Skylights

Newsletter of the Astronomical Society of Northern New England

OCT 2018

Member of NASA's

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 October

By Bernie Reim

October always marks the first full month of fall for us in the northern hemisphere. As you watch the transformation of the landscape through the emergence of New England's famous flaming foliage, be aware that the skies above us are also slowly transforming, letting us know that winter is not far ahead of us.

The winter hexagon is now beginning to rise before 9 pm and this entire group of the brightest stars of the winter sky will have cleared the horizon by midnight by the end of this month, letting us peer right into a window in the sky, revealing some bright winter constellations that foretell what our sky will look like throughout the next season. You can also see this same winter hexagon in August, but you would have to be up at 4 am to see it in the summer time.

The highlights this month include the breakup of the great planetary line up of the 4 brightest planets in our evening sky for most of the summer, since a very brilliant Mars joined the other three in late July. We will lose Venus by the first week of this month, but it will pop right back up again in our morning sky by the end of the month. There will be several nice conjunctions as usual, but there will also be another potentially bright comet and not one, but two meteor showers.

The other three bright planets will hang on a little longer, but the next two in sequence, Jupiter and Saturn, will also lose the battle and sink below our western horizon before midnight as the earth pulls farther ahead of them. Jupiter in Libra will set just one hour after sunset by the end of the month. Then Saturn in Sagittarius will set by 9 pm, or three hours after sunset by the end of the month.

I well remember seeing the 7 largest moons of Saturn's 62 moons through a large 18 inch reflecting telescope from the top of Mt. Cadillac recently before it was even completely dark and before the masses of people joined us at the top for marvelous views of the Milky Way, the great planetary line-up, and dozens of other denizens of the night sky that always reside there, just beyond our vision. Those moons range in size from Titan at 3000 miles in diameter, bigger than Mercury and fully twice as large as Pluto, down to Mimas at 250 miles across.

Each of those little orbiting dots clustered together in the telescope that memorable evening were in reality extremely different and unique alien worlds, fully one billion miles away, or about 84 minutes at the speed of light. Iapetus is half white and half dark, Mimas has a huge crater one third of the size of the moon that almost tore it apart billions of years ago, and the strangest one and potentially the most exciting of the bunch, since it may well have life on or just under its surface, is Enceladus. About a dozen giant plumes of water vapor and ice have recently been discovered erupting from its south pole by the Cassini mission before we crashed it into Saturn last September. The signature of complex organic molecules has been spotted in these plumes and methane has been found

"Continued on page 2"

Inside This Issue

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

on its surface. Its subsurface salty ocean could be teeming with at least microscopic life, a mere 84 minutes away at the speed of light.

Mars will hang around the longest since it is the easternmost planet in this great line-up. It will get twice as dim again by the end of this month as Earth is pulling well ahead of the red planet now in our faster orbit around the sun. However, it is still much brighter than usual and you can still see some nice features on its surface through a good telescope.

Look for a waxing crescent moon just above Jupiter on the 11th and very close to Saturn three days later. Then keep watching as the moon catches up with Mars in middle of the triangle that marks Capricorn on the evening of the 17th.

This month's featured comet will be 38P/ Stephan-Oterma. Last month it was Giacobini-Zinner in Auriga and the month before it was PanSTARRS in Cassiopeia. 38P was first discovered back in 1867 in France and then rediscovered by Liisi Oterma in Finland in 1942. Liisi Oterma was the first woman to receive a PhD in astronomy in Finland. You can see her comet now in Orion just above and to the left of its most famous star, the red supergiant named Betelgeuse marking his right shoulder as he faces us from the sky. You will need a good pair of binoculars or a small telescope to see it since it is only expected to get to about 10th magnitude, or 40 times fainter than what you could see with the naked eye. Orbiting the sun every 38 years, this is a fairly short period comet. Halley's Comet orbits every 76 years and will not show up again until the year 2062.

The first meteor shower for this month is the Draconids on the 8th. This shower doesn't usually produce much more than the background rate of 5 or so meteors per hour, but it could be much better this year since its parent comet, Giacobini-Zinner just reached perihelion and perigee last month. There will be no moon to interfere, so look towards the north in the constellation of Draco the Dragon to see these meteors.

Then the next shower, which is much more famous than the Draconids, are the Orionids which peak on the 21st. Caused by Halley's Comet, you can expect up to 20 meteors per hour. The moon will be waxing gibbous, just 3 days before full, so it will interfere with this shower until it sets at 3:30 in the morning. Meteor showers are usually much better after midnight, so that would be a good time to see them. Look towards the constellation of Orion high in the sky by this time of the morning. You will be seeing tiny pieces of Halley's Comet burning up about 70 miles high in our atmosphere as we pass through its debris trail at 67,000 miles per hour. We will also pass through Halley's Comet's trail again on May 4, also known as the Eta Aquarid Meteor Shower. This is the only comet that creates two meteor showers for us each year.

Oct. 1. The 40-inch refractor at the Yerkes Observatory on Lake Geneva in Wisconsin was dedicated on this day in 1897. Designed by George Ellery Hale, this was the largest telescope in the world at the time and it is still the largest refractor in the world.

Oct. 2. Last quarter moon is at 5:47 a.m. EDT.

Oct. 4. The thin waning crescent moon and the Beehive star cluster rise together in the eastern sky before sunrise. On this day in 1957 the Soviet Union sent the first ever man-made satellite into space, Sputnik 1, thereby beginning the space race.

Oct.5. Neil DeGrasse Tyson was born on this day in 1958.

Oct. 7. Niels Bohr was born on this day in 1885. He was one of the pioneers of the quantum revolution which makes most of the modern technology that we use every day possible.

Oct. 8. New moon is at 11:48 p.m. The Draconid Meteor shower peaks.

Oct. 9. Kepler's supernova in Ophiuchus was discovered on this day in 1604.

Oct. 10-16. Look towards the east before dawn and you may see the subtle glow of the zodiacal light. I saw it over the ocean at Acadia National Park a couple of weeks ago.

Oct. 21. The Orionid meteor shower peaks this morning.

Oct. 24. Full moon is at 12:46 p.m. This is also known as the Hunter's Moon.

Oct. 26. Watch for the waning gibbous moon in the Hyades star cluster in Taurus all night.

Oct. 31. Last quarter moon is at 12:41 p.m. On this day in 2005 the Hubble Space Telescope discovered the second and third moons of Pluto, Nix and Hydra.

Moon Phases

Oct 2
Last Quarter

Oct 8
New

Oct 16
First Quarter

Oct 24
Full

Oct 31
Last Quarter

Moon Data

Oct 5
Moon at perigee

Oct 10
Venus 13° south of Moon

Oct 11
Jupiter 4° south of Moon

Oct 14
Saturn 1.8° south of Moon

Oct 17
Moon at apogee

Oct 18
Mars 1.9° south of Moon

Oct 20
Neptune 3° north of Moon

Oct 24
Uranus 5° north of Moon

LVAS Observer's Challenge* – October 2018

By Glenn Chaple for the LVAS

NGC 7129– Cluster/Nebula in Cepheus MAGNITUDE: 11.5 SIZE: 7' X 7'

Young open star clusters are often embedded in the nebula that spawned them. An example is this month's Observer's Challenge, NGC 7129. This one-million-year-old cluster was discovered by William Herschel on October 18, 1794. Of NGC 7129 (H.IV-75 in his catalog), he wrote "Three stars about 9th magnitude involved in nebulosity." It's the nebulosity that must have impressed Herschel, as his Class IV was reserved for what he referred to as "Planetary nebulae." The cluster itself is rather unimpressive, being comprised of a handful of 9th to 11th magnitude stars that form a group similar in appearance to the constellation Delphinus.

Once you've captured NGC 7129 in the eyepiece field, look one-half degree to the southeast for the 9th magnitude open cluster NGC 7142 (the unlabeled dotted circle in Chart B). NGC 7142 consists of several dozen magnitude 12-14 stars in an area about 10' across. It was discovered by Herschel on the same night he found NGC 7129, and bears the Herschel identity H.VII-66 – his 66th Class VII (Pretty much compressed clusters) entry. NGC 7129 is about 3000 to 3300 light years away; NGC 7142 is some 2 times more distant. At an estimated age of 4 billion years, NGC 7142 is one of the oldest open clusters.

The charts below will help you locate NGC 7129, which is located about 4 ½ degrees NE of magnitude 2.5 Alderamin. Chart A shows the location of Alderamin in Cepheus. Chart B provides a star-hopper's route from Alderamin to NGC 7129 and NGC 7142.

"Continued on page 4"

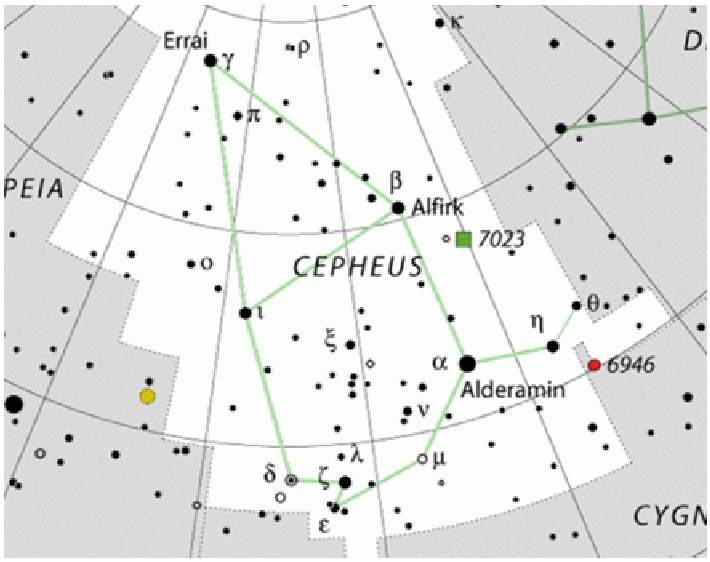


Chart A (www.constellation-guide.com)

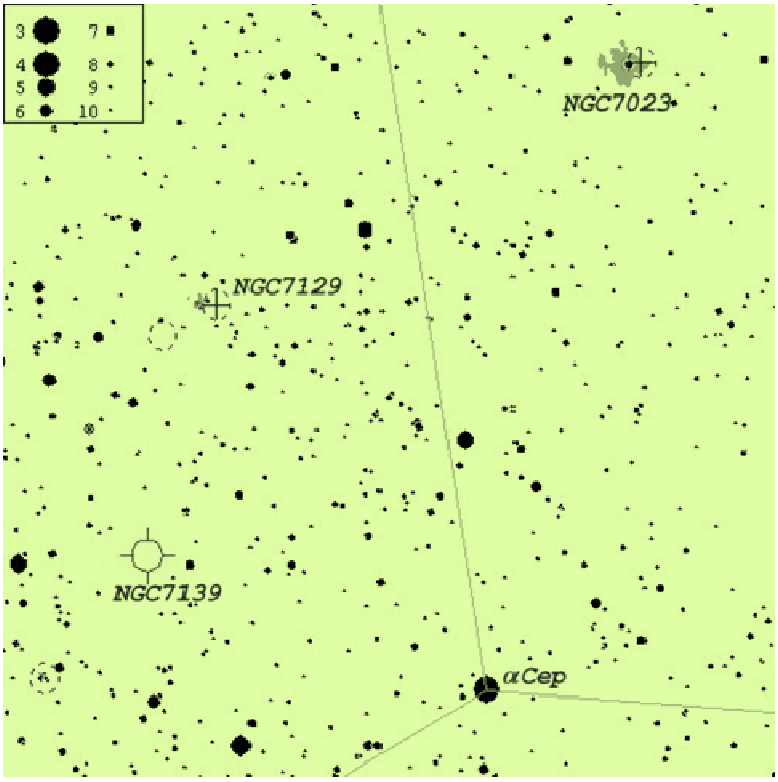


Chart B (www.astrosurf.com)

"Continued on page 5"

Image of NGC 7129 and NGC 7142 (cs.astronomy.com)

***The purpose of the LVAS 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, the LVAS will 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). To find out more about the LVAS Observer's Challenge or access past reports, log on to lvastronomy.com/index.php/observer-s-**

Principal Meteor Showers in 2018

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

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!

The latest issue of the Space Place Newsletter: News and Notes for Formal and Informal Educators can be found at: http://spaceplace.nasa.gov/en/educators .

Space Place is a NASA website for elementary school-aged kids, their teachers, and their parents.

Check out our great sites for kids:

The Space Place website (http://spaceplace.nasa.gov)

The *SciJinks Weather Laboratory* at http://**scijinks.gov**

NASA Climate Kids at http://**climate.nasa.gov/kids**

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.
Just let our club member, David Bianchi, know.

This article is provided by NASA Space Place.
With articles, activities, crafts, games, and lesson plans, NASA Space Place encourages everyone to get excited about science and technology. Visit **spaceplace.nasa.gov** to explore space and Earth science!

Observe the Moon

By Jane Houston Jones and Jessica Stoller-Conrad

This year's International Observe the Moon Night is on Oct. 20. Look for astronomy clubs and science centers in your area inviting you to view the Moon at their star parties that evening!

On Oct. 20, the 11-day-old waxing gibbous Moon will rise in the late afternoon and set before dawn. Sunlight will reveal most of the lunar surface and the Moon will be visible all night long. You can observe the Moon's features whether you're observing with the unaided eye, through binoculars or through a telescope.

Here are a few of the Moon's features you might spot on the evening of October 20:

Sinus Iridum—Latin for "Bay of Rainbows"—is the little half circle visible on the western side of the Moon near the lunar terminator—the line between light and dark. Another feature, the Jura Mountains, ring the Moon's western edge. You can see them catch the morning Sun.

Just south of the Sinus Iridum you can see a large, flat plain called the Mare Imbrium. This feature is called a mare—Latin for "sea"—because early astronomers mistook it for a sea on Moon's surface. Because the Moon will be approaching full, the large craters Copernicus and Tycho will also take center stage.

Copernicus is 58 miles (93 kilometers) across. Although its impact crater rays—seen as lines leading out from the crater—will be much more visible at Full Moon, you will still be able to see them on October 20. Tycho, on the other hand, lies in a field of craters near the southern edge of the visible surface of the Moon. At 53 miles (85 kilometers) across, it's a little smaller than Copernicus. However, its massive ray system spans more than 932 miles (1500 kilometers)!

And if you're very observant on the 20th, you'll be able to check off all six of the Apollo lunar landing site locations, too!

"Continued on page 8"

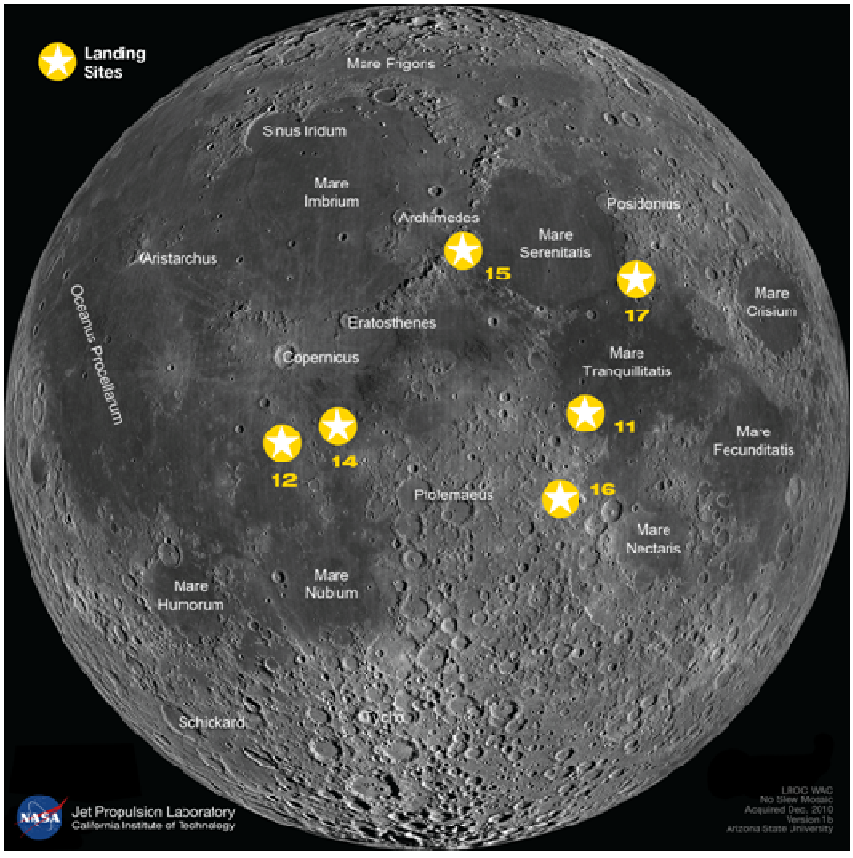
In addition to the Moon, we'll be able to observe two meteor showers this month: the Orionids and the Southern Taurids. Although both will have low rates of meteors, they'll be visible in the same part of the sky.

The Orionids peak on Oct. 21, but they are active from Oct. 16 to Oct. 30. Start looking at about 10 p.m. and you can continue to look until 5 a.m. With the bright moonlight you may see only five to 10 swift and faint Orionids per hour.

If you see a slow, bright meteor, that's from the Taurid meteor shower. The Taurids radiate from the nearby constellation Taurus, the Bull. Taurids are active from Sept. 10 through Nov. 20, so you may see both a slow Taurid and a fast Orionid piercing your sky this month. You'll be lucky to see five Taurids per hour on the peak night of Oct. 10.

You can also still catch the great lineup of bright planets in October, with Jupiter, Saturn and Mars lining up with the Moon again this month. And early birds can even catch Venus just before dawn!

You can find out more about International Observe the Moon Night at https://moon.nasa.gov/observe.



Caption: This image shows some of the features you might see if you closely observe the Moon. The stars represent the six Apollo landing sites on the Moon. Credit: NASA/GSFC/Arizona State University (modified by NASA/JPL-Caltech)

Point and Shoot Camera Astroimaging

Canon Powershot SX50 HS

Image & write-up submitted by Paul Kursewicz

M16 and M17 **Specs: FL unknown, ISO 800, 18 x 2 min exposures, 08-10-18**

M16 (also known as the Eagle Nebula — top center) resides in the constellation Serpens. M17 (also known as the Swan Nebula — bottom center) resides in the constellation Sagittarius. Even in this wide-field of view the shape of a Swan can easily be seen in M17. The Swan is inverted (its head and tail are at the bottom). Unfortunately, there is not enough magnification to see the Eagle (a dark silhouette) in the center of M16's nebulosity. One of my goals for next summer is to acquire close-up images of both.

Starfest 2018

***The Starfest Players* WERE BACK**
Directed by Joan Chamberlin

Peter Talmage's Transportation

Peter Gillette's Transportation

"Continued on page 11"

New Event: Rocket Flights throughout the day on Saturday








"Continued on page 12"

Gary's Homemade Bino Chair set-up

'B' Movies Friday and Saturday night

Club Meeting & Star Party Dates

Date	Subject	Location
October 5	**ASNNE Club Meeting:** Business Meeting starts at 6:00PM **7:30-9:30PM: Club Meeting** Guest Speaker/ Discussion Topic - open **Bernie Reim** - What's UP **Astro Shorts:** (news, stories, jokes, reports, questions, photos, observations etc.) **NOTE:** If skies are clear members may go to Starfield Observatory for an observing session.	The New School, Kennebunk, Me.
TBD	Club/Public Star Party *Check List-serve / website for updates and or cancellations*	Starfield Observatory, 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 Starfield Observatory [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

2018 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_____