

CONSTELLATION addendum . . .

supplement to the official publication of Bucks-Mont Astronomical Association, Inc

Vol 32, No 3a

Summer 2017

Scott Petersen, editor © 2017 BMAA

BMAA Annual Picnic/StarWatch, July 29

- by Dwight Dulsky

After a shaky start to the weather on Saturday it cleared off nicely for our BMAA Picnic/StarWatch at Lake Nockamixon. Skies even got better as the night went on. I stayed until Moonset and the Milky Way was starting to glow nicely. The picnic was fun just eating and chatting with everyone. Thank you for all the yummy sides and desserts. - *and thank you for grilling once again, Dwight [- ed]*

We had a modest crowd for a "make-up" starwatch. People seemed to have a nice time taking in a variety of celestial sights. Thank you to the 6 or 7 club scopes that were up and running.



- Grillmaster Dwight, BMAA co-president, provided this article and photo

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Bucks-Mont Astronomical Association, Inc
General Meeting Minutes
August 2, 2017

Location: Upper Dublin Lutheran Church, 411 Susquehanna Road, Ambler PA 19002
Officers present: Gary Sprague and Dwight Dulsky (co-presidents), Lee Zager (vice-president)
Ed Radomski (treasurer) and Robert Mittel-Carey (secretary)

Meeting called to order by Gary Sprague at 7:30p. In attendance: 21 members and guests

- Club picnic and star watch recap
- Solar outreach program update – Wrightstown, Southampton, Upper Dublin Public Libraries (130+ visitors!), and more upcoming through September
- August calendar for outreach, and star watches through the rest of the year.
- Local eclipse set-up. Anyone going to be around and where? Details to come.
- Members sharing:
 - Steve shared photos taken from Warminster of several Messier and NGC items.
 - Ed shared his Questar telescope
- Eclipse review: local times: 1:21 – 4:01pm with maximum partial eclipse at 2:44pm, SAFETY review, and the AU checklist.

➤ **Main Topic: Eclipse – Find and Focus Techniques**

Dwight shared several ideas about how to safely view the August eclipse without a telescope. Suggestions: Pin hole view made from a cereal box or shipping tube. Also, how to best make use of your time before and during the eclipse.

Respectfully submitted,
Robert Mittel-Carey, BMAA secretary

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We always get inquiries this time of year about the Perseids and sometimes Leonids in November.

I just wrote a piece for the website www.bma2.org and BMAA Facebook page about meteor showers.

Nothing earth shattering, more just an honest explanation about why we often see fewer meteors than expected. If you are well versed in meteor showers, you won't find anything new here. But, if you are new to the hobby you might get something out of it. The media often touts the high hourly meteor rates, and we rarely ever see those kind of rates here in SE PA. - *Dwight Dulsky*

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Solar Eclipse Library Outreaches

July and August were busy for BMAA with public outreaches at eleven libraries in Bucks and Montgomery Counties with the following schedule:

| Date | Time | Library |
|------------|----------|-------------------------------------|
| Tues 7/18 | 7 PM | Riegelsville Public Library |
| Mon 7/24 | 7 PM | Elkins Park Free Library |
| Tues 7/25 | 6:30 PM | Southampton Free Library |
| Thurs 7/27 | 6:30 PM | Village Library of Wrightstown |
| Fri 7/28 | 6:30 PM | Free Library of New Hope Solebury |
| Mon 7/31 | 6:30 PM | Upper Perkiomen Valley Library |
| Mon 7/31 | 7:00 PM | Upper Dublin Public Library |
| Tues 8/1 | 6:30 PM | Indian Valley Public Library |
| Sat 8/5 | 10:30 AM | Margaret R. Grundy Memorial Library |
| Sat 8/5 | 2:00 PM | Warminster Free Library |
| Mon 8/7 | 7 PM | Upper Moreland Free Library |

Co-presidents Gary Sprague and Dwight Dulskey made the presentations and had these comments:

We had a standing room only crowd at the Upper Dublin Library last night; over 100 attended. Used up all the handouts and the library went through all the eclipse glasses they had received. We might expect some attendees at our Wednesday night meeting. It was a good night for outreach

Lee also had a good night for the STEM star watch Sunday night. We had a good horizon at the school field with many families attending. Scopes were provided by Lee, Gary and Ed R. Good views of Saturn, Jupiter and the Moon. We had the usual "that's amazing" comments with Saturn and Jupiter views; that's what makes these star watches so much fun.

- Gary

We had a good group up in Red Hill last night. The librarian said this event generated the most interest of any program they have done. So she was very pleased we came up.

Today we did two presentations at Bristol and Warminster libraries. Great attendance at both presentations. Attendance: 60+ at Bristol and 100+ at Warminster. This partnership with the libraries has been a good arrangement.

Thanks to Steve for bringing his solar scope out to Warminster. At the end of the show he was able to show folks a single, but nice Sunspot on the surface of the Sun. It was a great way to wrap up the day.

One more presentation Monday night at Upper Moreland Library in Willow Grove.

- Dwight

Dwight Dulskey summarized this summer's public outreach as follows:

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- Outreach, continued -

We were warmly received at each library, several times to standing room only crowds. A few of the libraries told us this was one of their top events in respect to attendees who came out. A number of the libraries had applied to a program called StarNet, which granted the library a substantial supply of certified safe solar eclipse glasses at no cost. Some of the libraries gave out the glasses on the day of our presentation, while others will do so at special eclipse parties on August 21st at their library. Several libraries in the area will be “live streaming” the eclipse from www.nasa.gov and hosting local viewing parties with eclipse glasses and pinhole viewers.

Our main objectives of the outreach program were to provide more in-depth information to the public about how, why and when eclipses occur. Although the news media is starting to heat up with eclipse coverage, there is a limit to what you get in a 2 or 3 minute sound bite. Our program lasted 60 to 90 minutes and went in depth explaining the orbital mechanics involved and the observable phenomena associated with eclipses. In addition to a illustrative Powerpoint show with video, charts and pictures, we also used large models to show those relationships between the Earth, Moon and Sun.

But, one of our biggest reasons for doing this outreach was to help people understand the safety issues involved with viewing a solar eclipse. Everyone in North America will experience a partial eclipse on August 21st. A few who travel to the line of totality will be treated to a special 2 ½ min minutes of being able to view the Sun’s corona when the Moon completely covers the Sun. In Pennsylvania, precautions must be taken during all phases of the eclipse on August 21st. You must protect your eyes and optical equipment from possible permanent damage. We demonstrated how to wear inexpensive eclipse glasses and easy to make pinhole viewers to safely see the eclipse. It was also pointed out ways telescopes, binoculars and camera equipment must be protected at their objective (front) end with special certified solar filters.

A tertiary objective was exposure of the club to the general public. We provided several handouts that included BMAA contact information for our website and Facebook pages. We also took the opportunity to talk about our astronomy club and invite folks to attend our meetings and star watches. An unexpected bonus was some nice coverage by the new media. Bucks County Courier Times and Doylestown Intelligencer ran big articles on us over the 4th of July weekend. They also created a nice [video report](#) during our Wrightstown Library program. KYW 1060 radio granted us a [phone interview](#) that aired on July 31st, 2017. Pete Reinert of WNPV in Lansdale will be attempting to contact several BMAA members across the US on August 21st for first-hand accounts of the experience. So in addition to meeting 700+ folks at the programs, we were exposed to thousands more via the media contacts.

Thanks also to Gary, Ed R., Ed M. and Steve for helping out with several of the presentations and contributing wonderful insights regarding their eclipse experiences to our audiences.

This has been such a successful outreach series we are looking forward to working with some of these libraries again in 2018 for more outreach opportunities on other astronomical topics.

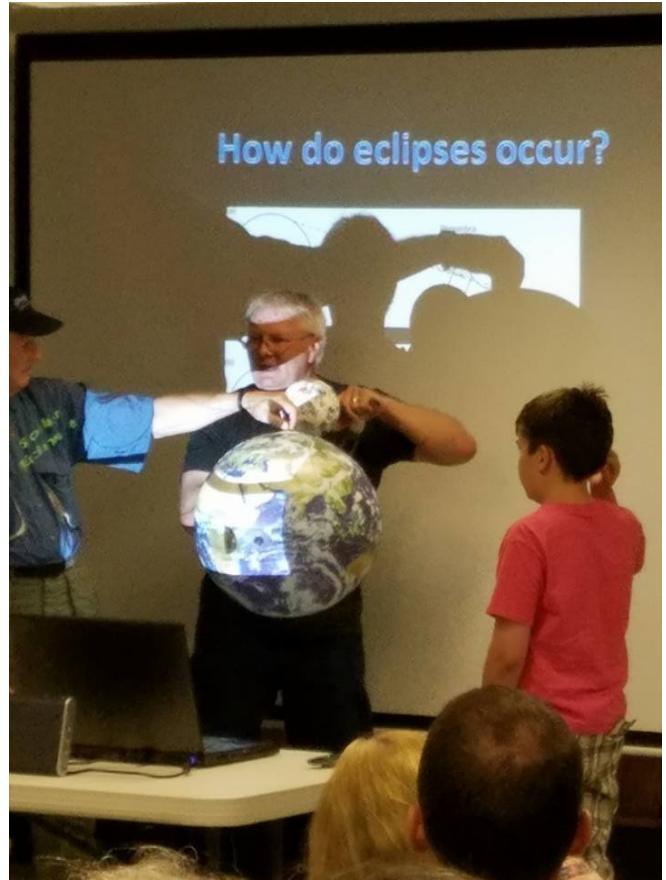
- Images from some of the libraries follow [-ed]

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- Outreach, continued -



Dwight at Southampton Library, above and right



Upper Dublin Library with Gary, at left



Wrightstown Library, above, with Dwight

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How to View the 2017 Solar Eclipse Safely

Looking directly at the sun is unsafe except during the brief total phase of a solar eclipse (“totality”), when the moon entirely blocks the sun’s bright face, which will happen only within the narrow path of totality (<https://go.nasa.gov/2pC0lhe>).

The only safe way to look directly at the uneclipsed or partially eclipsed sun is through special-purpose solar filters, such as “eclipse glasses” (example shown at left) or hand-held solar viewers. Homemade filters or ordinary sunglasses, even very dark ones, are not safe for looking at the sun; they transmit thousands of times too much sunlight. Refer to the American Astronomical Society (AAS) [*Reputable Vendors of Solar Filters & Viewers*](#) page for a list of manufacturers and authorized dealers of eclipse glasses and handheld solar viewers verified to be compliant with the ISO 12312-2 international safety standard for such products.

Always inspect your solar filter before use; if scratched or damaged, discard it. Read and follow any instructions printed on or packaged with the filter. Always supervise children using solar filters.

Stand still and cover your eyes with your eclipse glasses or solar viewer before looking up at the bright sun. After looking at the sun, turn away and remove your filter — do not remove it while looking at the sun. Do not look at the uneclipsed or partially eclipsed sun through an unfiltered camera, telescope, binoculars, or other optical device.

Similarly, do not look at the sun through a camera, a telescope, binoculars, or any other optical device while using your eclipse glasses or hand-held solar viewer — the concentrated solar rays will damage the filter and enter your eye(s), causing serious injury.

Seek expert advice from an astronomer before using a solar filter with a camera, a telescope, binoculars, or any other optical device. Note that solar filters must be attached to the front of any optics, telescope, binoculars or camera lens.

If you are within the path of totality (<https://go.nasa.gov/2pC0lhe>), remove your solar filter only when the moon completely covers the sun’s bright face and it suddenly gets quite dark. Experience totality, then, as soon as the bright sun begins to reappear, replace your solar viewer to look at the remaining partial phases.

Outside the path of totality, you must always use a safe solar filter to view the sun directly. If you normally wear eyeglasses, keep them on. Put your eclipse glasses on over them, or hold your handheld viewer in front of them.

Note: If your eclipse glasses or viewers are compliant with the ISO 12312-2 safety standard, you may look at the uneclipsed or partially eclipsed Sun through them for as long as you wish. Furthermore, if the filters aren’t scratched, punctured, or torn, you may reuse them indefinitely. Some glasses/viewers are printed with warnings stating that you shouldn’t look through them for more than 3 minutes at a time and that you should discard them if they are more than 3 years old. Such warnings are outdated and do not apply to eclipse viewers compliant with the ISO 12312-2 standard adopted in 2015. To make sure you get (or got) your eclipse glasses/ viewers from a supplier of ISO-compliant products, see the American Astronomical Society (AAS) [*Reputable Vendors of Solar Filters & Viewers*](#) page.

An alternative method for safe viewing of the partially eclipsed sun is [*pinhole projection*](#). For example, cross the outstretched, slightly open fingers of one hand over the outstretched, slightly open fingers of the other, creating a waffle pattern. With your back to the sun, look at your hands’ shadow on the ground. The little spaces between your fingers will project a grid of small images on the ground, showing the sun as a crescent during the partial phases of the eclipse. Or just look at the shadow of a leafy tree during the partial eclipse; you’ll see the ground dappled with crescent Suns projected by the tiny spaces between the leaves.

A solar eclipse is one of nature’s grandest spectacles. By following these simple rules, you can safely enjoy the view and be rewarded with memories to last a lifetime. More information:

eclipse.aas.org eclipse2017.nasa.gov

This document does not constitute medical advice, and refer questions to a qualified eye-care professional.

Space Place



August 2017

The 2017 Solar Eclipse Across America

- by Teagan Wall

On August 21st, the sky will darken, the temperature will drop and all fifty United States will be able to see the Moon pass—at least partially—in front of the Sun. It's a solar eclipse!

A solar eclipse happens when the Moon passes between the Sun and Earth, casting its shadow on Earth. Sometimes the Moon only covers up part of the Sun. That is called a partial solar eclipse. When the Moon covers up the Sun completely, it's called a total solar eclipse. As our planet rotates, the Moon's shadow moves across Earth's surface. The path of the inner part of this shadow, where the Moon totally covers the Sun, is called the path of totality.

The path of totality on August 21 stretches from Oregon to South Carolina. If you happen to be in that path, you will be able to experience a total solar eclipse! If you're in any of the 50 United States during this time, you can see a partial solar eclipse.

No matter where you'll be for the eclipse, remember that SAFETY is very important. Never look at the Sun when any part of it is exposed, like during a partial eclipse! It can hurt your eyes very badly. If you want to view the eclipse, you can buy special eclipse glasses. Go the [NASA 2017 Eclipse Safety](https://www.nasa.gov/eclipse) website to learn more about what glasses to buy.

If you are in the path of the total eclipse, you may look directly at the eclipse only when the Moon has completely covered the Sun. This is called totality, and it lasts a very short time. You must be sure to put your eclipse glasses back on before the Sun peeks out from behind the Moon.

You won't be the only one watching this event! NASA scientists will use this eclipse to study our Sun. During a total solar eclipse, we can see the Sun's atmosphere, called the corona. Usually the Sun is so bright that we can't see the corona. However, when the Moon blocks out most of the Sun's light, we can get a glimpse of the corona.

The surface of the Sun is about 10,000 degrees Fahrenheit, but the corona is much hotter. It's about 2 million degrees Fahrenheit! The eclipse gives NASA researchers the chance to learn more about why the corona is so hot. In fact, while the eclipse will only last about two to three minutes in one place, scientists have found a way to have more time to study it.

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NASA will use two research jets to chase the eclipse as it crosses the country. The jets will fly very high, and spend seven minutes in the shadow of the Moon. Researchers are using jets to help look for small explosions on the Sun, called nanoflares. These nanoflares may help to explain the corona's extreme heat.

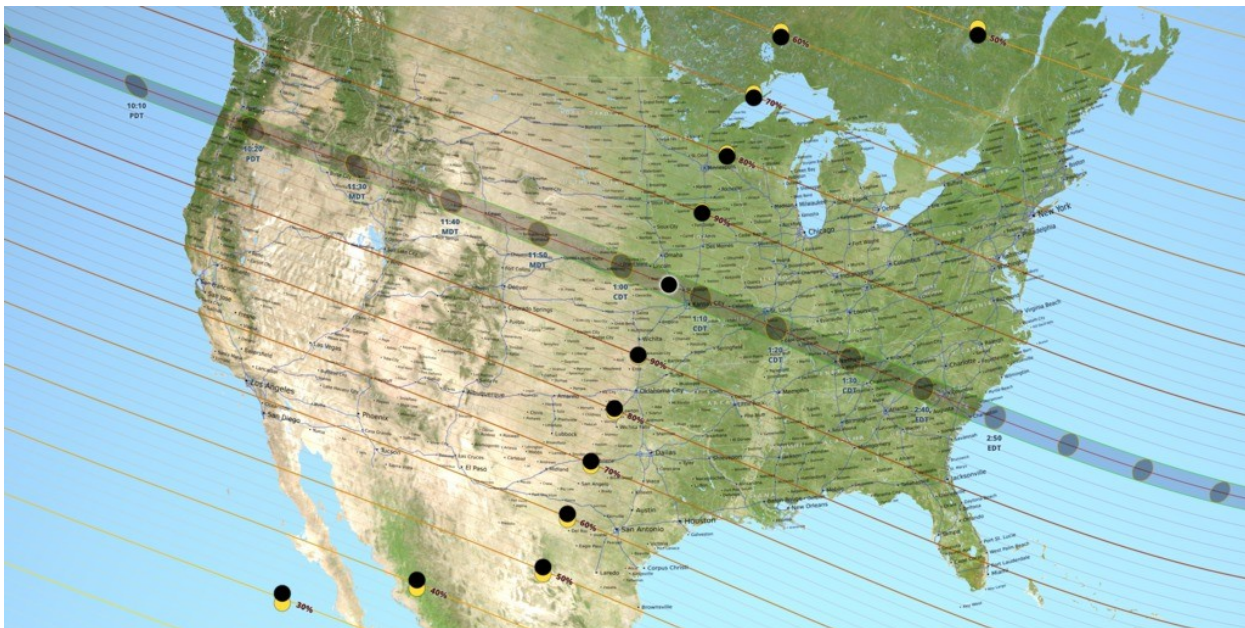
Whether you're watching with eclipse glasses from the ground, or in a NASA jet from the sky, the 2017 eclipse should be quite a show! It's a fun reminder of our place in the solar system, and how much we still have to learn.

To learn about what eclipse glasses to buy and other eclipse safety guidelines, visit:

<https://eclipse2017.nasa.gov/safety>

To learn more about solar eclipses, check out this NASA Space Place video:

<https://spaceplace.nasa.gov/eclipse-snap>



Caption: A map of the United States showing the path of totality for the August 21, 2017 total solar eclipse. Image credit: NASA's Scientific Visualization Studio

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!

- Space Place is provided by NASA to local astronomy clubs [-ed]

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