CNY Outdoors

Stargazing in Upstate NY: What to see in the night skies July 7 to 14

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By Special to nyup.com

star 1.jpg

M13, the great globular cluster in the constellation Hercules.

(Image courtesy of Gary Opitz of Rochester, NY)

By Damian Allis, Contributing Writer

This summertime weekly summary for planetary, satellite, constellation, and other observing opportunities covers the second week of July. With luck, the soot and smoke from the 4th of July celebrations have cleared, leaving views obstructed only by occasional cloud cover.

Lectures And Observing Opportunities In Upstate/Central New York

New York has a number of astronomers, astronomy clubs, and observatories that host public sessions throughout the year. Announced sessions from several respondent NY astronomy organizations are provided below for the remainder of July so you can plan accordingly. As wind and cloud cover are always factors when observing, please check the provided contact information and/or email the groups a day-or-so before an announced session, as some groups will also schedule weather-alternate dates. Also use the contact info for directions and to check on any applicable event or parking fees.

Astronomy Events Calendar

Organizer	Location	Event	Date	Time	Contact Info
Adirondack Public Observatory	Tupper Lake	Public Observing	July 7	1/2 Hour After Sunset	email, website
Adirondack Public Observatory	Tupper Lake	Public Observing	July 14	1/2 Hour After Sunset	email, website
Adirondack Public Observatory	Tupper Lake	Public Observing	July 21	1/2 Hour After Sunset	email, website
Adirondack Public Observatory	Tupper Lake	Public Observing	July 28	1/2 Hour After Sunset	email, website
Albany Area Amateur Astronomers & Dudley Observatory	Schenectady	Night Sky Adventure	July 18	7:00 - 10:00 PM	email, website
Albany Area Amateur Astronomers & Dudley Observatory	Schenectady	AAAA Meeting	July 20	7:30 - 9:00 PM	email, website
Albany Area Amateur	Schenectady	Octagon Barn Star	July 28	8:00 - 10:00	email, website

Astronomers & Dudley Observatory		Party		PM	
Astronomy Section, Rochester Academy of Science	Rochester	ASRAS Member Meeting	July 7	7:30 - 9:00 PM	email, website
Astronomy Section, Rochester Academy of Science	Rochester	Public Star Party @ Northampton Park	July 10	9:30 - 11:00 PM	email, website
Astronomy Section, Rochester Academy of Science	Rochester	Open House at Farash Center	July 23	12:00 - 4:00 PM	email, website
Astronomy Section, Rochester Academy of Science	Rochester	RocheSTAR Fest 2017	July 28 - 29	daytime & nighttime	email, website
Baltimore Woods	Marcellus	Bob Piekiel & Summer Skies	July 21/22	8:00 - 11:00 PM	email, website
Clark Reservation State Park	Jamesville	Bob Piekiel & Summer Skies	July 28/29	8:00 - 11:00 PM	315-492-1590 website
Green Lakes State Park	Fayetteville	Bob Piekiel - Choosing A Telescope	July 7	7:00 - 9:00 PM	315-637-6111 website
Green Lakes State Park	Fayetteville	Bob Piekiel & Summer Skies	July 14/15	7:30 - 10:30 PM	315-637-6111 website
Kopernik Observatory & Science Center	Vestal	Friday Night Lecture & Observing	July 7	8:00 PM	email, website
Kopernik Observatory & Science Center	Vestal	Friday Night Lecture & Observing	July 14	8:00 PM	email, website
Kopernik Observatory & Science Center	Vestal	Friday Night Lecture & Observing	July 21	8:00 PM	email, website
Kopernik Observatory & Science Center	Vestal	Friday Night Lecture & Observing	July 28	8:00 PM	email, website
Mohawk Valley Astronomical Society	Waterville	Public Stargazing @ Waterville Library	July 15	9:15 - 11:59 PM	email, website
Mohawk Valley Astronomical Society	Waterville	Solar and Star Gazing	July 20	5:00 - 10:00 PM	email, website
Mohawk Valley Astronomical Society	Waterville	Public Stargazing @ Prospect Library & Quarry	July 22	7:45 - 11:59 PM	email, website

ISS And Other Bright Satellites

Satellite flyovers are commonplace, with several bright passes easily visible per hour in the nighttime sky, yet a thrill to new observers of all ages. Few flyovers compare in brightness or interest to the International Space Station. The flyovers of the football field-sized craft with its massive solar panel arrays can be predicted to within several seconds and take several minutes to complete.

The ISS remains a late night/early morning observing target this week, with visible double flyovers on the 9th, 11th, and 13th. Those enjoying an extended observing session on the 14th will even be treated to a rare triple flyover! Properly equipped

members of the amateur radio community can even add audio to their visual experiences by listening to transmissions from the ISS - see ariss.org or issfanclub.com for details.

ISS Flyovers

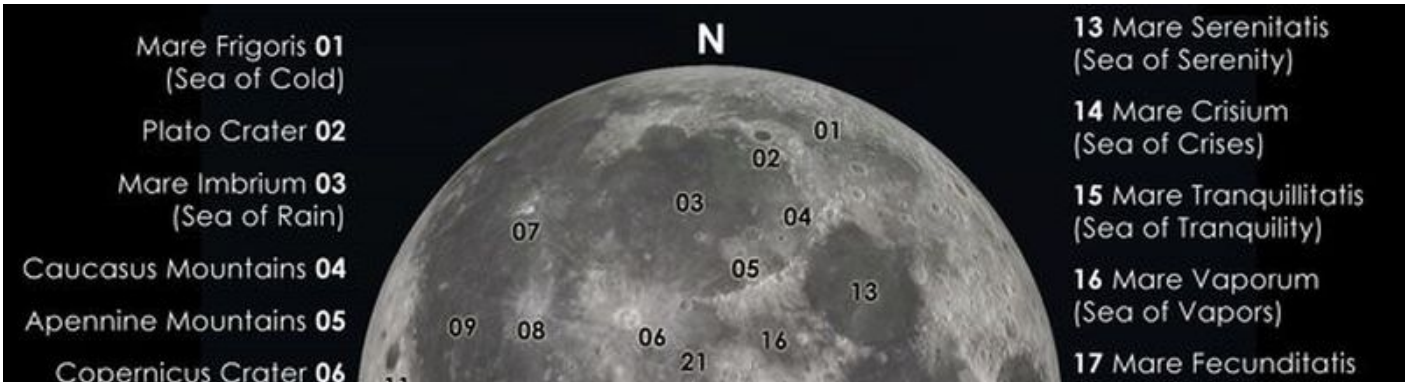
Date	Brightness	Approx. Start	Start Direct.	Approx. End	End Direct.
7-Jul	extremely	4:44 AM	SW	4:50 AM	E/NE
8-Jul	very	3:53 AM	S	3:57 AM	E/NE
9-Jul	moderately	3:03 AM	E/SE	3:04 AM	E
9-Jul	extremely	4:36 AM	W/SW	4:42 AM	NE
10-Jul	extremely	3:45 AM	S/SW	3:49 AM	E/NE
11-Jul	very	2:55 AM	E/SE	2:57 AM	E/NE
11-Jul	very	4:28 AM	W	4:34 AM	NE
12-Jul	extremely	3:37 AM	W	3:41 AM	NE
13-Jul	extremely	2:47 AM	E/NE	2:49 AM	E/NE
13-Jul	moderately	4:20 AM	W/NW	4:25 AM	NE
14-Jul	moderately	1:56 AM	E/NE	1:57 AM	E/NE
14-Jul	very	3:29 AM	W/NW	3:33 AM	NE
14-Jul	moderately	5:05 AM	NW	5:10 AM	NE

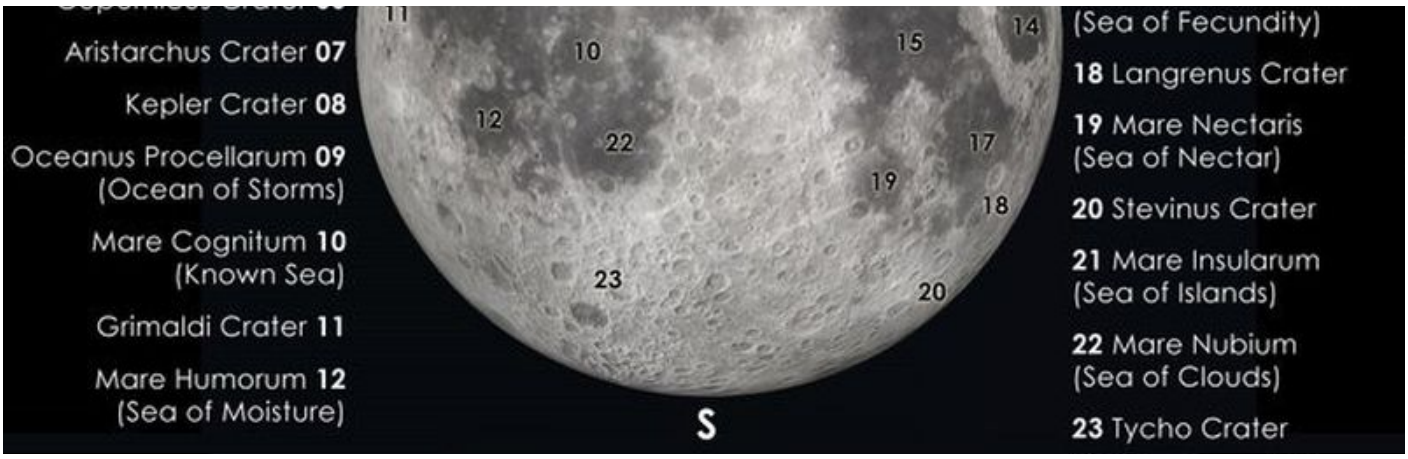
Predictions courtesy of heavens-above.com. For updated nightly predictions, visit spotthestation.nasa.gov.

Lunar Phases

Full:	Third Quarter:	New:	First Quarter:
Jul. 9, 12:06 AM	Jul. 16, 3:25 PM	Jul. 23, 5:45 AM	Jul. 30, 11:23 AM

The Moon's increasing brightness as Full Moon approaches washes out fainter stars, random meteors, and other celestial objects - this is bad for most observing, but excellent for new observers, as only the brightest stars (those that mark the major constellations) and planets remain visible for your easy identification. If you've never tried it, the Moon is a wonderful binocular object. The labeled image identifies features easily found with low-power binoculars.

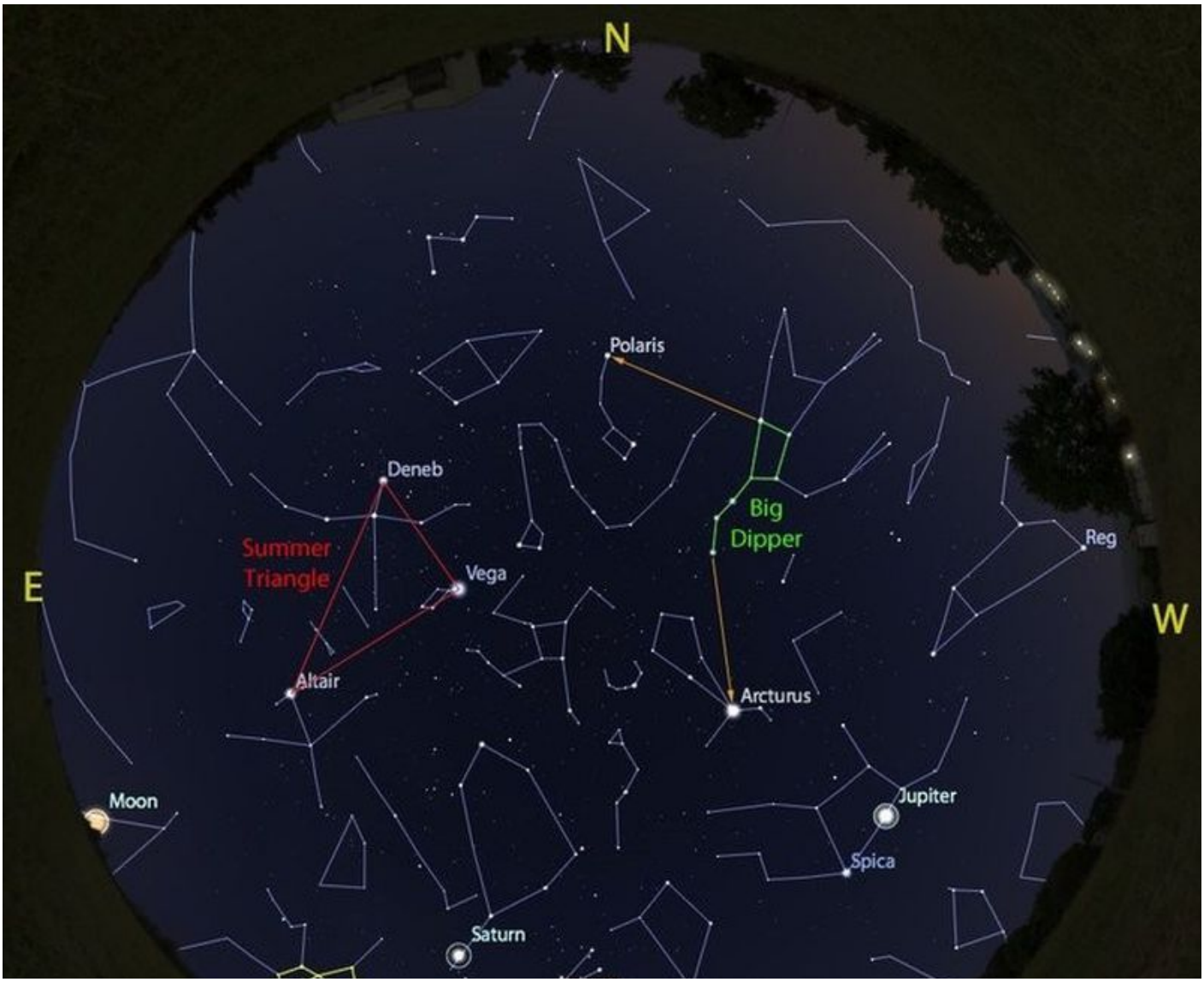




Lunar features prominent in low-power binoculars.

Observing Guides

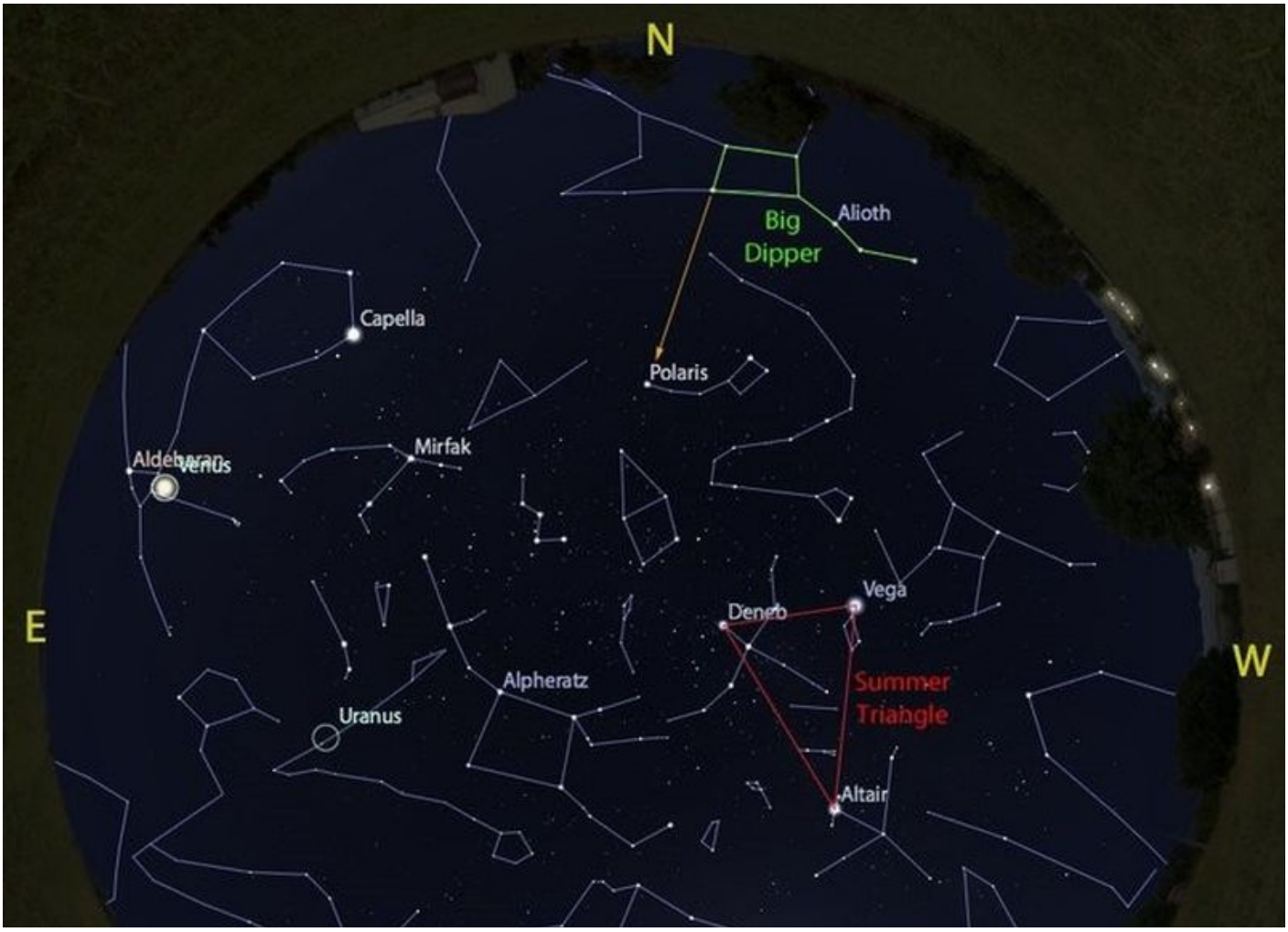
Items and events listed below assume you're outside and observing most anywhere in New York state. The longer you're outside and away from indoor or bright lights, the better your dark adaption will be. If you have to use your smartphone, find a red light app or piece of red acetate, else set your brightness as low as possible.

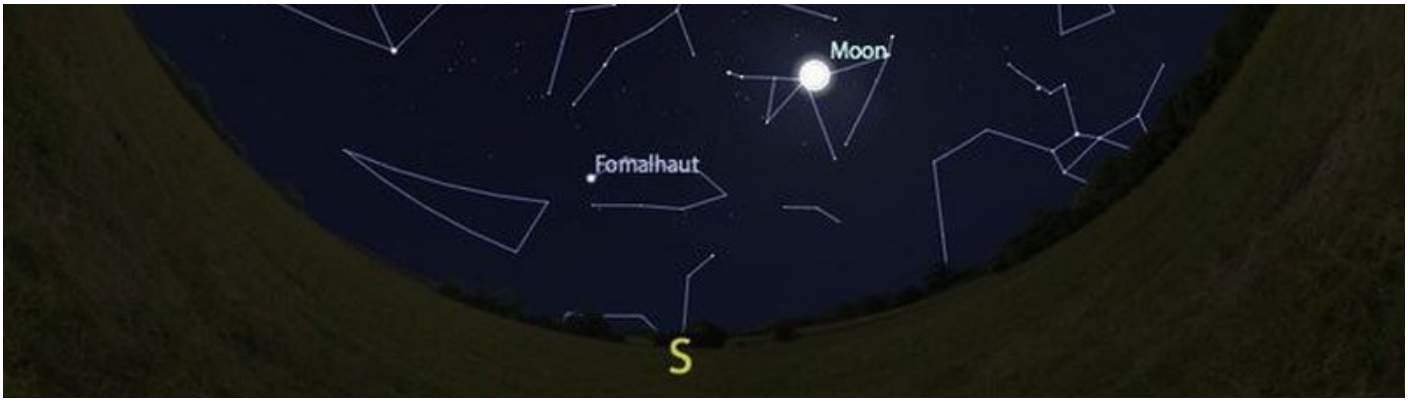


The sky at 10 p.m. from July 7 to July 14, accurate all week except for the changing Moon position.

Evening Skies: The two most prominent shapes in the sky, the Big Dipper and the Summer Triangle, are joined by a third shape you will hopefully come to recognize just as easily. The body of Sagittarius, close to the southern horizon from our view in New York all summer and into fall, can have its dots connected to look just like a teapot sitting flat above the tree line. Use the gap between Saturn and Antares to gauge the relative width of the shape you need to look for.

The Big Dipper is a bright and easy guide for finding Polaris, the north star. From its handle, you can "arc" down to Arcturus. Jupiter, which stands out soon after sunset, is close to the bright star Spica in Virgo and to the southwest of bright Arcturus in Bootes. Saturn is also visible as dusk approaches, rising soon after the bright orange star Antares in Scorpius.

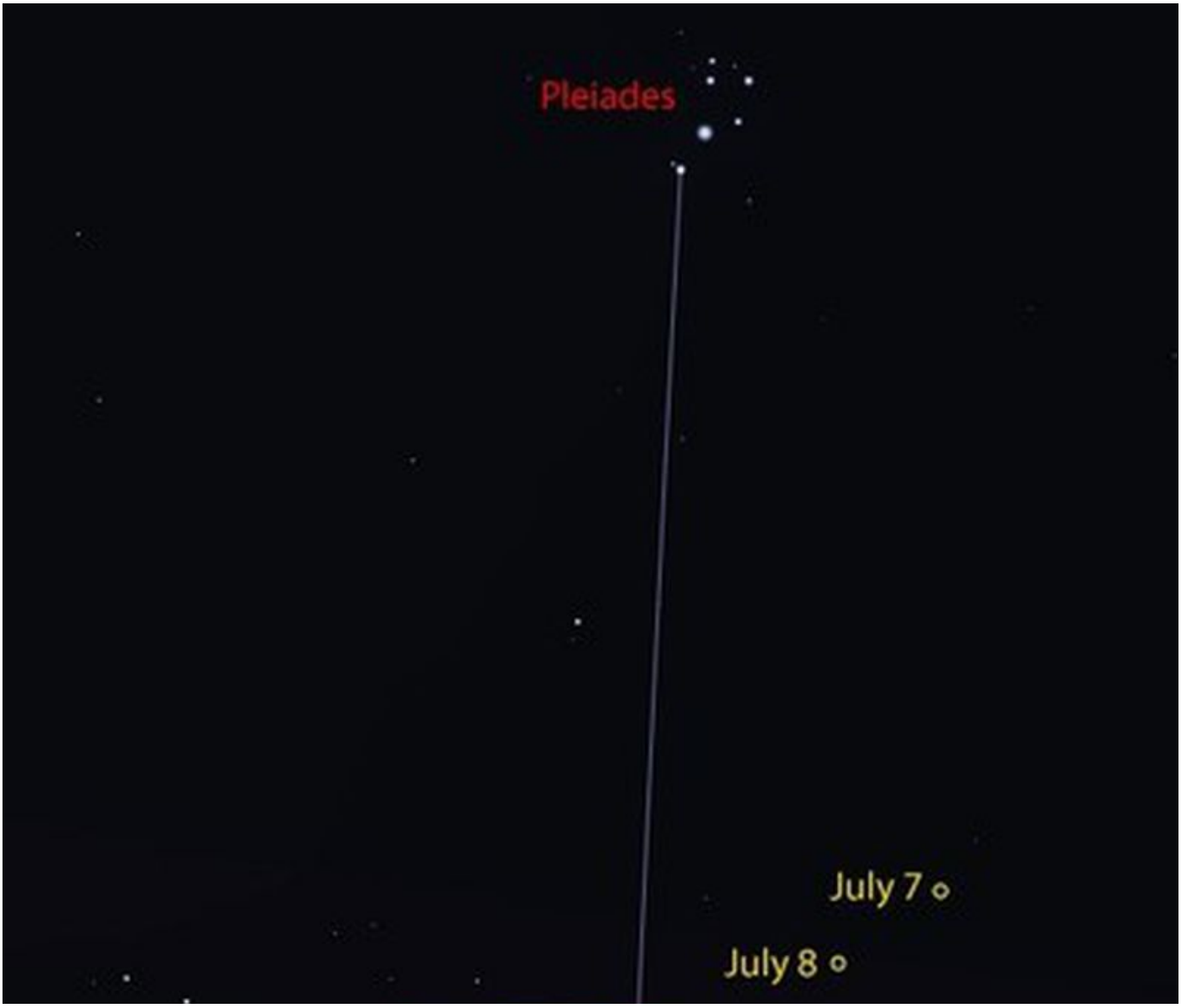


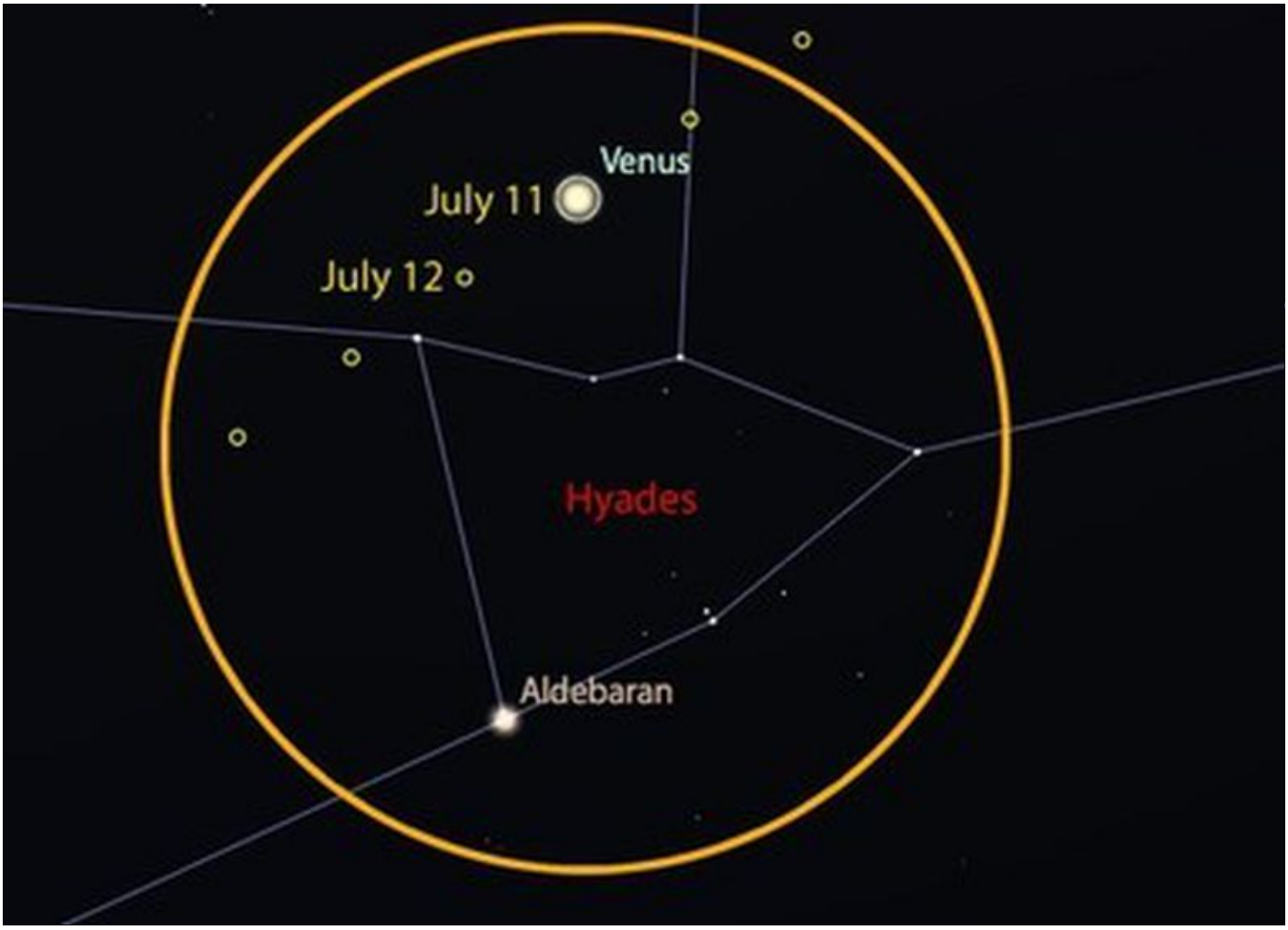


The sky at 4 a.m. from July 7 to July 14, accurate all week except for the changing Moon position.

Morning Skies: Venus is unmistakable in the early morning sky, second only to the Moon in brightness before sunrise. Venus is accompanied by the Pleiades star cluster and Aldebaran in Taurus the Bull this week - an early warning that, in fact, winter is coming.

Planetary Viewing





Venus spends the week passing through the Hyades open star cluster, head of Taurus the Bull.

Mercury: Mercury is hidden within the bright light of the the morning sun. Mercury will be visible again when it returns to sunset skies in late July before becoming a morning target again in August.

Venus: Venus remains unmistakable in the early morning and even into sunrise. With good, steady binoculars, you should be able to see Venus as either half-lit of as a wide crescent - and you can follow the changing phase of Venus as it and the Earth make our way around the Sun.

This week, Venus even does a flyby of two of our two closest open star clusters. Starting July 9th, Venus will be within the binocular field of view of the Hyades, our closest star cluster at 150 light years away. The brightest pairing will occur on July 12th and 13th, when Venus approaches Aldebaran - a star which is not, despite its perfect position in the "V", a gravitationally-bound member of the Hyades. Watching over this flyby lies our third closest open star cluster - the Pleiades.

Mars: Mars sets very close to dusk right now, making it a difficult target without binoculars and a very clear horizon. Mars will not return to our pre-midnight skies until this time next year, but will become a morning target this mid-August.

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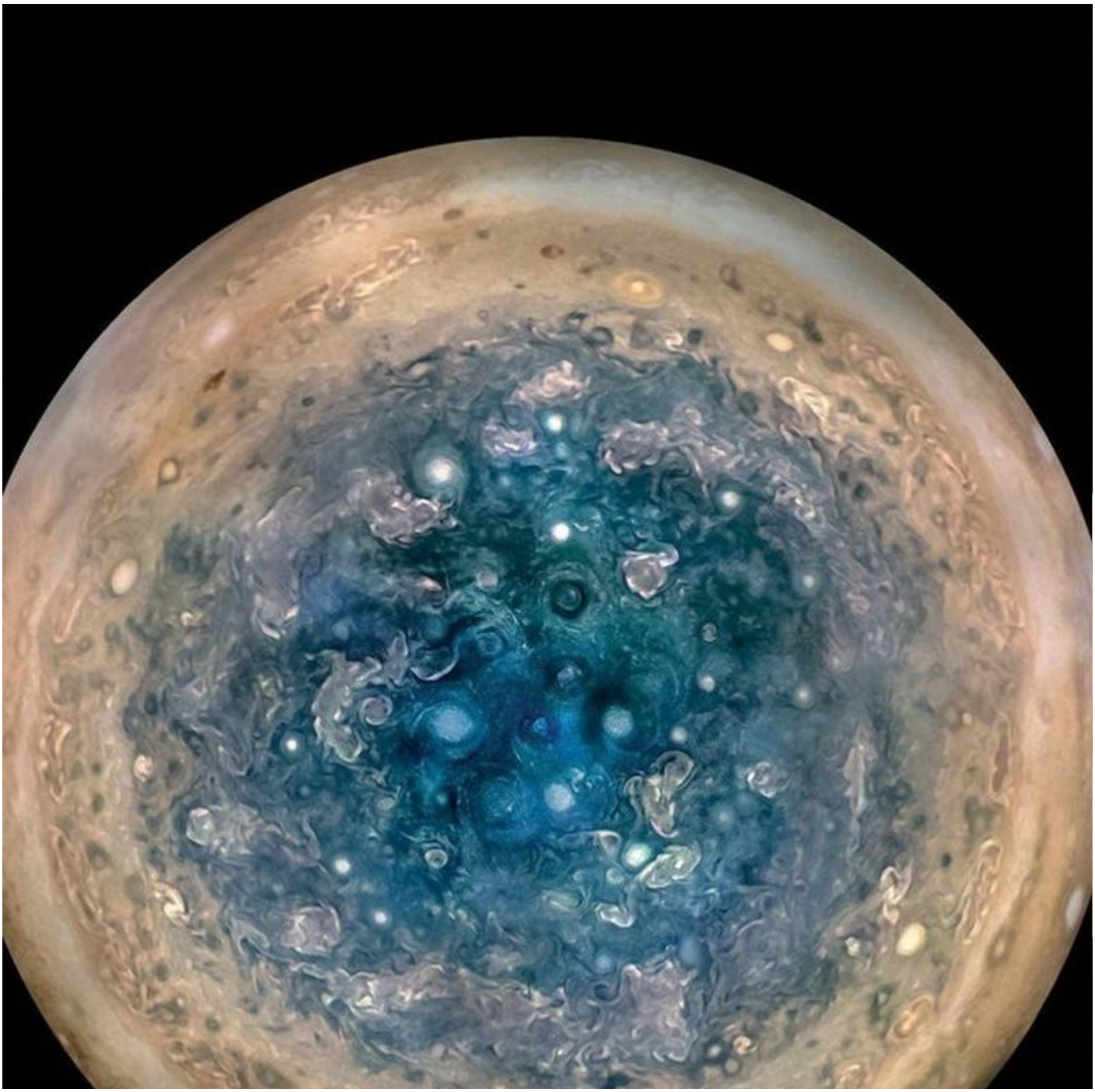
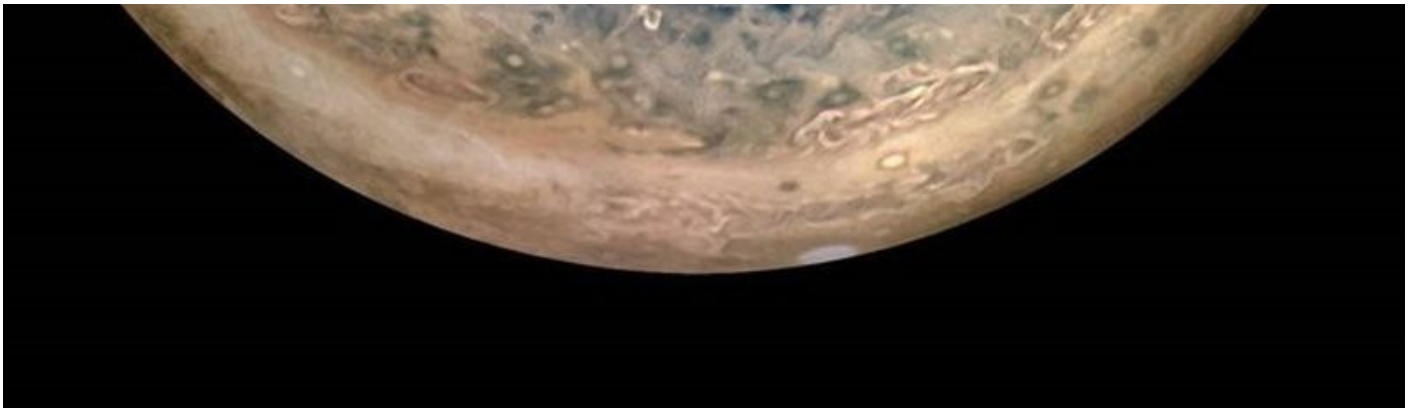
Jupiter: If you look south soon after sunset, Jupiter will be the brightest object you'll see this summer (or second-brightest if the moon is out). Low power binoculars are excellent for spying the four bright Galilean moons - Io, Europa, Ganymede, and Callisto - and several online guides will even map their orbits for you.

On the night of July 10th, astronomers will obtain the closest view of the Great Red Spot of Jupiter that we've had since we began properly monitoring this massive storm - back in 1830. The Juno Spacecraft, currently in Jovian orbit and providing as much excellent science as it is astounding images, will pass right over the storm, providing data and images sure to make the rounds in the news and social media for days after. For more information, check out the official NASA News release.

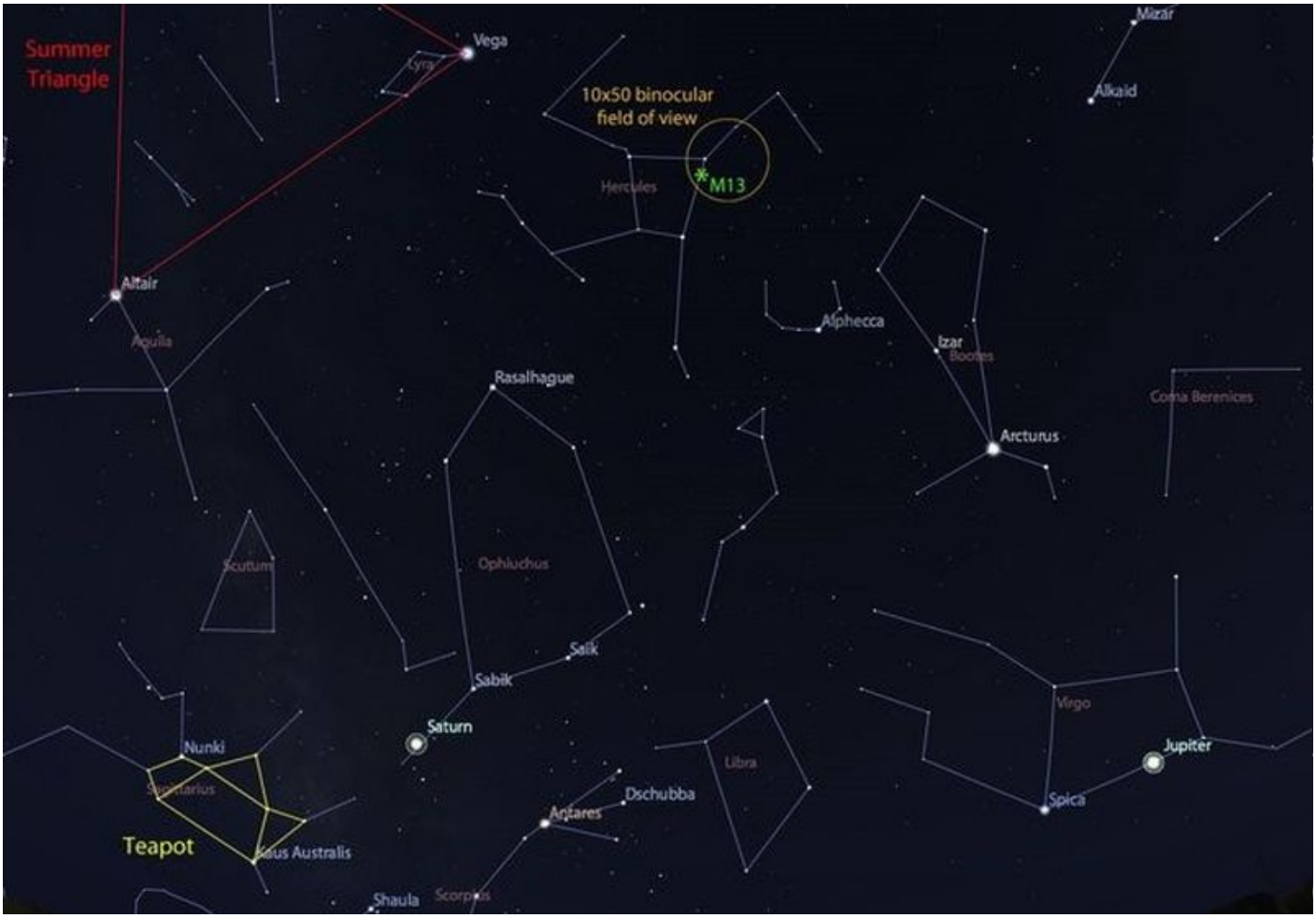




The Juno spacecraft captures a view of Jupiter's south pole.

Saturn: Still on the western edge of the brightest part of the Milky Way, Saturn is going to spend the next 18 months making its way to the eastern edge, all the while giving us an excellent observing target from late Spring to mid-Autumn.

Taking the southern view this week as a whole, there's plenty to take in for naked eye and binocular observing. With Jupiter and Arcturus jumping out soon after sunset, give the sky another half-hour or more and guide your sights to the west to find Saturn, itself close to the red-orange star Arcturus. With these two found, wait a little longer for the skies to darken before pouring over the stars around the Sagittarius teapot - you're looking into the heart of the Milky Way as you do so.



Saturn and Antares to the left of Jupiter and Spica, with M13 hovering high above.

If you want to see the featured globular cluster M13 with your own eyes, find bright Vega and Arcturus above you and look for a trapezoid roughly half-way between them - this is the torso of Hercules. In 10x50 binoculars, you should see a small fuzzy star that you can't seem to bring into focus surrounded by stars that you can. That fuzzy star is the combined light of roughly 250,000 stars all bound together by gravity.

Dr. Damian Allis is the director of CNY Observers and a NASA Solar System Ambassador.

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