°01'20.3"
Illuminated: 99.5%
Distance from Sun: 5.307 AU (793.874 M km)
Distance: 5.929 AU (886.972 M km)
Light time: 0h49m18.6s
Orbital velocity: 12.805 km/s

Jupiter

Sidereal period: 4331.87 days (11.860 a)
Synodic period: 398.89 days (1.092 a)
Apparent diameter: +0°00'33.25"
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: +20°23'11"
Center point: L_{IIe}=+142°33'47" ϕ_e: +0°07'06"
Subsolar point: L_{IIs}=+150°34'56" ϕ_s: +0°20'08"
Albedo: 0.51
Solar Az./Alt.: +41°43'01"/-40°38'34"
Lunar Az./Alt.: +148°07'59"/+66°23'30"

Date and Time

Date and Time | Julian Day

2026 – 9 – 30 | 3 : 4 : 48

Earth, Peterborough, 188 m | FOV 18.7° | 28.49 FPS | 2026-09-30 03:04:48 UTC-04:00

SATURN

Saturn

- On September 1st, Saturn is well placed in the western sky at sunrise.

Saturn

Type: **planet**
Magnitude: **0.48** (reduced to **0.69** by **1.69** Airmasses)
Absolute Magnitude: -8.88
Mean Opposition Magnitude: 0.67
Color Index (B-V): **1.22**
RA/Dec (J2000.0): 0h53m00.05s/+2°47'46.1"
RA/Dec (on date): 0h54m22.99s/+2°56'31.3"
HA/Dec: 2h36m11.08s/+2°57'39.1" (apparent)
Az./Alt.: +231°15'36.9"/+36°14'23.6" (apparent)
Gal. long./lat.: +123°42'51.1"/-60°04'23.6"
Supergal. long./lat.: +299°00'22.1"/+1°14'28.8"
Ecl. long./lat. (J2000.0): +13°16'44.0"/-2°39'14.8"
Ecl. long./lat. (on date): +13°39'15.0"/-2°39'08.9"
Ecliptic obliquity (on date): +23°26'08.9"
Mean Sidereal Time: 3h30m36.6s
Apparent Sidereal Time: 3h30m37.1s
Rise: 21h08m
Transit: 3h26m
Set: 9h39m
Parallactic Angle: +33°59'07.8"
IAU Constellation: Psc
Zodiac: ♈ 13°39'
Hourly motion: +0°00'09" towards 244.4°
Hourly motion: dα=-0°00'08" dδ=-0°00'04"
Elongation: 145°15'44.0"
Elong. in Ecl.Long.: W145°21'03"
Phase angle: +3°29'28.1"
Illuminated: 99.9%
Distance from Sun: 9.444 AU (1412.754 M km)
Distance: 8.597 AU (1286.066 M km)
Light time: 1h11m29.9s
Orbital velocity: 9.742 km/s
Sidereal period: 10760.00 days (29.459 a)
Synodic period: 378.09 days (1.035 a)
Apparent diameter: +0°00'19.33", with rings: +0°00'45.03"
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: +3°01'55"
Center point: L_{IIIe}=+83°04'23" ϕ_e: -8°36'50"
Subsolar point: L_{IIIs}=+86°20'11" ϕ_s: -7°16'58"
Albedo: 0.50
Solar Az./Alt.: +71°30'11"/-6°49'16"
Lunar Az./Alt.: +225°18'07"/+54°08'50"

SW W NW N

Date and Time

Date and Time | Julian Day

2026 – 9 – 1 6 : 1 : 32

Earth, Peterborough, 188 m FOV 121° 25.59 FPS 2026-09-01 06:01:32 UTC-04:00

Saturn

- On September 1st, Saturn rises at 9:10 p.m. in the eastern evening sky.

- Saturn is now just 1 month away from closest approach to Earth.

Saturn

Type: **planet**
Magnitude: **0.47** (reduced to **4.79** by **33.81** Airmasses)
Absolute Magnitude: -8.88
Mean Opposition Magnitude: 0.67
Color Index (B-V): **1.22**
RA/Dec (J2000.0): 0h52m52.32s/+2°46'49.0"
RA/Dec (on date): 0h54m15.27s/+2°55'34.3"
HA/Dec: 17h49m12.33s/+3°16'24.2" (apparent)
Az./Alt.: +85°46'25.1"/+0°21'26.8" (apparent)
Gal. long./lat.: +123°39'00.4"/-60°05'22.1"
Supergal. long./lat.: +298°58'55.9"/+1°16'04.8"
Ecl. long./lat. (J2000.0): +13°14'35.0"/-2°39'22.6"
Ecl. long./lat. (on date): +13°37'06.1"/-2°39'16.7"
Ecliptic obliquity (on date): +23°26'08.9"
Mean Sidereal Time: 18h42m01.8s
Apparent Sidereal Time: 18h42m02.3s
Rise: 21h08m
Transit: 3h26m
Set: 9h39m
Parallactic Angle: -45°38'09.4"
IAU Constellation: Psc
Zodiac: ♈ 13°37'
Hourly motion: +0°00'09" towards 244.1°
Hourly motion: dα=-0°00'08" dδ=-0°00'04"
Elongation: 145°54'12.3"
Elong. in Ecl.Long.: W145°59'40"
Phase angle: +3°26'02.8"
Illuminated: 99.9%
Distance from Sun: 9.443 AU (1412.725 M km)
Distance: 8.591 AU (1285.184 M km)
Light time: 1h11m26.9s
Orbital velocity: 9.742 km/s
Sidereal period: 10760.00 days (29.459 a)
Synodic period: 378.09 days (1.035 a)
Apparent diameter: +0°00'19.35", with rings: +0°00'45.06"
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: +3°02'06"
Center point: L_{IIIe}=+234°52'47" ϕ_e: -8°35'47"
Subsolar point: L_{IIIs}=+238°05'30" ϕ_s: -7°17'32"
Albedo: 0.50
Solar Az./Alt.: +296°54'10"/-14°30'33"
Lunar Az./Alt.: +58°37'58"/-3°57'45"

Neptune

Saturn

E

Date and Time

Date and Time | Julian Day

2026 – 9 – 1 21 : 10 : 27

Earth, Peterborough, 188 m | FOV 11.7° | 23.72 FPS | 2026-09-01 21:10:27 UTC-04:00

Saturn

- On September 26th, Saturn shares a wide conjunction with a full Harvest Moon in the eastern sky after evening twilight.

Saturn

Type: **planet**
Magnitude: **0.37** (reduced to **1.24** by **6.77** Airmasses)
Absolute Magnitude: -8.88
Mean Opposition Magnitude: 0.67
Color Index (B-V): **1.22**
RA/Dec (J2000.0): 0h46m34.17s/+2°03'26.8"
RA/Dec (on date): 0h47m57.15s/+2°12'16.3"
HA/Dec: 18h36m53.84s/+2°16'47.3" (apparent)
Az./Alt.: +94°49'59.9"/+8°11'16.0" (apparent)
Gal. long./lat.: +120°26'19.8"/-60°47'26.7"
Supergal. long./lat.: +297°51'39.0"/+2°35'20.0"
Ecl. long./lat. (J2000.0): +11°30'35.0"/-2°42'36.2"
Ecl. long./lat. (on date): +11°53'09.0"/-2°42'30.9"
Ecliptic obliquity (on date): +23°26'08.9"
Mean Sidereal Time: 19h24m32.1s
Apparent Sidereal Time: 19h24m32.6s
Rise: 19h26m
Transit: 1h41m
Set: 7h52m
Parallactic Angle: -45°32'15.7"
IAU Constellation: Cet
Zodiac: ♈ 11°53'
Hourly motion: +0°00'12" towards 246.4°
Hourly motion: dα=-0°00'11" dδ=-0°00'05"
Elongation: 171°35'44.7"
Elong. in Ecl.Long.: W172°02'31"
Phase angle: +0°53'22.9"
Illuminated: 100.0%
Distance from Sun: 9.436 AU (1411.586 M km)
Distance: 8.443 AU (1263.061 M km)
Light time: 1h10m13.1s
Orbital velocity: 9.749 km/s
Sidereal period: 10760.00 days (29.459 a)
Synodic period: 378.09 days (1.035 a)
Apparent diameter: +0°00'19.68", with rings: +0°00'45.85"
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: +3°10'59"
Center point: L_{IIIe}=+314°47'52" ϕ_e: -7°46'57"
Subsolar point: L_{IIIs}=+315°41'15" ϕ_s: -7°39'56"
Albedo: 0.50
Solar Az./Alt.: +281°19'07"/-13°33'58"
Lunar Az./Alt.: +96°20'57"/+14°14'15"

Date and Time

Date and Time | Julian Day

2026 – 9 – 26 | 20 : 14 : 33

Earth, Peterborough, 188 m | FOV 31.8° | 49.07 FPS | 2026-09-26 20:14:33 UTC-04:00

Saturn

- On September 30th, Saturn is 20 degrees above the western horizon at morning twilight.

Saturn

Type: **planet**
Magnitude: **0.35** (reduced to **1.13** by **6.08** Airmasses)
Absolute Magnitude: -8.88
Mean Opposition Magnitude: 0.67
Color Index (B-V): **1.22**
RA/Dec (J2000.0): 0h45m35.24s/+1°57'01.7"
RA/Dec (on date): 0h46m58.23s/+2°05'51.6"
HA/Dec: 5h16m52.36s/+2°09'55.7" (apparent)
Az./Alt.: +263°58'49.0"/+9°13'02.2" (apparent)
Gal. long./lat.: +119°55'34.9"/-60°53'13.7"
Supergal. long./lat.: +297°41'29.3"/+2°47'46.8"
Ecl. long./lat. (J2000.0): +11°14'30.4"/-2°42'46.1"
Ecl. long./lat. (on date): +11°37'04.6"/-2°42'40.9"
Ecliptic obliquity (on date): +23°26'08.9"
Mean Sidereal Time: 6h04m06.6s
Apparent Sidereal Time: 6h04m07.1s
Rise: 19h10m
Transit: 1h24m
Set: 7h35m
Parallactic Angle: +45°25'06.8"
IAU Constellation: Cet
Zodiac: ♈ 11°37'
Hourly motion: +0°00'12" towards 246.6"
Hourly motion: dα=-0°00'11ˢ dδ=-0°00'05"
Elongation: 174°54'11.8"
Elong. in Ecl.Long.: W175°41'00"
Phase angle: +0°32'25.1"
Illuminated: 100.0%
Distance from Sun: 9.435 AU (1411.429 M km)
Distance: 8.437 AU (1262.139 M km)
Light time: 1h10m10.0s
Orbital velocity: 9.751 km/s
Sidereal period: 10760.00 days (29.459 a)
Synodic period: 378.09 days (1.035 a)
Apparent diameter: +0°00'19.70", with rings: +0°00'45.89"
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: +3°12'21"
Center point: L_{IIIe}=+219°54'34" ϕ_e: -7°39'40"
Subsolar point: L_{IIIs}=+220°27'07" ϕ_s: -7°43'01"
Albedo: 0.50
Solar Az./Alt.: +88°06'38"/-6°05'03"
Lunar Az./Alt.: +250°24'52"/+52°10'28"

Saturn

W

Date and Time

Date and Time | Julian Day

2026 – 9 – 30 6 : 40 : 35

Earth, Peterborough, 188 m FOV 37.6° 19.84 FPS 2026-09-30 06:40:35 UTC-04:00

Saturn

- On September 30th, Saturn low on the eastern horizon at evening twilight.

- Now visible all night. Saturn is now 5 days away from opposition.

Saturn

Type: **planet**
Magnitude: **0.34** (reduced to **2.45** by **16.04** Airmasses)
Absolute Magnitude: -8.88
Mean Opposition Magnitude: 0.67
Color Index (B-V): **1.22**
RA/Dec (J2000.0): 0h45m26.17s/+1°56'02.0"
RA/Dec (on date): 0h46m49.16s/+2°04'52.0"
HA/Dec: 18h06m25.41s/+2°15'20.5" (apparent)
Az./Alt.: +89°30'21.6"/+2°43'27.5" (apparent)
Gal. long./lat.: +119°50'49.7"/-60°54'06.9"
Supergal. long./lat.: +297°39'55.0"/+2°49'41.7"
Ecl. long./lat. (J2000.0): +11°12'01.7"/-2°42'47.9"
Ecl. long./lat. (on date): +11°34'36.0"/-2°42'42.8"
Ecliptic obliquity (on date): +23°26'08.9"
Mean Sidereal Time: 18h52m31.0s
Apparent Sidereal Time: 18h52m31.5s
Rise: 19h10m
Transit: 1h24m
Set: 7h35m
Parallactic Angle: -45°44'35.7"
IAU Constellation: Cet
Zodiac: ♈ 11°34'
Hourly motion: +0°00'12" towards 246.6°
Hourly motion: dα=-0°00'11" dδ=-0°00'05"
Elongation: 175°22'02.1"
Elong. in Ecl.Long.: W176°14'39"
Phase angle: +0°29'28.2"
Illuminated: 100.0%

Saturn

E

Distance from Sun: 9.435 AU (1411.405 M km)
Distance: 8.436 AU (1262.045 M km)
Light time: 1h10m09.7s
Orbital velocity: 9.751 km/s
Sidereal period: 10760.00 days (29.459 a)
Synodic period: 378.09 days (1.035 a)
Apparent diameter: +0°00'19.70", with rings: +0°00'45.89"
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: +3°12'34"
Center point: L_{IIIe}=+291°25'06" ϕ_e: -7°38'32"
Subsolar point: L_{IIIs}=+291°54'24" ϕ_s: -7°43'30"
Albedo: 0.50
Solar Az./Alt.: +271°56'01"/-6°25'30"
Lunar Az./Alt.: +38°10'53"/-10°38'48"

Date and Time

Date and Time | Julian Day

2026 – 9 – 30 | 19 : 26 : 54

URANUS

Uranus

- On September 1st, Uranus is high over the southeastern horizon at morning twilight.

Uranus

Type: **planet**
Magnitude: **5.73** (reduced to **5.87** by **1.11** Airmasses)
Absolute Magnitude: -7.19
Mean Opposition Magnitude: 5.52
Color Index (B-V): **0.74**
RA/Dec (J2000.0): 4h13m33.26s/+21°01'38.9"
RA/Dec (on date): 4h15m08.08s/+21°05'45.7"
HA/Dec: 23h06m23.82s/+21°06'12.4" (apparent)
Az./Alt.: +150°06'32.1"/+64°17'13.4" (apparent)
Gal. long./lat.: +173°37'30.1"/-21°22'28.7"
Supergal. long./lat.: +338°06'57.4"/-35°58'41.6"
Ecl. long./lat. (J2000.0): +65°17'04.8"/-0°09'27.0"
Ecl. long./lat. (on date): +65°39'34.9"/-0°09'07.7"
Ecliptic obliquity (on date): +23°26'08.9"
Mean Sidereal Time: 3h21m30.6s
Apparent Sidereal Time: 3h21m31.1s
Rise: 23h11m
Transit: 6h46m
Set: 14h17m
Parallactic Angle: -22°28'36.1"
IAU Constellation: Tau
Zodiac: ♉ 5°39'
Hourly motion: +0°00'01" towards 79.3°
Hourly motion: dα=+0°00'01" dδ=+0°00'00"
Elongation: 93°20'21.4"
Elong. in Ecl.Long.: W93°20'21"
Phase angle: +2°58'11.0"
Illuminated: 99.9%
Distance from Sun: 19.447 AU (2909.178 M km)
Distance: 19.362 AU (2896.477 M km)
Light time: 2h41m01.6s
Orbital velocity: 6.722 km/s
Sidereal period: 30685.00 days (84.011 a)
Synodic period: 369.66 days (1.012 a)
Apparent diameter: +0°00'03.64", with rings: +0°00'13.91"
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: +291°42'46"
Center point: L_e=+17°25'17" ϕ_e: +75°32'50"
Subsolar point: L_s=+12°04'35" ϕ_s: +72°57'17"
Albedo: 0.66
Discovered: 17 March 1781 (W. Herschel)
Solar Az./Alt.: +69°50'42"/-8°21'07"
Lunar Az./Alt.: +222°06'21"/+55°13'00"

Date and Time

Date and Time | Julian Day

2026 – 9 – 1 | 5 : 52 : 27

Uranus

- On September 1st, Uranus rises at 11:13 p.m. in the northeastern sky.

Uranus

Type: **planet**
Magnitude: **5.73** (reduced to **10.17** by **34.94** Airmasses)
Absolute Magnitude: -7.19
Mean Opposition Magnitude: 5.52
Color Index (B-V): **0.74**
RA/Dec (J2000.0): 4h13m34.66s/+21°01'42.3"
RA/Dec (on date): 4h15m09.49s/+21°05'49.0"
HA/Dec: 16h31m30.91s/+21°28'44.2" (apparent)
Az./Alt.: +59°32'57.0"/+0°16'59.5" (apparent)
Gal. long./lat.: +173°37'41.6"/-21°22'12.0"
Supergal. long./lat.: +338°07'16.1"/-35°58'54.5"
Ecl. long./lat. (J2000.0): +65°17'24.7"/-0°09'27.2"
Ecl. long./lat. (on date): +65°39'54.9"/-0°09'07.9"
Ecliptic obliquity (on date): +23°26'08.9"
Mean Sidereal Time: 20h45m12.9s
Apparent Sidereal Time: 20h45m13.5s
Rise: 23h11m
Transit: 6h46m
Set: 14h17m
Parallactic Angle: -41°31'49.3"
IAU Constellation: Tau
Zodiac: ♉ 5°39'
Hourly motion: +0°00'01" towards 79.4°
Hourly motion: dα=+0°00'01" dδ=+0°00'00"
Elongation: 94°01'51.0"
Elong. in Ecl.Long.: W94°01'51"
Phase angle: +2°58'01.1"
Illuminated: 99.9%
Distance from Sun: 19.447 AU (2909.158 M km)
Distance: 19.350 AU (2894.648 M km)
Light time: 2h40m55.5s
Orbital velocity: 6.722 km/s
Sidereal period: 30685.00 days (84.011 a)
Synodic period: 369.66 days (1.012 a)
Apparent diameter: +0°00'03.64", with rings: +0°00'13.92"
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: +291°43'34"
Center point: L_s=+19°40'48" ϕ_s: +75°33'07"
Subsolar point: L_s=+14°20'12" ϕ_s: +72°57'43"
Albedo: 0.66
Discovered: 17 March 1781 (W. Herschel)
Solar Az./Alt.: +324°41'54"/-31°11'19"
Lunar Az./Alt.: +78°19'60"/+15°53'09"

Date and Time

Date and Time | Julian Day

2026 – 9 – 1 | 23 : 13 : 18

Earth, Peterborough, 188 m | FOV 6.01° | 17.86 FPS | 2026-09-01 23:13:18 UTC-04:00

Uranus

- On September 30th, Uranus is high over the southern horizon at morning twilight.

Uranus

Type: **planet**
Magnitude: **5.67** (reduced to **5.82** by **1.15** Airmasses)
Absolute Magnitude: -7.19
Mean Opposition Magnitude: 5.52
Color Index (B-V): **0.74**
RA/Dec (J2000.0): 4h13m00.96s/+21°00'19.6"
RA/Dec (on date): 4h14m35.98s/+21°04'28.0"
HA/Dec: 1h26m54.22s/+21°04'56.5" (apparent)
Az./Alt.: +224°47'22.5"/+60°38'32.7" (apparent)
Gal. long./lat.: +173°33'04.7"/-21°28'55.8"
Supergal. long./lat.: +337°59'46.3"/-35°53'43.3"
Ecl. long./lat. (J2000.0): +65°09'25.7"/-0°09'24.3"
Ecl. long./lat. (on date): +65°31'59.0"/-0°09'05.0"
Ecliptic obliquity (on date): +23°26'08.9"
Mean Sidereal Time: 5h41m31.0s
Apparent Sidereal Time: 5h41m31.5s
Rise: 21h17m
Transit: 4h51m
Set: 12h22m
Parallactic Angle: +32°42'34.0"
IAU Constellation: Tau
Zodiac: ♉ 5°31'
Hourly motion: +0°00'03" towards 260.7°
Hourly motion: dα=-0°00'03" dδ=-0°00'00"
Elongation: 121°45'09.7"
Elong. in Ecl.Long.: W121°45'10"
Phase angle: +2°30'38.0"
Illuminated: 100.0%
Distance from Sun: 19.441 AU (2908.393 M km)
Distance: 18.896 AU (2826.757 M km)
Light time: 2h37m09.0s
Orbital velocity: 6.724 km/s
Sidereal period: 30685.00 days (84.011 a)
Synodic period: 369.66 days (1.012 a)
Apparent diameter: +0°00'03.73", with rings: +0°00'14.26"
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: +291°24'30"
Center point: L_e=+159°42'34" ϕ_e: +75°26'19"
Subsolar point: L_s=+155°09'35" ϕ_s: +73°14'53"
Albedo: 0.66
Discovered: 17 March 1781 (W. Herschel)
Solar Az./Alt.: +84°07'51"/-10°06'08"
Lunar Az./Alt.: +244°28'38"/+55°45'44"

Date and Time

Date and Time | Julian Day

2026 – 9 – 30 | 6 : 18 : 3

Earth, Peterborough, 188 m | FOV 168° | 24.68 FPS | 2026-09-30 06:18:03 UTC-04:00

Uranus

- On September 30th, Uranus rises at 9:18 p.m. in the eastern evening sky.

- Uranus is also close to a waning Gibbous Moon. The lunar glare partially washes out the planet.

Uranus

Type: **planet**
Magnitude: **5.67** (reduced to **10.09** by **34.75** Airmasses)
Absolute Magnitude: -7.19
Mean Opposition Magnitude: 5.52
Color Index (B-V): **0.74**
RA/Dec (J2000.0): 4h12m58.36s/+21°00'12.9"
RA/Dec (on date): 4h14m33.39s/+21°04'21.3"
HA/Dec: 16h31m43.35s/+21°27'10.0" (apparent)
Az./Alt.: +59°36'09.4"/+0°17'44.2" (apparent)
Gal. long./lat.: +173°32'43.6"/-21°29'27.1"
Supergal. long./lat.: +337°59'11.3"/-35°53'19.5"
Ecl. long./lat. (J2000.0): +65°08'48.7"/-0°09'24.4"
Ecl. long./lat. (on date): +65°31'22.1"/-0°09'05.2"
Ecliptic obliquity (on date): +23°26'08.9"
Mean Sidereal Time: 20h44m49.7s
Apparent Sidereal Time: 20h44m50.2s
Rise: 21h17m
Transit: 4h51m
Set: 12h22m
Parallactic Angle: -41°32'56.6"
IAU Constellation: Tau
Zodiac: ♊ 5°31'
Hourly motion: +0°00'02" towards 261.1°
Hourly motion: dα=-0°00'03" dδ=-0°00'00"
Elongation: 122°22'28.7"
Elong. in Ecl.Long.: W122°22'29"
Phase angle: +2°29'35.3"
Illuminated: 100.0%
Distance from Sun: 19.441 AU (2908.376 M km)
Distance: 18.887 AU (2825.414 M km)
Light time: 2h37m04.6s
Orbital velocity: 6.724 km/s
Sidereal period: 30685.00 days (84.011 a)
Synodic period: 369.66 days (1.012 a)
Apparent diameter: +0°00'03.73", with rings: +0°00'14.26"
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: +291°23'01"
Center point: L_s=+113°12'25" ϕ_s: +75°25'47"
Subsolar point: L_s=+108°41'25" ϕ_s: +73°15'16"
Albedo: 0.66
Discovered: 17 March 1781 (W. Herschel)
Solar Az./Alt.: +292°55'54"/-25°56'07"
Lunar Az./Alt.: +57°33'31"/+3°57'22"

Date and Time

Date and Time | Julian Day

2026 – 9 – 30 | 21 : 18 : 54

NEPTUNE

Neptune

- On September 1st, Neptune is high in the southwestern sky at morning twilight.

Neptune

Type: **planet**
Magnitude: **7.69** (reduced to **7.95** by **1.95** Airmasses)
Absolute Magnitude: -6.87
Mean Opposition Magnitude: 7.84
RA/Dec (J2000.0): 0h14m16.48s/+0°00'21.6"
RA/Dec (on date): 0h15m39.03s/+0°09'18.9"
HA/Dec: 2h58m31.12s/+0°10'40.4" (apparent)
Az./Alt.: +234°50'29.0"/+30°45'48.8" (apparent)
Gal. long./lat.: +103°11'57.8"/-61°26'01.7"
Supergal. long./lat.: +293°40'16.5"/+9°48'10.1"
Ecl. long./lat. (J2000.0): +3°16'38.0"/-1°24'47.8"
Ecl. long./lat. (on date): +3°39'08.6"/-1°24'45.4"
Ecliptic obliquity (on date): +23°26'08.9"
Mean Sidereal Time: 3h14m13.5s
Apparent Sidereal Time: 3h14m14.1s
Rise: 20h40m
Transit: 2h47m
Set: 8h50m
Parallactic Angle: +35°48'42.3"
IAU Constellation: Psc
Zodiac: ♈ 3°39'
Hourly motion: +0°00'04" towards 245.8°
Hourly motion: dα=-0°00'03" dδ=-0°00'02"
Elongation: 155°18'13.7"
Elong. in Ecl.Long.: W155°20'30"
Phase angle: +0°48'31.0"
Illuminated: 100.0%
Distance from Sun: 29.879 AU (4469.790 M km)
Distance: 28.959 AU (4332.178 M km)
Light time: 4h00m50.6s
Orbital velocity: 5.467 km/s
Sidereal period: 60189.00 days (164.789 a)
Synodic period: 367.49 days (1.006 a)
Apparent diameter: +0°00'02.36", with rings: +0°00'05.99"
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: +316°00'34"
Center point: L_e=+128°46'55" ϕ_e: -18°40'33"
Subsolar point: L_s=+129°33'55" ϕ_s: -18°59'56"
Albedo: 0.62
Discovered: 23 September 1846 (J.G. Galle)
Solar Az./Alt.: +68°30'08"/-9°33'56"
Lunar Az./Alt.: +219°26'15"/+56°01'26"

SW W

Date and Time

Date and Time | Julian Day

2026 – 9 – 1 5 : 45 : 11

Earth, Peterborough, 188 m FOV 61.9° 48.18 FPS 2026-09-01 05:45:11 UTC-04:00

Neptune

- On September 1st, Neptune rises at 8:41 p.m. in the eastern sky at evening twilight.

Neptune

Type: **planet**
Magnitude: **7.69** (reduced to **12.42** by **37.58** Airmasses)
Absolute Magnitude: -6.87
Mean Opposition Magnitude: 7.84
RA/Dec (J2000.0): 0h14m13.15s/-0°00'01.3"
RA/Dec (on date): 0h15m35.71s/+0°08'56.1"
HA/Dec: 17h58m39.32s/+0°31'31.7" (apparent)
Az./Alt.: +89°23'20.9"/+0°07'35.1" (apparent)
Gal. long./lat.: +103°10'03.9"/-61°26'08.5"
Supergal. long./lat.: +293°39'40.2"/+9°48'51.8"
Ecl. long./lat. (J2000.0): +3°15'43.1"/-1°24'48.9"
Ecl. long./lat. (on date): +3°38'13.8"/-1°24'46.6"
Ecliptic obliquity (on date): +23°26'08.9"
Mean Sidereal Time: 18h12m41.9s
Apparent Sidereal Time: 18h12m42.4s
Rise: 20h40m
Transit: 2h47m
Set: 8h50m
Parallactic Angle: -45°41'56.4"
IAU Constellation: Psc
Zodiac: ♈ 3°38'
Hourly motion: +0°00'04" towards 245.6°
Hourly motion: dα=-0°00'03" dδ=-0°00'02"
Elongation: 155°55'00.8"
Elong. in Ecl.Long.: W155°57'21"
Phase angle: +0°47'22.6"
Illuminated: 100.0%
Distance from Sun: 29.879 AU (4469.788 M km)
Distance: 28.955 AU (4331.549 M km)
Light time: 4h00m48.5s
Orbital velocity: 5.467 km/s
Sidereal period: 60189.00 days (164.789 a)
Synodic period: 367.49 days (1.006 a)
Apparent diameter: +0°00'02.36", with rings: +0°00'05.99"
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: +316°00'51"
Center point: L_e=+102°30'37" ϕ_e: -18°40'51"
Subsolar point: L_s=+103°16'28" ϕ_s: -18°59'51"
Albedo: 0.62
Discovered: 23 September 1846 (J.G. Galle)
Solar Az./Alt.: +291°20'11"/-9°43'36"
Lunar Az./Alt.: +53°30'12"/-8°24'21"

E

Date and Time

Date and Time | Julian Day

2026 – 9 – 1 | 20 : 41 : 12

Earth, Peterborough, 188 m | FOV 4.3° | 23.86 FPS | 2026-09-01 20:41:12 UTC-04:00

Neptune

- On September 30th, Neptune is low on the western horizon at sunrise.

Neptune

Type: **planet**
Magnitude: **7.68** (reduced to **9.15** by **11.27** Airmasses)
Absolute Magnitude: -6.87
Mean Opposition Magnitude: 7.84
RA/Dec (J2000.0): 0h11m25.47s/-0°18'37.7"
RA/Dec (on date): 0h12m48.21s/-0°09'38.7"
HA/Dec: 5h34m46.78s/-0°02'11.5" (apparent)
Az./Alt.: +265°33'40.2"/+4°28'56.8" (apparent)
Gal. long./lat.: +101°34'30.1"/-61°30'42.7"
Supergal. long./lat.: +293°09'46.3"/+10°24'02.2"
Ecl. long./lat. (J2000.0): +2°29'50.6"/-1°25'14.1"
Ecl. long./lat. (on date): +2°52'24.3"/-1°25'12.1"
Ecliptic obliquity (on date): +23°26'08.9"
Mean Sidereal Time: 5h48m04.9s
Apparent Sidereal Time: 5h48m05.4s
Rise: 18h45m
Transit: 0h50m
Set: 6h52m
Parallactic Angle: +45°31'26.6"
IAU Constellation: Psc
Zodiac: ♈ 2°52'
Hourly motion: +0°00'04" towards 246.5°
Hourly motion: dα=-0°00'04" dδ=-0°00'02"
Elongation: 175°21'38.0"
Elong. in Ecl.Long.: E175°34'58"
Phase angle: +0°09'19.2"
Illuminated: 100.0%
Distance from Sun: 29.878 AU (4469.686 M km)
Distance: 28.880 AU (4320.340 M km)
Light time: 4h00m11.1s
Orbital velocity: 5.466 km/s
Sidereal period: 60189.00 days (164.789 a)
Synodic period: 367.49 days (1.006 a)
Apparent diameter: +0°00'02.36", with rings: +0°00'06.01"
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: +316°15'33"
Center point: L_s=+217°18'28" ϕ_s: -18°56'31"
Subsolar point: L_s=+217°08'38" ϕ_s: -18°56'06"
Albedo: 0.62
Discovered: 23 September 1846 (J.G. Galle)
Solar Az./Alt.: +85°17'37"/-8°56'13"
Lunar Az./Alt.: +246°17'10"/+54°44'10"

Neptune

W

Date and Time

Date and Time | Julian Day

2026 – 9 – 30 | 6 : 24 : 36

Earth, Peterborough, 188 m | FOV 16.3° | 25.82 FPS | 2026-09-30 06:24:36 UTC-04:00

Neptune

- On September 30th, Neptune is well placed above the eastern horizon at evening twilight.

Neptune

Type: **planet**
Magnitude: **7.68** (reduced to **8.58** by **6.95** Airmasses)
Absolute Magnitude: -6.87
Mean Opposition Magnitude: 7.84
RA/Dec (J2000.0): 0h11m22.17s/-0°18'59.3"
RA/Dec (on date): 0h12m44.92s/-0°10'00.4"
HA/Dec: 18h44m58.59s/-0°05'20.4" (apparent)
Az./Alt.: +97°58'07.1"/+7°57'33.1" (apparent)
Gal. long./lat.: +101°32'37.3"/-61°30'47.2"
Supergal. long./lat.: +293°09'11.2"/+10°24'43.7"
Ecl. long./lat. (J2000.0): +2°28'56.5"/-1°25'14.4"
Ecl. long./lat. (on date): +2°51'30.4"/-1°25'12.3"
Ecliptic obliquity (on date): +23°26'08.9"
Mean Sidereal Time: 18h57m24.3s
Apparent Sidereal Time: 18h57m24.8s
Rise: 18h45m
Transit: 0h50m
Set: 6h52m
Parallactic Angle: -45°08'09.1"
IAU Constellation: Psc
Zodiac: ♈ 2°51'
Hourly motion: +0°00'04" towards 246.6°
Hourly motion: dα=-0°00'04" dδ=-0°00'02"
Elongation: 174°50'06.0"
Elong. in Ecl.Long.: E175°02'02"
Phase angle: +0°10'22.3"
Illuminated: 100.0%
Distance from Sun: 29.878 AU (4469.684 M km)
Distance: 28.881 AU (4320.474 M km)
Light time: 4h00m11.6s
Orbital velocity: 5.466 km/s
Sidereal period: 60189.00 days (164.789 a)
Synodic period: 367.49 days (1.006 a)
Apparent diameter: +0°00'02.36", with rings: +0°00'06.01"
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: +316°15'51"
Center point: L_s=+150°29'43" ϕ_s: -18°56'50"
Subsolar point: L_s=+150°18'47" ϕ_s: -18°56'01"
Albedo: 0.62
Discovered: 23 September 1846 (J.G. Galle)
Solar Az./Alt.: +272°47'17"/-7°17'50"
Lunar Az./Alt.: +39°06'06"/-10°07'04"

Date and Time

Date and Time | Julian Day

2026 – 9 – 30 | 19 : 31 : 46

Earth, Peterborough, 188 m | FOV 19.3° | 17.11 FPS | 2026-09-30 19:31:46 UTC-04:00

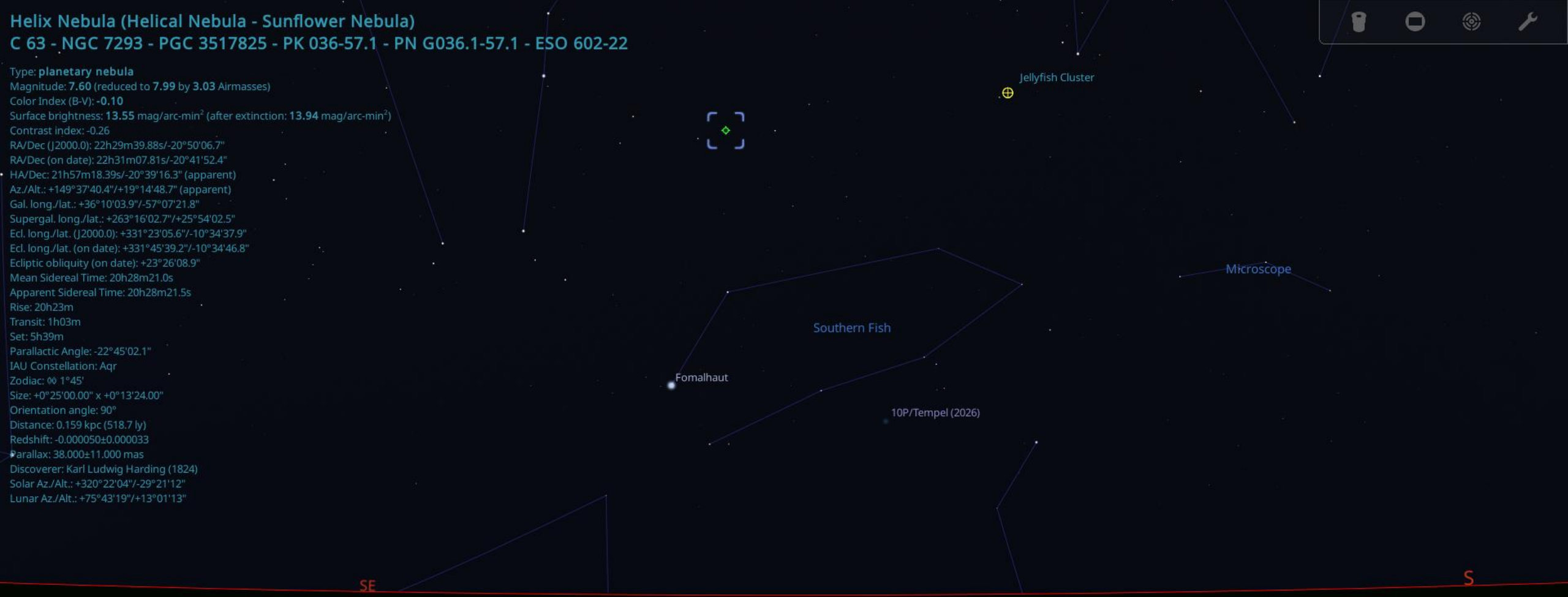
DEEP SKY

AQUARIUS

PLANETARY NEBULAS

CALDWELL 63

THE HELIX NEBULA



Date and Time

Date and Time | Julian Day

2026 - 9 - 1 | 22 : 56 : 29

Full-screen mode [F11]

Earth, Peterborough, 188 m | FOV 36.4° | 28.8 FPS | 2026-09-01 22:56:29 UTC-04:00

CALDWELL 63 – THE HELIX NEBULA

- Other Designations: NGC 7293, Eye of God, Eye of Sauron,
- Constellation: Aquarius
- Type: Nebula Class: Planetary Nebulae
- Diameter: 5.74 light years across
- Distance: 655 light years from Earth – Closest PN to Earth
- Magnitude: +7.6
- Stellar Core: White Dwarf Star – 120,000 K temp. Size of Uranus
- Size: 12 x 25 arc minutes across – half moon size.
- Age: 12,100 years old outer nebula – 6,560 years old for inner core.

C 63 – THE HELIX NEBULA

- Photo below taken by the Spitzer Space Telescope. Infra-red image and false color showing the detailed structure.

C 63 – THE HELIX NEBUALA

- Characteristics of the Helix Nebula. It is similar in physical appearance to the Cat's Eye Nebula and Ring Nebula. The Ring Nebula is in turn similar in structure to the Dumbbell Nebula.
- The Helix is an example of a planetary nebula, formed by an intermediate to low-mass star. The central star sheds its outer layers in a NOVA explosion at the end of its evolution.
- Gases from the star expand out to form a ring or nebula. The remnant central stellar core, known as the central star (CS) of the nebula becomes a white dwarf.
- Photo taken by the Hubble Space Telescope.

C 63 – THE HELIX NEBUALA - Structure

- The Helix Nebula is thought to be shaped like a prolate spheroid with strong density concentrations toward the filled disk along the equatorial plane. The Helix is inclined about 21° to 37° from our vantage point. The outer-most ring appears flattened on one side due to it colliding with the ambient interstellar medium. Spectroscopically, the inner disk's expansion rate is 40 km/s, and about 32 km/s for the outer ring.
- The Helix Nebula was the first planetary nebula discovered to contain cometary knots. Its main ring contains knots of nebulosity. In the 18th century early astronomers thought the bulbous nebulous gases around expanding stars were planets. Hence, Planetary Nebulae were born.

C 63 – THE HELIX NEBUALA - Structure

- The knots are probably the result of Rayleigh-Taylor instability. The low density, high expansion velocity ionized inner nebula is accelerating the denser, slowly expanding, largely neutral material from the outer shells thrown off during the Asymptotic Giant Branch of the star’s life.
- These knots are radially symmetrical (from the CS) and are described as "cometary", each centered on a core of neutral molecular gas and containing bright local photoionization fronts or cusps towards the central star and tails away from it.
- All tails extend away from the Planetary Nebula Nucleus (PNN) in a radial direction. Each knot is approximately the size of the Solar System. There are about 40,000 cometary knots in the Helix Nebula.

C 63– THE HELIX NEBULA

- The close-up photos by the James Webb Space Telescope showing the inner most details of the Helix Nebula’s structure.

- Close up of the Cometary Knots within the inner core.

That is the Sky this Month

By David Mills