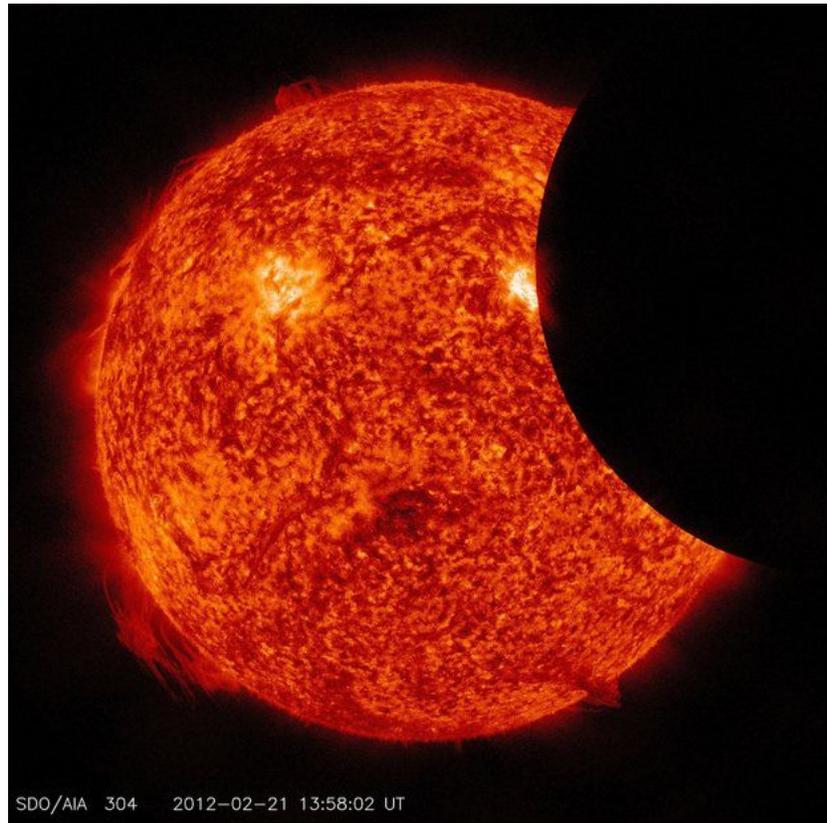


CENTRAL NY OUTDOORS

June stargazing in Upstate NY: What to look for in the night skies this mo

Comment Updated on June 1, 2017 at 7:13 AM
Posted on June 1, 2017 at 7:07 AM



Different as night and day, except for their apparent size. The partial solar eclipse on 21 February 2012 from the Solar Dynamics Observatory. (*NASA/SDO/AIA*)

15
shares

By **Special to nyup.com**, feedback@nyup.com

By **Damian Allis, Contributing Writer**

For solar eclipse enthusiasts, the next 600 million years are a great time to be alive.

Solar eclipses from Earth are stunning due to the magic of geometry. The Sun's diameter is about 400 times meaning you could line up about 400 Moons, or 107 Earths, from solar pole-to-pole. That said, the Sun is also farther away from the Earth than the Moon is. To the observer on the ground, the Sun and Moon then appear the exact amount of celestial real estate. This is easy to test for yourself with the help of some solar eye protection and the Sun are about 1/2 the width of your pinky when your arm is fully extended.

This has not always been the case! Among all of the scientific data handed to astronomers by the Apollo Missions, the rocks they brought back for analysis ended up being remarkably similar in composition to those on Earth's surface. This and a wealth of other data helped establish the current model for how the Earth-Moon system formed: a violent collision of a Mars-sized object with the early Earth kicked up enough of early Earth's surface to form the Moon.

Second, astronauts on the Apollo 11, 14, and 15 missions placed reflectors on the lunar surface in order to measure the Moon distance with, literally, laser accuracy. What we know from nearly 50 years of the [Lunar Laser Ranging Experiment](#) is that the Moon is slipping away from Earth at a rate of 3.8 cm per year. The available scientific data tells us that the Moon formed, was much closer to the Earth than it is now - and it has been moving away ever since.

When the Moon was much closer, the Sun would have disappeared behind it and taken some time to go from the Moon to the other in the process. Such events in astronomy are called occultations, and most commonly occur when the Moon passes between ourselves and a star or planet. As our Moon moves much farther out, it will only cover a small portion of the Sun's surface - a phenomenon we call a transit. It is very roughly estimated that that last perfect total eclipse of the Sun will occur in less than 600 millions years - if work or cloud cover keep you from the August 21st eclipse, it's still time to catch a few others.

For more information on the [Aug. 21 eclipse](#), check out this [NASA website](#).

Lectures and things to see

ADVERTISING



New York has a number of astronomers, astronomy clubs, and observatories that host public sessions through Announced sessions from several respondent NY astronomy organizations are provided below for June. As we are always factors when observing, please check the provided contact information and/or email the groups for an announced session, as some groups will also schedule weather-alternate dates. Also use the contact info for a check on any applicable event or parking fees.

Astronomy Events Calendar

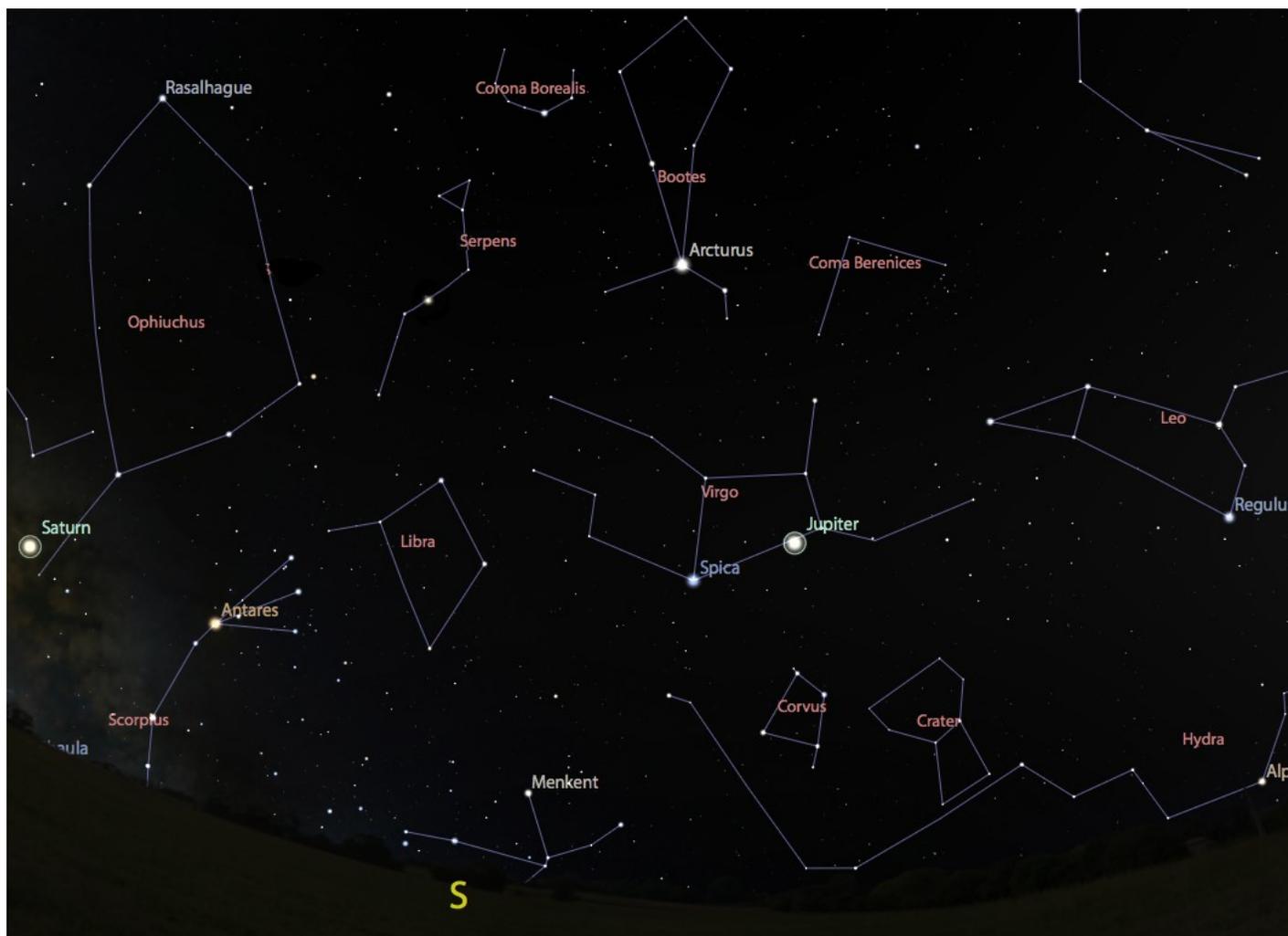
Organizer	Location	Event	Date	Time
Adirondack Public Observatory	Tupper Lake	Eclipse Lecture	June 2	7:00 - 9:00 PM
Albany Area Amateur Astronomers & Dudley Observatory	Schenectady	Senior Science Day	June 5	3:00 - 4:00 PM
Albany Area Amateur Astronomers & Dudley Observatory	Schenectady	AAAA Meetings	June 15	7:30 - 9:00 PM
Albany Area Amateur Astronomers & Dudley Observatory	Schenectady	Octagon Barn Star Party & Lecture	June 16	8:00 - 10:00 PM
Albany Area Amateur Astronomers & Dudley Observatory	Schenectady	Night Sky Adventure	June 20	8:00 - 9:30 PM
Albany Area Amateur Astronomers & Dudley Observatory	Schenectady	National Asteroid Day	June 30	9:00 - 10:00 AM
Astronomy Section, Rochester Academy of Science	Rochester	ASRAS Meeting & Lecture	June 2	7:30 - 9:30 PM
Astronomy Section, Rochester Academy of Science	Rochester	Observing At The Strasenburgh	June 3	8:30 - 10:30 PM
Astronomy Section, Rochester Academy of Science	Rochester	Observing At The Strasenburgh	June 10	8:30 - 10:30 PM
Astronomy Section, Rochester Academy of Science	Rochester	Observing At The Strasenburgh	June 17	8:30 - 10:30 PM
Astronomy Section, Rochester Academy of Science	Rochester	Observing At The Strasenburgh	June 24	8:30 - 10:30 PM
Baltimore Woods	Marcellus	Spring Constellations	June 16	9:00 - 11:00 PM
Kopernik Observatory & Science Center	Vestal	KAS Monthly Meeting	June 7	7:00 - 9:00 PM
Kopernik Observatory & Science Center	Vestal	Friday Night Lecture & Observing	June 2	8:00 PM
Kopernik Observatory & Science Center	Vestal	Friday Night Lecture & Observing	June 9	8:00 PM
Kopernik Observatory & Science Center	Vestal	Friday Night Lecture & Observing	June 16	8:00 PM
Kopernik Observatory & Science Center	Vestal	Friday Night Lecture & Observing	June 23	8:00 PM
Kopernik Observatory & Science Center	Vestal	Friday Night Lecture & Observing	June 30	8:00 PM
Mohawk Valley Astronomical Society	Waterville	Public Stargazing @ Waterville Library	June 17	9:00 PM

Lunar Phases

New:	First Quarter:	Full:	Third Quarter:	New:	Full:
May 25, 3:44 PM	Jun. 1, 8:42 AM	Jun. 9, 9:09 AM	Jun. 17, 7:32 AM	Jun 23., 10:30 PM	Jul 1, 10:30 PM

The Moon's increasing brightness as Full Moon approaches washes out fainter stars, random meteors, and other objects - this is bad for most observing, but excellent for new observers, as only the brightest stars (those that mark the most prominent constellations) and planets remain visible for your easy identification. If you've never tried it, the Moon is a wonderful object.

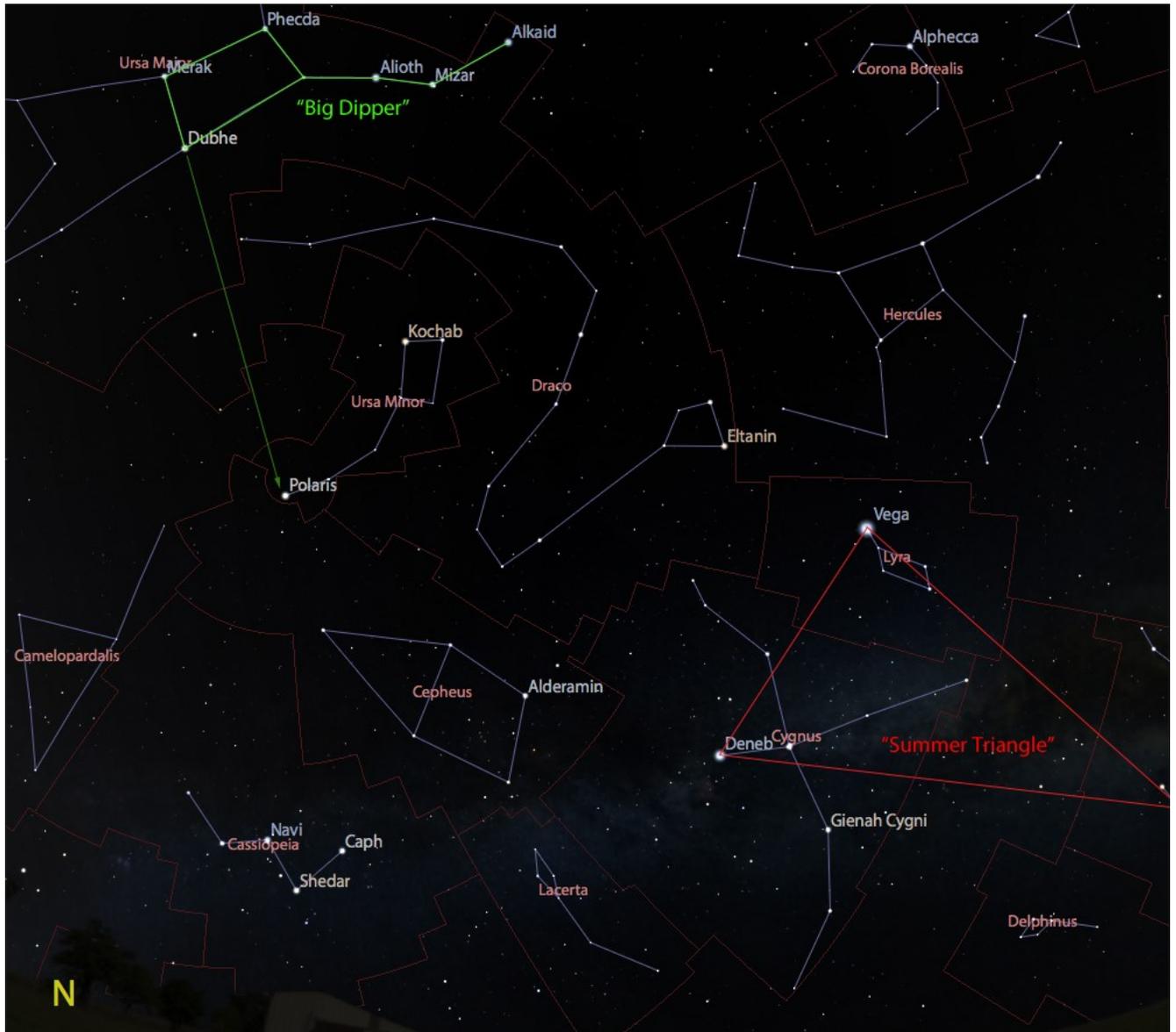
Evening and nighttime guide



The view looking south-southwest at 10 p.m. on June 15 (except for the changing Moon position, this mid is accurate for all of June). (Image made with Stellarium)

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

Southern Sights: The two gas giants of the Solar System - Jupiter and Saturn - are at prime locations for observation this month. Exceptionally bright Jupiter is perfectly placed to help you find Spica to the West, Regulus and Leo to the east, Arcturus to the North, and the small constellation Corvus to the South. Saturn rises after the bright red star in Scorpius - one of our early markers for the edge of the bright band of the Milky Way and the wealth of intra-galactic objects.



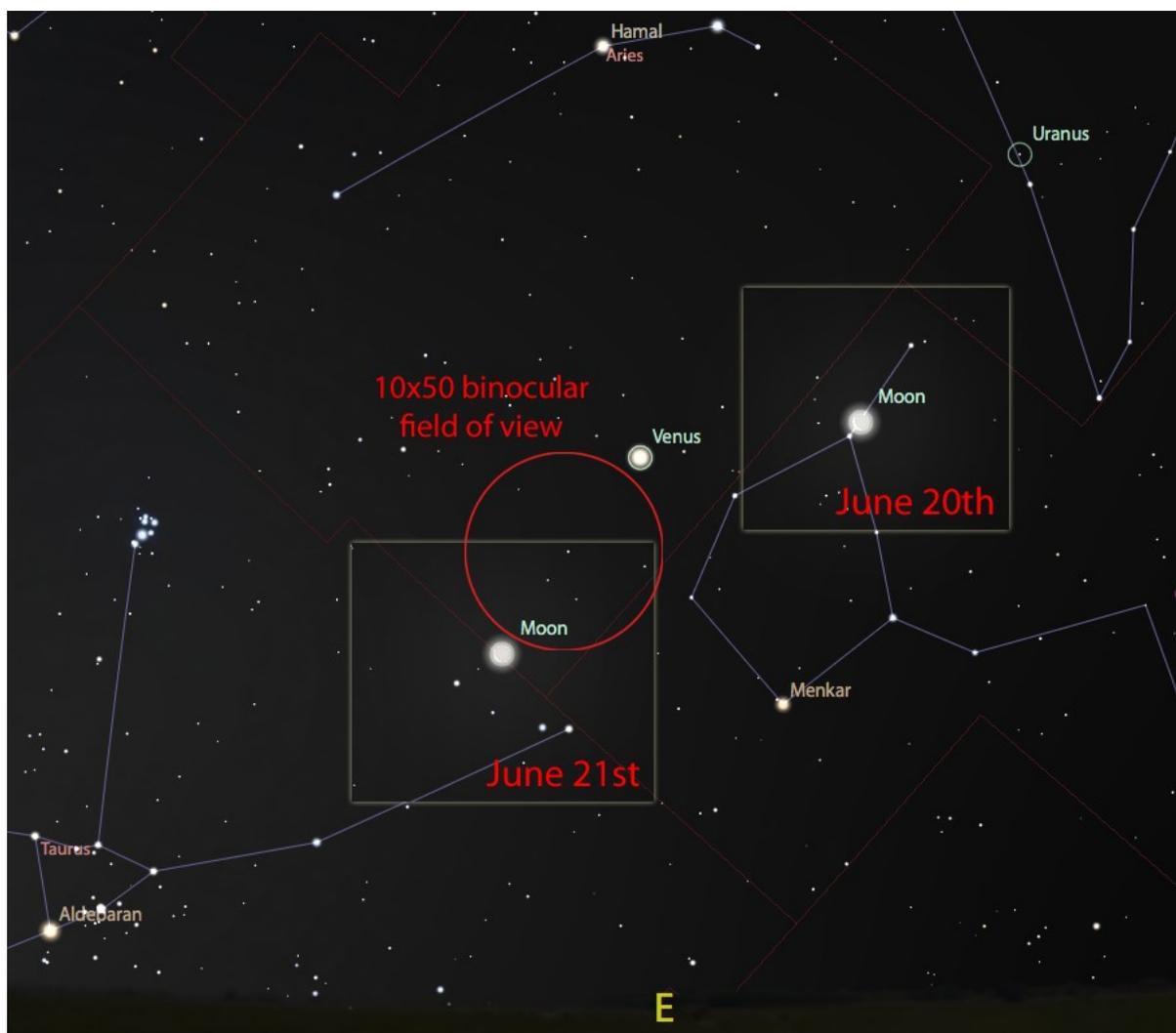
The view looking northeast at 10:00 p.m. on June 15th. (Image made with Stellarium)

Northern Sights: The Big Dipper is high in the northern sky during pre-midnight observing hours this month. necks can take in the brightest objects in the Summer Triangle now while it is low on the eastern horizon. If you Hercules becomes a strain, consider starting your summer stretching exercises soon.

Planetary viewing

Mercury: The fleet-footed Mercury will be a tough catch even in the first week of June, after which it rises close to be washed out by sunlight. You should not attempt to observe it in binoculars unless you have a steady hand magnified sunlight, even in low-power binoculars, can instantly AND permanently damage your eyes. Mercury skies in July, then become a morning target again in August.

Venus: Venus remains an unmissable morning observing target in Aries, rising after 3:30 a.m. on the 1st and 30th. It does continue to slip away from us visually, but we see more of its illuminated surface in the process. slight dimming of the planet over the entire month as it goes from 40% to 60% illumination.

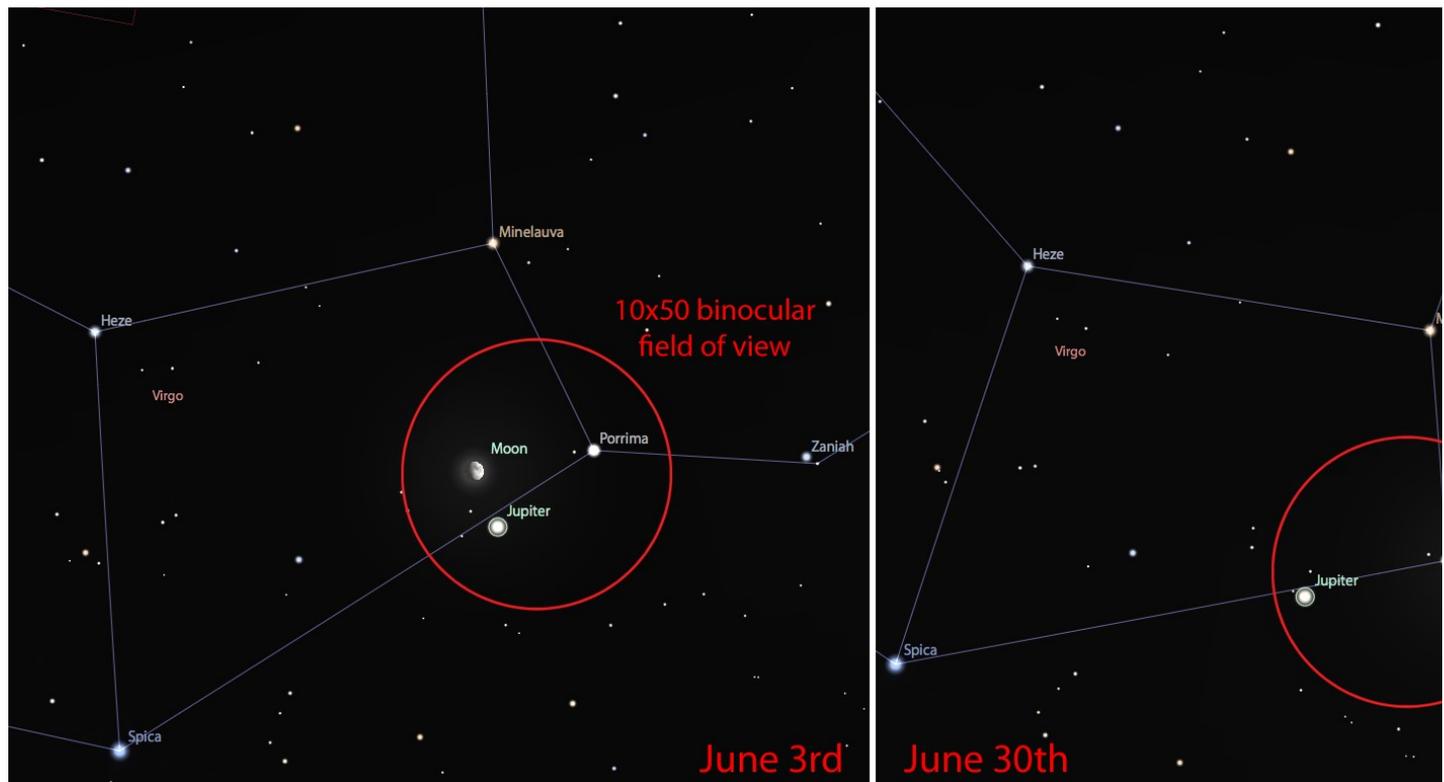


Venus has two close approaches with the Moon on June 20th and 21st. (Image made with Stellarium)

Mars: You hopefully had your fill of Mars these past few months. June marks the end of our easy Mars viewing on the horizon to be nearly washed out by sunlight. Consider a binocular scan low along the horizon for a final p.m. this month, but ONLY do so AFTER sunset to protect your vision.

Jupiter: As of the writing of this article, the first presentation of data back from the Juno Mission has just changed our understanding of the planet Jupiter in fundamental ways, and astronomers eagerly await new data and theories from recent observations. In the meantime, the basics haven't changed since Galileo first followed the four brightest moons of Jupiter a good look in a telescope or binoculars to see what he saw.

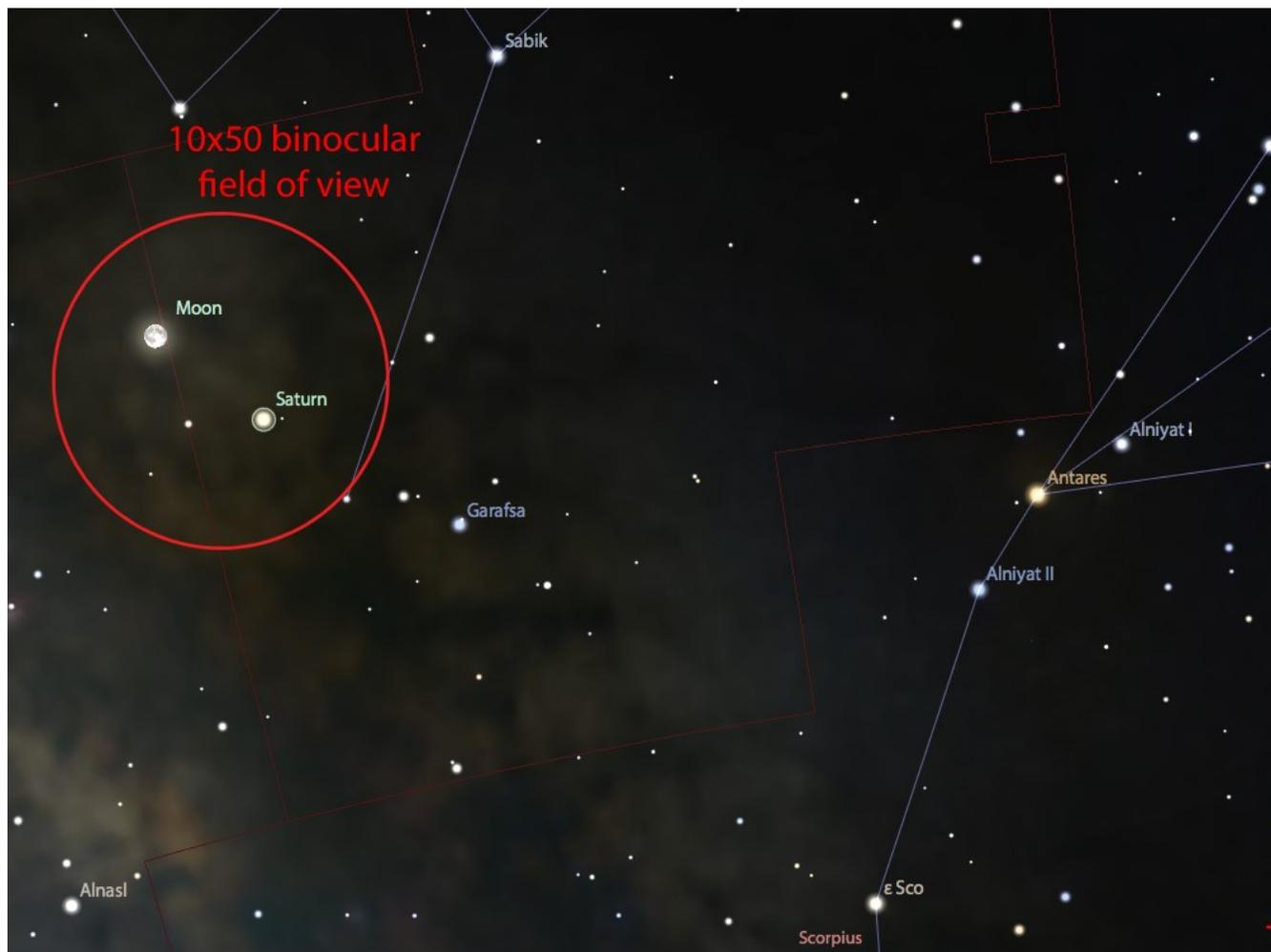
Low power binoculars are excellent for spying the four bright Galilean moons - Io, Europa, Ganymede, and Callisto. Online guides will even map their orbits for you so you can identify their motions nightly or, for the patient observer,



Jupiter and the Moon on June 3rd and June 30th in Virgo. (Image made with Stellarium)

Saturn: We remain in countdown mode for the end of the Cassini Mission by way of a very rapid descent into Saturn's atmosphere on September 15th. Saturn rises just after 9:30 p.m. at the beginning of the month and by 7:30 p.m. making it an excellent nighttime target throughout. Still on the western edge of the brightest part of the Milky Way to spend the next 18 months making its way to the eastern edge, all the while giving us an excellent observing target from Spring to mid-Autumn.

While markedly closer to us, Saturn is not the brightest object in this part of the sky. Your eyes may be drawn to Antares in Scorpius first - simply look to the east for another bright pinpoint. Saturn and the Moon have a close approach on June 10th.



Saturn and the Moon on June 10th, with Antares bright and to the west. (Image made with Stellarium)

ISS And Other Bright Flyovers

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

The ISS is an excellent late-night target for the first 12 days of June, after which it will disappear from our night sky completely until early July. You even have two chances to catch it three times in a single day - although you'll have to wait after midnight on the 1st and 4th and wait patiently until that evening to see all three flyovers. Simply go out at the start time, orient yourself, and look for what will at first seem like a distant plane.

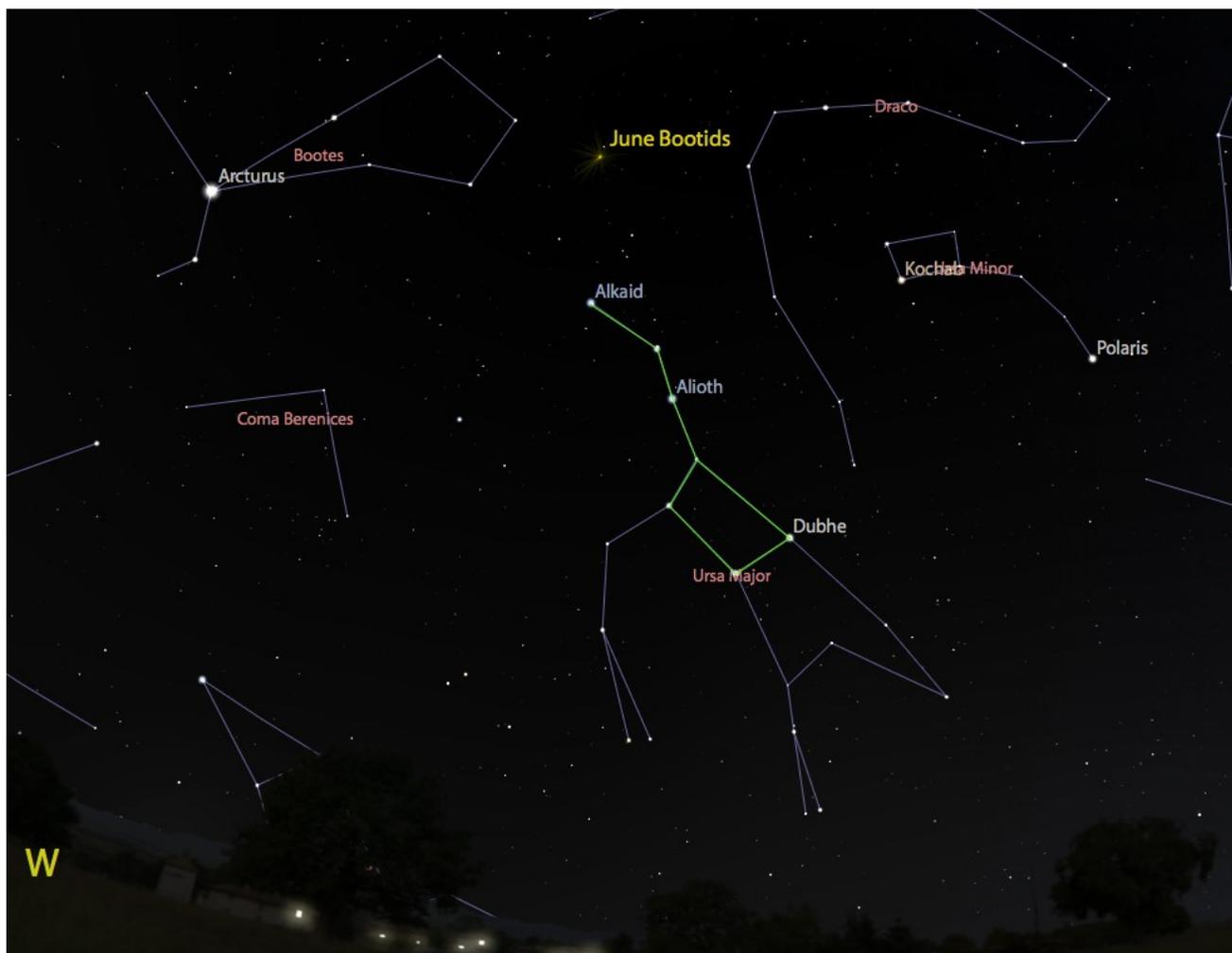
ISS Flyovers

Date	Brightness	Approx. Start	Start Direction	Approx. End	End I
1-Jun	very	12:03 AM	NW	12:06 AM	N/NE
1-Jun	somewhat	9:34 PM	NW	9:39 PM	NE
1-Jun	moderately	11:11 PM	NW	11:16 PM	E/NE
2-Jun	moderately	12:48 AM	W/NW	12:48 AM	W/NV
2-Jun	moderately	10:19 PM	NW	10:24 PM	E/NE
3-Jun	moderately	9:27 PM	NW	9:32 PM	NE
3-Jun	very	11:03 PM	NW	11:08 PM	E/NE
4-Jun	somewhat	12:40 AM	W/NW	12:40 AM	W/NV
4-Jun	very	10:11 PM	NW	10:17 PM	E
4-Jun	very	11:48 PM	W/NW	11:50 PM	W/NV
5-Jun	moderately	9:19 PM	NW	9:24 PM	E/NE
5-Jun	extremely	10:55 PM	NW	10:59 PM	E
6-Jun	very	10:03 PM	NW	10:09 PM	E
6-Jun	moderately	11:40 PM	W/NW	11:42 PM	W
7-Jun	extremely	10:48 PM	W/NW	10:51 PM	S/SW
8-Jun	extremely	9:55 PM	W/NW	10:01 PM	E/SE
8-Jun	somewhat	11:33 PM	W/SW	11:33 PM	W/SV
9-Jun	very	10:40 PM	W	10:43 PM	S/SW
10-Jun	very	9:47 PM	W/NW	9:53 PM	S/SE
12-Jun	moderately	9:40 PM	W	9:45 PM	S

Predictions courtesy of heavens-above.com. Times later in the month are subject to shifts - for accurate daily spotthestation.nasa.gov.

Meteor Showers: June Bootids, active June 26 to July 2, peaking June 28

Meteor showers occur when the Earth passes through the debris field of a comet or asteroid. As these objects warm in their long orbits, they leave tiny bits behind - imagine pebbles popping out the back of a large, increasingly bumpy road. In the case of meteor showers, the brilliant streaks you see are due to particles usually grains of sand. The Earth plows through the swarm of these tiny particles at up-to 12 miles-per-second. High in the atmosphere, these particles burn up due to friction and ionize the air around them, producing the long light trails. We can predict the peak observing nights for a meteor shower because we know when and where in Earth's orbit we'll be in the same part of the Solar System - this yearly periodicity in meteor activity is what let us identify and name meteor showers before we ever knew what caused them.



The June Bootids radiant. (Image made with Stellarium)

The June Bootids are generally not even worth mentioning as a meteor shower to stay awake for, with only one associated meteor expected per hour. On rare occasions, however, persistent observers are treated to quite notable outburst in 1916 and one in 1998 that produced 100 bright streaks per hour at peak.

The name of each meteor shower is based on the constellation from which the shooting stars appear to radiate sky we call the *radiant*. The June Bootids appear to radiate from the very tip of the kite - the modern object that Herdsman most resembles. One object Bootes will not be keeping much watch over is the first-quarter moon, enough to not impact your viewing of this, very-likely, unimpressive shower. The end of the handle of the Big Dipper marker for this shower.

How to observe: To optimize your experience, lie flat on the ground with your feet pointed to the northwest and - meteors will then appear to fly right over and around you.

Those interested in seeing a full list should check out the American Meteor Society [meteor shower calendar](#).

Learn a constellation: Cepheus



Cepheus, a broken barn hovering over the throne of Cassiopeia this month. (Image made with Stellarium)

King Cepheus - Cassiopeia's husband, Andromeda's father, and eventual father-in-law to Perseus - is arguably both in terms of mythology and amateur astronomy than the other three. A greater appreciation comes from just as there may be a more interesting backstory to the king, the stars and few known celestial objects within

the constellation Cepheus are made much more interesting when you know more about what you're looking a

During pre-midnight hours in June, Cassiopeia appears as a large "W" just east of due north. Cepheus, which I dilapidated barn than any other object, can be found by looking straight up above the "W" - the roof will be po

Within the barn lie some of the largest stars yet discovered. The variable star RW Cephei lies just at the borde and Lacerta and would, if sent to replace our Sun, extend out towards the orbit of Saturn. It varies in brightne dimmest, is still a reasonable binocular object. VV Cephei is another monster star that is circled by an observ. companion. Mu Cephei is reason enough to go buy a pair of binoculars. Commonly known as Herschel's "Garr commonly known as Erakis (not to be confused with Arrakis of Dune lore, although it does have the sand-like Cephei is perhaps the most strongly colored star you can see with or without magnification.

A final notable star is Delta Cephei, the star that gave us the term "cepheid variable." The star varies in bright and 9 hours - you can even reproduce the observations of John Goodricke in 1784 by doing your own compari against the backdrop of neighboring stars. There turns out to be a relationship between the brightness of a ce the time it takes to go from minimum to maximum brightness - a discovery made by Harvard "computer" and astronomer Henrietta Swan Leavitt. This early study eventually provided a way of using cepheid variables as c sticks to, among other things, determine distances in the Milky Way, determine distances to galaxies in our Lc help establish the Hubble Constant - the rate at which the universe appears to be expanding.

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

Registration on or use of this site constitutes acceptance of our **User Agreement** and **Privacy Policy**

© 2017 Advance Media New York. All rights reserved (**About Us**).

The material on this site may not be reproduced, distributed, transmitted, cached or otherwise used, except with the prior written permission of Advance Media New York.

Community Rules apply to all content you upload or otherwise submit to this site.

[▶ Ad Choices](#)