Skylights

Newsletter of the Astronomical Society of Northern New England

MAR 2020

Member of NASA's Night Sky Network

Astronomical League

ASNNE MISSION

ASNNE is an incorporated, non-profit, scientific and educational organization with three primary goals:

1) To have fun sharing our knowledge and interest with others.

2) To provide basic education in astronomy and related sciences to all who are interested.

3) To promote the science of Astronomy.

What's Up In March

By Bernie Reim

The month of March is named for Mars, the red planet and the god of war. Mars is also the guardian of agriculture and an ancestor to the Roman people. Mars is quite far away right now and not very impressive in the morning sky, but 4 major missions from 4 different space programs around the world are scheduled to launch to Mars this July since Mars will reach opposition on October 13 of this year. So this is not the month of Mars, but it is the year of Mars.

March always marks the return of spring for us in the northern hemisphere. This year that will happen slightly earlier than usual, on Thursday, March 19 at 11:50 p.m. This moment is further defined by the sun on the ecliptic crossing over the celestial equator as it ascends higher in our sky. The vernal equinox is one of only two days each year that the sun will rise due east and set due west for everyone on Earth except at the poles. Within a few days of both equinoxes the days will also be exactly 12 hours long for everyone on Earth except at the poles. This can be seen as a natural, astronomical unifying effect for everyone on Earth.

I just returned from the Space Center in Houston for the annual Space Exploration Educators conference. It was 3 days of complete immersion in an out of this world experience with 600 other teachers from around the world. There were many great speakers and astronauts giving presentations but the main part was over 50 different hands-on classes to choose from all offering great resources and new and exciting ways to inspire others and teach about space and the meaning of that for us on Earth.

They had a full size space shuttle and Boeing 747 plane outside the space center that you could tour to better appreciate the many benefits that we received from the 30 years from 1981 to 2011 during which NASA launched 135 space shuttles. We learned about the new Artemis (mythological sister of Apollo) mission that will return us to the moon in just 4 years and establish an orbiting space station named Gateway around the moon.

The original Saturn 5 rocket that took us to the moon just over 50 years ago was also there. I got some great pictures of it in the foreground with the full February supermoon rising through the pink belt of Venus and the purple shadow of the earth projected back to us from our atmosphere right above this great rocket. I toured the scale model solar system outside the space center one evening while waiting for an all-astronaut band named Max Q Music at Mach 25 (that is the speed that the ISS is always orbiting the earth) to perform for us live. It was a perfect and balmy evening and sunset at 72 degrees with palm trees all around. I waited until I could see both inner planets, Venus and Mercury in the evening sky with the Space Shuttle in the foreground silhouetted against a beautiful deep orange twilight sky.

Flying back on the plane watching the sunset over the Rocky Mountains in Denver and the full supermoon, I calculated that I was flying about 35 times lower and 35 times

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What's Up "*Continued from page 1*"

slower than the ISS that has been orbiting above us now for 20 years at 250 miles high and moving at escape velocity, 17,500 mph.

Even though we did not have a very cold winter, it is always nice to welcome back spring as our hemisphere once again tilts toward the sun. The nights will be getting shorter and warmer and there are many exciting highlights to look for this month of March 2020. These include a wonderful celestial dance of 3 bright planets in the morning sky as they trade places and form close conjunctions, Mercury briefly climbing back into the morning sky, Venus at its best in 8 years in the evening sky and going through a close conjunction with Uranus, a bright asteroid named Vesta in Taurus the Bull, a comet named PanSTARRS continuing to brighten, and the zodiacal light becoming visible well after sunset during the new moon later this month. Also keep your eye on Betelgeuse in Orion. It not only continues to get dimmer, it is now also changing shape, as noticed in a large telescope very recently. It may not explode for another 1000 years, but it is getting more and more interesting.

Most of the action will take place in the morning sky this month, so it will be well worth getting up early on a few mornings to see this great celestial dance. Mars, Jupiter, and Saturn start the month 19 degrees apart along the ecliptic in the morning sky one hour before sunrise. Then Mars will cruise past both gas giants, forming a close conjunction with Jupiter less than one degree apart on the 20th and another one with Saturn on the 31st. The waning crescent moon will be just 2 degrees from Mars and Jupiter 2 days before their first conjunction. All 3 planets are still in their normal, eastward, or prograde motion through the sky against the fixed background of stars. Jupiter and Saturn will not reach opposition until July. Then keep watching as Mercury joins the trio by the middle of this month.

Venus will glide within 2.2 degrees of Uranus on the 8th and 9th. At 5.9 magnitude, Uranus should be visible without binoculars, but you will probably need them to see this strange planet that orbits the sun tilted on its side. Uranus is 24 times farther away than Venus and is just over 10,000 times fainter than our brightest planet.

Vesta will track through Taurus all this month. It is our second largest asteroid at 320 miles in diameter, right after Ceres at 600 miles in diameter. The 4 largest asteroids make up about half of all the mass of the over 900,000 asteroids we have now counted in the belt between Mars and Jupiter. Vesta reflects 40% of all the sunlight that hits it and is the source of most of the meteorites that hit the earth. It will reach 8.5 magnitude.

Comet PanSTARRS is continuing to brighten as expected as it cruises through Cassiopeia this month. It is 9th magnitude now and it may become visible to the naked eye by May when it will be at its closest for this orbit.

The zodiacal light can be best seen only during two narrow windows each year when the angle of the ecliptic is the steepest with our horizon. That would be in November before sunrise and in March about an hour and half after sunset. It is created by sunlight bouncing off countless tiny particles of comet dust left there over the eons by long-since-faded ancient comets. It actually forms a torus all around the ecliptic plane, but we can only see it as a cone or pyramid of ghostly light. It is aligned with our orbital plane and now passes through Pisces, Aries, and Taurus.

Mar.2. First quarter moon is at 2:57 p.m. EST.

Mar. 9. Venus passes within 2 degrees of Uranus. Full moon occurs at 1:48 p.m. This is also known as the Crow, Worm, Lenten, or Sap Moon.

Mar.10. The moon is at perigee, or closest to Earth today at 221,905 miles at 2:30 a.m.

Mar.13. On this day in 1781 Sir William Herschel discovered the planet Uranus. This is perfect timing because Venus will glide right by Uranus on the 8th, exactly 239 years after he discovered it. At 84 years per orbit, Uranus has only completed just fewer than 3 orbits since then.

Mar.14. Albert Einstein was born on this day in 1879. He completely redefined gravity as simply the topography of the fourth-dimensional space-time continuum with his general theory of relativity in 1915.

Mar.16. Last quarter moon is at 5:34 a.m. Carolyn Herschel was born on this day in 1750. She worked closely with her brother and discovered 8 comets on her own.

Mar.18. The moon passes near Mars, Jupiter, and Saturn this morning.

Mar.19. The Vernal equinox is at 11:50 p.m.

Mar.20. Mars passes 0.7 degrees south of Jupiter this morning.

Mar.24. New moon is at 5:28 a.m. Venus is at greatest eastern elongation from the sun this evening and exactly half lit.

Mar.28. The moon passes near Venus this evening.

Mar.31. Mars passes less than one degree south of Saturn this morning.

Moon Phases

Mar 2
First Quarter

Mar 9
Full

Mar 16
Last Quarter

Mar 24
New

Moon Data

Mar 10
Moon at perigee

Mar 18
Mars 0.7° north of Moon

Jupiter 1.5° north of Moon

Saturn 2° north of Moon

Pluto 0.9° north of Moon

Mar 21
Mercury 4° north of Moon

Mar 24
Moon at apogee

Mar 26
Uranus 4° north of Moon

Mar 28
Venus 7° north of Moon

OBSERVER'S CHALLENGE* –March, 2020

by Glenn Chaple

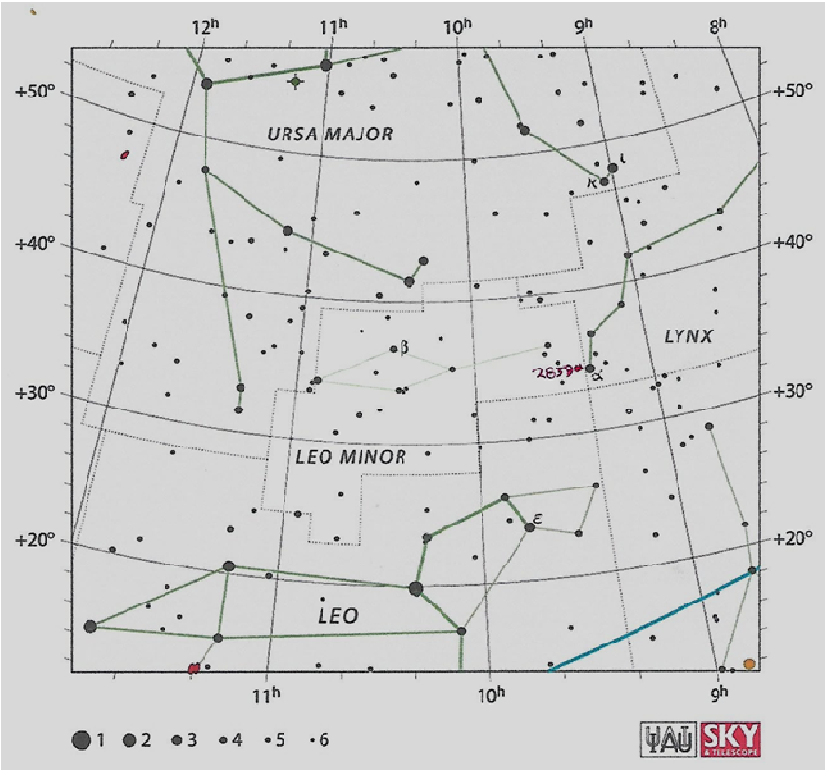
NGC 2859 – Barred Lenticular Galaxy in Leo Minor (Mag: 10.9 Size: 4.6' X 4.1')

Occupying a barren region between Ursa Major and Leo is the obscure constellation Leo Minor. *Sky and Telescope's Pocket Sky Atlas* plots a dozen galaxies within its boundaries. Among the more interesting is the 11th magnitude NGC 2859. Located at the extreme western edge of Leo Minor at coordinates 9h 24.3m, +34° 30.8', this barred lenticular galaxy is an easy star-hop from the 3rd magnitude star alpha (α) Lyncis (see accompanying finder charts).

Alpha Lyncis itself is a spectral class F7 giant that displays a striking golden yellow hue. NGC 2859 is located 40' east of this star and just 6.5' ESE of 7th magnitude HIP 46083. In his "Deep Sky Wonders" column in *Sky and Telescope*, Walter Scott Houston described a "sky drift" method of finding deep sky objects located at a similar declination and east of a bright star. You capture the star in the eyepiece field and wait until your target drifts into view. The technique worked perfectly for NGC 2859. I placed alpha Lyncis near the northern edge of the eyepiece field and waited. Lo and behold, within a few minutes HIP 46083 and then NGC 2859 glided into view!

I viewed NGC 2859 with 4.5-inch (at 150X) and 10-inch (208X) reflectors under slightly light-polluted suburban skies with a limiting magnitude of 5. The 4.5-inch revealed a concentrated, almost stellar nucleus surrounded by a haze that required averted vision. The 10-inch brightened NGC 2859, but failed to reveal two features that make this galaxy so intriguing – a pair of bars running essentially north and south of the central core and an outer detached ring. I yearned not for a bigger scope, but for darker skies! ATMoB members Mario Motta and Doug Paul managed to image both, but can any of you visually detect them?

NGC 2859 was discovered by William Herschel on March 28, 1786. It lies some 83 million light years away, which means that the light striking your retina left when dinosaurs still ruled the earth.



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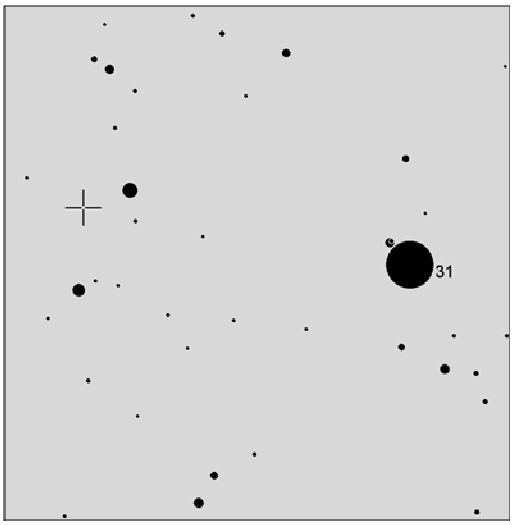
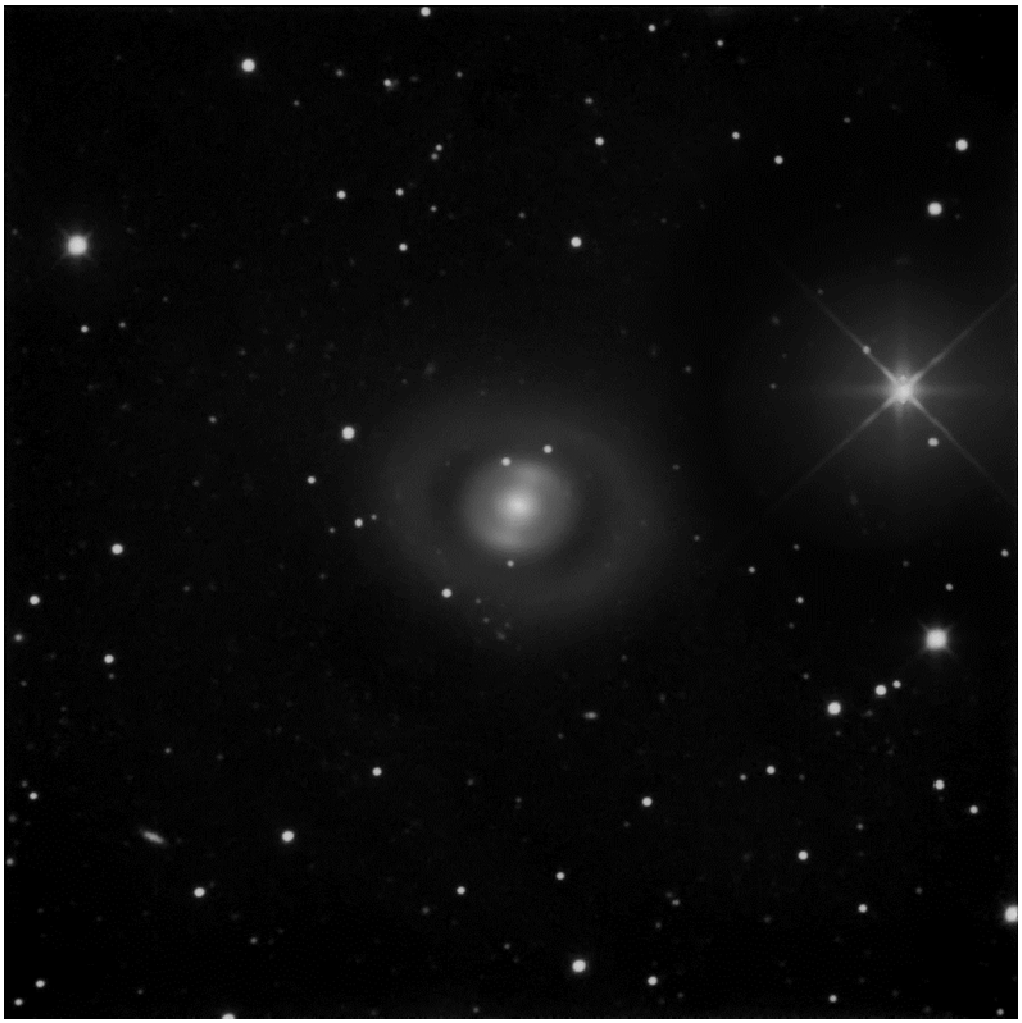


NGC 2859 finder chart, adapted by Glenn Chaple from AAVSO Variable Star Plotter (VSP). The magnitude 3.1 star (decimal omitted) is alpha (α) Lyncis. North is up in this 1 degree field.



Mario Motta MD (ATMoB) Imaged with 32 inch, total 1 hour imaging time, SBIG 1001E camera.

"Continued on page 5"

Doug Paul (ATMoB) Stock Canon 80D, 400mm f/2.8 (142mm aperture) lens, ISO 800, 72 subs x 30 sec = 36 min total exposure, orientation: N up, FOV 19'x15'.

*The purpose of the Observer's Challenge is to encourage the pursuit of visual observing. It is open to everyone who is interested. If you'd like to contribute notes, drawings, or photographs, we'll be happy to include them in our monthly summary. Submit your observing notes, sketches, and/or images to either Roger Ivester (rogerivester@me.com) or Fred Rayworth (queex@embarqmail.com or fred@fredrayworth.com). To find out more about the Observer's Challenge or access past reports, log on to rogerivester.com/category/observers-challenge-reports.

Principal Meteor Showers in 2020

January 4
Quadrantids

April 22
Lyrids

May 6
Eta Aquarids

July 30
Delta Aquarids

August 12
Perseids

October 9
Draconid

October 21
Orionids

November 9
Taurids

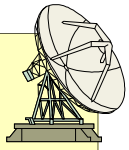
November 18
Leonids

November 26
Andromedids

December 14
Geminids

December 22
Ursids

Note: Dates are for maximum



Got any News?
Skylights Welcomes Your Input.

Here are some suggestions:

Book reviews -- Items for sale -- New equipment -- Ramblings -- Star parties -- Observing -- Photos.

Our Club has Merchandise for Sale at: www.cafepress.com/asnne

All money raised goes to our operating fund.
Any design can be put on any item.

Contact David Bianchi dadsnorlax@yahoo.com for further details.

RED ALERT — Downward Pointing Lasers

NASA is planning to use (or is already using) downward pointing lasers which are mounted on their spacecrafts. For those of us who look at the night sky through a telescope, or a pair of binoculars, this is a potential hazard. If a laser beam enters our instrument at the very time we are viewing, eye injury or blindness could occur. Contact physicist, Dr. Jennifer Inman, jennifer.a.inman@nasa.gov and tell her your concerns about this perilous issue. Why should we have to live in fear each time we look into a telescope or a pair of binoculars? This is unacceptable!

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.org to find local clubs, events, and more!

Dim Delights in Cancer

By David Prosper

Cancer the Crab is a dim constellation, yet it contains one of the most beautiful and easy-to-spot star clusters in our sky: the **Beehive Cluster**. Cancer also possesses one of the most studied exoplanets: the superhot super-Earth, **55 Cancri e**.

Find **Cancer's** dim stars by looking in between the brighter neighboring constellations of Gemini and Leo. Don't get frustrated if you can't find it at first, since Cancer isn't easily visible from moderately light polluted areas. Once you find Cancer, look for its most famous deep-sky object: the **Beehive Cluster**! It's a large open cluster of young stars, three times larger than our Moon in the sky. The Beehive is visible to unaided eyes under good sky conditions as a faint cloudy patch, but is stunning when viewed through binoculars or a wide-field telescope. It was one of the earliest deep-sky objects noticed by ancient astronomers, and so the Beehive has many other names, including Praesepe, Nubilum, M44, the Ghost, and Jishi qi. Take a look at it on a clear night through binoculars. Do these stars look like a hive of buzzing bees? Or do you see something else? There's no wrong answer, since this large star cluster has intrigued imaginative observers for thousands of years.

55 Cancri is a nearby binary star system, about 41 light years from us and faintly visible under excellent dark sky conditions. The larger star is orbited by at least five planets including **55 Cancri e**, (a.k.a. Janssen, named after one of the first telescope makers). Janssen is a "super-earth," a large rocky world 8 times the mass of our Earth, and orbits its star every 18 hours, giving it one of the shortest years of all known planets! Janssen was the first exoplanet to have its atmosphere successfully analyzed. Both the Hubble and recently-retired Spitzer space telescopes confirmed that the hot world is enveloped by an atmosphere of helium and hydrogen with traces of hydrogen cyanide: not a likely place to find life, especially since the surface is probably scorching hot rock. The NASA Exoplanet Catalog has more details about this and many other exoplanets at bit.ly/nasa55cancrie.

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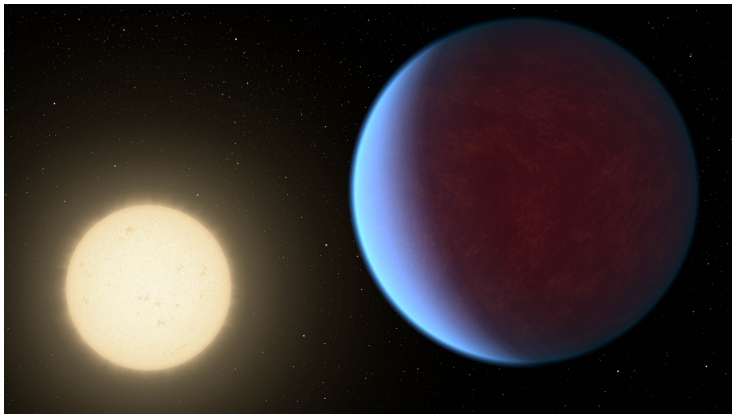
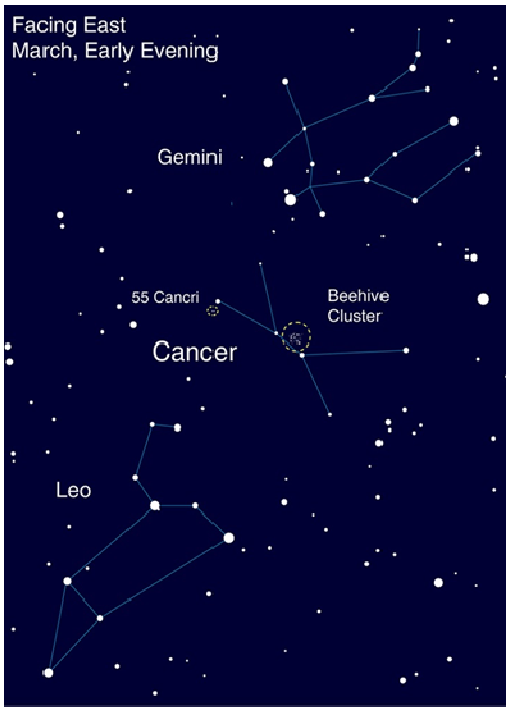
How do astronomers find planets around other star systems? The Night Sky Network's "How We Find Planets" activity helps demonstrate both the transit and wobble methods of exoplanet detection: bit.ly/findplanets. Notably, 55 Cancri e was discovered via the wobble method in 2004, and then the transit method confirmed the planet's orbital period in 2011!

Want to learn more about exoplanets? Get the latest NASA news about worlds beyond our solar system at nasa.gov.



Artist concept of 55 Cancri e orbiting its nearby host star. Find details from the Spitzer Space Telescope's close study of its atmosphere at: bit.ly/spitzer55cancrie and the Hubble Space Telescope's observations at bit.ly/hubble55cancrie Credit: NASA/JPL-Caltech



Look for Cancer in between the "Sickle" or "Question Mark" of Leo and the bright twin stars of Gemini. You can't see the planets around 55 Cancri, but if skies are dark enough you can see the star itself. Can you see the Beehive Cluster?

Point and Shoot Camera Astroimaging

Canon Powershot SX50 HS

Image & write-up submitted by Paul Kursewicz

Eddie's Coaster **Specs: RAW, f/3.5, FL 244mm, ISO 1600, 6 x 1 min, 11-21-19**

Eddie's Coaster is a nice binocular asterism in Cassiopeia. About twenty stars can be seen in a "roller coaster" double-dipping wave style track (left center in my photo). It doesn't have an official designation. British amateur astronomer Eddie Carpenter invented the asterism because it reminded him of an amusement park roller coaster. The coaster's orientation with differ throughout the year because it is circumpolar. When the "**W**" of Cassiopeia is upright the coaster will be horizontal and lie about 3 degrees above the middle star of the "**W**" (the bright star seen here to the right of the coaster). The stars of the coaster contain mainly "F" and "G" main sequence stars, three supergiants, a carbon star, and a multiple star.

RSU21 Sea Road School - ARISS proposal

Hello all,

For those of you who have not heard already, over the weekend I received an email from the ARISS team stating that we are one of only 10 locations in the United States selected for the June - December 2020 window for an ISS contact! We still have work ahead of us and they reminded us that there are some moving parts out of our control, i.e. ISS scheduling, but we are moving ahead.

Again, thank you for your continued support in this amazing learning opportunity for our students. I will keep you posted as dates and events become more clear.

Let's go!

Ann

On Fri, Nov 29, 2019 at 10:45 AM Ann Stockbridge <astockbridge@rsu21.net> wrote:

Hello all,

Thank you for your letters of commitment and support to RSU21 Sea Road School's application to connect with the International Space Station. We are truly excited about the unique learning experience this would provide for our students.

Since first being approached by Alex and Tom of the New England Radio Discussion Society, the Amateur Radio and other community organizations have been so helpful and encouraging in this application process. Just yesterday, I received an email from the ARISS organization that they have received our proposal and will be in touch once they have had a chance to review all the applications.

Of course, I am not familiar with what the other proposals may hold but I have to think the letters of commitment and support that you have all provided can only greatly enhance our chances of being selected.

I will keep you posted on our status. Attached is the application where each of you are referenced and a file of the letters you supplied.

Again, many thanks!

Ann Stockbridge

STEM Technician

Sea Road School/RSU21

Club Meeting & Star Party Dates

Date	Subject	Location
Mar 6	**ASNNE Club Meeting:** **Business Meeting** 6:30 PM **Beginners Class** 7:00 - 7:30 PM (TBD) **Regular Meeting** 7:30-9:30 PM **Guest speaker/topic - TBD** **Bernie Reim** - What's UP **Constellation of the Month: Carl Gurtman** will give a talk on Corona Borealis, the Northern Crown. **Astro Shorts:** (news, stories, reports, questions, photos)	The New School, Kennebunk, Me.
Last Month	At our meeting only seven people showed up because of very poor driving conditions. All seven people took part in the business meeting. After the meeting we did not adjourn but remained where we were. We talked about the rapid dimming of Betelgeuse. After that, Gary Asperschlager showed us some great images that he took of the Venus—Neptune conjunction.	
TBD	**Club/Public Star Party:** TBD	Talmage Observatory at Starfield West Kennebunk, Me.

Directions to ASNNE event locations

Directions to The New School in Kennebunck [38 York Street (Rt1) Kennebunk, ME]

For directions to The New School you can use this link to the ASNNE NSN page and then click on "get directions" from the meeting location. Enter your starting location to generate a road map with complete directions. It works great. http://nightsky.jpl.nasa.gov/club-view.cfm?Club_ID=137

Directions to Talmage Observatory at Starfield [Alewive Road, Kennebunk, ME]

From North:
Get off turnpike at exit 32, (Biddeford) turn right on Rt 111. Go 5 miles and turn left on Rt 35. Go 2 miles on Rt 35 over Kennebunk River to very sharp 90 degree left turn. The entrance to the Starfield Observatory site is at the telephone pole at the beginning of the large field on the left. Look for the ASNNE sign on the pole.

From South:
Get off the turnpike at exit 25 in Kennebunk. After toll both turn right on Rt 35. Go up over the turnpike and immediately turn right on Rt 35. About 4 miles along you will crest a hill and see a large field on your right. Continue until you reach the end of the field. Turn right into the Starfield Observatory site at the last telephone pole along the field. Look for the ASNNE sign on the pole. If you come to a very sharp 90 degree right turn you have just passed the field.

To join **ASNNE**, please fill out the below membership form. *Checks should be made payable to: Astronomical Society of Northern New England (A.S.N.N.E).* For more details, please visit our website: **http://www.asnne.org**

Astronomical Society of Northern New England
P.O. Box 1338
Kennebunk, ME 04043-1338

2020 Membership Registration Form

(Print, fill out and mail to address above)

Name(s for family): _____

Address: _____
City/State: _____ Zip code: _____

Telephone # _____

E-mail: _____

Membership (check one):
Individual $35 _____ Family $ 40 _____ Student under 21 years of age $10 _____ Donation_____

Total Enclosed_____

Tell us about yourself:
1. Experience level: Beginner____ Some Experience ____ Advanced_____

2. Do you own any equipment? (Y/N) And if so, what types?

_____
3. Do you have any special interests in Astronomy?

_____
4. What do you hope to gain by joining ASNNE?

_____
5. How could ASNNE best help you pursue your interest in Astronomy?

_____
6. ASNNE's principal mission is public education. We hold many star parties for schools and the general public for which we need volunteers for a variety of tasks, from operating telescopes to registering guests to parking cars. Would you be interested in helping?
Yes_____ No_____

7. ASNNE maintains a members-only section of its web site for names, addresses and interests of members as a way for members to contact each other. Your information will not be used for any other purpose. Can we add your information to that portion of our web site?

Yes_____ No_____