

# Celestial Observer

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

NOV 2021



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Next Meeting: Sunday, Nov 14, 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)

**PLEASE**, do not forward this newsletter to ANYONE outside of AOS due to privacy issues. We publish a separate issue for the public that does not include member information. The PDF archive is at [http://www.aosny.org/Newsletter\\_archive.htm](http://www.aosny.org/Newsletter_archive.htm).

## The President's Message-Sue Rose

Day by day, the Sun sets earlier as its' path continues to get lower in our sky, providing us with more hours to observe. I hope many are taking advantage. The Winter Solstice is barely a month away when the Sun will begin to climb higher once again. No matter how much I understand the celestial mechanics of it all, it never ceases to amaze me. How many walk around and just accept it as fact that the amount of sunlight changes by the season but really have no clue what it's all about. That also amazes me.

On Nov 14, we will continue to provide our meetings digitally as the pandemic has not abated enough to allow for in person meetings. Hofstra is still closed to non-personnel. It will change at some point, hopefully sooner rather than later. Fingers crossed. Our own **Joe Rao** will present "**Adventures of an Eclipse Chaser**". Joe has traveled around the world to observe a dozen total solar eclipses. Along the way, he's had some interesting encounters and has done some interesting things in order to position himself within the shadow of the Moon. In this PowerPoint presentation, Joe will reflect back on his nearly 50 years of eclipse chasing. No one gives a better explanation than Joe.

You may be aware that a total eclipse of the Sun will take place on Dec 4, very far south of our location. In fact, you need to be quite near Antarctica! As has been the case for many remote locations, our own **Dr. Glenn Schneider** has once again devised a flight plan to put those on board a jetliner directly in the path of the lunar shadow. Several other club members will be joining him. There is also a cruise available if you prefer to stay on the Earth, although viewing from the ocean. I've heard we will have some members there as well. It's time to start revving up your plans for the upcoming more convenient solar eclipses in 2023 and 24. Don't miss them.

Please join us again next week, November 21, for our Guest Speaker, **Prezemek Mroz**, from Cal-Tech as he discusses "The Continuing Search for Rogue Planets".

Some programs have been recorded. 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 Thanksgiving.**

Hoping to see everyone at our online meetings, Sunday, Nov 14, 21 & Dec 5, 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/>

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

**Public stargazing program Nov. 18, 7pm** - Volunteers needed. Please contact Linda. This program is for a boy scout troop. The address is a mosque at 300 Hillside Ave, New Hyde Park. There will be about 20 boy scouts ages 11-16 and some adults as well so we need enough telescopes for the crowd. We will have a short introduction to astronomy presentation and then stargazing through telescopes provided by AOS volunteers. The event will be held in a parking lot at the location. There will be someone there at the Hillside Ave. entrance to direct AOS volunteers to the lot location. Rain date is Nov. 19 or as soon as skies allow.

On Oct 19, the Cradle of Aviation requested our assistance for a public stargazing program. Unfortunately, only a handful of public made it to the event. AOS members came out strong, however. Many thanks to all who volunteered. Several members used cameras attached to the telescopes and projected their images on digital screens. Visitors looking through other telescopes used the protective devices created by Joe S, each which acted as a barrier between the eyepiece and an observer's eye. Screen captures of the following objects were made by using electronically assisted equipment at the event. It was a beautiful night with a rising Harvest Moon! Those in attendance were able to see a few deep sky objects in addition to visual views of the planets through many of the members scopes! Objects observed were M31, Andromeda Galaxy, M27 Dumbell Nebula, M57 Ring Nebula, M13 Hercules cluster, NGC869 Double Cluster, NGC891 Edge on spiral Galaxy in Andromeda and the Harvest Moon. See the images at <https://www.flickr.com/gp/billbrads/2F5631>.

***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-**They are still available from the NYS Parks Dept, either by mail or in person at offices in Bethpage, Jones Beach or Robert Moses. 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. Not sure of the current status. They expire Dec 31 when new ones for 2022 will need to be purchased. 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. Bring a bucket and sealable plastic bags. 😊 **It's a good idea to put a note on the hotline and let others know you're going so you might get some company. 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.**

**The Holiday Light Show** will once again fill the west end of Jones Beach, preventing us from using our special stargazing permits. You will need a NYS StarGazing permit to access other areas.

**Partial Lunar Eclipse, November 19<sup>th</sup>** at approximately 1:00 AM and last until 7:00 AM. (It's also near the peak of the Leonid meteor shower so don't be surprised if you see a meteor shooting by as well.) According to EarthSky.org, the last partial lunar eclipse that stretched longer happened on February 18, 1440. The next time Earth will see a partial lunar eclipse as lengthy as this one will be on February 8, 2669. If we are clouded out, or you can't get to a good location for viewing, you can live stream it from Lowell Observatory here, <https://www.youtube.com/watch?v=-qyiEicSFD0>.

**Why aren't there any green stars?** The physics behind why green stars cannot exist in our universe:

<https://youtu.be/vXOYbzQ4jDA>

**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)

**Observing**

**International Dark Sky Association** learn more about light pollution and its effects on us and our world <http://darksky.org/>

**Light Pollution Projects**

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

A recent CO mentioned a BBC article about a study suggesting an alarming decline of insects due to streetlamps. If true, this could be a serious threat to the ecosystem. The corrected link and an excerpt is here: <https://www.bbc.com/news/science-environment-58333233> In a UK study, artificial street lights were found to disrupt the behavior of nocturnal moths, reducing caterpillars numbers by half. Modern LED streetlights appeared to have the biggest impact. The use of artificial lights at night-time has been proposed as another driver of insect decline, although the scale remains unclear. The researchers say their study, published in Science Advances, is the strongest evidence yet that light pollution can have detrimental impacts on local insect populations, with consequences for the birds and other wildlife that rely on caterpillars for food. "In a local setting we can now be quite confident that light pollution is important, but what's less clear is if we're looking at a whole landscape," said lead researcher Douglas Boyes of the UK Centre for Ecology & Hydrology.

**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.ianwww.com/meteor-showers/>

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

**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**

**Astronomy Magazine** <https://astronomy.com/observing/sky-this-week> and **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>

**Stony Brook University Astronomy Open Night Fall 2021 Season** Astronomy Open Nights will be held 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 2021 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=b2cvVlVl>

**Hamptons Observatory: Tues, Nov 16th Talk & More!** Hamptons Observatory is an official host site for NASA's James Webb Space Telescope. We have partnered with the South Fork Natural History Museum to help our community celebrate this amazing feat of science and engineering. On Tuesday, November 16th at 7:00 PM, NASA Solar System Ambassador and HO's Senior Educator, William Francis Taylor, will present a free, virtual talk about NASA's latest space observatory and how it will revolutionize our understanding of the universe. Tickets are limited and registration is required: [https://us06web.zoom.us/meeting/register/tZUkdu2prTMsEtVJ-pp7DU1C\\_CKIM3RLUdGY](https://us06web.zoom.us/meeting/register/tZUkdu2prTMsEtVJ-pp7DU1C_CKIM3RLUdGY) Mark your calendar for another exciting, free, virtual talk: 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)

## **Don't Postpone Joy- Why We Stargaze**

<https://skyandtelescope.org/astronomy-blogs/dont-postpone-joy-why-we-stargaze/>

Why do you stargaze? Amateur astronomer Jennifer Willis explores reconnection via the night sky.

Years ago, I had a bumper sticker that read, "Don't Postpone Joy." That simple, profound message has garnered a lot of attention over the years. One time, the driver and passenger of a car on the highway waved frantically at me to roll down my window so they could shout, "Where did you get that bumper sticker?!" at 60 miles per hour.

Don't postpone joy. It's a decent mantra for living.

In July 2020, I lay outside on the picnic table in the dark, looking up. At the time, we had a small open patch of sky visible from behind the house, which blocked the streetlamps and most of the lights from neighboring homes. But inside Portland city limits, the sky was dark gray at best. I used my old binoculars — a cheap pair of 10x50 Tascos — to scan directly above, with a little room to the east and northeast. I could glimpse parts of Cassiopeia through our apple tree branches and Cygnus peeking out from behind a neighbor's wild cherry tree. Ursa Minor was easy enough, and I could trace Draco if I tried hard. Delphinus and Sagitta were hidden by the roof and another big tree.

It wasn't awesome stargazing, but that was okay. I wasn't target hunting. I barely even registered what I was looking at. In the midst of a global pandemic and mounting tension around the U.S. presidential election, I mostly just needed a break from the world.

I hadn't looked up at the sky in years, not really. Sure, I'd say hello to Orion when I spotted him on clear winter nights, and I regularly marveled at the Moon, but I hadn't had time for stargazing. No, I hadn't *made* time for stargazing.

But a friend was rediscovering his childhood love of amateur astronomy, and knowing about my own space nerdiness, he encouraged me to spend some time looking up, too.

What a difference a few moments can make. That summer night, my heart rate slowed as I turned my attention skyward, and my breathing evened out. It's no exaggeration to say I felt knots loosening up. There were no agendas, no deadlines, no digital alerts pulling my focus. It was just me and the stars — and some irritating light escaping the kitchen window, and the splintery wood of the old picnic table. But I found such peace — such *relief* — in the midst of the world's turmoil.

With or without my cheap binoculars, the night sky brought me back to myself. Under the stars, I remembered the whole reason why I wanted to be a writer in the first place — to carry on the tradition of the campfire storytellers from millennia in the past, spinning tales of challenge, reassurance, and meaning beneath their own star-filled skies. More than that, it was a rediscovery of wonder and awe, and it was available to me on any clear night, mere steps outside my door.

"Don't postpone joy," I whispered to myself. I developed a new habit of getting ready for bed, waiting in my pajamas for the sky to get dark enough, and then stretching out on the picnic table or on a blanket in the grass for a few moments of much-needed restoration. We've cleared some tree branches since then, and I've found a few spots for better views, depending on the season and what I'd like to marvel at. I eventually bought myself a zero-gravity chair for comfort, and I've been assembling an array of binoculars and telescopes to feed the habit that in turn feeds my soul.

I rest better on those nights, even when I sacrifice sleep to stay up late or get up super early, and there's a quiet but excited tranquility that carries over into the next day. Once the timelessness of the vast universe sinks into your bones, the immediate concerns of an agitated world don't penetrate as deeply.

My father used to tease me by quoting that bumper sticker. Now, years after the sticker colors have faded and its slogan lost, his reminders are in earnest. And I'm listening.

Why do you stargaze? Watch this space for more explorations on why we look up.

**Free Astronomy Textbook**- The September 2021 American Astronomical Society news digest included a reference to Andrew Franknoi's post about a free online astronomy textbook. This textbook is one of multiple free college textbooks that are provided by a Rice University project to lower costs for students. You can read the post at this address: <https://aas.org/posts/news/2021/09/astronomy-free-online-astro-101-textbook>. You can download the book directly (without referring to the above article) from this address: <https://openstax.org/details/astronomy>



## 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!

### Measure the Night Sky by David Prosper

Fall and winter months bring longer nights, and with these earlier evenings, even the youngest astronomers can get stargazing. One of the handiest things you can teach a new astronomer is how to measure the sky – and if you haven't yet learned yourself, it's easier than you think!

Astronomers measure the sky using degrees, minutes, and seconds as units. These may sound more like terms for measuring time - and that's a good catch! – but today we are focused on measuring **angular distance**. **Degrees** are largest, and are each made up of 60 **minutes**, and each minute is made up of 60 **seconds**. To start, go outside and imagine yourself in the center of a massive sphere, with yourself at the center, extending out to the stars: appropriately enough, this is called the **celestial sphere**. A circle contains 360 degrees, so if you have a good view of the horizon all around you, you can slowly spin around exactly once to see what 360 degrees looks like, since you are in effect drawing a circle from inside out, with yourself at the center! Now break up that circle into quarters, starting from due North; each quarter measures 90 degrees, equal to the distance between each cardinal direction! It measures 90 degrees between due North and due East, and a full 180 degrees along the horizon between due North and due South. Now, switch from a horizontal circle to a vertical one, extending above and below your head. Look straight above your head: this point is called the **zenith**, the highest point in the sky. Now look down toward the horizon; it measures 90 degrees from the zenith to the horizon. You now have some basic measurements for your sky.

Use a combination of your fingers held at arm's length, along with notable objects in the night sky, to make smaller measurements. A full Moon measures about half a degree in width - or 1/2 of your pinky finger, since each pinky measures 1 degree. The three stars of Orion's Belt create a line about 3 degrees long. The famed "Dig Dipper" asterism is a great reference for Northern Hemisphere observers, since it's circumpolar and visible all night for many. The Dipper's "Pointer Stars," Dubhe and Merak, have 5.5 degrees between them - roughly three middle fingers wide. The entire asterism stretches 25 degrees from Dubhe to Alkaid - roughly the space between your outstretched thumb and pinky. On the other end of the scale, can you split Mizar and Alcor? They are separated by 12 *arc minutes* - about 1/5 the width of your pinky.

Keep practicing building advanced star-hopping skills. How far away is Polaris from the pointer stars of the Big Dipper? Between Spica and Arcturus? Missions like Gaia and Hipparcos measure tiny differences in the angular distance between stars, at an extremely fine level. Precise measurement of the heavens is known as **astrometry**. Discover more about how we measure the universe, and the missions that do so, at [nasa.gov](https://nasa.gov).

### Measure the Sky with the Big Dipper



Image created with assistance from Stellarium

### Handy Sky Measurements

Hold your hand out in front of your face as far as you comfortably can, and measure:

1°      5°      10°      15°      25°

