

Skylights

Newsletter of the Astronomical Society of Northern New England



MAY 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 May

By *Bernie Reim*

The month of May is named for Maia, the Greek goddess of fertility. As of the first of this month we are half way into spring with the nights getting warmer and shorter. Despite of what is going on now, the scenery of our hemisphere will be transformed into spring greenery as leaves will be emerging once more along with many migrating birds returning and the spring peepers singing up a storm in our marshes, adding a joyful terrestrial chorus to the celestial harmonies always going on above us.

Saturday, May 2 marks the first of two International Astronomy Days this year. The other one will be on Saturday, September 26. Hopefully we can celebrate that one with large groups of people again. Started in 1973 as a way for the whole world to appreciate our heritage and bringing more people to astronomy and its benefits, a second International Astronomy Day each year was started in 2006, the same year that Pluto was reclassified as a dwarf planet.

Many people probably have extra time now to get out into nature including the sky at night. There are many great events this month that people should not miss while they are outside gaining much-needed inspiration from nature itself. These include a nice conjunction of Mercury and Venus in the evening sky, a challenge you can accept concerning Venus, three bright planets still close together in the morning sky, another meteor shower, and another comet.

Venus has been our lone evening star for many months, but it will finally be gaining a companion starting on the 11th. Mercury will start to emerge very low in the evening twilight in the west-northwestern sky well below Taurus. Then keep watching as Mercury climbs higher even as Venus sinks lower. They will be only one degree apart on the 21st. Mercury is on its way to greatest eastern elongation from the sun in early June just when Venus finally sinks out of sight after its best apparition in 8 years.

Venus moved higher in the sky for several months as it slowly got brighter, but it will undergo a radical transformation this month as it gets much larger and thinner even as it rapidly sinks out of sight.

The challenge you may accept concerning Venus is attempting to see its thin crescent without a telescope or even binoculars. Normally that is not possible because the resolution of an object would have to be at least 1 arc minute for the human eye to be able to discern it. The full moon and the sun are each 30 arc minutes, or half a degree of the sky. Venus starts this month at 40 arc seconds in size and 25% illuminated by the sun. Then it rapidly gets less illuminated and larger in our sky as it is catching up with Earth in its faster orbit around the sun. It will be just 1% lit by the end of the month and will cover almost one full arc minute of the sky.

As a trick to help you see it, look at it through a piece of cardboard with a 1 to 2 mm wide hole in it to cut any glare. Then confirm that you saw the crescent just by looking at it with a pair of binoculars.

"Continued on page 2"

Inside This Issue

Club Contact List	pg 2
Moon Data	pg 3,4,5
Observer's Challenge	
RED ALERT: LASERS IN SPACE	pg 6
Club Merchandise for Sale	
Meteor Showers in 2019	
Become a Citizen Scientist with NASA!	pg 7,8
Astroimaging with a Point & Shoot	pg 9
Club Meeting & Star Party Dates	pg 10
Directions ASNNE Locations	
Become a Member	pg 11

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What's Up "Continued from page 1"

Then Venus heads off to its inferior conjunction with the sun on June 3rd. That is when Venus transits like the ones we had in June of 2004 and June of 2012. I was lucky enough to see both of those. Now we have to wait until 2117 for the next one. The one in 2004 was much more dramatic since I could clearly see the black disk of Venus glide across the right limb of the sun for several minutes. I even saw the hot and poisonous atmosphere of Venus glowing against the blackness of space as a thin, semicircular arc of ephemeral light. I expected to see the black drop effect as Venus was exiting the sun, but I did not expect the nice bonus of seeing its dense atmosphere, nearly 100 times as dense as ours, a real runaway greenhouse effect.

The rest of the action is still unfolding in the morning sky. Jupiter, Saturn, and Mars are keeping the same order from right to left, but Mars is moving faster to the left, or east, of the pair now. All 3 of them are getting higher and brighter even as they are getting closer to Earth. Orange Mars will change the most, gaining nearly half a magnitude in brightness on its way to a good October opposition. Notice that Jupiter in Sagittarius and golden Saturn in Capricorn will remain about 5 degrees apart while Mars will drift farther east to the other side of Capricorn, about 15 degrees east of Saturn by the end of the month.

As the earth is catching up with all 3 of these slower moving planets now, two of them will go into retrograde this month. Saturn will start its westward or retrograde motion on the 11th and Jupiter will follow suit on the 14th. Jupiter and Saturn start this month by rising around 1:30 a.m., but they will end the month rising before midnight on their way to their oppositions in the middle of July, two months later. Then they will both return to their direct or prograde motion two months later, by the middle of September.

If you missed the Lyrid meteor shower last month, which happened right at new moon and in the middle of International Dark Sky Week, you will get another chance to see one this month. This one is caused by Halley's Comet, the only comet that creates two meteor showers for us each year, the May 5th Eta Aquarids and the October 21st Orionids. The only problem will be that the moon will be 91% full and waxing gibbous, washing out

about half of the meteors for us this month. The best time to see these tiny, sand grain sized pieces of Halley's Comet burn up at 70 miles high in our atmosphere will be from 3 to 5 am on the morning of Tuesday, May 5. You can trace all of the Eta Aquarids back to their radiant near the water jug asterism in Aquarius. You may also see other unrelated meteors that came from other parts of the sky. Halley's Comet is one of the darkest objects in our whole solar system; a small chunk of it would look like a piece of charcoal, yet it burns up as a short and brilliant streak of light.

Comet Atlas recently broke up into at least 4 pieces and is rapidly fading out. A comet named Swan took its place, but is currently only visible in the southern hemisphere. However, Comet Pan-STARRS is still on track. It will reach perihelion, or closest to the sun on May 4 at 150 million miles away. It should reach about 8th magnitude, or 6 times fainter than what the naked eye can see, through all of May and into June. It starts off this month in Camelopardalis the Giraffe and then heads south into the Big Dipper by the middle of May. It will pass very close to the large galaxies M81 and M82 on May 24. That would be a great time to photograph it.

May 5. The Eta Aquarid meteor shower peaks this morning. On this day in 1961 Alan Shepard became the first American in space. Yuri Gagarin was the first human to orbit the earth on April 12 of that year. Then John Glenn became the first American to orbit the earth on Feb.20, 1962.

May 7. Full moon is at 6:46 a.m. EDT. This is also called the Flower, Milk, or Planting Moon.

May 12. The first planetarium in this country, the Adler in Chicago, was opened on this day in 1930. The waning gibbous moon is right below Jupiter this morning.

May 13. The moon is near Saturn this morning.

May 14. The moon is near Mars this morning. Skylab was launched on this day in 1973. Last quarter moon is at 10:04 a.m.

May 21. Mercury and Venus are just one degree apart this evening.

May 22. New moon is at 1:40 p.m.

May 23. A very thin waxing crescent moon is below Venus and Mercury tonight and just to the left of the pair the next evening.

May 28. On this day in 1959 the first primates, Able and Baker, were launched into space.

May 29. First quarter moon is at 11:31 p.m. On this day in 1929, during a total solar eclipse over western Africa, Sir Arthur Edenton proved that Einstein's General Theory of Relativity was correct by precisely measuring how much the gravitational field of our sun bent the light from another star behind the sun during that eclipse.

Moon Phases

May 7
Full

May 14
Last Quarter

May 22
New

May 29
First Quarter

Moon Data

May 5
Moon at perigee

May 12
Jupiter 2° north
of Moon

Saturn 3° north
of Moon

May 14
Mars 3° north
of Moon

May 16
Neptune 4° north
of Moon

May 18
Moon at apogee

May 20
Uranus 4° north
of Moon

May 23
Venus 4° north
of Moon

May 24
Mercury 3° north
of Moon

OBSERVER'S CHALLENGE* –May, 2020

by Glenn Chaple

M85 (NGC 4382) – Lenticular Galaxy in Coma Berenices (Mag: 9.1 Size: 7.1' X 5.5')

NGC 4394 Barred Spiral Galaxy in Coma Berenices (Mag. 10.9 Size: 3.6' X 3.2')

The last two Observer's Challenges, the 11th magnitude galaxies NGC 2859 (March) and NGC 3877 (April), were, well – challenges! If you'd like an easier target this month, we have something for you. If you'd like another challenge, we have something for you as well. The "easy challenge" is the 9th magnitude lenticular galaxy M85; the "challenging challenge" is its 11th magnitude neighbor, the barred spiral galaxy NGC 4394.

M85 is the northernmost Messier galaxy in the Virgo Galaxy Cluster and can be found about a degree ENE of the Magnitude 4.7 star 11 Comae Berenices. I described M85 is "easy," because it's relatively bright. I've seen it with a 3-inch reflector and a magnifying power of 30X. Here's a challenge. Can you capture it with binoculars?

If you look 8.5 arcminutes east of M85, you'll see the faint glimmer of the barred spiral NGC 4394. Under dark sky conditions, a 10-inch scope will reveal the bar, which has a NW-SE orientation. If you're viewing NGC 4394 with a large-aperture scope, look for the outer halo, visible in the accompanying image by Mario Motta

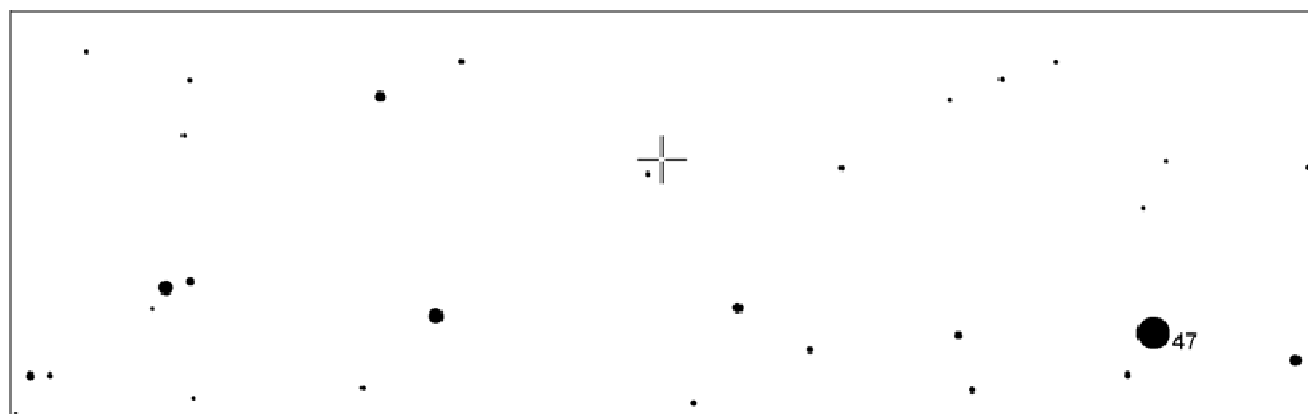
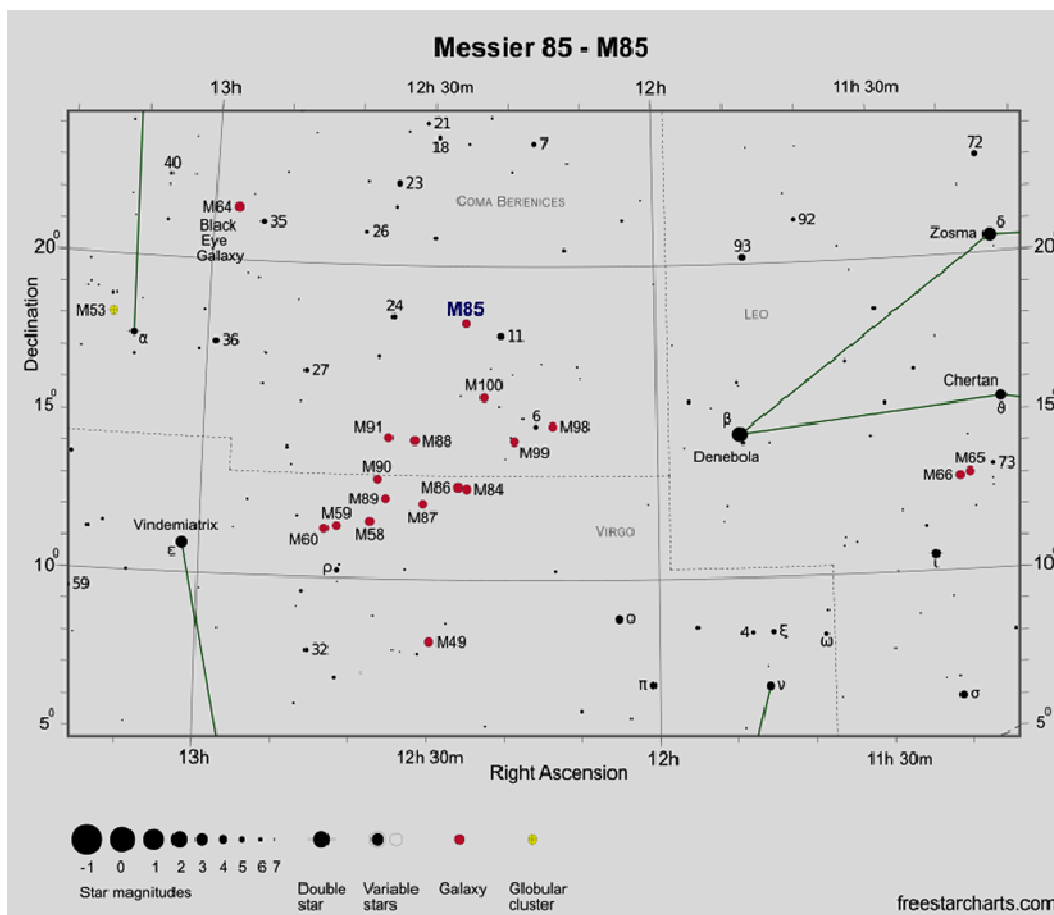
M85 was discovered by Pierre Méchain in early 1781. William Herschel picked up NGC 4394 three years later. Both galaxies are about 60 million light years away.

"Continued on page 4"

Finder charts for Messier 85.

(Upper) From freestarcharts.com

(Lower) From AAVSO Variable Star Plotter. Stars plotted to magnitude 11. North is up in this 1° by 3° field. Magnitude 4.7 star is 11 Comae Berenices.



“Continued on page 5”



Messier 85 (right) and NGC 4394 (left)

Image by Mario Motta (ATMoB) Taken through 32 inch scope with ZWP ASI6200 camera, 2 hrs integration time, processed in PixInsight.

*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 Roger Ivester (rogerivester@me.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

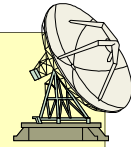
November 26
Andromedids

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/asne



*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!

Become a Citizen Scientist with NASA!

By David Prosper

Ever want to mix in some science with your stargazing, but not sure where to start? NASA hosts a galaxy of citizen science programs that you can join! You'll find programs perfect for dedicated astronomers and novices alike, from reporting aurora, creating amazing images from real NASA data, searching for asteroids, and scouring data from NASA missions from the comfort of your home. If you can't get to your favorite stargazing spot, then NASA's suite of citizen science programs may be just the thing for you.

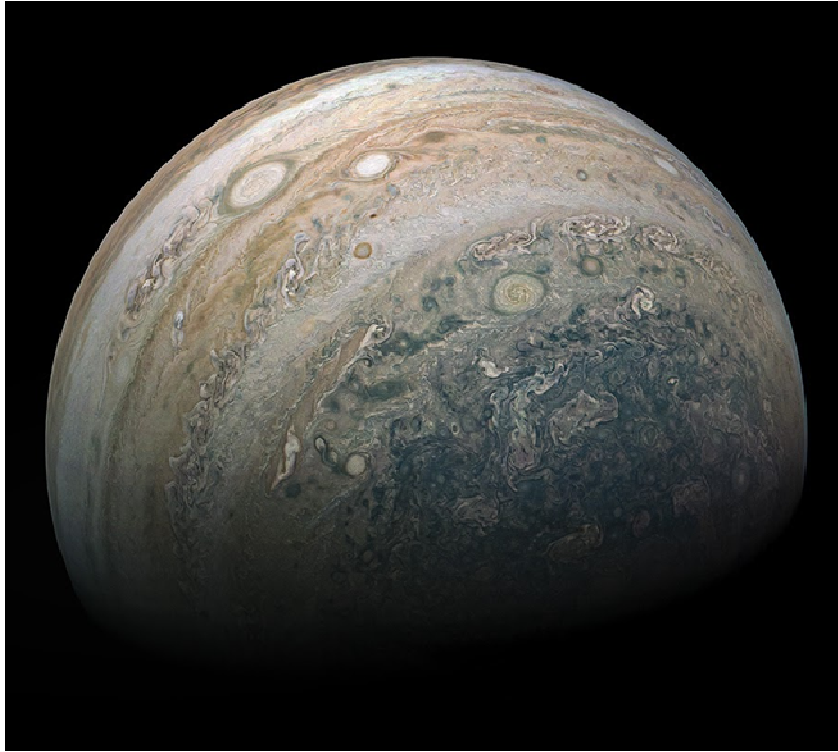
Jupiter shines brightly in the morning sky this spring. If you'd rather catch up on sleep, or if your local weather isn't cooperating, all you need is a space telescope - preferably one in orbit around Jupiter! Download raw images straight from the Juno mission, and even process and submit your favorites, on the **JunoCam** website! You may have seen some incredible images from Juno in the news, but did you know that these images were created by enthusiasts like yourself? Go to their website and download some sample images to start your image processing journey. Who knows where it will take you? Get started at bit.ly/nasajunocam

Interested in hunting for asteroids? Want to collaborate with a team to find them?? The **International Astronomical Search Collaboration** program matches potential asteroid hunters together into teams throughout the year to help each other dig into astronomical data in order to spot dim objects moving in between photos. If your team discovers a potential asteroid that is later confirmed, you may even get a chance to name it! Join or build a team and search for asteroids at iasc.cosmossearch.org

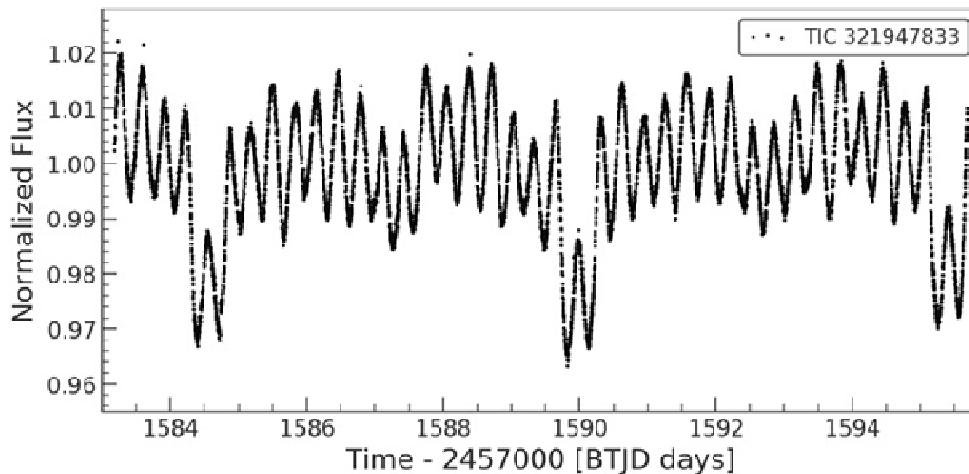
Want to help discover planets around other star systems? NASA's TESS mission is orbiting the Earth right now and scanning the sky for planets around other stars. It's accumulating a giant horde of data, and NASA scientists need your help to sift through it all to find other worlds! You can join **Planet Hunters TESS** at: planethunters.org

“Continued on page 8”

Intrigued by these opportunities? These are just a few of the many ways to participate in NASA citizen science, including observing your local environment with the GLOBE program, reporting aurora with Aurorasaurus, measuring snowpack levels, training software for Mars missions – even counting penguins! Discover more opportunities at science.nasa.gov/citizenscience and join the NASA citizen science Facebook group at facebook.com/groups/Sciencing/ And of course, visit nasa.gov to find the latest discoveries from all the research teams at NASA!



GREAT SOUTHERN JUPITER: Incredible image of Jupiter, submitted to the JunoCam site by Kevin M. Gill.
Full Credits : NASA/JPL-Caltech/SwRI/MSSS/Kevin M. Gill



Light curve of a binary star system containing a pulsating (variable) star, as spotted on Planet Hunters TESS by user mhuten and featured by project scientist Nora Eisner as a “Light Curve of the Week.” Credit: Planet Hunters TESS/NASA/mhuten/Nora Eisner

Point and Shoot Camera Astroimaging (no telescope)

Canon Powershot SX50 HS

Image & write-up submitted by Paul Kursewicz

M81, M82, & NGC 3077

Specs: RAW, f/3.5, FL 941mm, ISO 1200, 16 x 2 min, 3-15-20



This picture was taken on the same night when I took my picture of Comet 2019 Y4 (ATLAS). I decided to go for a Trio of Galaxies in Ursa Major, near to where the comet was located. M81 (also called Bode's Galaxy) is the largest at 90,000 ly in diameter, followed by M82 (also called The Cigar Galaxy) at 37,000 ly in diameter. Both galaxies are roughly the same distance away from Earth and each can be seen in binoculars. Their actual separation is 150,000 ly. M81 is a spiral galaxy that lies 11.8 million light years away, and is one of the densest known galaxies. One third of the mass is concentrated at the core. Its glow is the combined luminosity of twenty billion suns. M82 (a starburst galaxy) is an irregular galaxy and a true space "oddity," the light from M82 journeying back to our eyes is polarized. This galaxy probably contains a super-massive magnetic field; it also has a powerful radio source. M82 has a center one hundred times more luminous than our galaxy's center. NGC 3077, (the small fuzzy object to the right of M81 & M82) is a member of the M81 group. It's a disrupted elliptical galaxy showing wispy edges and scattered dust clouds. It is 12.8 million ly away and a little more than a third in diameter of M82.

Club Meeting & Star Party Dates

Date	Subject	Location
<u>May 1</u>	<p><u>ASNNE Club Meeting:</u></p> <p>Our May Club meeting at The New School has been cancelled due to the Coronavirus.</p> <p>However, we will still have a club meeting while staying at home by using ZOOM. So, a computer or a phone will be required. Ian Durham has volunteered to organize all of this. As we get closer to Friday, Ian will post a connection link to join Zoom.</p> <p>At the posting of this newsletter Paul Kursewicz will do the Constellation of the Month.</p> <p>Bernie Reim will do his “What’s-up.”</p> <p>And of course — Astro-shorts.</p>	<u>The New School, Kennebunk, Me.</u>
<u>Last Month</u>	<p>Due to the Coronavirus we did not meet at The New School. Instead, we had our club meeting via “Zoom.” For many of us, this was a new medium. I know much of my time was spent figuring out how to use it (not that hard).</p>	
<u>TBD</u>	Club/Public Star Party: Canceled due to the Coronavirus.	Talmage Observatory at Starfield West Kennebunk, Me.

Directions to ASNNE event locations

Directions to The New School in Kennebunk [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 [Alewife 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 _____

