

AstroGuy Podcast

September 2026 Observing Guide

Best Observing Windows

Lunar Feature of the Month: Ptolemaeus, Alphonsus, and Arzachel are best around First Quarter, when the terminator is nearby.

Deep-sky targets: Aim for the darker nights around New Moon, roughly September 5-16. This month the deep-sky tour stays in Aquarius.

Planet highlights: Venus dominates the evening after sunset. Jupiter and Mars are morning targets. Saturn is coming back into prime time, and Neptune reaches opposition on September 25 in the U.S.

Space News: NASA's Nancy Grace Roman Space Telescope is targeted for launch no earlier than August 30 aboard a SpaceX Falcon Heavy.

Comets and meteor showers: There are no bright comets or major meteor showers featured this month.

September 2026 Moon Phase Calendar

September 2026 Moon Phase Calendar

All phase times shown in Eastern Time. Daily icons approximate the Moon's phase near noon ET.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1  Waning Gibbous	2  Waning Gibbous	3  Waning Gibbous	4  Last Quarter	5  Waning Crescent
6  Waning Crescent	7  New Moon	8  Waning Crescent	9  Waning Crescent	10  New Moon	11  Waxing Crescent	12  Waxing Crescent
13  Waxing Crescent	14  Waxing Crescent	15  Waxing Crescent	16  Waxing Crescent	17  Waxing Crescent	18  First Quarter	19  Waxing Gibbous
20  Waxing Gibbous	21  Waxing Gibbous	22  Waxing Gibbous	23  Waxing Gibbous	24  Waxing Gibbous	25  Waxing Gibbous	26  Full Moon
27  Waning Gibbous	28  Waning Gibbous	29  Waning Gibbous	30  Waning Gibbous			

Exact Major Phase Times

- Last Quarter Sep 4, 3:51 a.m. ET
- New Moon Sep 10, 11:26 p.m. ET
- First Quarter Sep 18, 4:43 p.m. ET
- Full Moon Sep 26, 12:49 p.m. ET

Observing Notes

- Dark-sky window roughly Sep 7-16
- Best LFOM views around Sep 18
- Full Moon arrives Sep 26 at 12:49 p.m. ET
- New Moon late on Sep 10

September 2026 Planetary Data

Representative mid-month values for planning. Low twilight objects should be verified with a current chart or app.

Planet	Best visibility	Constellation	Mag.	Diameter (arcseconds)	Guide note
Mercury	Low evening twilight	Virgo	~+0.2	~5"	Difficult; very thin Moon about 10° left on Sep 12; very low.
Venus	Evening twilight	Virgo	~-4.8	~39"	Greatest brightness Sep 22; Moon about 5° left and slightly above Sep 14.
Mars	Morning	Gemini / Cancer	~+1.3	~5.3"	Small; Moon about 6° above Sep 6.
Jupiter	Morning	Cancer	~-1.9	~33"	Moon above Jupiter before sunrise Sep 8; improves later in the year.
Saturn	Evening / late night	Pisces	~+0.4	~20"	Improving toward October opposition; rings still narrow; Moon nearby Sep 27.
Uranus	Morning telescope/binocular target	Taurus	~+5.7	~3.6"	Faint, star-like; use a chart or app.
Neptune	Opposition Sep 25	Pisces	~+7.8	~2.4"	Tiny bluish point or disk; needs a chart or app.

Quick Target List

Aquarius targets for this episode.

Object	Type	Constellation	Magnitude	Size / Separation	Distance	Best Approach
M72	Globular cluster	Aquarius	~9.3	~6 arcmin	~54,000 ly	Dark sky; larger aperture
M73	Asterism	Aquarius	~9	Four-star Y shape	--	Small telescope; curiosity
NGC 7009, Saturn Nebula	Planetary nebula	Aquarius	~8.0	~41 x 35 arcsec	~1,400 ly	Magnification; filter helps
M2	Globular cluster	Aquarius	~6.5	~16 arcmin	~38,140 ly	Binoculars or telescope
NGC 7293, Helix Nebula	Planetary nebula	Aquarius	~7.6	~25 arcmin	~650 ly	Low power; dark sky; OIII/UHC
41 Aquarii	Double star	Aquarius	~5.3 / ~7	~5 arcsec	~230 ly	Small telescope; moderate power

September Space News

Topic	Planning note
Nancy Grace Roman Space Telescope	Targeted for launch no earlier than August 30 on a Falcon Heavy from Kennedy Space Center. Roman's wide-field infrared view is about 100 times larger than Hubble's and will support surveys of dark energy, large-scale structure, exoplanets, supernovae, and other changing objects.
Comets / Meteor showers	No bright comets or major meteor showers are featured for September.

Object Notes and Finder Tips

Ptolemaeus, Alphonsus, and Arzachel, Lunar craters

Lunar craters | Moon

Size	Ptolemaeus ~154 km; Alphonsus ~119 km; Arzachel ~96 km
Best observing window	Around First Quarter, especially when the terminator is nearby
Location	Near the center of the Moon's visible face, in the lunar highlands
Best approach	Low power to locate the trio; then increase magnification for crater floors, rims, shadows, and small details

Description / where to look: Look near the center of the Moon for three large craters stacked almost in a line. Ptolemaeus is the northernmost and broadest, Alphonsus lies just south of it, and Arzachel sits farther south.

What to notice: Compare the crater floors and rims. Ptolemaeus looks broad and worn down, Alphonsus has a central peak and darker volcanic deposits under good conditions, and Arzachel looks sharper and more rugged.

M72

Globular cluster | Aquarius

Magnitude	~9.3
Size	~6 arcmin
Distance	~54,000 light-years
Best approach	Dark sky; larger aperture helps

Star hop: Use Aquarius finder stars and a detailed chart. M72 sits in a sparse area, so take your time confirming the field.

What to notice: Look for a dim, round glow that brightens slightly toward the center. In small scopes it is subtle; larger aperture makes it more appealing.

[M72 Finder Chart](#)

M73

Asterism | Aquarius

Magnitude	~9
Size	Tiny four-star pattern
Distance	Not a physical cluster
Best approach	Small telescope

Star hop: M73 sits near M72, so it makes sense to visit both in the same sweep through Aquarius.

What to notice: Look for a tiny Y-shaped grouping of four stars. It is one of the oddballs in the Messier catalog.

[M73 Finder Chart](#)

NGC 7009, the Saturn Nebula

Planetary nebula | Aquarius

Magnitude	~8.0
Size	~41 x 35 arcsec
Distance	~1,400 light-years
Best approach	Magnification; nebula filter helps

Star hop: Use a detailed chart. At low power it may appear almost stellar until you increase magnification.

What to notice: Look for a tiny bluish or greenish disk. Larger scopes may show extensions that give it the Saturn nickname.

[NGC 7009 Finder Chart](#)

NGC 7293, the Helix Nebula

Planetary nebula | Aquarius

Magnitude	~7.6
Size	~25 arcmin
Distance	~650 light-years
Best approach	Low power; dark sky; OIII/UHC filter

Star hop: Use low power and a wide field. The Helix is large, so do not over-magnify it at first.

What to notice: Look for a large, faint, round glow. The challenge is low surface brightness: its light is spread out, so your eye can slide right over it.

[Helix Nebula Finder Chart](#)

M2

Globular cluster | Aquarius

Magnitude	~6.5
Size	~16 arcmin
Distance	~38,140 light-years
Best approach	Binoculars or telescope

Star hop: M2 is one of the easier Aquarius deep-sky targets and stands out better than M72.

What to notice: In binoculars it can show as a small fuzzy spot. In telescopes it is bright, concentrated, and starts resolving at the edges with more aperture.

[M2 Finder Chart](#)

41 Aquarii

Double star | Aquarius

Magnitude	~5.3 primary; ~7 companion
Separation	~5 arcsec
Distance	~230 light-years
Best approach	Small telescope; moderate power

Star hop: 41 Aquarii sits in the same general part of the sky as the Helix, so it works well as the final stop in the Aquarius tour.

What to notice: Look for a brighter yellow-orange star and a fainter bluish or blue-white companion. The colors can be subtle.

[41 Aquarii Finder Chart](#)

Quick Field Tips

- Use the dark-sky window around September 5-16 for the faintest targets.
- Use low power for the Helix Nebula first, then add a UHC or OIII filter if you have one.
- Use higher magnification for NGC 7009 and 41 Aquarii after you identify the field.
- For Ptolemaeus, Alphonsus, and Arzachel, observe near First Quarter or return over several nights to watch the lighting change.
- For Neptune at opposition, use a finder chart. It will look like a tiny bluish point or very small disk, not a bright showpiece planet.

Notes

Moon phases: Daily icons approximate the Moon's phase near noon Eastern Time. Major phase times are listed on the calendar.

Planning note: Use a current planetarium app for exact local altitude, timing, and horizon clearance before observing.