

# AstroGuy Podcast

## October 2026 Observing Guide

### Best Observing Windows

**Lunar Feature of the Month:** Eratosthenes is best around First Quarter, when the terminator is nearby and its terraced walls and central peaks cast long shadows.

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

**Planet highlights:** Saturn reaches opposition October 4. The Moon occults Jupiter October 6, Mars passes through M44 October 11, and Mercury reaches greatest eastern elongation October 11.

**Meteor showers:** The Draconids favor the evening of October 8 with essentially moonless conditions. The Orionids peak October 21-22, but a bright waxing gibbous Moon will interfere.

### October 2026 Moon Phase Calendar

#### October 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<br><br>Waning Gibbous   | 2<br><br>Waning Gibbous   | 3<br><br>Last Quarter     |
| 4<br><br>Waning Crescent  | 5<br><br>Waning Crescent  | 6<br><br>Waning Crescent  | 7<br><br>Waning Crescent  | 8<br><br>Waning Crescent  | 9<br><br>Waning Crescent  | 10<br><br>New Moon        |
| 11<br><br>Waxing Crescent | 12<br><br>Waxing Crescent | 13<br><br>Waxing Crescent | 14<br><br>Waxing Crescent | 15<br><br>Waxing Crescent | 16<br><br>Waxing Crescent | 17<br><br>Waxing Crescent |
| 18<br><br>First Quarter   | 19<br><br>Waxing Gibbous  | 20<br><br>Waxing Gibbous  | 21<br><br>Waxing Gibbous  | 22<br><br>Waxing Gibbous  | 23<br><br>Waxing Gibbous  | 24<br><br>Waxing Gibbous  |
| 25<br><br>Waxing Gibbous  | 26<br><br>Full Moon       | 27<br><br>Waning Gibbous  | 28<br><br>Waning Gibbous  | 29<br><br>Waning Gibbous  | 30<br><br>Waning Gibbous  | 31<br><br>Waning Gibbous  |

#### Exact Major Phase Times

- Last Quarter Oct 3, 9:25 a.m. ET
- New Moon Oct 10, 11:50 a.m. ET
- First Quarter Oct 18, 12:12 p.m. ET
- Full Moon Oct 26, 12:11 a.m. ET

#### Observing Notes

- Dark-sky window roughly Oct 5-16
- Best LFOM views around Oct 17-19
- Draconids favor the evening of Oct 8
- Orionids Oct 21-22 face bright Moon

## October 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      | Libra         | ~-0.1 | ~7"                   | Greatest eastern elongation Oct 11; still low after sunset. |
| Venus   | Very low evening twilight | Virgo         | ~-4.3 | ~56"                  | Thin crescent early; inferior conjunction Oct 23.           |
| Mars    | Morning                   | Cancer        | ~+1.0 | ~6"                   | Passes through M44 Oct 11; enters Leo Oct 31.               |
| Jupiter | Morning                   | Leo           | ~-1.9 | ~33"                  | Lunar occultation Oct 6; rises earlier through the month.   |
| Saturn  | Evening / all night       | Cetus         | ~+0.3 | ~20"                  | Opposition Oct 4; Moon nearby Oct 24.                       |
| Uranus  | Evening / late night      | Taurus        | ~+5.7 | ~3.7"                 | Approaching Nov 25 opposition; use a chart or app.          |
| Neptune | Evening / most of night   | Pisces        | ~+7.8 | ~2.4"                 | Just past Sep 25 opposition; use a chart or app.            |

## Quick Target List

Cepheus targets for this episode.

| Object                  | Type                           | Constellation | Magnitude       | Size / Separation | Distance  | Best Approach                   |
|-------------------------|--------------------------------|---------------|-----------------|-------------------|-----------|---------------------------------|
| NGC 7023, Iris Nebula   | Reflection nebula              | Cepheus       | ~6.8            | ~10 x 8 arcmin    | ~1,300 ly | Dark sky; averted vision        |
| Struve 2816             | Triple star                    | Cepheus       | 5.7 / 7.5 / 7.5 | ~12" / ~20"       | ~2,000 ly | Small telescope; moderate power |
| Delta Cephei            | Variable / double star         | Cepheus       | 3.5-4.4 / 6.3   | ~41"              | ~1,100 ly | Naked eye + small telescope     |
| NGC 7380, Wizard Nebula | Open cluster + emission nebula | Cepheus       | ~7.2            | ~25 x 20 arcmin   | ~7,200 ly | Telescope; OIII/UHC helps       |
| NGC 188                 | Open cluster                   | Cepheus       | ~8.1            | ~18 arcmin        | ~6,700 ly | Telescope; moderate power       |

## October News

| Topic                                           | Details                                                                                                                                                                                               |
|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Meteor showers                                  | Draconids favor the evening of Oct 8 with moonless conditions. Orionids peak Oct 21-22, but an approximately 80% waxing gibbous Moon will interfere.                                                  |
| Nancy Grace Roman Space Telescope               | Roman launched August 30 aboard a Falcon Heavy and is now on its roughly three-month journey toward the Sun-Earth L2 point, about a million miles from Earth.                                         |
| Hubble makes an interesting discovery at Saturn | Hubble observations released September 2 revealed a 10-sided atmospheric wave surrounding Saturn's south pole.                                                                                        |
| BepiColombo arrives at Mercury                  | The mission has entered its Mercury-arrival phase, with orbit insertion planned for November 21.                                                                                                      |
| Pandora begins studying exoplanet atmospheres   | NASA's Pandora mission is now making science observations of exoplanets and their host stars. It will study at least 20 planets, looking for atmospheric features including clouds, hazes, and water. |

# Object Notes and Finder Tips

## Eratosthenes, Lunar crater

*Lunar crater | Moon*

|                       |                                                                                           |
|-----------------------|-------------------------------------------------------------------------------------------|
| Size                  | ~58 km                                                                                    |
| Best observing window | Around First Quarter; October 17-19 is especially favorable                               |
| Location              | Eastern edge of Mare Imbrium, near the southern Apennine Mountains                        |
| Best approach         | Low power to locate; then increase magnification for terraces, central peaks, and shadows |

**Description / where to look:** Look near the eastern edge of Mare Imbrium, close to the southern end of the Apennine Mountains. Eratosthenes is a prominent, sharply defined crater near the terminator around First Quarter.

**What to notice:** Look for terraced inner walls, central peaks, and long shadows that change dramatically from night to night. The crater is named for Eratosthenes of Cyrene, who made a remarkably accurate early measurement of Earth's circumference.

## NGC 7023, the Iris Nebula

*Reflection nebula | Cepheus*

|               |                                              |
|---------------|----------------------------------------------|
| Magnitude     | ~6.8                                         |
| Size          | ~10 x 8 arcmin                               |
| Distance      | ~1,300 light-years                           |
| Best approach | Dark sky; low/moderate power; averted vision |

**Star hop:** Use a detailed chart and center the bright star HD 200775; the reflection nebula surrounds it.

**What to notice:** Expect a subtle glow rather than the blue photographic appearance. With dark skies and patient viewing, some structure can begin to emerge.

[Iris Nebula Finder Chart](#)

## Struve 2816

*Triple star | Cepheus*

|               |                                     |
|---------------|-------------------------------------|
| Magnitude     | ~5.7 / ~7.5 / ~7.5                  |
| Separation    | ~11.8 / ~20 arcsec                  |
| Distance      | ~2,000 light-years                  |
| Best approach | Small telescope; low/moderate power |

**Star hop:** Use a chart for the IC 1396 region. Struve 2816 is the bright triple star in a rich Milky Way field.

**What to notice:** The primary is flanked by two similar companions. At low power, Struve 2819 and Struve 2815 are also in the same field, making this a rewarding multiple-star stop.

[Struve 2816 Finder Chart](#)

## Delta Cephei

*Variable / double star | Cepheus*

|               |                                                       |
|---------------|-------------------------------------------------------|
| Magnitude     | 3.5-4.4 primary; ~6.3 companion                       |
| Separation    | ~41 arcsec                                            |
| Period        | ~5.366 days                                           |
| Best approach | Naked eye for variability; small telescope for double |

**Star hop:** Locate Delta at the southern corner of the familiar Cepheus house shape. Nearby Zeta and Epsilon Cephei make useful brightness comparisons.

**What to notice:** In a telescope, look for the yellow-orange primary and blue-white companion. Over several nights, follow the primary's regular brightness changes.

[Delta Cephei Finder / Observing Notes](#)

## NGC 7380, the Wizard Nebula

*Open cluster + emission nebula | Cepheus*

|               |                                     |
|---------------|-------------------------------------|
| Magnitude     | ~7.2                                |
| Size          | ~25 x 20 arcmin                     |
| Distance      | ~7,200 light-years                  |
| Best approach | Telescope; dark sky; OIII/UHC helps |

**Star hop:** Use a detailed chart to locate the open cluster first; the stars are much easier to see than the surrounding nebula.

**What to notice:** The cluster is obvious in modest apertures. The nebula is faint and mottled visually, but under darker skies it responds well to a nebula filter.

[Wizard Nebula Finder Chart](#)

**NGC 188***Open cluster | Cepheus*

|               |                           |
|---------------|---------------------------|
| Magnitude     | ~8.1                      |
| Size          | ~17.7 arcmin              |
| Distance      | ~6,700 light-years        |
| Best approach | Telescope; moderate power |

**Star hop:** Use Polaris and a detailed chart. NGC 188 lies only a few degrees from the north celestial pole and remains well placed all night.

**What to notice:** At first it can appear as a soft misty patch. More magnification and aperture resolve a rich sprinkling of stars. The cluster is more than 7 billion years old.

[NGC 188 Finder Chart](#)

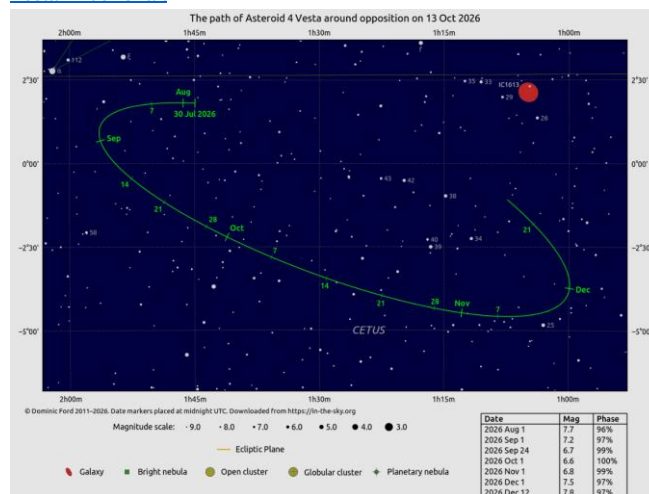
**4 Vesta***Asteroid | Cetus*

|                         |                                                  |
|-------------------------|--------------------------------------------------|
| Magnitude at opposition | ~6.5                                             |
| Opposition              | October 13                                       |
| Position                | Cetus                                            |
| Best approach           | Binoculars; compare position over several nights |

**Star hop:** Use the finder chart near opposition and match the star field carefully; Vesta will look point-like, just like a star.

**What to notice:** Return on consecutive nights. Its changing position against the background stars is the giveaway that you are looking at an asteroid.

[Vesta Finder Chart](#)



## Quick Field Tips

- Use the dark-sky window around October 5-16 for the Iris and Wizard nebulae.
- A nebula filter can help the Wizard Nebula, but it will not improve the Iris Nebula, which shines by reflected starlight.
- Use low power for the Struve 2816 field, then increase magnification as needed for the individual multiple stars.
- For Eratosthenes, observe around October 17-19 and return over several nights to watch the shadows change.
- For Vesta, use the finder chart around October 13 and compare its position on consecutive nights.

## 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.

**Source links:** NASA Roman Space Telescope | NASA Hubble | ESA BepiColombo | NASA Pandora | Timeanddate Moon phases | In-The-Sky event calendar | IAU/USGS lunar names