

MMGM ASTRONOMY AUGUST 2020



Comet NEOWISE



Tom Hoffelder, Norway, 7/15/20



Tim O'Connor, Andover, 7/21/20

This monthly newsletter provides information concerning what will be visible in the night skies over Maine this August. We hope to have at least one solar system observing session in Bethel late in the month. Details will be announced if/when it is scheduled.

Sun

Daily events for 01 August

Event	Time	Altitude	Azimuth
Minimum altitude:	00:49	-27.8°	0°
Astronomical twilight begins:	03:28	-18.0°	40°
Nautical twilight begins:	04:16	-12.0°	50°
Civil twilight begins:	04:57	-6.0°	58°
Sunrise:	05:30	-0.8°	64°
Maximum altitude:	12:49	63.5°	180°
Sunset:	20:06	-0.8°	296°
Civil twilight ends:	20:39	-6.0°	302°
Nautical twilight ends:	21:21	-12.0°	310°
Astronomical twilight ends:	22:08	-18.0°	320°

Daily events for 31 August

Event	Time	Altitude	Azimuth
Minimum altitude:	00:43	-37.3°	0°
Astronomical twilight begins:	04:21	-18.0°	58°
Nautical twilight begins:	04:59	-12.0°	65°
Civil twilight begins:	05:35	-6.0°	72°
Sunrise:	06:05	-0.8°	77°
Maximum altitude:	12:42	54.0°	180°
Sunset:	19:19	-0.8°	282°
Civil twilight ends:	19:49	-6.0°	288°
Nautical twilight ends:	20:25	-12.0°	294°
Astronomical twilight ends:	21:03	-18.0°	302°

Moon

Monthly phases	
 Full moon	03 August 2020 11:59
 Last quarter	11 August 2020 12:45
 New moon	18 August 2020 22:42
 First quarter	25 August 2020 13:58

Sets	05:08	Rises	20:32
Sets	13:32	Rises	23:46
Sets	23:26	Rises	13:48

UNAIDED EYE

Atmosphere:

The Perseid meteor shower peaks on the night of August 11th/12th; usually the best time to watch is from midnight until dawn. However, this year the moon rises around midnight, so the best time will be from the end of twilight until midnight. You won't see as many, but you might see some of the most dramatic ones – fireballs that streak nearly across the whole sky – just after it becomes dark. The meteors can appear anywhere in the sky, but they will appear to have originated in the northeast. Do not go outside and look up for 10 or 15 minutes; you might not see any. Find a way to comfortably lay down, look straight up, and try to be aware of as much of the sky as possible. Watch for at least an hour, the longer the better, and count how many meteors you see. And get away from all lights!



You will be able to see some a few days, even two weeks, before and after the peak day, but of course the farther from the peak, the fewer. They are called Perseids because they appear to radiate from a point in the constellation Perseus. Since that point is in the plane of the Milky Way, bright meteors can occasionally be seen streaking along the bright summer Milky Way overhead, as in the above photo. Do not expect to see more than one meteor at a time!

Meteor showers result when the Earth intersects the orbit of a short-period comet, in this case Comet Swift-Tuttle which returns every 133 years with its last solar visit being in 1992. As comets approach the sun, ices are melted allowing dust particles, some as big as grains of sand, to be sloughed off. Those particles stay in the comet's orbit, and even though they are tiny, the relative velocity of Earth and the particles are enough to create intense heat when they collide with the atmosphere, enough to ionize the air. Thus, the celestial fireworks are more than just the particles burning up. If you saw the curved white tail of Comet NEOWISE last month, you were seeing sunlight reflecting off this dust.

Interesting note: Swift-Tuttle is considered the most dangerous NEO (Near Earth Object); it is twice as big as the asteroid that took out the dinosaurs, not to mention about 70% of all living species, 65 million years ago. But not to worry; we are safe until at least the year 4479. Even then, there's still a 99.9999% chance it will miss Earth. (Maybe we'll be out of quarantine by then?)

Solar System:

This year's August night sky is dominated by giant Jupiter, with Saturn following closely behind; in fact, the two won't be this close together again until 2040! All views below are for 9:00 PM EDT

Aug 10th



Aug 19th



Aug 28th



Summer Milky Way/Summer Triangle:



~ 10 PM EDT

Now is the time to check out the summer Milky Way! You will need a dark clear moonless night!

Because we are inside the Milky Way Galaxy which is a flattened disk, when we look along the plane of the galaxy, we see the light from billions of distant stars blended into the milky band that stretches across summer night skies. (The Milky Way can be seen in the winter also but it is not as bright because we are then looking away from the center of our galaxy, not toward it as in summer.)

The three bright stars that form the Summer Triangle are Vega in the constellation Lyra the Lyre, Altair in Aquila the Eagle and Deneb in Cygnus the Swan. Vega and Altair are relatively close, “only” 25 and 16.7 light years away respectively. (One light year equals 6,000,000,000,000 miles). Deneb however is way out there, so far away that its distance is not well known. However, it is at least 1500 light years away and possibly twice that far! That we can see it at all means it is extremely bright, at least 50,000 times brighter than the sun to as much as 200,000 times!

You might notice that the Milky Way seems to be split below Cygnus. This is not because there are no stars there, but because the stars are blocked from our view by vast dark dust clouds.



The Northern Cross is most of Cygnus.

TELESCOPES

Moon:

There will be a Lunar X on the 25th, beginning around 9 PM. Perhaps some of you attended the first, and so far only, observing session we had in March when this was the highlight.



Solar System:

Observing Jupiter with its equatorial bands and shuttling four bright Galilean moons is always interesting. Seeing a moon shadow on the Jupe's cloud tops is more so, and two? Wow!

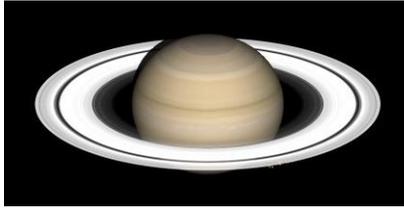
Saturday, August 15 at 4:08 GMT — Rare Double Shadow Transit with GRS on Jupiter



<https://www.space.com/16149-night-sky.html>

The Red Spot is not easy to see these days and Jupiter won't be this big, but if you have a scope, or access to one, and it is clear before and after midnight on the night of the 14th/15th, this is something to see!

If you haven't seen Saturn in a telescope, you haven't seen the most amazing thing you can see in a telescope. Especially if the rings are tipped as much as they are now. (Sometimes the rings are edge on and cannot be seen at all.) This is the current view. Again, it won't look this big in a scope, but it is the real thing! You can't look at a photo of the Grand Canyon and say you've seen the Grand Canyon. View Saturn in a telescope and you can say YOU HAVE SEEN SATURN.



QUESTIONS:

If you have any questions (there is no such thing as a dumb one!), please send me an email or a Facebook private message <https://www.facebook.com/rocksnstars>.

If you would like keep updated on current astronomical events, please request to be added to <https://www.facebook.com/groups/236166159862560/>.

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