

Night With The Stars, August 15, 2020  
Squam Lakes Conservation Society

What To Look For in the Night Sky and the Benefits of Dark Skies  
By Dan Reidy

Looking up at the night sky in the Squam Lakes Region is always a treat, compared to the light polluted skies of urban areas, and on the night of August 15, 2020 from 9:00-10:00 pm, the viewing will be even better during the “Lights Out” event. If you have ever compared night sky viewing between urban areas and our fair region of New Hampshire, you are familiar with this. That being said, there has been a noticeable uptick in light pollution in our area over the last few decades. Light pollution is caused by light from man-made sources that is aimed upwards and reflects off moisture and other small particles suspended in the atmosphere, technically known as aerosols. Light pollution not only affects what we get to see when we look up at the night sky, it affects the well being of plants and animals, and it is an indicator of wasted energy - energy that is produced, mainly, by the burning of fossil fuels, which is driving climate change. Wasted energy is also wasted money.

A simple fix to this is to use less lighting, and focus the light from fixtures to the ground where it is needed. Timers and motion sensors can also cut down on wasted lighting. By installing lighting fixtures with shields that direct the light to the ground, we can use lighting of lesser wattage to get the job done, and with today’s LED technology we can save even more energy to do a better job of lighting. For more information about light pollution and what can be done about it, visit the International Dark-Sky Association at <https://www.darksky.org/> for more details.

Before joining in the “Lights Out” event on the night of August 15th, try to get a sense of the amount of light pollution that exists in the Lakes Region for several evenings beforehand. If you have the ability, try taking photos of bright spots on the horizon from where you are, before and during the event, to observe the difference. Spread the word to neighbors, family and businesses in the area about this event. The greater the participation, the better the results will be.

If the evening of the 15th is cloudy, all is not lost in regards to the intended impact of the event. If the cloud deck is low enough, you can see the undersides of clouds lit up over areas of greater light pollution.

If the skies are clear enough to do some star (and planet) gazing, below, are some objects of interest to be on the lookout for, and links to resources where you can find out more information:

Jupiter and Saturn will be in the south at about 9:00 pm. Jupiter will be easy to spot since it will be the brightest object in the sky at that time of night. Saturn will be just to its left, a dimmer, golden-hued object, that is still brighter than most objects around it. A pair of modest binoculars will show the four large Galilean Moons of Jupiter (Io, Europa, Callisto and Ganymede) as bright dots strung out in a straight line on either side of Jupiter. If you can't make out four dots, chances are one or more of the moons are either right in front of Jupiter or behind it, hiding the moon(s) from sight. A low power telescope will give you a better view of the moons and will show you stripes in Jupiter's atmosphere. Later in the evening, Mars is available for viewing as well in the Southeast - a bright reddish-orange site! Click on the links below for more details:

Sky and Telescope Magazine's "Sky At A Glance"

<https://skyandtelescope.org/observing/sky-at-a-glance/>

Sky and Telescope Magazine's "Sky Tour" astronomy podcast

<https://skyandtelescope.org/observing/sky-tour-astronomy-podcast/>

The Perseids Meteor Shower will still be on, though its peak was the night of the 11th/12th. For more info about this click on the link below:

<https://www.darksky.org/perseid-meteor-shower-how-to-enjoy-it-and-why-it-matters/>

The Milky Way will be visible as a whitish hazy, wide stripe of stars, stretching from one end of the sky to the other, almost directly overhead. (See the photo in the "A Night With The Stars Poster.") Being able to observe the Milky Way is a fair test of how dark your skies are. Even a slight bit of light pollution will be enough to keep it from view. About 90 percent of humanity lives under light polluted skies that prevent the viewing of the Milky Way. If you can see it, you're in the lucky ten percent. If you'd like to look towards the center of our Milky Way Galaxy, the late summer/early autumn months are the time to do it. Go back to look at Jupiter. To its left is Saturn and to the right is an asterism known as the "Teapot". An asterism is a collection of a subset of stars within a constellation that make a recognizable pattern, often much more recognizable than the constellation itself. A more famous example of an asterism is the Big Dipper. It is only a portion of the constellation of Ursa Major (the big bear). The Teapot is in the constellation of Sagittarius. Revisit the link "SkyAt A Glance" link above to see what to look for. The stars in the Teapot are not at the center of the galaxy. The center lies far behind the Teapot and is blocked from our view by intervening clouds of gas and dust from which stars and planets may someday form.

Satellites may also still be viewed orbiting overhead at 9:00 pm on the 15th. Look for "stars" on the move. To differentiate an airplane from a satellite, note that airplanes will have blinking lights, satellites won't. Satellites will also enter the Earth's shadow in space at some point and seem to disappear. (We only see them due to reflected sunlight.) There are apps for your smartphone or tablet that can show you, in real time, what satellites will be travelling overhead. Simply go to your app store and choose a satellite tracking app you like.

Speaking of which, there are also apps for identifying objects in the night sky. By holding up your phone or tablet in the direction you are looking, stars, planets and other objects will be identified for you. Again, visit your app store and survey astronomy apps and find the one(s) you like. Playing with them in the evenings prior to the 15th will help you figure things out ahead of time.

If you are interested in learning more about astronomy and connecting with a community of amateur astronomers, check out the New Hampshire Astronomical Society's (NHAS) website at <http://www.nhastro.com/>, where, among other things, you can learn about what public libraries around the state, nation and world, you can check out an easy-to-use telescope to observe the skies with! (FYI, this extremely successful Library Telescope Program was developed by the NHAS and has spread around the world from here!)

Other websites that are great resources for astronomy are:

Astronomy Picture Of the Day (APOD) by NASA

<https://apod.nasa.gov/apod/astropix.html> At the bottom of the web page, there is an "Archive" link that contains links to all the APODs back to 2015. There is also a link at the top of the Archive page that will take you to each APOD entry going back to June of 1995! Warning: you can get trapped here for hours at a time! Start with your birthdays or anniversaries to begin exploring. You may also wish to explore the "Index" and "Search" links located near the "Archive" link at the bottom of each APOD page.

Sky and Telescope Magazine

<https://skyandtelescope.org/> There is also a risk of losing one's self for hours at a time at this site.

These are but a couple of the vast and excellent resources for astronomy available on the web.

Be sure to participate in turning out your lights at 9:00 pm on Saturday, August 15th, 2020, and taking the time to view the wonders of the night sky with friends and family (while observing Covid-19 safety precautions, of course!). Getting outside to look up at the wonders of the heavens is never a wasted opportunity. Reflecting on the issue of light pollution and visiting the International Dark-Sky Association website link provided above to see what we, as individuals and as members of our society, can do to reduce light pollution, will go a long way to improving the quality of life for ourselves and every other living thing on this planet of ours. Cutting back on light pollution will not only save money and reduce the amount of greenhouse gases being pumped into our atmosphere, it will benefit the health and well being of plants and animals and it will enable more people to see the wonders of the night sky.

