

# Celestial Observer

The Official Newsletter of the  
Amateur Observers' Society of NY, Inc.  
A 501(c)3 organization

DEC 2021



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Next Meetings: Sun, Dec 19 & Jan 9, 1:30pm  
Online Digital

[www.facebook.com/pages/Amateur-Observers-Society-of-New-York-AOSNY/368529386242](https://www.facebook.com/pages/Amateur-Observers-Society-of-New-York-AOSNY/368529386242)

For Meeting Invitation Contact [AOSSecretary@aosny.org](mailto:AOSSecretary@aosny.org)

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## The President's Message-Sue Rose

The Winter Solstice is upon us, and the Sun will once again begin to rise higher in the sky each day, after Dec 21, giving us more hours of sunlight, but fewer hours of observing time so make use of it. We cannot use our special permitted area due to the light show at Jones Beach which lasts till Jan 2. In Jan, we hope to have our new permit. As those dates are limited, you might consider getting a NYS StarGazers permit which allows access to other areas and is not limited by date or time. The method of purchase, and cost, have not yet been determined. Closer to the new year, go to <https://parks.ny.gov/regions/long-island/default.aspx> for details.

Our next meeting, Jan 9, will again be digital as a new virus variant has made an appearance and we don't know the full ramifications as of yet. Hofstra continues to be closed to outsiders. The Cradle of Aviation has offered us space but we will wait till the virus situation settles down.

Thanks very much to our Nov speaker, **Joe Rao**, who traveled to Antarctica by ship (unfortunately unsuccessfully) to view the Dec 4 eclipse. I haven't yet heard from our other intrepid explorers who attempted a view from an aircraft, although I have seen photos from other airborne groups already. If you were not within the shadow of the Moon, see eclipse photos at [https://earthsky.org/todays-image/photos-and-video-december-4-total-solar-eclipse/?utm\\_source=EarthSky+News&utm\\_campaign=f6eef9a6e1-EMAIL\\_CAMPAIGN\\_2018\\_02\\_02\\_COPY\\_01&utm\\_medium=email&utm\\_term=0\\_c643945d79-f6eef9a6e1-394585393](https://earthsky.org/todays-image/photos-and-video-december-4-total-solar-eclipse/?utm_source=EarthSky+News&utm_campaign=f6eef9a6e1-EMAIL_CAMPAIGN_2018_02_02_COPY_01&utm_medium=email&utm_term=0_c643945d79-f6eef9a6e1-394585393). It's time to start planning for the upcoming, more convenient, solar eclipses in 2023 and 24. Don't miss them.

Also, thanks to Nov speaker, **Prezemek Mroz** from Cal Tech, who discussed the search for rogue planets. At our Dec 5 meeting, **Dr. Mike Pavelec**, Chair of the Department of Airpower at the USAF Air Command and Staff College, provided us with a history of rocketry-the good, the bad and the ugly. Let's hope that the future uses are all for the betterment of mankind and the Earth. On Dec 19, **Don Machholz**, more closely associated with Messier object pursuits, will discuss the "History of Visual Comet Hunting", the search for which prompted Charles Messier to assemble his list of nuisances. On Jan 9, **Chuck Allen**, VP of the Astronomical League, will again visit and fill us in on what's happening in 2022. If you haven't planned a summer journey yet, the first in person ALCON (fingers crossed) in 3 years will take place in Albuquerque. See [www.astroleague.org](http://www.astroleague.org). Hoping to see you there. Some programs have been recorded for our members. Contact Jason for info. We greatly appreciate all those who have graciously given us their time on a Sunday afternoon and for those who we will visit with in the upcoming months.

**Wishing everyone a safe and healthy Holiday Season.**

Hoping to see everyone at our online meetings, Sunday, Dec 19 and Jan 9, 1:30pm.

**Remember, the only dumb question is the one you don't ask.**

*Friends are like stars. You don't always see them,  
but you know they are always there!*

Please, everyone, be safe and be careful. We will get together at some point. Till then,

The AOS expresses its deepest appreciation to Custer Institute for hosting our Suffolk Observatory and the Sierra Club, Long Island Group, for the 20" telescope, <http://newyork.sierraclub.org/longisland/>



**BIG NEWS**

After many years, the AOS website is going to make some significant changes. Check in next week for the new look, [www.aosny.org](http://www.aosny.org).

**For sale**

**Joe M-ES** ED102 2 speed focuser with adapter ring. If interested, call 516-574-1464 or [mezzafonte.j@gmail.com](mailto:mezzafonte.j@gmail.com).

**Outreach Activities - Thanks to all of our volunteers!! - Linda P**

On Dec 5, we were invited to provide an astronomy program at the Islamic Cultural Center in New Hyde Park for a group of 20 Boy Scouts with 12 adult chaperones. 9 AOS members were ready with scopes. Linda gave a presentation which was well received but the clouds rolled in after a short observing session. We hope to provide another program in the Spring.

***Volunteers are unpaid, not because they are worthless, but because they are priceless!***

**The Golden Rule of Astronomy:**

**"If you own a telescope, you have a moral obligation to share the view!" – John Dobson**

**Observatory Activity-** Our observatory in Southold at the Custer Institute is open on clear Sat nights for remote observations via digital eyepiece and an outdoor monitor, thanks to **Director Bill C**, with help from **Bill B** and **Jason C**. Jones Beach and Sagamore Hill are not yet available.

**Star Gazing Permits-**2021 are no longer available. 2022 permits will be available from the NYS Parks Dept after Jan 1. See details at <https://parks.ny.gov/regions/long-island/default.aspx>. This would allow you to observe in designated areas after sunset. Many of our members have been doing this since outreach has been canceled. Rest rooms are usually not open in the winter. Bring a bucket and sealable plastic bags. 😊 Due to the lack of available observing locations, it may be a good idea to get a permit. They are for the vehicle, not the people, and you must have some star gazing equipment, such as a chart. **ALWAYS tell someone where you will be. You might also call the NYS Police at 631-669-2500 to let them know you'll be there. PLEASE, make sure it is in your cell phone in a speed dial. Enjoy and be safe.**

**Stony Brook University Astronomy Open Nights Spring 2022-** virtually on the first Fri of the month via Zoom at 7:30PM. Please make sure to copy all of the link (including the part following the question mark) into your browser in order to avoid having to supply a passcode) You need the free Zoom software, [https://www.zoom.us/download#client\\_4meeting](https://www.zoom.us/download#client_4meeting) installed on your device. This link will remain valid throughout the 2022 Open Night season. When joining the meeting please have your microphone and video camera turned off until instructed otherwise. <https://stonybrook.zoom.us/j/96446568983?pwd=b2cvVlVI> Register at <https://tinyurl.com/3yd8c785> The Spring Schedule is Feb 4, Prof. Jim Lattimer-[The Latest Discoveries About Neutron Stars](#), Mar 4 TBD, Apr 1 Prof. Ken Lanzetta-[Update on the Condor Telescope Array](#), May 6 Prof. Michael Zingale-TBD.

**Hamptons Observatory:** Tuesday, December 7th at 7:00 PM, "An Antarctic Odyssey: Winter-Over at South Pole Station." John W. Briggs will describe his year-long experience living at the Geographic South Pole while working for the Center for Astrophysical Research in Antarctica. Shelter Island Public Library will be co-hosting this event. Further details can be found on our website. Tickets are limited and registration is required: [www.shelterislandpubliclibrary.org/dec-2021-adult-events](http://www.shelterislandpubliclibrary.org/dec-2021-adult-events)

**James Webb Space Telescope Art Challenge** Deadline for submission is Dec 18. [www.nasa.gov/content/goddard/2021/nasa-james-webb-space-telescope-unfold-the-universe-art-challenge](http://www.nasa.gov/content/goddard/2021/nasa-james-webb-space-telescope-unfold-the-universe-art-challenge)

**Light Pollution Projects**

**International Dark Sky Association** learn about light pollution and effects <http://darksky.org/>

The **Globe at Night**, [www.globeatnight.org/](http://www.globeatnight.org/). Adjust for your latitude to get the proper chart.

**Observing**

**Lunar X & V Observations** See <http://www.eyesonthesky.com/Moon/LunarX.aspx>. Not this month.

**Meteor Showers** [www.theskyscrapers.org/meteor-showers](http://www.theskyscrapers.org/meteor-showers), [www.amsmeteors.org/](http://www.amsmeteors.org/) Meteor Showers displayed in space with Earth crossing path <http://www.ianww.com/meteor-showers/>

**Observing Projects for Month** <http://www.theskyscrapers.org/december>

**Astronomical League's 75th Anniversary Challenge** Due to the timing of the mechanics of our Solar System, 2021 also coincides with almost a complete apparition of Jupiter (January 29, 2021 at 1213 through March 5, 2022). See details and requirements at <https://www.astroleague.org/content/al-observing-challengespecial-observing-award>

**The Night Sky This Month** –<https://cosmicpursuits.com/night-sky-this-month/> and [In-the-Sky.org](http://In-the-Sky.org)

**Astronomy Magazine** <https://astronomy.com/observing/sky-this-week> and [Skymaps.com](http://Skymaps.com)

**Sky & Telescope Magazine** <https://skyandtelescope.org/>

**Globe at Night** map light pollution <https://www.globeatnight.org/> and **EarthSky** <https://earthsky.org/>

**What's Up each month** <https://tinyurl.com/y3a7ll3n>

**Comet Watch 2021** <https://tinyurl.com/29ua6svz> If you own an 8" or larger telescope you might see more than a dozen new and returning comets this year, including one potential naked-eye candidate.

**Tonight's Sky** <https://hubblesite.org/resource-gallery/learning-resources/tonights-sky>

**Space.com** has a list of the Best stargazing apps of 2021. [www.space.com/best-stargazing-apps](http://www.space.com/best-stargazing-apps)

**10 Darkest Places in the U.S. for Incredible Stargazing** <https://tinyurl.com/jrex9ytr>

**My recent lunar eclipse story by George Preoteasa**

Here is the video, if you don't feel like reading, better seen on a large screen with sound (moderately) on:

<https://vimeo.com/651839472>

For the lunar eclipse last month, I decided to go to Arizona for a better chance at a clear sky. Yes, I know, much of the NYC area had clear skies, but it was a close call. It didn't work out quite as I expected for me either, but, overall it was a great trip. I have a friend who lives in Scottsdale and with whom I partnered for the adventure. We picked Vermilion Cliffs N.M. (National Monument) for the location. It's a beautiful area next to the Colorado River where it emerges crystal clear from the Lake Powell dam. We spent two days looking for the best location and took timelapse pictures of sunsets, moonrises, sunrises.

We had incredibly clear skies all the time, but weather for eclipse time was not ideal, high clouds and perhaps middle clouds were forecasted. It looked better going south, so as we saw high clouds moving it at the last minute we packed and moved to "plan B" location, the Sunset Crater Volcano N.M., 30 minutes north of Flagstaff. On the way down we kept looking at the moon. There were clouds, but they were thin, and the moon was shining through brightly. I was wondering if we would be able to see the stars. We got to the location around 11pm, a lookout with a volcano view. The temperature was 27F. I set up my three cameras with different lenses: 14mm, 35mm and my TPO 40mm scope with FL 180mm. I had this last one on a tracker. My friend used a Tamron zoom 70-180mm (F/2.8).

This eclipse was difficult to capture as a landscape photograph for a couple of reasons (logistics aside). The moon was very high in the sky at over 70 degrees at the start, so including any foreground required a very wide-angle lens, which also meant the moon would be really tiny, and second, the moon's brightness overwhelmed everything else. That was true even for when it was max eclipsed at 97%. Still, some things came out OK, even if not quite what I wanted. I think the best shot is the one with the eclipsed moon and the Pleiades. It's actually a short timelapse taken with the camera on the tracker. You can almost see the moon getting closer to the Pleiades. And another shot I like is the one almost at the end with the moon floating through a veil of thin clouds producing a halo, while you can still see the stars, Orion especially, dimming out as the moon gets brighter. Of course, the moon, even partially eclipsed, is so bright that it appears as a blob.

To end, for at least one hour around the max eclipse, the sky was clear, and the stars were really bright. For me, that is the magic of a lunar eclipse, the moon and the stars equally visible. Of course, dark AZ skies help.

### **Night Sky Network Web Series: APOD's Postcards From the Universe**

On Tues, Dec 7, NSN members (AOS is a member) are invited to a special webinar at 9:00pm Eastern to hear **Dr. Jerry Bonnell** from NASA's Astronomy Picture of the Day bring us the best of APOD for 2021.

Along with Robert Nemiroff, Jerry Bonnell has written, coordinated, and edited NASA's Astronomy Picture of the Day (APOD) since 1995. The APOD archive contains the largest collection of annotated astronomical images on the internet. His presentation will look back on favorite astronomy and night sky images featured on APOD during 2021. Register at [https://us02web.zoom.us/webinar/register/WN\\_Hm9Z\\_pH\\_SReT4mBHAlrv8Q](https://us02web.zoom.us/webinar/register/WN_Hm9Z_pH_SReT4mBHAlrv8Q) Additional info on this webinar's resource page (NSN login required).: [https://nightsky.jpl.nasa.gov/download-view.cfm?Doc\\_ID=702](https://nightsky.jpl.nasa.gov/download-view.cfm?Doc_ID=702)

Find info on current, past and future webinars, and upcoming webinar schedule on the NSN webinar series news page: [https://nightsky.jpl.nasa.gov/news-display.cfm?News\\_ID=707](https://nightsky.jpl.nasa.gov/news-display.cfm?News_ID=707) A livestream will also be available to everyone via the Night Sky Network YouTube channel: <https://youtu.be/nURSCNTBZI8>

Please note that member questions submitted via Zoom will be prioritized, as the Zoom registration link is NSN members-only. Update and restart your Zoom software before the session begins for the best experience.

**Next Month's Webinar: When Clouds Take Over the Sky** with Dr. Jessica Taylor on Mon, Jan 10.

### **How To Choose a First Telescope? Perhaps a holiday gift?**



*A volunteer prepares a Dobsonian telescope with a solar shield to observe a partial eclipse of the Sun in San Francisco on Oct 23, 2014. Dobsonian telescopes are often the best choice for a first telescope due to their simplicity and ease of set-up. Photo Credit: Pablo Nelson/[ASP](#)*

A telescope is a great gift for the budding astronomer in your life - or, of course, for yourself! While it may be tempting to go for an ultra-cheap impulse buy spotted while shopping at a local store, or to splurge on a super expensive, deluxe computerized model found online, we urge you to hold off on a major purchase before first

doing a bit of research. You might even be able to try out a few potential telescopes with the help of your local astronomy club before making your final decision.

The best way to start observing the night sky is with your own unaided eyes, the most old-fashioned way to stargaze. The following tips will assume you have been stargazing for a while and want a better peek at the Moon, planets, and stars. A good telescope doesn't work like a video game cheat code that instantly turns you into an expert astronomer, not even with a computerized setup that claims to instantly slew to any one of thousands of targets. You still need to practice your stargazing skills, and a good first telescope or pair of binoculars will help you do just that while expanding your skillset and giving you the confidence to search for more and more celestial sights.

A first telescope should be easy to use and still be of high enough quality and power to provide years of use-while not being overly expensive. Those requirements could also be found for many novice stargazers in a good pair of **binoculars**!

Binoculars, it turns out, are an excellent first instrument for many stargazers due to their ease of use and versatility. Binoculars can be used not just for stargazing but for bird watching and other outdoor activities and can be easily packed away while traveling. Binoculars can easily fit onto carry-on for airline travel, which is an impossible feat for most telescopes. A good pair of binoculars, anywhere from 7x35 to 10x50, will give you great views of the Moon, open star clusters like the Pleiades, the brighter, larger galaxies like Andromeda (from dark skies), large nebula like Orion, and even peeks at Jupiter's moons and some globular clusters once your observing skills improve.

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What do those binocular numbers mean? The first number is the magnification, while the second number is the size in millimeters of the lenses. So, a 7x35 pair means that these binoculars will magnify 7x and have lenses 35 mm in diameter. When starting out it is tempting to get the biggest you can find but try not to get anything much more powerful than a 10x50 pair at first. Larger binoculars with more power often have narrower fields of vision and are heavier. So, while technically more powerful, they are much more difficult to hold steadily in your hands and "jiggle" quite a bit, unless you buy binoculars with image stabilization, or mount them to a tripod.

For many objects, binoculars are even the preferred method for viewing them due to their large field of view compared to a telescope. Most telescopes are unable to keep the entirety of the Pleiades or Andromeda Galaxy in their field of view, for instance. Binoculars are also a great investment for more advanced observing, as later on they are useful for spotting objects to observe in more detail with a telescope.

A good pick for a starter telescope retains much of the same requirements as a pair of binoculars: smallish in size, sturdy, and easy to handle. Many astronomers will recommend avoiding a computerized telescope until you have learned the sky a bit better, as these systems generally require you know the sky fairly well, since their initial setup usually involves their systems pointing to several test stars and asking you to confirm if those are indeed the correct stars, before fine-tuning the focus; these are steps a beginner may find intimidating or confusing.

That's why a small manual telescope often works best for most beginning stargazers- plus you will save quite a bit of money by forgoing electronics. For many, a small reflector telescope on a tabletop or [Dobsonian](#) mount (rather than tripod) works out best due to the bare-bones nature of the setup. With a small Dobsonian telescope, you can pick it up, bring it out to your yard, set it down and immediately start observing (though you might want it to cool down a little bit first). Most models in the range of 4.5-8 inches (the size of their light-gathering mirrors) will cost anywhere between \$200-\$500 and include the telescope tube, the mount or base, a finderscope or red dot finder to help in aiming the telescope, and a couple of good starter eyepieces. An example of a Dobsonian mounted telescope is at the top of this article; they are often compared to "cannons" or "light buckets" because of their appearance. A good, recommended size for a first reflecting telescope with this type of mount usually ranges between a 4.5-8" mirror. Those sizes usually give good to great views of the heavens while keeping costs, weight, and size down to easy to manage levels.

The classic "refractor" telescope on a tripod is often what most people think of when a telescope is mentioned. These telescopes use lenses rather than mirrors to gather light and require very little maintenance compared to reflector type telescopes, which may require a bit of adjustment, or collimation, of their mirrors every now and again. Refractors tend to be larger and more expensive than similarly powerful reflectors, however, and are often aimed at the higher end of the market, and so for many folks would not make a good first telescope simply out of cost or size. However, if you find a good deal on a refractor, it can indeed make an excellent starter scope! Just don't buy a cheap one at a local store advertising amazing magnifications of 600x. Those are, to be honest, bad telescopes-truly a deal too good to be true!

We hope this helps you in your search for a first astronomical instrument! There are many other great guides to finding your first scope or pair of binoculars. Some can be found at the [EarthSky](#), [Sky & Telescope](#), [StarDate](#), [Cloudy Nights](#), the [Planetary Society](#), and many more. A fair warning: it's easy to get a bit overwhelmed by the wealth of information found in all of the astronomy resources found online.

If you are able to do so real-world advice and experience is still the best for something you will be spending a lot of time with! The best place to go for advice is with your local experts in a nearby astronomy club. You can find a [club](#) or [star party](#) near you on the Night Sky Network's very own [Clubs & Events](#) page. While current social-distancing recommendation may limit the amount of real-world interactions you can have right now, some folks will be glad to assist over email or other online methods. While you may not be able to do so right now, going to an in-person star party hosted by a local club is a great way to get familiar with telescopes and binoculars. Some clubs and local libraries even have [telescope lending programs](#). Just like with a car, you could take a potential model of telescope out for a "test drive" before deciding to buy. Good luck, and may you have clear skies this holiday season!



## This article is distributed by NASA Night Sky Network

The Night Sky Network program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit [nightsky.jpl.nasa.gov](https://nightsky.jpl.nasa.gov) to find local clubs, events, and more!

### The James Webb Space Telescope: Ready for Launch! By David Prosper

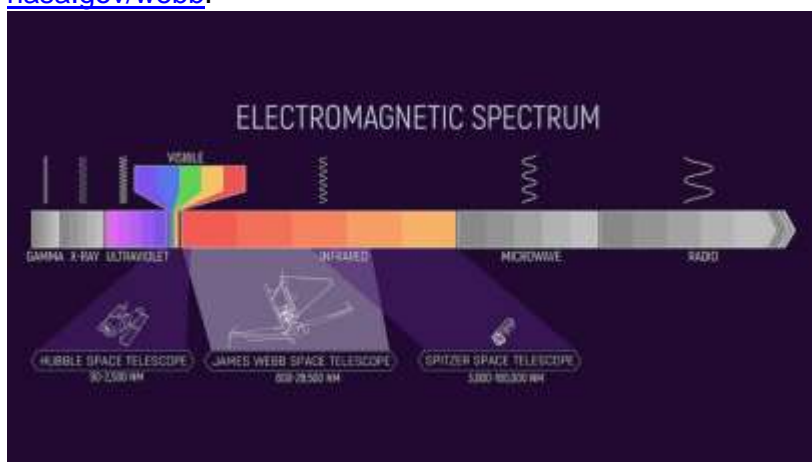
NASA's James Webb Space Telescope is ready for lift-off! As of this writing, the much-anticipated next-generation space telescope is being carefully prepared for launch in December and will begin its mission to investigate some of the deepest mysteries of our universe.

The development of the Webb began earlier than you might expect – the concept that would develop into Webb was proposed even before the launch of the Hubble in the late 1980s! Since then, its design underwent many refinements, and the telescope experienced a series of delays during construction and testing. While frustrating, the team needs to ensure that this extremely complex and advanced scientific instrument is successfully launched and deployed. The Webb team can't take any chances; unlike the Hubble, orbiting at an astronaut-serviceable 340 miles (347 km) above Earth, the Webb will orbit about one million miles away (or 1.6 mkm), at Lagrange Point 2. Lagrange Points are special positions where the gravitational influence between two different bodies, like the Sun and Earth, "balance out," allowing objects like space telescopes to be placed into stable long-term orbits, requiring only minor adjustments - saving Webb a good deal of fuel.

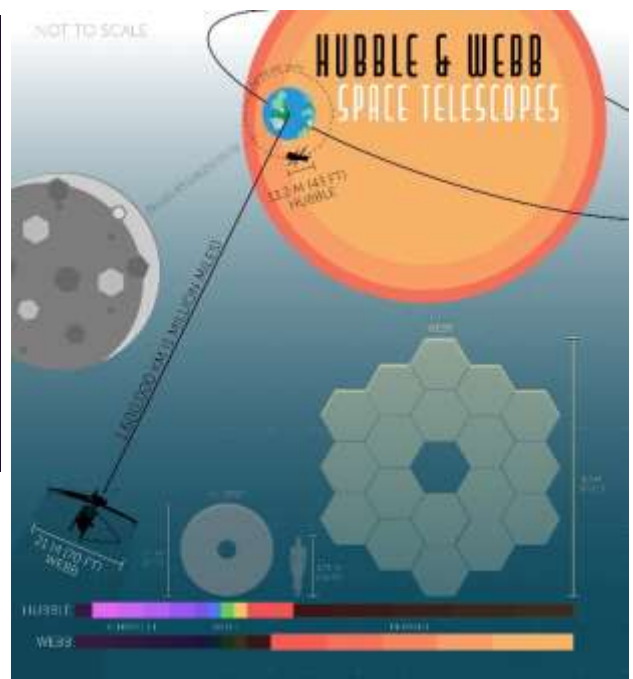
Since this position is also several times further than the Moon, Webb's sunshield will safely cover the Moon, Earth, and Sun and block any potential interference from their own infrared radiation. Even the seemingly small amount of heat from the surfaces of the Earth and Moon would interfere with Webb's extraordinarily sensitive infrared observations of our universe if left unblocked. More detailed information about Webb's orbit can be found at [bit.ly/webborbitinfo](https://bit.ly/webborbitinfo), and a video showing its movement at [bit.ly/webborbitvideo](https://bit.ly/webborbitvideo).

Once in its final position, its sunshield and mirror fully deployed and instruments checked out, Webb will begin observing! Webb's 21-foot segmented mirror will be trained on targets as fine and varied as planets, moons, and distant objects in our outer Solar System, active centers of galaxies, and some of the most distant stars and galaxies in our universe: objects that may be some of the first luminous objects formed after the Big Bang! Webb will join with other observatories to study black holes - including the one lurking in the center of our galaxy, and will study solar systems around other stars, including planetary atmospheres, to investigate their potential for hosting life.

Wondering how Webb's infrared observations can reveal what visible light cannot? The "Universe in a Different Light" Night Sky Network activity can help - find it at [bit.ly/different-light-nsn](https://bit.ly/different-light-nsn). Find the latest news from NASA and Webb team as it begins its mission by following #UnfoldTheUniverse on social media, and on the web at [nasa.gov/webb](https://nasa.gov/webb).



*Webb will observe a wide band of the infrared spectrum, including parts observed by the Hubble - which also observes in a bit of ultraviolet light as well as visible - and the recently retired Spitzer Space Telescope. Webb will even observe parts of the infrared spectrum not seen by either of these missions! Credits: NASA and J. Olmstead (STScI)*

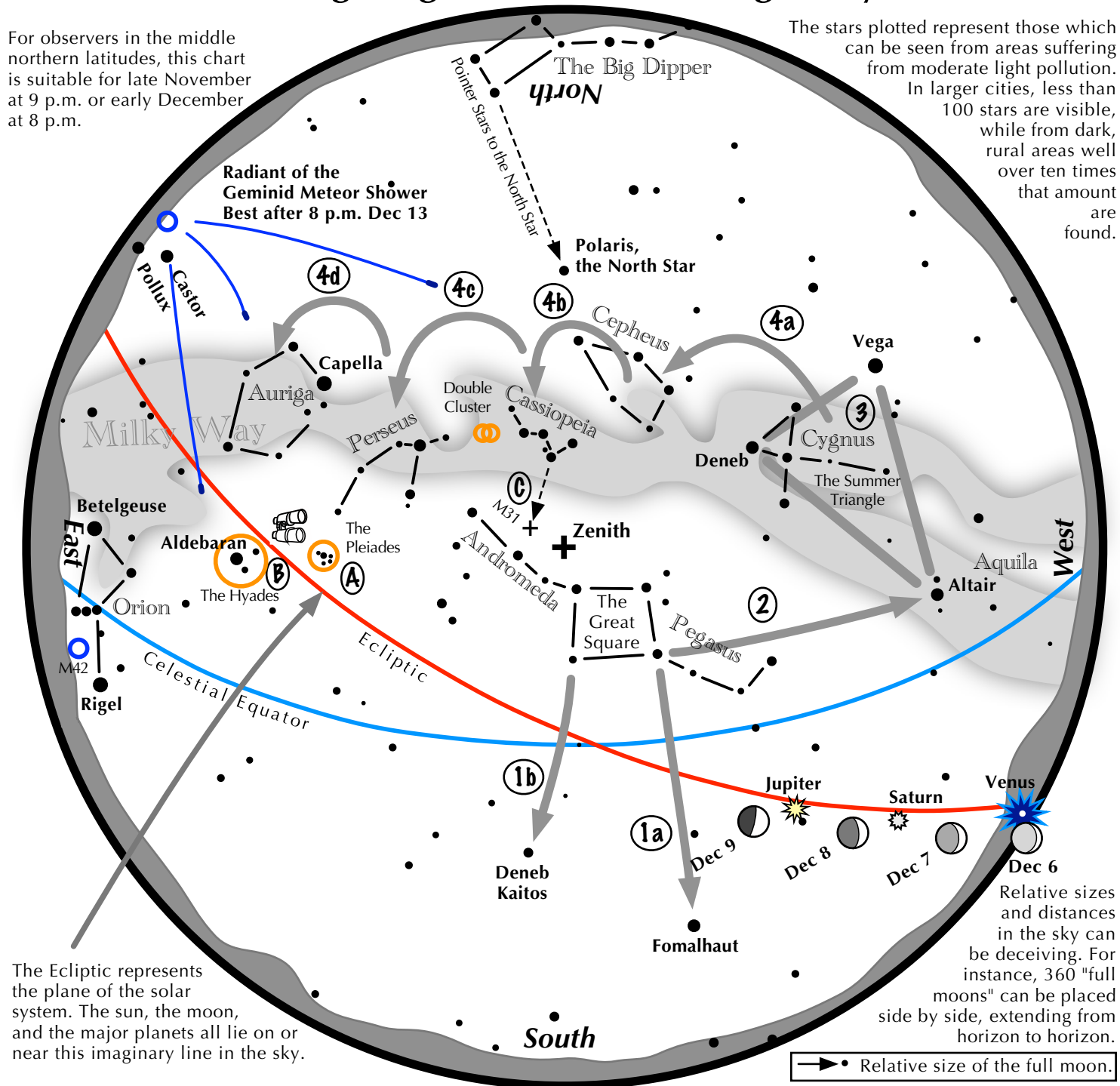


*Webb will follow up on many of Hubble's observations and continue its mission to study the most distant galaxies and stars it can - and as you can see in this comparison, its mirror and orbit are both huge in comparison, in order to continue these studies in an even deeper fashion! Credits: NASA, J. Olmstead (STScI)*

# Navigating the December Night Sky

For observers in the middle northern latitudes, this chart is suitable for late November or early December at 9 p.m. or early December at 8 p.m.

The stars plotted represent those which can be seen from areas suffering from moderate light pollution. In larger cities, less than 100 stars are visible, while from dark, rural areas well over ten times that amount are found.



The Ecliptic represents the plane of the solar system. The sun, the moon, and the major planets all lie on or near this imaginary line in the sky.

## Navigating the December night sky: Simply start with what you know or with what you can easily find.

- 1 Face south. Almost overhead is the "Great Square" with four stars about the same brightness as those of the Big Dipper. Extend an imaginary line southward following the Square's two westernmost stars. The line strikes Fomalhaut, the brightest star in the southwest. A line extending southward from the two easternmost stars, passes Deneb Kaitos, the second brightest star in the south.
- 2 Draw another line, this time westward following the southern edge of the Square. It strikes Altair, part of the "Summer Triangle."
- 3 Locate Vega and Deneb, the other two stars of the "Summer Triangle." Vega is its brightest member while Deneb sits in the middle of the Milky Way.
- 4 Jump along the Milky Way from Deneb to Cepheus, which resembles the outline of a house. Continue jumping to the "W" of Cassiopeia, to Perseus, and finally to Auriga with its bright star Capella.

### Binocular Highlights

**A and B:** Examine the stars of the Pleiades and Hyades, two naked eye star clusters.

**C:** The three westernmost stars of Cassiopeia's "W" point south to M31, the Andromeda Galaxy, a "fuzzy" oval.

**D:** Sweep along the Milky Way from Altair, past Deneb, through Cepheus, Cassiopeia and Perseus, then to Auriga for many intriguing star clusters and nebulous areas.

