



July 2026 Astronomy Report

What's Up This Month?



- **Moon:**
 - Phases
 - Lunar "Time Travel"

- **Planets:**
 - Evening: Venus, Jupiter
 - Morning: Mercury, Mars, Saturn, Uranus, Neptune

- **Comets/Asteroids/Meteor Showers:**
 - Comet 10P/Tempel
 - Asteroid 14 Irene

- **Dark Sky Star Party:**
 - 22171 Cody Ct - BVS, July 11

- **Public Viewing:**
 - Cub Lake, July 18

Moon - Phases

July 14 - New Moon

July 7 - Last Quarter (Pisces)



July 21 - First Quarter (Virgo)



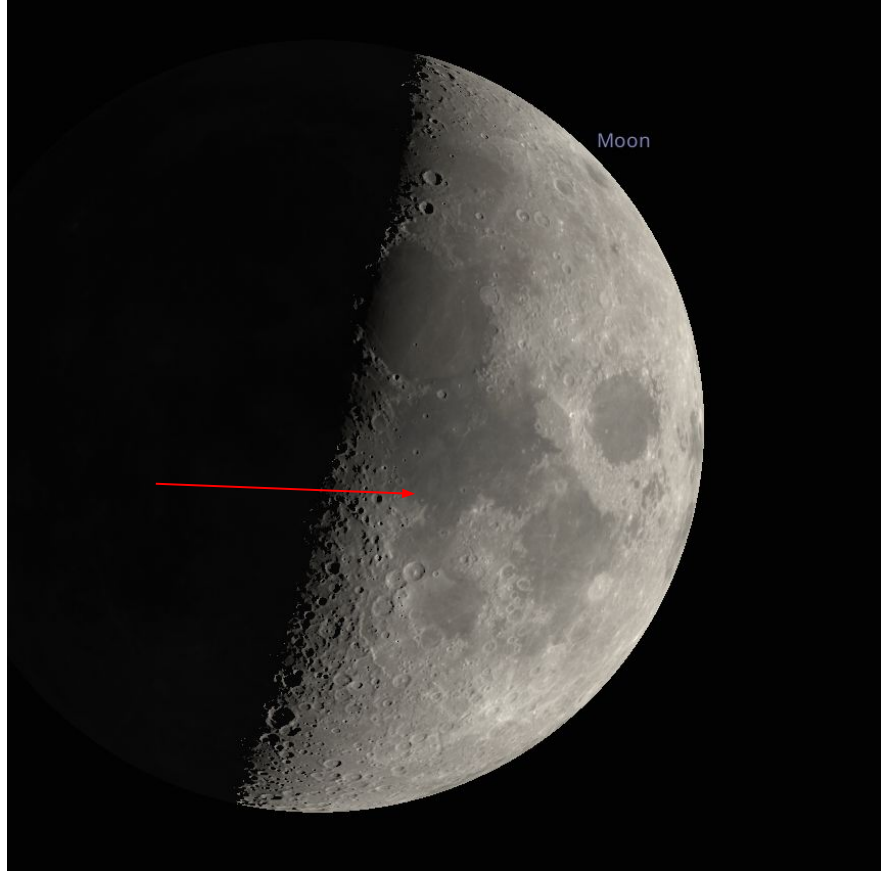
July 29 - Full Moon (Capricorn)



Apogee (251,996 miles) - 25th
Perigee (223,143 miles) - 13th

Moon - Lunar “Time Travel”

The lunar phase on July 20, 2026 is exactly the same as on July 20, 1969.



An exact match?! Yes, if you're not counting seconds: The Moon's phases repeat on the same calendar date every 19 years, called a Metonic cycle. Although known by the Babylonians, Greek astronomer Meton also realized the importance of this period around 430 b.c.e., registering it in Western classical texts. Now, we are precisely three Metonic cycles (a total of 57 years) after Apollo 11: With 29.530589 days from Full Moon to Full Moon, times 235 months, times 3 cycles, we get 20,819.065 days or 57.038356 years since July 20, 1969.

Other features of the lunar orbit (e.g., node crossing, perigee) don't quite line up, meaning that eclipses won't always repeat on a Metonic cycle. And some 19-year blocks have an extra leap day compared to others, which can throw the date off by one day. But if you remember when there was a Full Moon on your birthday, without blinking you know the next one is 19 years after that, and so on.

Check out Tranquillity Base at the eyepiece, located near the southwestern rim of the Sea of Tranquillity, with only 1.6 hours difference in lighting compared to that seen by *Eagle* on the exact same day of the year.



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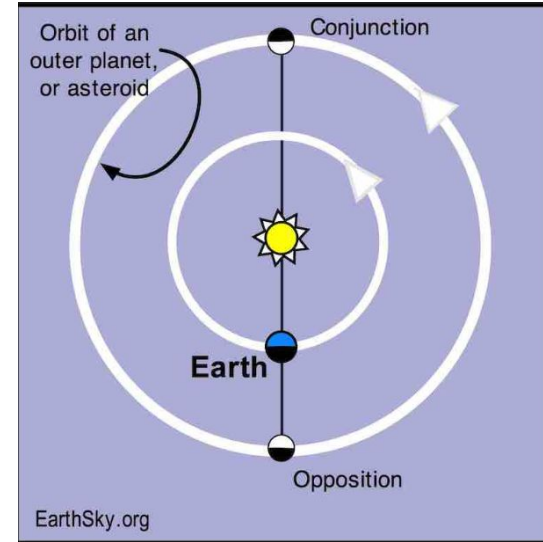
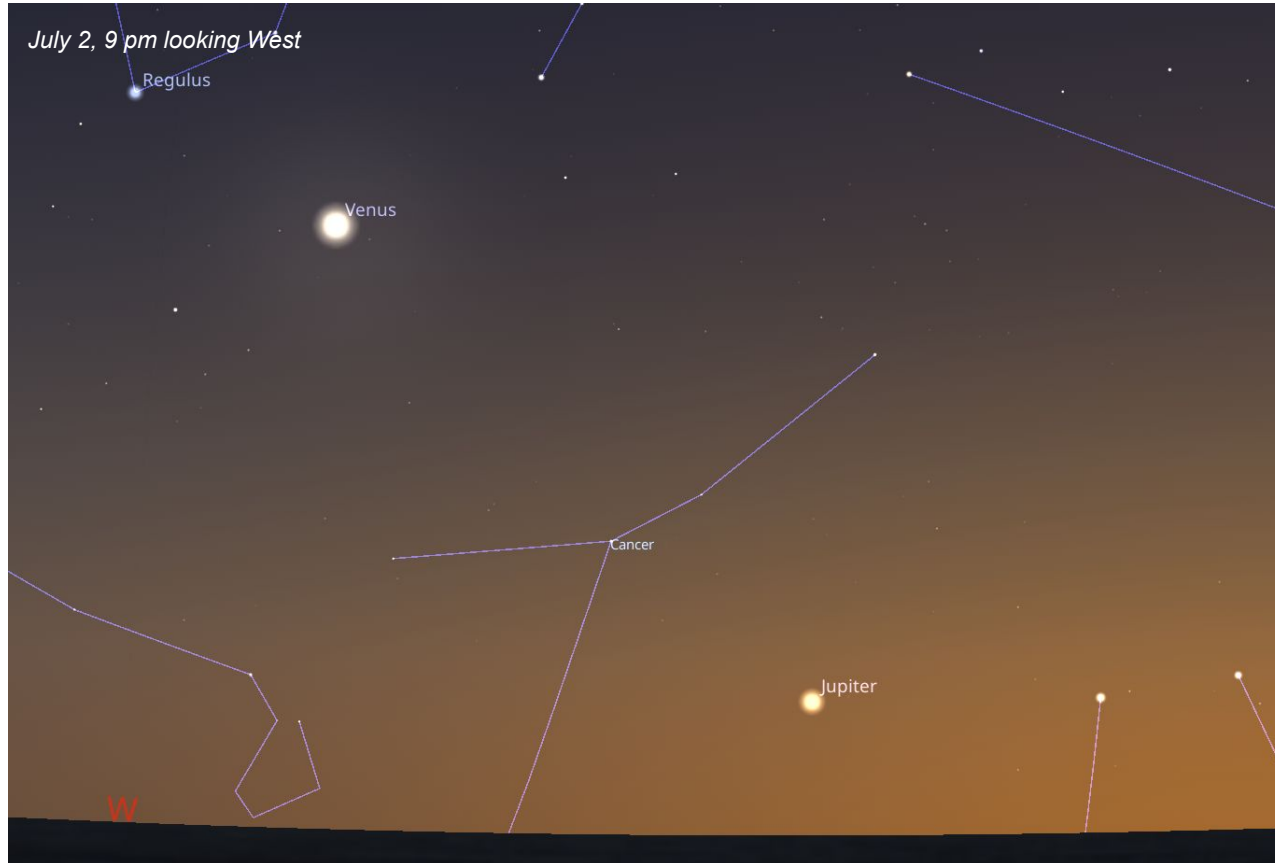
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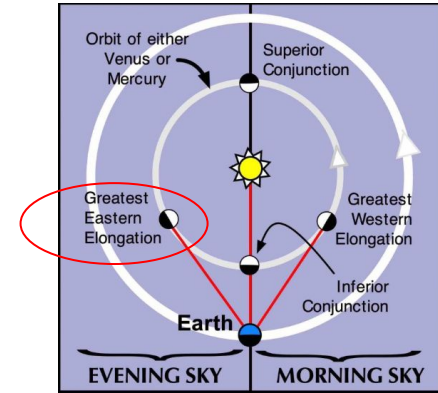
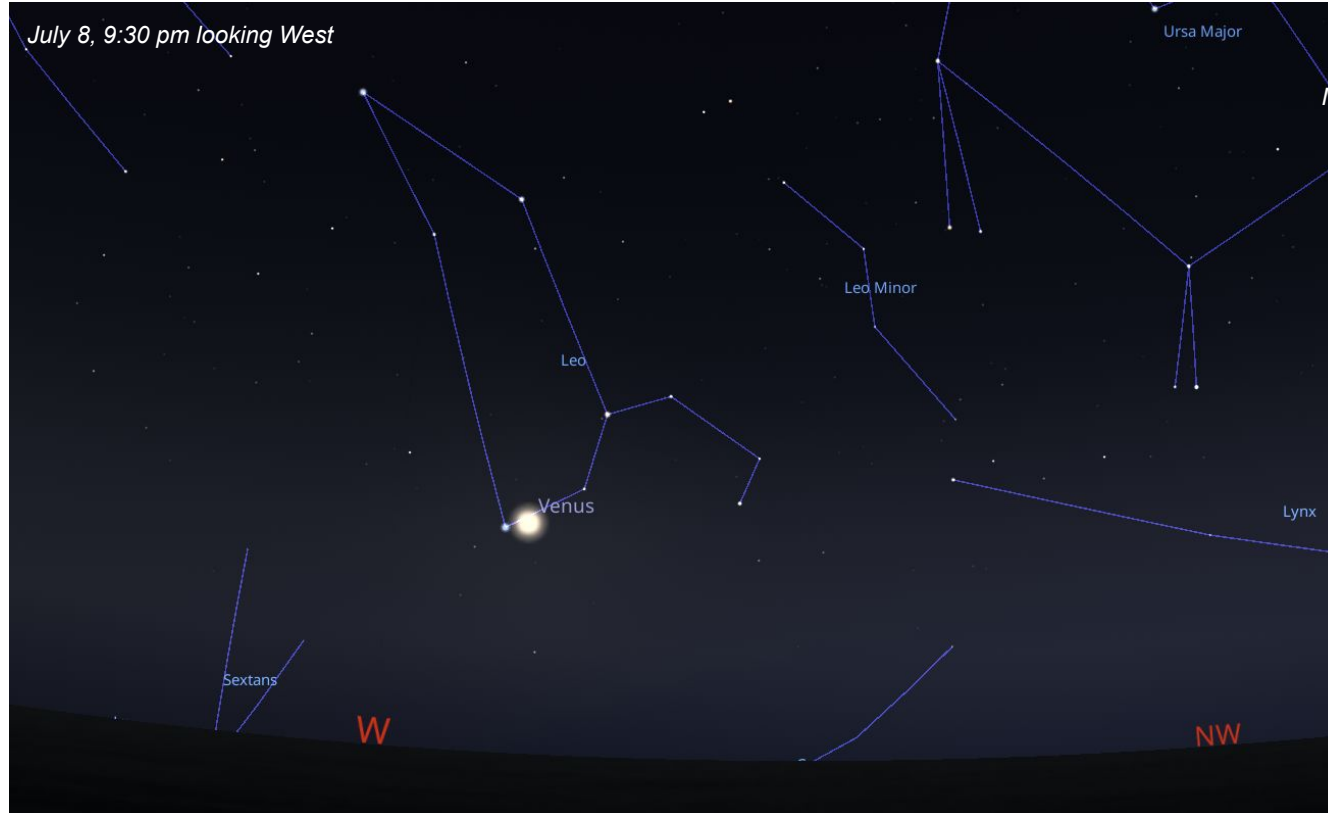
Evening Planets: Jupiter - (Cancer)

Jupiter lingers briefly after sunset in early July. It disappears from view by the 10th as it heads toward solar conjunction on July 29.



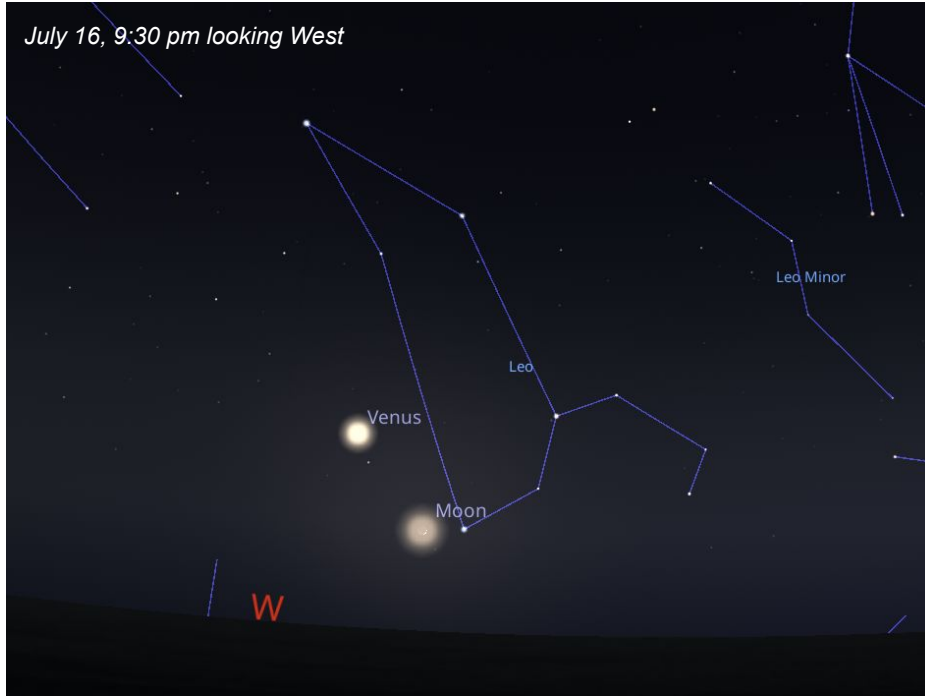
Evening Planets: Venus - (Leo)

Venus and Regulus meet in the evening sky on July 8. Venus continues across southern Leo, reaching the border of Virgo by the 31st. Through July its magnitude and size increase, indicating that Venus is getting closer to us. It will reach greatest eastern elongation next month.



Evening Planets: Venus/Moon - (Leo)

A 3-day old Moon greets Regulus on July 16, with Venus 8° east of the Moon. On the following evening, the Moon stands 6° SE of Venus.



Morning Planets: Saturn/Neptune - (*Pisces*)

Neptune rises after midnight at the beginning of July, half an hour before Saturn rises.



Closeup of Neptune



Morning Planets: Saturn - (Pisces)

Saturn is visible in the predawn all month, rising about 1 am on the 1st and two hours earlier by the 31st. After 4 am, with Saturn $>30^\circ$ above the SE horizon, it's a good time to catch its many moons. Titan is the brightest, orbiting every 16 days.

July 4, 4 am looking SE

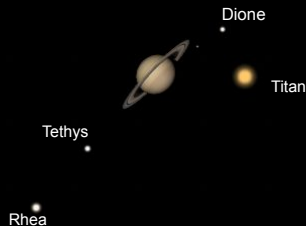


July 5, 4 am looking SE



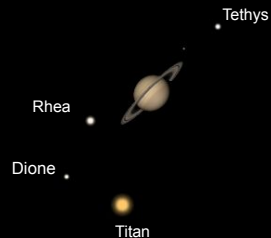
Titan lies NE & NW of Saturn, respectively, and again on the 20th and 21st.

July 12, 4 am looking SE



Titan lies SW & SE of Saturn, respectively, and again on the 28th and 29th.

July 13, 4 am looking SE



Morning Planets: Saturn - (Pisces)

Iapetus reaches western elongation on July 16. This faint moon varies its brightness as it orbits, as its opposing bright and dark faces turn earthward. At western elongation, it's two magnitudes brighter than at eastern elongation. Coincidentally, Titan is at eastern elongation the same night, providing a useful ruler to estimate where Iapetus is located at their respective opposing elongations, about three times further from Saturn, to the west.

July 16, 4 am looking SE



Morning Planets: Mars/Uranus - (*Taurus*)

Mars and Uranus undergo a conjunction on July 4th southeast of M45, the Pleiades star cluster.



Closeup of Uranus

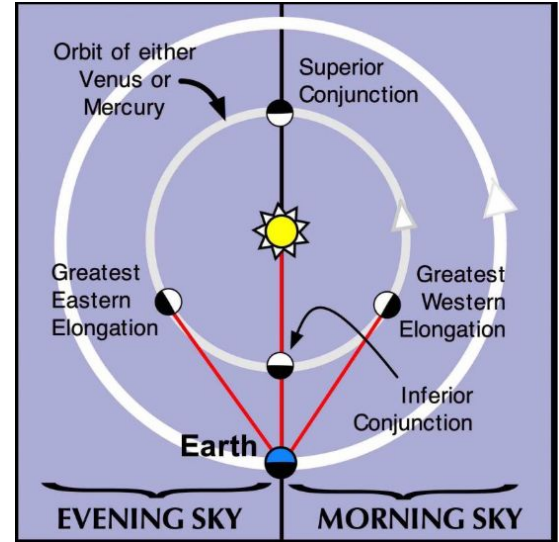
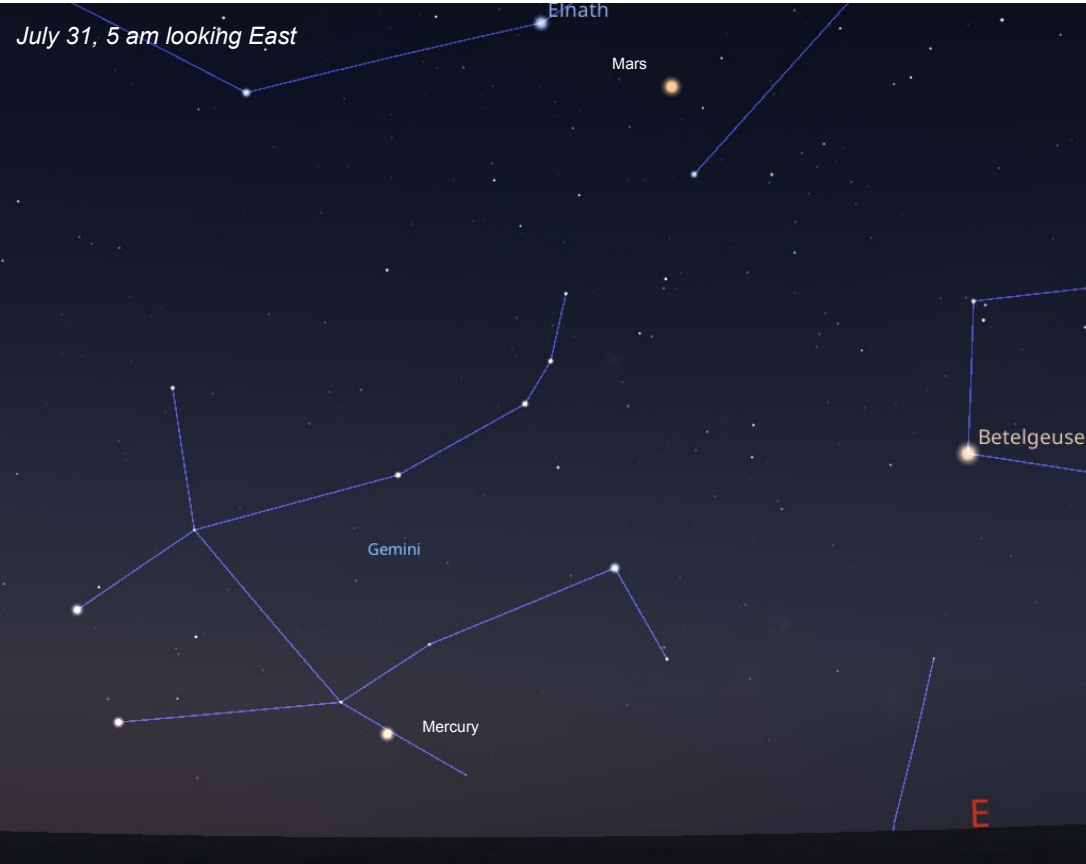
Morning Planets: Mars/Moon - (Taurus)

On July 11, a waning crescent Moon joins Mars and Uranus. Mars continues moving east across Taurus. By the end of July, it has reached a point near Zeta Tauri, the southern horn of the Bull.



Morning Planets: Mercury - (Gemini)

Mercury pops up in the morning sky in late July, following its July 12 inferior conjunction. By July 31st, Mercury brightens to magnitude 0.5 becoming easier to spot as it's a few days away from its greatest western elongation.





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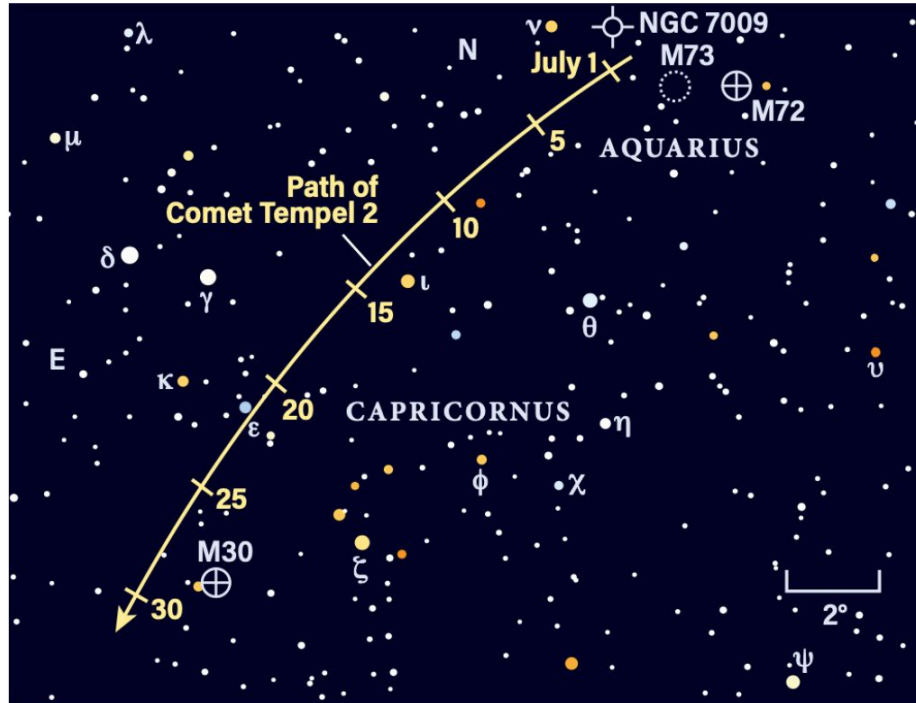
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Comet - 10P/Tempel

- Morning comet visible with binoculars at a dark site or a small telescope under a country sky (Bortle Scale 1-3)
- Begins the month in Aquarius at magnitude 9.6, should brighten by 1.1 magnitude and move to Capricornus by end of July (middle of month best)
- Rapid changes in its appearance take place from July 18-22 as Earth passes through comet's travel plane (see it edge-on)
- Discovered by Wilhelm Tempel in 1873 (comet's position not conducive during Messier's timeframe for his observation)

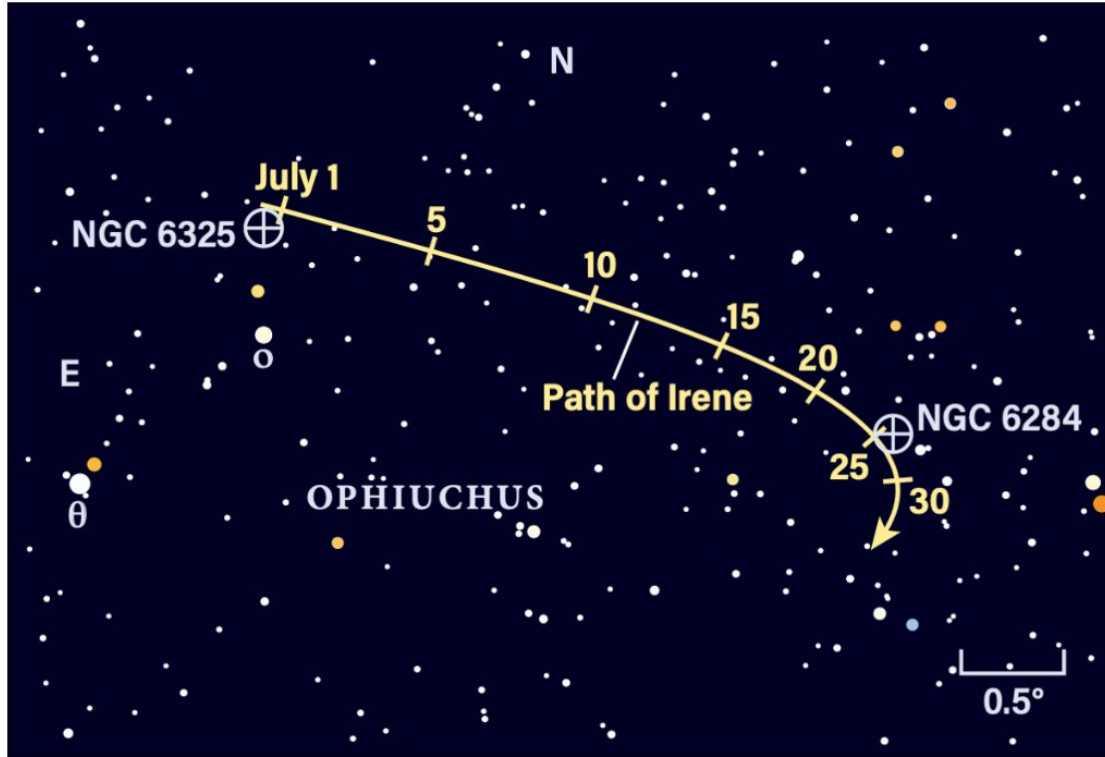


Comet Tempel 2 arcs through Capricornus this month, potentially shining at 7th magnitude. Credit: Astronomy: Roen Kelly



Asteroid - 14 Irene

- Large main-belt asteroid, 152 km mean diameter; orbits the Sun every 4.16 years
- Best observed late evening looking south towards Ophiuchus and Scorpius
- Discovered by John Hind in 1851, named after Eirene, Greek personification of peace



Before midnight, looking South



Tenth-magnitude Irene covers a small patch of sky near Theta (θ) Ophiuchi this month, located between globulars NGC 6325 and 6284. Credit: Astronomy: Roen Kelly



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Dark Sky Viewing

22171 Cody Ct - BVS, July 11

Ps 19:2

1 - M102 (Spindle Galaxy)



Edge-on spiral galaxy in Draco constellation
50MM light years from Earth
small telescopes

2 - M16 (Eagle Nebula)



Star-forming nebula best known for Pillars of Creation region
7000 light years from Earth
small telescopes

3 - NGC 6543 (Cat's Eye Nebula)

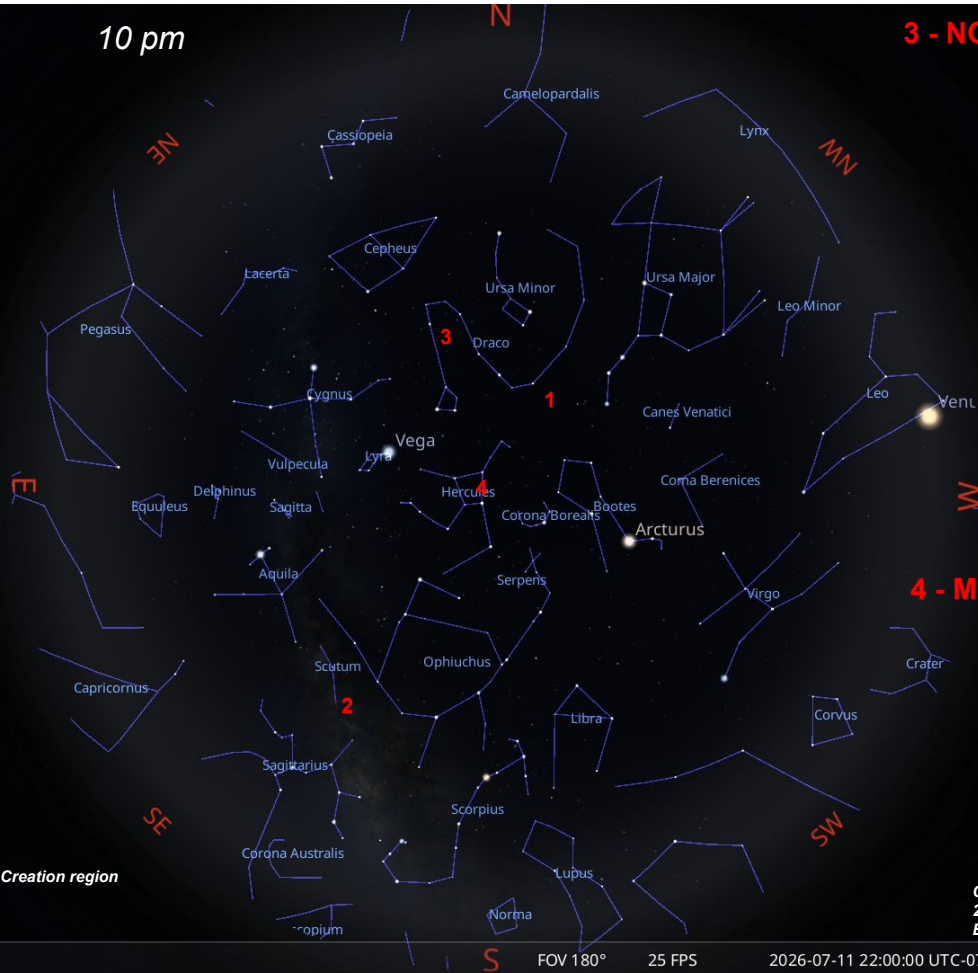


Planetary nebula in Draco constellation
3300 light years from Earth
2021 - high school student created 3D model

4 - M13 (Great Hercules Cluster)



Globular star cluster in Hercules constellation
20 - 25,000 light years from Earth
Binoculars, small telescopes

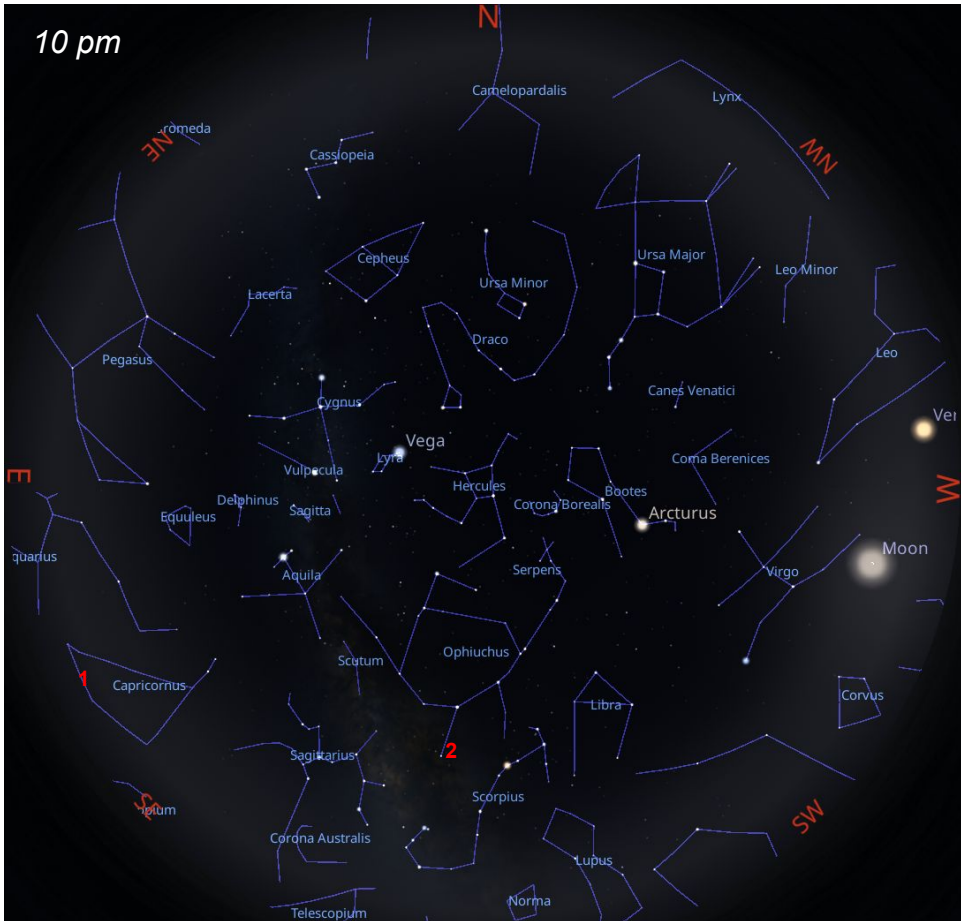


Cub Lake, July 18

Cub Lake, July 18

Ps 19:2

10 μm



1 - Comet 10P/Tempel
2 - Asteroid 14 Irene

Waxing 1st Qtr Moon



July 2026 Viewing Chronology

- 2 - Venus/Jupiter (*evening*)
- 4 - Mars/Uranus conjunction; Saturn/Titan/Neptune (*morning*)
- 5 - Saturn/Titan (*morning*)
- 7 - Last Qtr moon (*morning*)
- 8 - Venus/Regulus conjunction (*evening*)
- 11 - Mars/moon (*morning*); Dark Sky Star Party (*evening*)
- 12/13 - Saturn/Titan (*morning*)
- 14 - New moon
- 16 - Saturn/moons (*morning*); Venus/moon (*evening*)
- 17 - Venus/moon (*evening*)
- 18 - Public Viewing
- 20 - Moon phase - same as Apollo 11 landing (*evening*)
- 21 - 1st Qtr moon (*evening*)
- 29 - Full moon (*evening*)
- 31 - Mars/Mercury (*morning*)
- Comet 10P/Tempel - all month (focus 18-22) (*morning*)
- Asteroid 14 Irene - all month (*evening*) *Good night Irene!*

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