



Celestial Observer

www.aosny.org

OFFICIAL NEWSLETTER

February 2021

The Amateur Observers' Society of New York

The Amateur Observers' Society

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

Visit us at www.aosny.org and join us on [Facebook](#).

The AOS expresses its deepest appreciation to the Custer Institute for hosting our Observatory, and the [Sierra Club Long Island Group](#) for the 20" telescope.



SIERRA CLUB
FOUNDED 1892



This Month's Issue

- President's Message
- Coronal Mass Ejection vs Solar Flare
- Member's Photos
- NASA Space Place

Next Meeting (online): Sunday February 7th, 1:15PM
Contact AOSsecretary@aosny.org for a meeting invitation

The President's Message

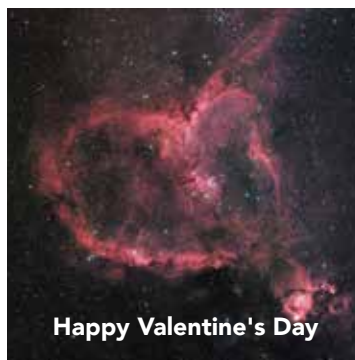
By Sue Rose

Happy Cross Quarter Day, Feb 2, the day halfway between the Winter Solstice and Vernal Equinox, reminding us that the winter is half over. It also means the hours of daylight are increasing and therefore observing hours are decreasing. I know it's still cold so you may not want to spend a lot of time outdoors, and we are still working on getting our observing site at Jones Beach back, but don't let the winter constellations and all their great faint fuzzies disappear before you think to go out and look. Toward that end, I'm establishing a member observing challenge. See elsewhere for a section on observing.

Many thanks to our old friend, **Willie Yee**, who gave a great presentation about Chinese astronomy at our Jan meeting. This follows our education about Arabic astronomy several months back. So many civilizations studied the skies but had no collaboration so had to learn the same things in their own way. That's certainly a far cry from the world of today where as soon as you discover something and publish the result, everyone in the whole world

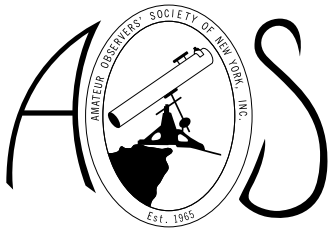
learns about it immediately. It would be interesting to continue this series so if anyone has some expertise in a particular culture, or wants to do the research, and make a presentation to the club. If so, please contact **Jason C. Willie** also discussed a [StarTrek-related amusement area](#) where he has been involved in upstate NY.

Sounds like a field trip in better weather. We'll combine it with some clear sky observing. On January 24, former Astronomical League President and now Vice President, currently 19,000



Members—**Charles E. Allen** ("Chuck")—gave an informative discussion on the programs of the Astronomical League and What's In Store for 2021.

At our February 7th general meeting, we welcome **Adam Block** as he discusses Astrophotography methods utilizing simple DSLR techniques and equipment. You may recognize Adam from from the January 2021 issue of *Sky & Telescope* where he was featured both on the cover and with a full article inside, "Adam Block's Tips for Imaging Galaxies" We look forward to a great presentation of



a topic so many of us have interest in. And on February 21, our very own **Steve B** will present: "Mars, Mythology and Science Fiction." AOS greatly appreciates all those who give their time on these Sunday afternoons.

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

Hoping to see everyone at our online meetings, February 7 & 21, 1:15pm, until then,



Observing Sites

The winter solstice is behind us, During this crazy time, our intrepid Director of the Susan Rose Observatory on the grounds of Custer Institute in Southold, **Bill C**, with help from **Jason C** and **Bill B**, has continued to bring the night sky objects into view for the public using digital means to project images captured by our C14 within the dome to a monitor outside. He can always use extra help. Since this experiment has worked so well, and been well received by the visitors, we will be continuing to use this even after in person viewing resumes. To that end, we are purchasing new digital equipment. Donations received in memory of member **Bryan B**, an avid astrophotographer and twin brother of our Corresponding Secretary **Bill B**, will help to pay for these items. If anyone would like to donate toward this project, please contact Treasurer **Harvey M**.

Sagamore Hill is patiently awaiting our return to bring the night sky

views back to their visitors, as is the new Jones Beach Nature Center. We are hoping that at some point in the not-too-distant future we will be back there with all our equipment. In the meantime, we are working on the return of member nights.

Stargazing in the NYS Parks

Until we obtain club observing permits, we suggest that you purchase a StarGazing permit [online from the NYS Parks Dept.](#) for \$35 until March 31st.

Please note: Due to COVID-19 restrictions, you cannot purchase a permit in person.

There seems to be a lengthy delay in getting the permits, so, thanks to **Gene Z**, if you have your 2020 permit, and the email showing you paid for 2021, you may use that for observing. Be aware, the restrooms are not open during the cold months. The permit is good from Jan 1-Dec 31 each year and is for the vehicle, regardless of the number of occupants. Just be sure you have some star gazing equipment, like a star map. The permit allows you to go anytime you want which is a great advantage.

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, socially distanced of course. No eyepiece sharing. 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. This may be your only place to observe for the foreseeable future.

City of Stars Tour

Many of you may have heard of my City of Stars tours, the "mostly walking" excursions sponsored by the AOS, to visit astronomy-related sites in Manhattan. These tours were inspired by an article written by Dr. Neil deGrasse Tyson in the

January 2002 issue of Natural History magazine. **Tom L** and **Linda P** have created a [Facebook page](#), City of Stars - New York City, in which they have expanded Tyson's original list to 42 sites. They are mostly in Manhattan but are also in surrounding areas, with brief descriptions, photos, maps, and links for further information. We hope you will visit [City of Stars - New York City!](#) . If you see any other potential sites on your travels around NYC and surrounding areas, please contact Linda. She'll also be adding a website soon.

AOS Receives Amazon Smile Donation for Q3

Thanks to everyone who make their purchases through Amazon Smile. It costs nothing extra for you and AOS gets a small donation from every purchase. If you have questions, please contact our Treasurer, **Harvey M**. We received over \$50 for the 3rd quarter of 2020. Thank you again for participating.

NEAF 2021: Northeast Astronomy Forum

The Rockland Astronomy Club, RAC, and NEAF, are hard at work making plans and preparations for NEAF 2021, to be held on April 10th & 11th at Rockland Community College, RCC, and NEAIC, to be held on April 8th & 9th at the Crowne Plaza Hotel. NEAF 2021 is planned to be a most extraordinary event with over 100 vendors, incredible speakers, workshops, and amazing surprises. We guarantee that it will be the most incredible NEAF yet! NOTE: All 2020 purchases and registrations will automatically be credited to the 2021 NEAF and NEAIC.

AOS Member Observing Free Online Course on The Sun at The Open University

The Sun dominates our lives by defining our day, but how much do you know and understand about it? [This free course](#) will help you to explore the workings of what, from Earth, appears to be the brightest star in our universe by looking at its structure and the main processes taking place within it. You will also examine the phenomenon of sun spots. Visit their site for [other free astronomy courses](#).

Observing Projects and Useful Websites

[Skyscrapers Observing Projects for February](#)

[The Night Sky This Month](#)

[Astronomy Magazine Sky This Week](#)

[Sky & Telescope Magazine](#)

[In-the-Sky.org](#)

[Globe at Night](#)

[EarthSky](#)

[NASA JPL: What's Up Each Month](#)

[Comet Watch 2021](#)

[NASA Extends Juno, InSight Missions](#)

[Neil Armstrong's footprint \(and other lunar artifacts\) are now protected by U.S. law](#)

Upcoming Online Presentations

Stony Brook University First Friday of the Month Astronomy Presentation. [Sign up here](#).

Explore Scientific's "Explore Alliance Live" is a daily live video simulcast featuring engineers and technical representatives from Explore Scientific, including the show's host Scott Roberts, the company's Founder and President. To learn more about their programs you can [visit their YouTube channel and playlists](#).

Northern Hemisphere Astrophotography Competition Jan 1–Mar 31

nPAE invites you to enter any two astrophotos taken either by yourself or a group effort with your friends into our annual Northern Hemisphere Competition! Not only can you win USD270 / GBP200 cash, there is also amazing nPAE gear up for grabs. [See the website competition page for full details on how to enter](#). Once the 2021 North and South competitions have been won, they will, along with the 2020 World Champion, go head-to-head in a public vote to decide who will become the 2021 nPAE World Champion Astro Photographer!

February 11: Venus-Jupiter conjunction

Early risers will be rewarded with a close encounter between two of the brightest planets in our skies: Venus and Jupiter. Both planets will appear as brilliant dots to the naked eye, and the pair will seem to be so close in the sky that they will be visible at the same time through a backyard telescope.

As an added bonus, the planet Saturn will be drifting to the pair's upper right. Be prepared to scout out a good observing spot with an unobstructed view of the southeast horizon, as this celestial pairing will occur near the rising sun, and spotting it will be all about timing. The trick is to allow the planets to rise high enough in the morning sky to observe them just before the light of dawn drowns out your view. The best time to see them will be about 20 to 30 minutes before sunrise. People in the Southern Hemisphere will have the best opportunity to see the event because the planets will be positioned farther from the sun and therefore higher in the sky.

Subaru Answers the Call—Finally!

Subaru, provides owners with [Badge of Ownership](#) insignia they can affix to their cars to show their interests. Subaru is the Japanese term for the Pleiades and that is the symbol of the Subaru brand. Many of us have lobbied for years that they need an astro-nomy badge. They have finally done so. The article, Preserving Dark Skies for Stargazing and the Environment, can be found in their current issue of *Drive* magazine.



Astronomy Presentations

Stony Brook University First Friday of the Month Zoom Astronomy Presentation Plus. [Sign up here](#) for Feb 5, 7:30pm, Prof. James Lattimer, "The Youngest-Known Neutron Star" and Feb 26, 7:30pm, Prof Deanne Rogers, "OSIRIS-REx Asteroid Sample Return Mission".

Hamptons Observatory: NASA Talk via Zoom, Thursday, February 4th, 7-8:30 PM, "NASA's Airborne Lab: Mapping Polar Ice" by Walter E. Klein, NASA. REGISTRATION: <http://www.KleinTalk.eventbrite.com> When you register for tickets using Eventbrite, you will receive an email that contains the link, meeting ID and password needed to join the meeting.

Solar Flares vs Coronal Mass Ejections

Is a solar flare the same thing as a CME? Solar Cycle 25 just began, and, as it ramps up, we're going to be hearing more often about solar flares and coronal mass ejections (CMEs.) Both are



gigantic explosions of energy on our sun. Sometimes solar flares and CMEs happen at the same time. The strongest flares are almost always correlated with CMEs. Both are born when the sun's magnetic fields explosively realign, driving energy into space. But solar flare and CMEs aren't the same thing. Here's how they're different. [Read more at](#)

earthsky.org.

Observing Awards

Astronomical League Special Observing Award

The Great Conjunction of 2020 (deadline for submission: February 21, 2021) Requirements at the [AL site](#).

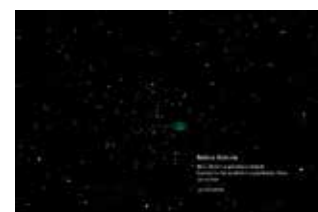
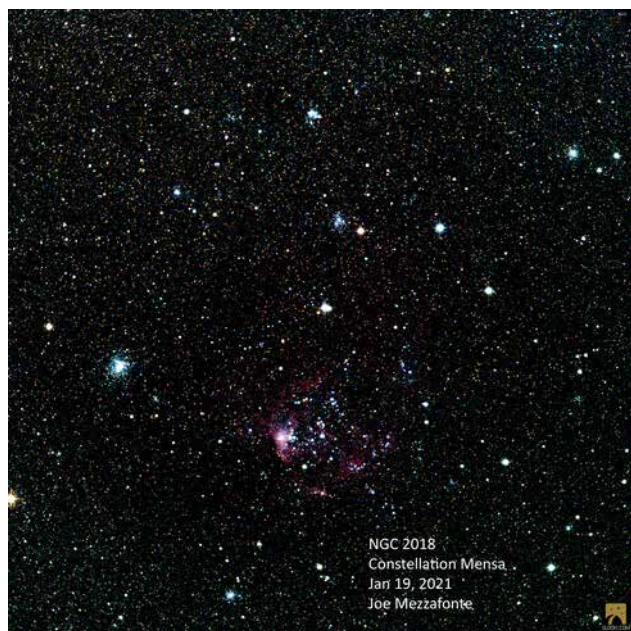
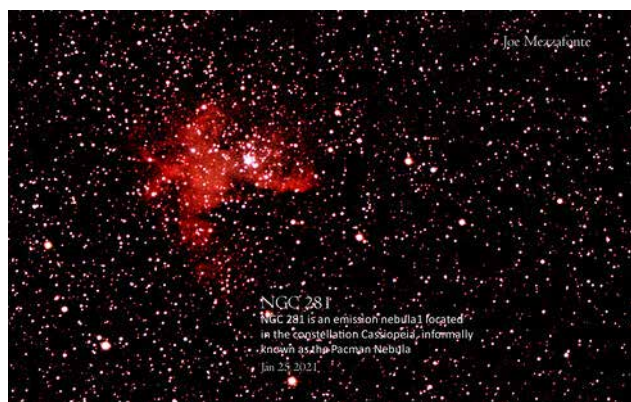
If you observed the recent

conjunction of Jupiter and Saturn, or the total solar eclipse in 2017, among some other special events, go to the [AL certificates page](#) for downloadable award certificates.

NASA & Astronomical League Special Observing Challenge

Landing of the Perseverance Rover on Mars Feb 18. Follow the instructions at the [AL site](#).

Astro Photos by Joe M



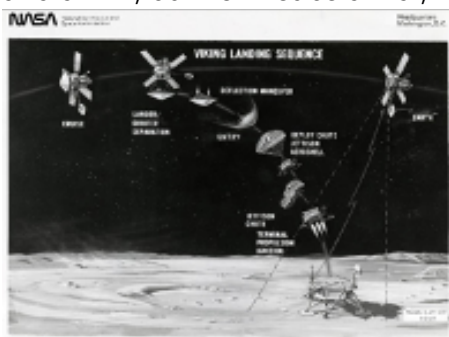


Landing On Mars: A Tricky Feat!

By David Prosper

The Perseverance rover and Ingenuity helicopter will land in Mars's Jezero crater on February 18, 2021, NASA's latest mission to explore the red planet. Landing on Mars is an incredibly difficult feat that has challenged engineers for decades: while missions like Curiosity have succeeded, its surface is littered with the wreckage of many failures as well. Why is landing on Mars so difficult?

Mars presents a unique problem to potential landers as it possesses a relatively large mass and a thin, but not insubstantial,

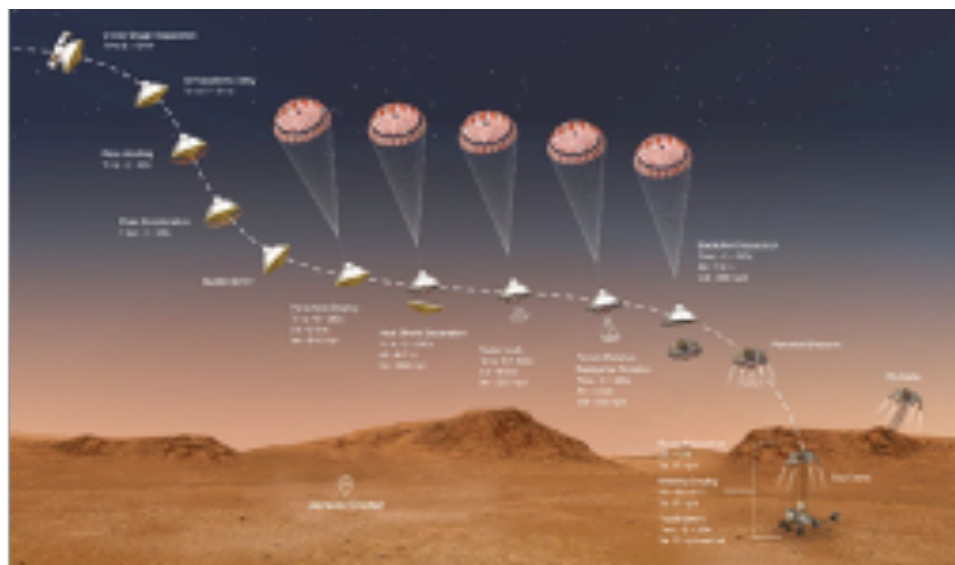


atmosphere. The atmosphere is thick enough that spacecraft are stuffed inside a streamlined aeroshell sporting a protective heat shield to prevent burning up upon entry - but that same atmosphere is not thick enough to rely on parachutes alone for a safe landing, since they can't catch sufficient air to slow down quickly

enough. This is even worse for larger explorers like Perseverance, weighing in at 2,260 lbs (1,025 kg). Fortunately, engineers have crafted some ingenious landing methods over the decades to allow their spacecraft to survive what is called Entry, Descent, and Landing (EDL). The Viking landers touched down on Mars in 1976 using heat shields, parachutes, and retrorockets. Despite using large parachutes, the large Viking landers fired retrorockets at the end to land at a safe speed. This complex combination has been followed by almost every mission since, but subsequent missions have innovated in the landing segment. The 1997 Mars Pathfinder mission added airbags in conjunction with parachutes and retrorockets to safely bounce its way to a landing on the Martian surface. Then three sturdy "petals" ensured the lander was pushed into an upright position after landing on an ancient floodplain. The Opportunity and Spirit missions used a very similar method to place their rovers on the Martian surface in 2004. Phoenix (2008) and In-sight (2018) actually utilized Viking-style landings. The large and heavy Curiosity rover required extra power at the end to safely land the car-sized rover, and so the daring "Sky Crane" deployment system was successfully used in 2012. After an initial descent using a massive heat shield and parachute, powerful retrorockets finished slowing down the spacecraft to about 2 miles per hour. The Sky Crane then safely lowered the rover down to the Martian surface using a strong cable. Its job done, the Sky Crane then flew off and crash-landed a safe distance away. Having proved the efficacy of the Sky Crane system, NASA will use this same method to attempt a safe landing for Perseverance this month!

You can watch coverage of the Mars Perseverance landing starting at 11:00 AM PST (2:00 PM EST) on February 18 at nasa.gov/nasalive. Touchdown is expected around 12:55 PM PST (3:55 PM EST). NASA has great resources about the Perseverance Rover and accompanying Ingenuity helicopter on mars.nasa.gov/mars2020. And of course, find out how we plan to land on many different worlds at nasa.gov.

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 to find local clubs, events, and more!



Illustrations of the Entry, Descent, and Landing (EDL) sequences for Viking in 1976, and Perseverance in 2021. Despite the wide gap between these missions in terms of technology, they both performed their landing maneuvers automatically, since our planets are too far apart to allow Earth-based engineers to control them in real time! (NASA/JPL/Caltech)

LOWELL OBSERVATORY ASTRO ALERTS

New study finds that the Moon affects your sleep

by Dr. Michael West

Hi everyone,

First of all, best wishes to everyone for a bright 2021!

You might find this interesting... A new study published today finds that "our ability to sleep is distinctly affected by the lunar cycle, even when taking into account artificial sources of light."

The study involved people in three indigenous communities in Argentina. Each participant was fitted with a sleep monitor on their wrist to record their sleep cycles. The researchers found that, on average, people went to sleep 30 minutes later and slept 50 minutes less on nights right before a Full Moon. They suggest that this influence of the lunar phase on sleep cycles might have originated long ago as an evolutionary advantage for our ancestors:

"We believe this modulation aims to take advantage of such moonlit nights which may be good for safe outdoor activities such as hunting or fishing, or for engaging in social interactions with other



groups."

You can read summaries of the study here:

[Lunar cycle has distinct effect on sleep, study suggests](#)

[Your sleep could be dictated by the phases of the moon, a study says](#)

And the original scientific paper published in Science Advances can be found here:

[Moonstruck sleep: Synchronization of human sleep with the moon cycle under field conditions](#)

So if you've been feeling tired the past few days, blame it on the Moon. The next Full Moon is tomorrow night, January 28th, which means you've been getting less sleep the past few nights if this study is right.

Stay safe, Michael