



ASTROFILES

Auburn Astronomical Society Newsletter

October 2018

Newsletter Editor — John Wingard — jwin1048@gmail.com

Moon Phases for Oct-Nov

October 8 — New Moon
October 16 — 1st Quarter
October 24 — Full Moon
October 31 — 3rd Quarter
November 7 — New Moon
November 15 — 1st Quarter
November 23 — Full Moon
November 29 — 3rd Quarter

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October 5, 2018 Meeting Recap

For most of this year we elected to forgo the usual monthly club meetings in Auburn in favor of meeting informally at the various star gazes and other events throughout the year. However, we decided to have a formal meeting in Auburn on Friday, October 5, 2018 to get caught up on a few items of business. Our program for the evening was a very interesting presentation by Dr. Rhon Jenkins on some of the exciting developments with the commercial space programs from groups such as SpaceX, Blue Origin, Virgin Galactic and United Launch Alliance (ULA). Thanks to Rhon for putting the program together, particularly since he had some first-hand participation in some of the early research and planning for several of these projects. It looks like there are going to be some exciting activities coming from these groups in the near future, all hopefully leading to the resumption of manned space launches originating here in the U.S. We have been reliant on the Russians for our manned launches for far too long. Of course, NASA is also working toward resuming manned launches with their Orion/SLS system but due to their slower rate of progress they will likely not be the first to begin manned launches.

We also discussed our future meeting schedule going forward. We have decided to continue our current meeting plan going into 2019. We will not have another formal club meeting until February of 2019. With the holiday period coming up, we decided to wait until next year to resume the club meetings. However, there are tentative plans to have a club star gaze in early November at a potential new viewing site near Auburn. Please see the separate article about this site later in the newsletter.

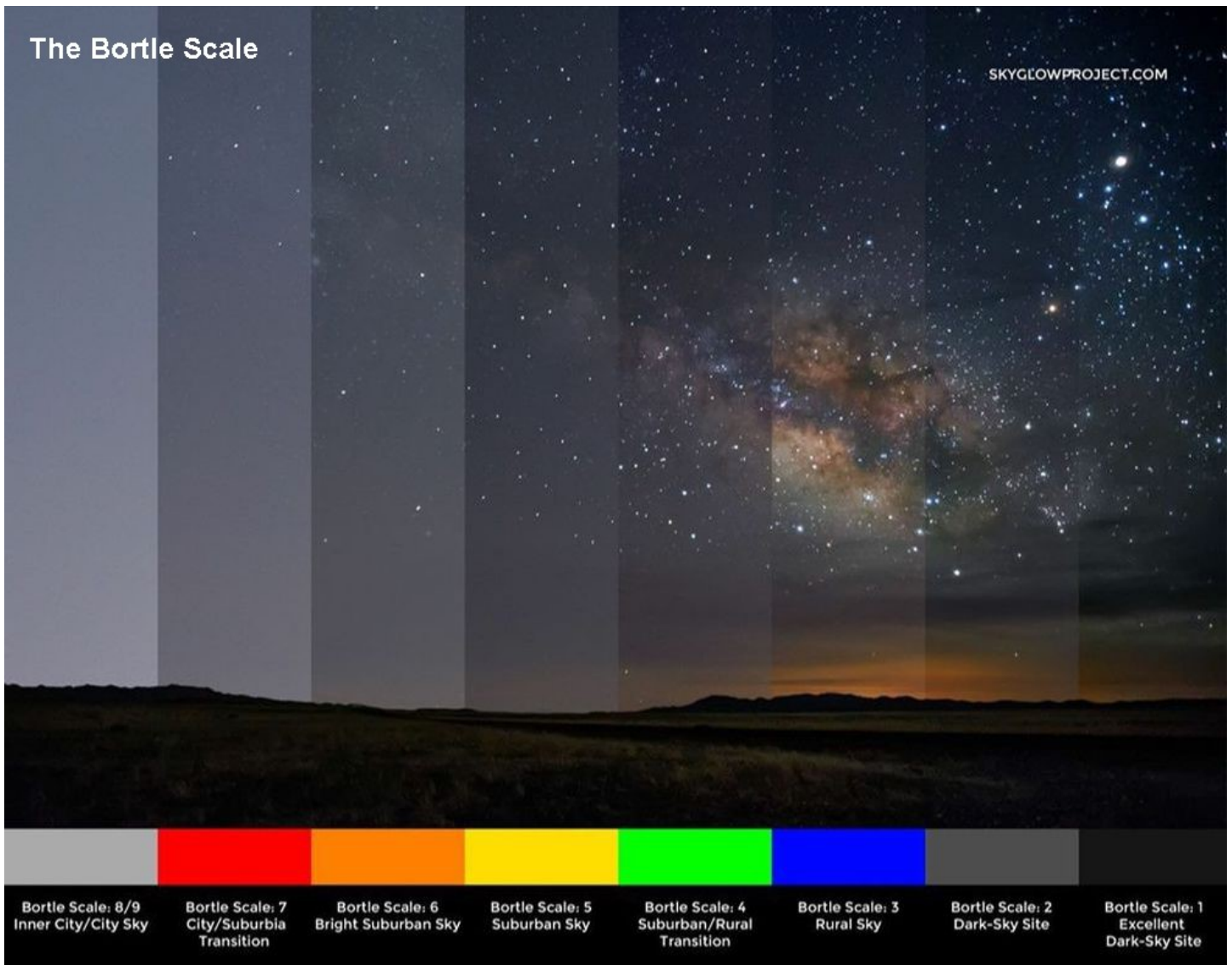
Potential new dark-sky site for the AAS

For quite some time now, the AAS has been looking for a new dark-sky viewing site that is can be easily accessed by its members. As a result of several recent e-mail conversations, we have been offered the use of a site on a privately-owned farm south of Auburn. On the evening of Saturday, October 6, 2018, AAS President Allen Screws and John Wingard went out to take an initial look at the site. We chose this particular weekend since it was close to the new moon phase on October 8th. We were bothered with clouds that popped up frequently, but there was a brief period where things cleared up enough for us to get a feel for the potential of the site. It is located south of the Marvyn community and is about 16 miles SSE of downtown Auburn and about 20 miles WSW of downtown Columbus, GA. There is some light-pollution along the horizon back towards Auburn and Columbus, but the views to the west and south were very good. The late-summer Milky Way was easily visible. Due to the sporadic cloud cover, we didn't spend a lot of time setting up a lot of equipment but we did get some good views of Mars, Jupiter, Saturn, as well as M57 in Lyra and M13 in Hercules. I am certainly no expert on evaluating dark-sky conditions, but using the well-known Bortle scale, I would say that this site is somewhere around Bortle 4. We will have to make a few more visits to the site to get a more accurate feel for its potential. Since this site is on private property, we will need to make sure that we communicate our plans with the residents in advance and be mindful of their schedules and availability. We certainly appreciate their offer to allow us to use their location for our viewing activities. **Late update: We have planned another star gaze at this site on Saturday, November 10th, weather permitting. Specific directions to the site will be e-mailed to AAS members soon.**

Since we are talking about evaluating this site for its dark-sky potential, I thought that it would be informative to expand on the problem of light pollution, so I have prepared another article that explains the Bortle Scale and how it can be used to evaluate an observing site. Please read on!

Light pollution and the Bortle Scale

When I was a young boy growing up in Auburn, AL I became fascinated and interested in space and astronomy. I purchased my first real telescope (a 3-inch reflector from Edmund Scientific Co.) and began eagerly learning my way around the sky with it. At that time, the Milky Way was easily visible from our backyard even though we were only about a mile from downtown Auburn. Of course, this was in the late 1950's to early 1960's. I wish I could say the same thing today but unfortunately that is not the case. Today I live in a heavily light-polluted city/suburban environment where only the brightest stars are visible, even on the clearest nights. Over the years as more and more people have gravitated towards the cities and suburbs and away from darker rural areas, it has prevented entire generations from experiencing the wonders of a really dark night sky. I'm sure that professional astronomers and scientists have very precise instruments that they use to quantify the degree of sky darkness of specific locations, but we amateurs usually do not have access to such instruments. Around 2001 a man named John Bortle created a 9-level system that can be used by anyone to determine how dark a particular site is in relation to other locations. Using his scale, a Bortle value of 1 would represent the very best dark-sky you could ever find, while a Bortle value of 9 would represent the conditions you would typically find right in the middle of a large city. *(continued on next page)*

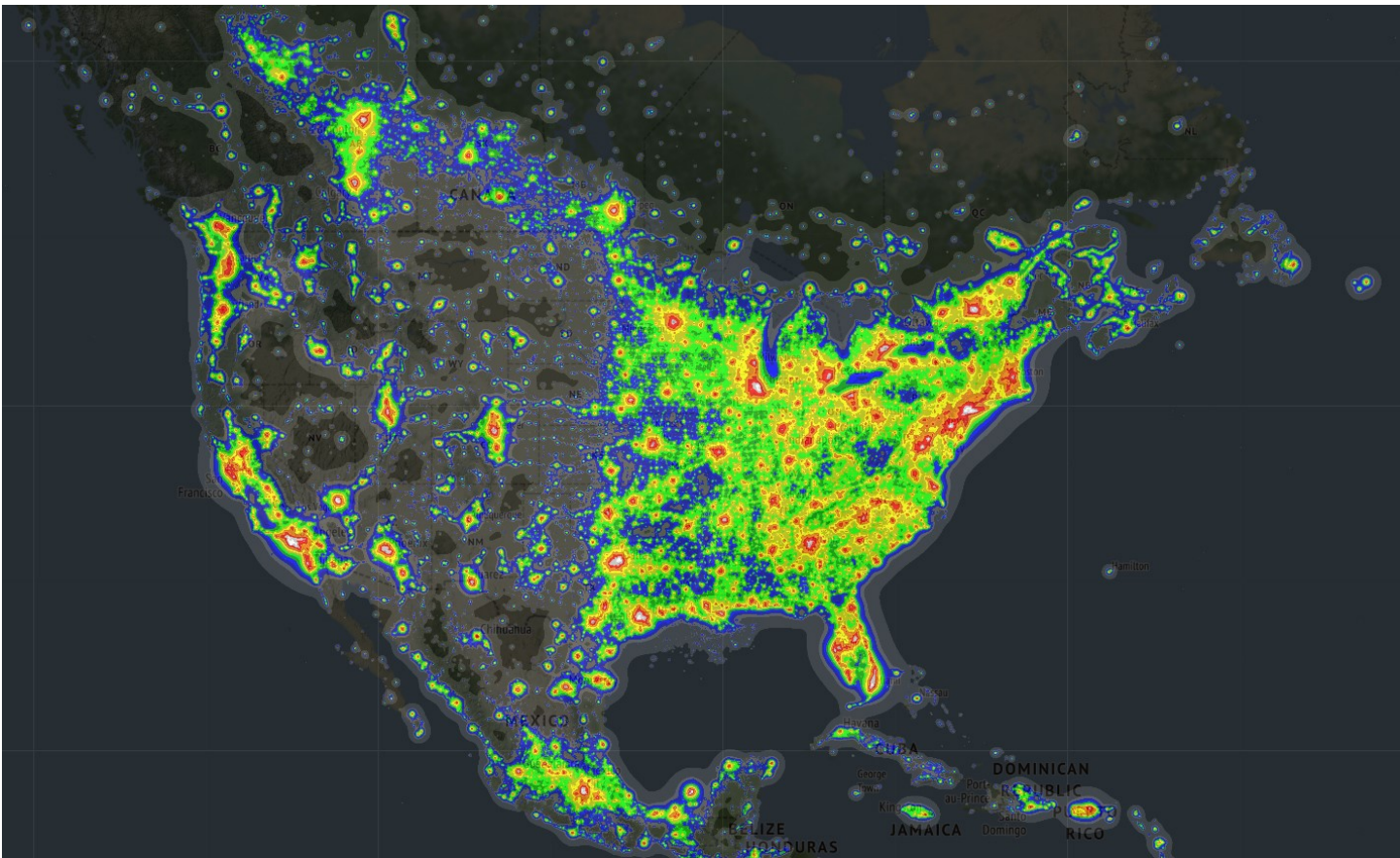


Using the above guide, I currently live in a Bortle 7 zone—not very conducive to deep-sky observing. That’s why I tend to spend most of my observing time on lunar, planetary and solar targets. In the previous article about our potential new observing site, I gave it an initial designation of Bortle 4, which is several orders of magnitude better than my home location.

Of course, there are even better (darker) locations that can be found in our area, but oftentimes they are in more remote areas that may be difficult or even dangerous to get to. They also may be on someone’s private property, and in this day and age, it’s not a good idea to be wandering around at night on private property without securing permission from the owners first.


If you have followed astronomy—both amateur and professional—for very long you have probably noticed that the best (darkest) locations here in the U.S. are west of the Mississippi. This fact is dramatically illustrated by a dark-sky map of the entire country that is shown on the next page. The color-coded areas indicate varying degrees of light pollution and as you can see, the major cities and urban areas are easy to spot. You can access this map online at <https://darksitefinder.com/maps/world.html#4/39.00/-98.00>

Once there you can zoom in to any specific area of interest.



Yet another astronomy weather app—*Good To Stargaze*

There are a number of phone apps available that are designed to give reasonably accurate observing predictions for your specific location. Here is another one that is fairly new. It is available for Apple, Android and desktop use. It presents its data in a slightly different format than the other apps. It's free, so give it a try!



Good To Stargaze for Astronomers


Good To Forecast Weather ★★★★★ 32


Everyone

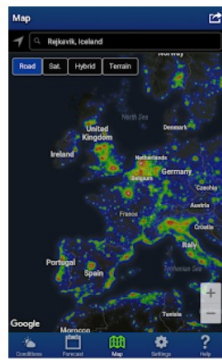
Offers in-app purchases

i This app is compatible with your device.

Installed



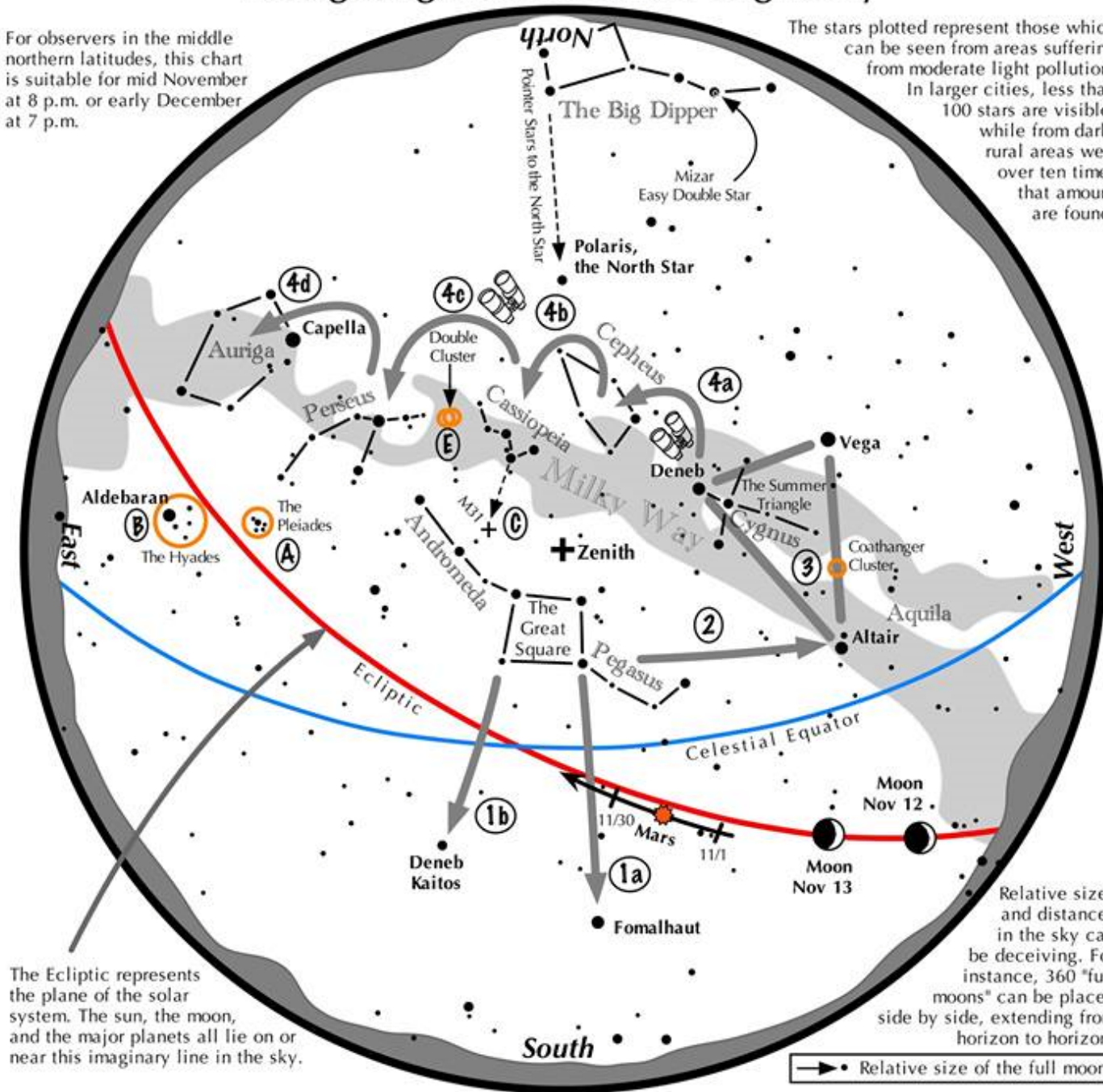




Navigating the November Night Sky

For observers in the middle northern latitudes, this chart is suitable for mid November at 8 p.m. or early December at 7 p.m.

The stars plotted represent those which can be seen from areas suffering from moderate light pollution. In larger cities, less than 100 stars are visible, while from dark, rural areas well over ten times that amount are found.



The Ecliptic represents the plane of the solar system. The sun, the moon, and the major planets all lie on or near this imaginary line in the sky.

Relative sizes and distances in the sky can be deceiving. For instance, 360 "full moons" can be placed side by side, extending from horizon to horizon.

→ • Relative size of the full moon.

Navigating the November night sky: Simply start with what you know or with what you can easily find.

- 1 Face south. Almost overhead is the "Great Square" with four stars about the same brightness as those of the Big Dipper. Extend an imaginary line southward following the Square's two westernmost stars. The line strikes Fomalhaut, the brightest star in the south. A line extending southward from the two easternmost stars, passes Deneb Kaitos, the second brightest star in the south.
- 2 Draw a line westward following the southern edge of the Square until it strikes Altair, part of the "Summer Triangle."
- 3 Locate Vega and Deneb, the other two stars of the "Summer Triangle." Vega is its brightest member, while Deneb sits in the middle of the Milky Way.
- 4 Jump along the Milky Way from Deneb to Cepheus, which resembles the outline of a house. Continue jumping to the "W" of Cassiopeia, to Perseus, and finally to Auriga with its bright star Capella.

Binocular Highlights

A and B: Examine the stars of the Pleiades and Hyades, two naked eye star clusters. **C:** The three westernmost stars of Cassiopeia's "W" point south to M31, the Andromeda Galaxy, a "fuzzy" oval. **D:** Sweep along the Milky Way from Altair, past Deneb, through Cepheus, Cassiopeia and Perseus, then to Auriga for many intriguing star clusters and nebulous areas. **E:** The Double Cluster.



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Auburn Astronomical Society Membership Application Form

Name:

Address:

City: _____ State: _____ Zip: _____

Phone: _____ Date of Application* ____/____/____

E-mail:

Telescope(s):

Area(s) of special interest:

Enclose: \$20.00 for regular membership, payable in January. *Full-Time* student membership is half the Regular rate.

If you are a NEW member joining after the first of the year, refer to the prorated table below

Jan \$20.00	Feb \$18.33	Mar \$16.66	Apr \$14.99	May \$13.33	Jun \$11.66
Jul \$10.00	Aug \$8.33	Sep \$6.66	Oct \$4.99	Nov \$2.33	Dec \$1.66

Make checks payable to: Auburn Astronomical Society and return this application to:

Auburn Astronomical Society
c/o John Wingard, Secretary/Treasurer
#5 Wexton Court
Columbus, GA 31907

For questions about your dues or membership status, contact: jwin1048@gmail.com

Thank you for supporting the Auburn Astronomical Society!