

The Observer

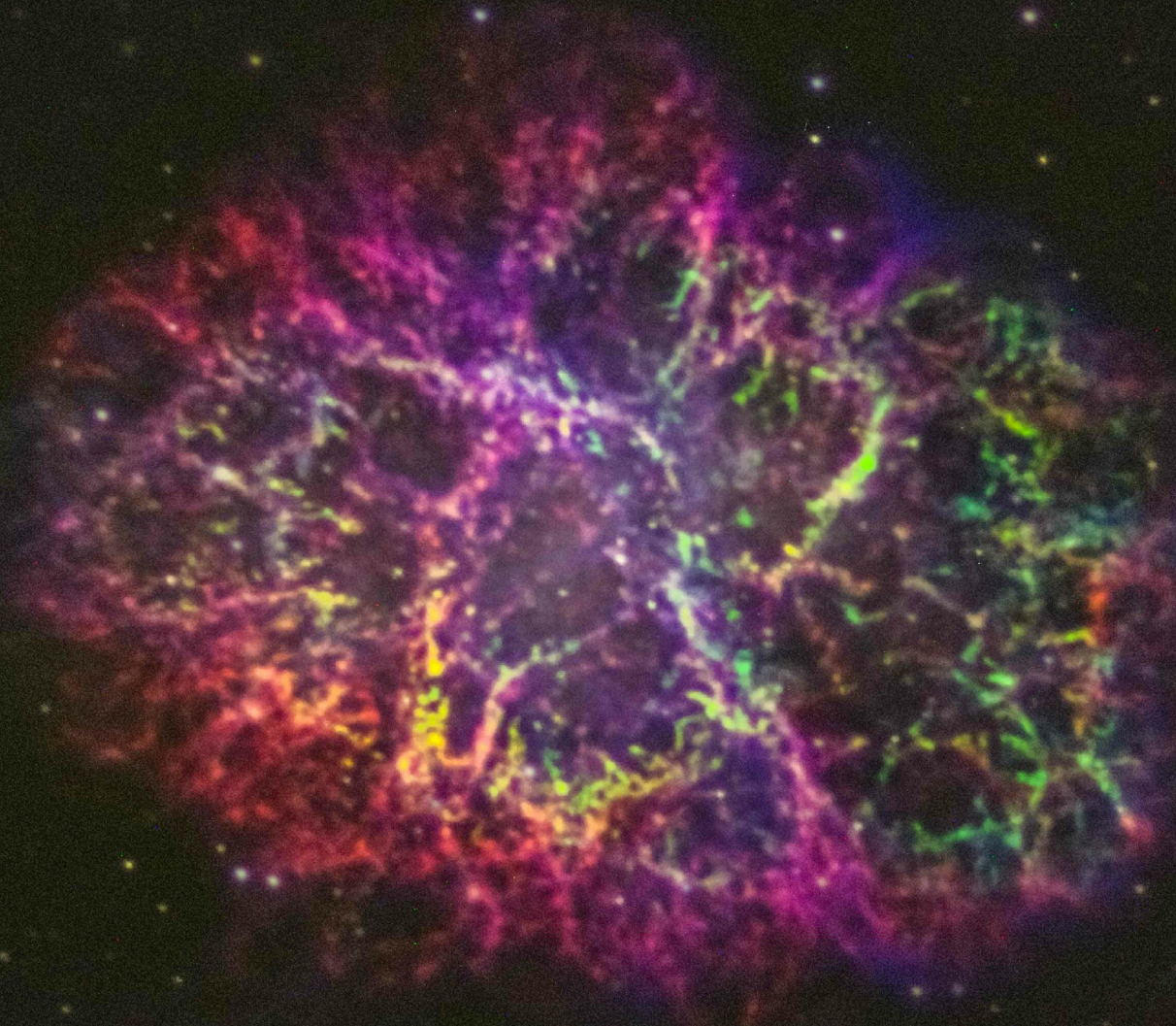
The Official Publication of the Lehigh Valley Amateur Astronomical Society

<https://lvaas.org/>

<https://www.facebook.com/lvaas.astro>

May 2023

Volume 63 Issue 05





Ad Astra

For all LVAAS members interested in helping out with volunteering efforts, we have a new mailing list for you to join: **groups.io**. You can find more info on how to sign up on our website, with a link on the *Observer's* news blurb page in this issue. Be a vital part of LVAAS and volunteer!

Kyle Kramm will be starting up the Stargazer's Group, a monthly gathering for new members to learn to operate their telescopes, and for more experienced members to come out to share their knowledge and socialize. Everyone can develop their night sky skills together! This will also be an excellent opportunity to use the library and get trained on the club's telescopes. The Stargazer's Group will be meeting at South Mountain Headquarters on the second Friday of each month at 7 p.m. except for December, January, and February. The first meeting will be next Friday, May 12. Why not stop by and check it out?

Lastly, I want to take a moment to thank all our members who volunteer their time and considerable effort to keep LVAAS running by providing benefits and services to the club, participating in outreach that benefits the community, and so much more! It takes a lot of people working behind the scenes to make this all happen. If you'd like to help, please visit the Contacts page on our website to see which committees pique your interest, and reach out to the director listed.

If you happen to have experience in seeking cash donations, grants, and other gifts to further the aims and purposes of our society, the Development Committee would be perfect for you! Reach out to me, as the Development Committee director's position is currently open.

Ad Astra!

Mike Huber

Minutes from the LVAAS General Meeting – April 2, 2023

The April 2023 LVAAS General Meeting was conducted electronically using an on-line service and at the South Mountain headquarters. Approximately 60 people were in attendance. Director Michael Huber opened the meeting at 7:05 p.m.

Tonight's General Meeting's presentation was given by Anna Baum and was entitled "Chromospheric Activity in Sun-like Stars and the Mystery of the Maunder Minimum." Anna graduated from Penn State University in 2020 with a Bachelor of Science degree in Astronomy & Astrophysics. She is a 3rd-year Physics PhD student at Lehigh University. In 2022, she published a paper on the chromospheric activity in sun-like stars, and the discovery of a star entering a Maunder Minimum. She is currently conducting research on eclipsing binary stars and asteroseismology, and is always excited to learn more about stars.

Solar observing began in the 17th Century when Galileo used the projection technique to view sunspots. Strong magnetic fields cause darker, cooler areas on the surface of the sun that we call sunspots. There is an 11-year cycle of the number of sunspots that has mostly held for 400 years. However, between 1645 and 1715 there were very few sunspots, and this is called the Maunder Minimum. While we can't directly see sunspots on other stars, the magnetic activity in the chromosphere of a star correlates in a direct way with the magnitude of the H and K absorption lines in the spectra of stars due to singly ionized calcium (Ca II).

These were measured at Mount Wilson Observatory from 1966 to 2001, and subsequently as part of the California Planet Search looking for exoplanets in other sun-like type G stars. Thus far 59 stars have been identified that showed different types of cyclic magnetic activity. One star was found to have a 17 year cycle that seems to be going flat, and is thought to be a Maunder Minimum candidate. Two other possible candidates have also been identified. The research is ongoing as part of studying exoplanets.

After fielding many questions, there was a break taken at 8:08 p.m. The informational meeting resumed at 8:28 p.m.

Director's Report: Mike Huber

- Phil Doherty has taken the position of Light Pollution Abatement Director.
- The position of Director of Development remains open.
- We are also in need of someone to run the Red Shift store during Star Parties.
- If you would like to help or join a committee please contact the committee director.

Membership: Rich Hogg

- The following member completed his second reading and is now a full member:
Peter Puleo.
- The following members completed their first readings:
Jonathan Cuadra
Karen Houser
Louie Stine
Wojciech (Vo) Maziarz
Steve and Linda Zieniewicz (family membership)
- The following members have previously completed a first reading and are still eligible to complete a second reading to become full members:
Pravin Chunduru and Deepthi Kallakuri (family membership)
Robert Lehman
Curtis Mohn
Michael Vila

Pulpit Rock Observatories – Frank Lyter

- Members are highly encouraged to join Groups.io to be made aware of planned activities. If you would like to join a group and did not get an invitation, please contact the Technology Director.
- We are expecting a busy Spring at PR. Please contact either Frank or Ron Kunkel to arrange a tour, or for training on the telescopes.
- We are starting a pilot program to supply basic eyepieces with each of the telescopes in case a member does not have their own.
- The Meteor Camera project was discussed. We do have one at SM. If you're interested in hosting a meteor camera at your home as part of this international project, please contact Frank.

South Mountain Observatories - Mike Clark

- If you are interested in training on the scopes, they are usually there on Saturday mornings. If you want to be trained at a different time, contact them through the email posted on the website.
- There are multiple telescopes available for rental. This is a good way to get started and learn about telescopes before spending a lot of money on your personal telescope.
- We have had so many telescopes donated to the club that we are looking at having online auctions to help raise money for the Society. More information will be coming.

Education – Blaine Easterwood

- The Book Club will be looking to meet. The first book is *Sun, Moon, Earth*. It was felt this would be a good book leading up to the solar eclipse. More information will be in *The Observer*.
- Space Fest is coming up in Easton on May 6 & 7. We will have a table there and hopefully do solar observing. More information will be in *The Observer*.

Astro-Imaging – Tom Duff

- The first meeting of 2023 for the Astro-Imaging Group will be on Saturday April 22 at 7 p.m. at SM. There tends to be imagers with a wide range of experience, and all are welcome. If you think you might be interested in imaging you are encouraged to attend.
- Mega Meet is scheduled for May 19-21. See the website for more details.

Library & History – Dave Raker

- We have over 900 books and videos. If you are checking something out please fill out the attached card and leave it in the file where they are maintained.
- If you have any requests for material please contact Dave directly.

Next General Meeting:

- The next meeting will be on Sunday May 7, 2023 at 7 p.m. at South Mountain.

The April 2023 General Meeting was recorded.

The meeting was adjourned at approximately 8:55 p.m.

Submitted by Joe Zitarelli, Secretary

Call for volunteers for the Lehigh Valley Space Fest! (May 6 & 7)

We need your help!

LVAAS is participating in the first ever Lehigh Valley Space Fest and we need Volunteers to help!

We are looking for people to:

- **Help staff** our indoor display
- **Setup your solar telescope** and assist the public with viewing
- **Provide backup** to our solar telescope operators so they can take breaks

Also, if you're interested in either of the following, we'd be grateful for your time and effort:

- **Facilitating** an astronomy-related activity for the public
- **Presenting** to a public audience on a space-related topic

We appreciate any time that you can volunteer, so even if it's for only for an hour or two, we would love to have your help! This is a wonderful opportunity to share your energy, experience, and knowledge of astronomy with the general public.

If you want to help, but would like more details, please reach out using the contact information below. I am happy to provide more information or collaborate on an idea. This will be a fun event filled with people who are interested in Space!

Lehigh Valley Space Fest website: <https://www.lvspacefest.org/home>

For more information, or to be an LVAAS volunteer, please contact Blaine Easterwood, at blaine@ieee.org

Submitted by Blaine Easterwood



Sat. & Sun. May 6 and 7
Paxinosa Elementary School
Easton, PA



Lehigh Valley Amateur Astronomical Society (LVAAS)

MEGAMEET

Pulpit Rock Astronomical Park

May 19-21, 2023

We may re-schedule depending on weather; please check lvaas.org for updates

EVENT INFORMATION

MegaMeet is LVAAS's annual barebones star party without vendors, speakers, or registration fees. Members in good standing of regional amateur astronomy clubs are invited to attend. MegaMeet attendees can either come for the evening observing sessions or tent camp for the weekend. Access to the site, behind a locked gate, is via 2 miles of some rather steep gravel mountain road. The road is in good shape and is readily accessible for cars and light trucks. Trailers should not attempt to access the site. Camping is encouraged, but space is limited. Due to limited capacity at the site **LVAAS nonmembers will be required to register for this event**. You can register for the event by emailing duffmeister@rcn.com with your name, and number of people in your party, indicating if you plan to camp or just observe. Questions can be directed to the same email address.

SITE INFORMATION

Pulpit Rock Astronomical Park, or as it is commonly called, "The Rock," is a 4.3-acre mountaintop site near Hamburg, Pa that sits 1,600 feet above sea level on the Appalachian Trail. The installations and equipment at Pulpit Rock offer the serious amateur or the novice an opportunity to contribute meaningful scientific information to the astronomical community, or to simply view the splendors of the heavens from our several acres of landscaped grounds. The site was founded in the 1960's by Henry Kaweck, an industrialist from Berks County, who built the first observatory.

DIRECTIONS AND SITE ACCESS

Directions to the site can be viewed at the LVAAS website. For LVAAS nonmembers or members without keys **the locked gate will be attended on Friday May 19 from 4:00 p.m. to 7:00 p.m. and Saturday May 20 from 4:00 p.m. to 7:00 p.m.** Upon access to the site, you will receive the combination to the special gate lock used for this event and will be free to come and go until 12:00 noon on Sunday.

FOOD SERVICE

There is **no food service and no potable water** so please plan on bringing your own food and water. If you do plan on bringing your own food and cooking it yourself, you must use either a charcoal or gas grill for cooking as no open fires are permitted on site.

FACILITIES

There are **no shower facilities**; however, there is electricity and a flush toilet available on site. Please visit the LVAAS website for information on Pulpit Rock Astronomical Park.

Submitted by Tom Duff, Astroimaging Director

Via Sandy Mesics, Programs Chairperson

Upcoming LVAAS General Meeting Speakers

May: Joshua Pepper, Lehigh U. faculty: "The New Landscape of Exoplanet Discovery"

June: LVAAS Secretary Joe Zitarelli will speak on Optics

July: Gary A. Becker and Peter Detterline will speak on the 2024 Eclipse.

September: Charles Bracken will speak on Astroimaging.

October: John Conrad will speak on the Osiris Mission.

November; author Dava Sobel will speak; topic TBA

Speakers are still needed for August at Pulpit Rock, and December at the Holiday Party.

Please contact astrosandy@gmail.com if you have ideas for speakers, or would like to volunteer yourself.

A successful club runs on its volunteers! New members, you can meet other members and learn a lot about astronomy by volunteering to help out at the many activities LVAAS holds during the year. A good place to start is the monthly Star Parties, but other opportunities abound. Join the LVAAS [Buzz](#) groups to connect with other members with similar interests, and help move LVAAS into the future!

Via France Kopy, Newsletter Editor:

The contact email address for submission of material for publication in *The Observer* will be changing soon to an 'lvaas.org' address. Once the change takes place, I would ask that all submissions for our newsletter be submitted to that address, and for members to no longer email me at the 'editorlvaas@gmail.com' address. Both accounts will function for a month or so for transition of existing material, but after that time only the new address will receive submissions and email. The new address will easily be found on our website, or in the black box on the last page of *The Observer*. Thank you!

Via Bill Dahlenburg, Star Party Coordinator

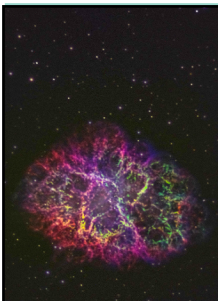
LVAAS needs help with **Star Party** activities. Anyone willing to help will be trained on running the telescopes. Training is easy! Planetarium shows are: 6 p.m. for kids, 7 p.m. Presentation, 8 p.m. Planetarium Show for adults. **Our next Star Party will be Saturday May 27, 2023.** Additionally, if anyone is interested in helping with or taking over the organization of LVAAS Star Parties, please contact Bill: sm_maintenance@lvaas.org

Via Earl Pursell, Planetarium Director

Attention LVAAS Members! Would you like to learn how to run the LVAAS Planetarium? Would you be interested in giving planetarium shows at Star Parties, to Scout groups, etc.? Then contact Earl Pursell, planetarium director planetarium@lvaas.org to set up training. Training generally takes about 90 minutes, and pre-written scripts for shows are available.

Via Earl Pursell, UACNJ Liason:

UACNJ provides free public programs on-site at our Observatory in Jenny Jump State Forest, New Jersey from April through October on Saturday evenings. To view the program line-up please visit uacnj.org.



Cover: M1: Crab Nebula in HSO

Integration Time:

4 hours 10 minutes (2" Ha 7nm ZWO)

5 hours 20 minutes (2" Sii 7nm ZWO)

6 hours 50 minutes (2" Oiii 7nm ZWO)

Total Time 16 hours 20 minutes.

I used AstroPixelProcessor to stack and do basic processing, then finished up in Photoshop.

Session Dates March - April 2023

Imager: Warren Landis

Please read "The Evolution of the Crab Nebula" by Warren on the next page.

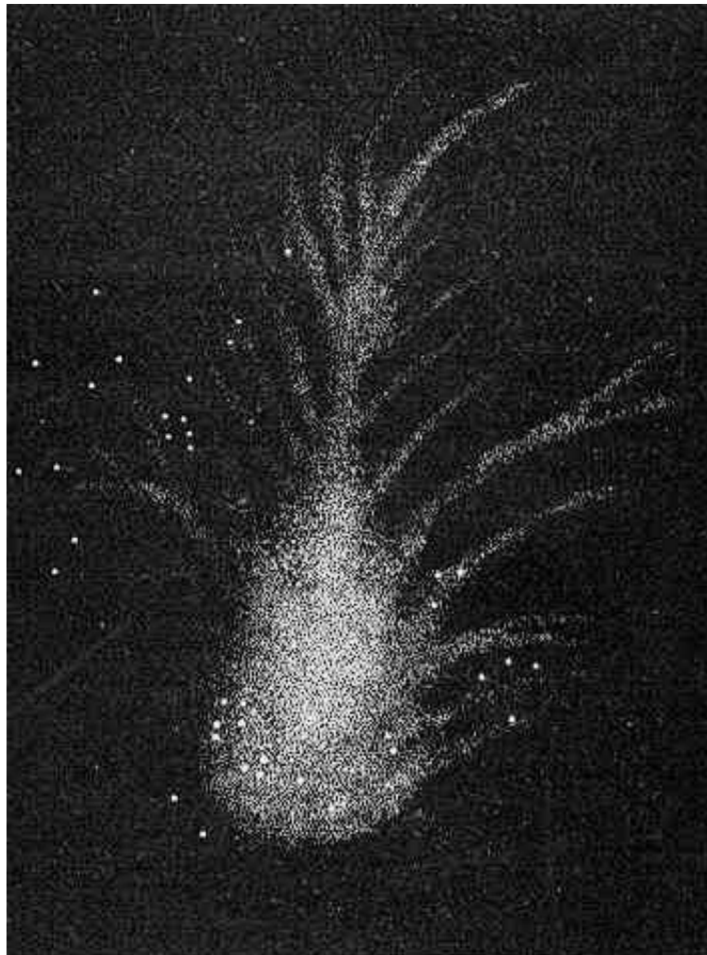
The Evolution of the Crab Nebula

by Warren Landis

Chinese astronomers watching the sky on July 4, 1054, noted the appearance of a new or "guest" star just above the southern horn of Taurus. Other observations of the explosion were recorded by Japanese and Arab stargazers.

Messier was searching for a comet that Edmond Halley predicted would return in 1758. He found a hazy patch he would later add to his catalog as Messier 1 (M1). Time revealed that it didn't move across the night sky, and that this was not a comet.

William Parsons, the third Earl of Rosse sketched the nebula, which looked like a crustacean, and led to M1's other name, the Crab Nebula (1844)

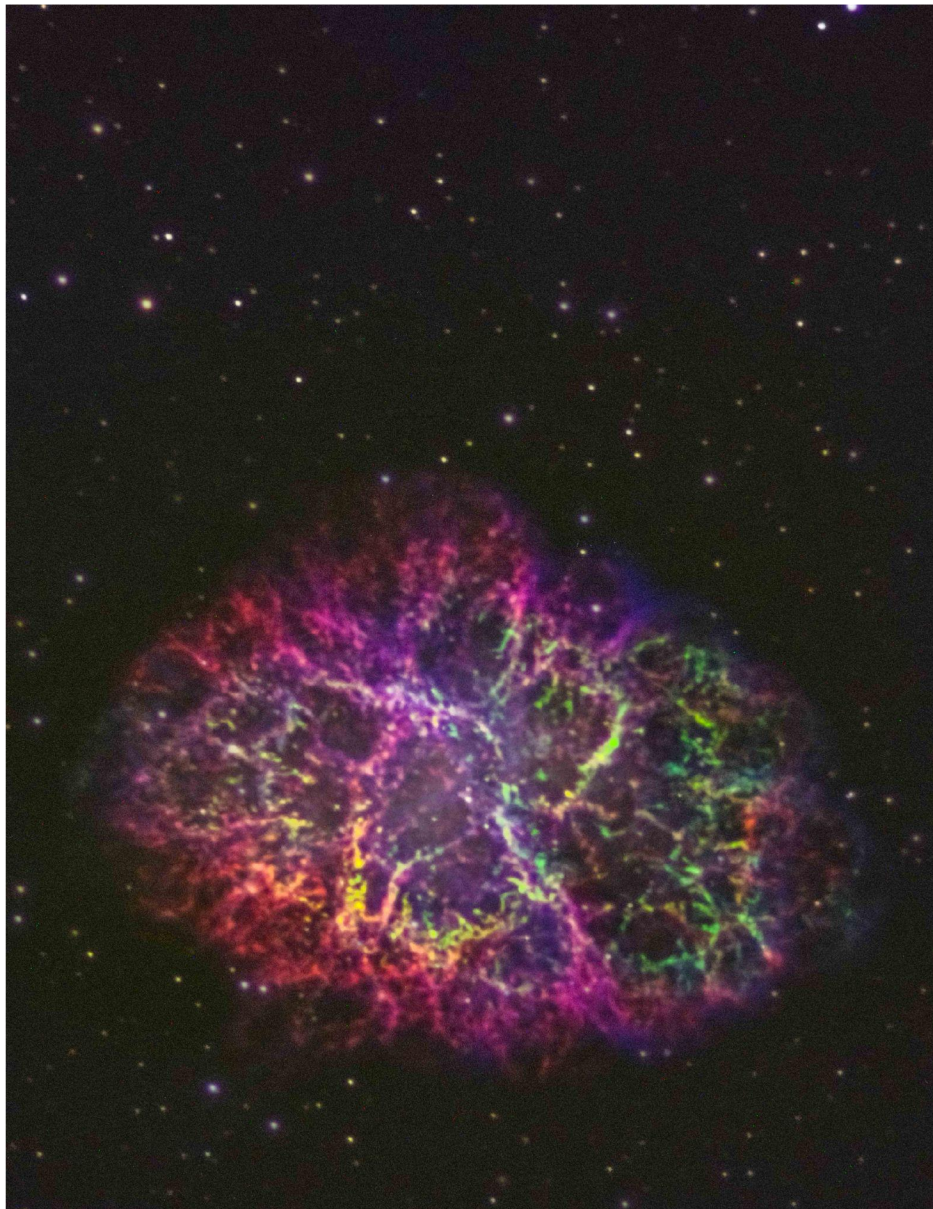


In the early 1900's it was determined that it was expanding. Working backwards, they calculated how old it was, and matched the explosion up with observations from 11th-century records.

The nebula stretches 10 light-years across, though it continues to expand, is approximately 6,300 light-years from Earth, and in the constellation of Taurus.

It was determined to be a pulsar, a town-sized star that flashes about 30 times a second. NP0532, or the Crab Pulsar, the neutron star is 100,000 times more energetic than the sun. Though only a few tens of miles across, it shines about as brightly as our nearest sun.

If you compare images of the Crab Nebula taken years apart, you can see the expansion. I now have 4 years of data for the Crab Nebula, and I plan on continuing to capture this object yearly. In a few years, I will have enough data to generate an animation. I plan to continue to add to that every year.



LVAAS General Meeting ~ Public Welcome!
Sunday, May 7 at 7 p.m. Grady Planetarium
South Mountain Headquarters, and on *Zoom*

The New Landscape of Exoplanet Discovery

presented by

Joshua Pepper



The last five years have seen major changes in our understanding of exoplanets. The NASA TESS mission has yielded hundreds of new discoveries of planets orbiting nearby stars. Improved technology for ground-based telescopes is getting us closer to measuring the masses of Earth-size planets. And the launch of JWST will allow us to probe the atmospheres of planets in ways we could not do before. In this talk, Joshua Pepper will describe how our knowledge of exoplanets has changed in the last half-decade. He will also talk about the upcoming missions and projects to watch out for over the next decade, including the Roman Space Telescope, the Rubin Observatory, the PLATO mission, and the ARIEL/CASE mission.

Joshua Pepper is an astrophysicist, with an expertise in the discovery and characterization of extrasolar planets, and a professor at Lehigh University in the Department of Physics. He received his undergraduate degree in astrophysics from Princeton University in 2000, received his PhD in 2007 from The Ohio State University, and was a postdoctoral fellow at Vanderbilt University before moving to Lehigh. He built and directed the KELT survey using small robotic telescopes and a network of professional and citizen scientists to discover transiting planets, with 26 exoplanets found. He has worked on the NASA Kepler/K2 and TESS missions, which have revolutionized the field of exoplanets in the last two decades. His research also covers large sky surveys, the study of pulsating and eclipsing stars, and other topics in time domain astronomy. Since May 2022, Pepper has been on leave from Lehigh, working as a Program Scientist in the Astrophysics Division at NASA Headquarters.

Prospective new members who wish to attend the meeting should email membership@lvaas.org



Peter Detterline's
Night Sky Notebook

MAY 2023

Night Sky Notebook

what you see when you look up



Peter
Detterline

From the Archives: South Mountain Preservation

By Sandy Mesics

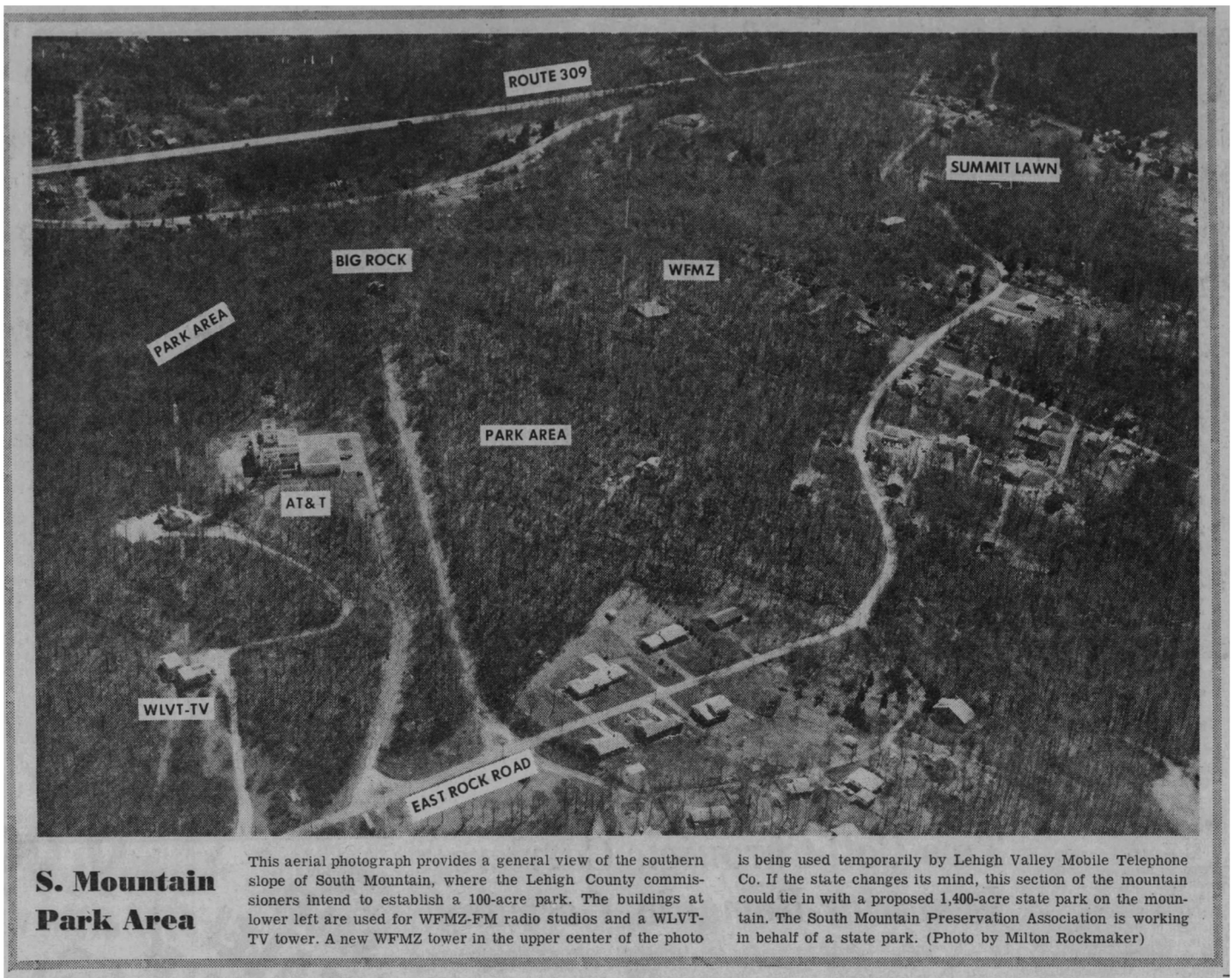
There was an interesting notice in the May 1973 *Observer*: “A group of individuals have banded together to form the South Mountain Preservation Association. The main goal of this organization is to halt the spreading cancer of urbanization and preserve the natural environment of the South Mountain region. The S.M.P.A. is circulating a petition which supports the establishment of a state park on South Mountain. The park would encompass about 1,500 acres of the mountain's undeveloped forest land and include most of the ridge and slopes between Route 309 and Emmaus. The petition has a wide circulation and should be signed by as many L.V.A.A.S. members as possible to help ensure the preservation of our South Mountain observing site. Although it is not yet known whether the L.V.A.A.S. can become directly involved due to its tax-free status, its members can, and should be encouraged to join hands in this very worthwhile cause.”



Indeed, from the beginning, the South Mountain site suffered from light pollution. The WFMZ tower to the north was in existence when LVAAS acquired the site in 1958, and in 1963 the large AT&T microwave tower was erected on the west side of the property, further compromising the skies. But for the longest time, the land to the south was largely undeveloped, except for the strip that bordered Route 309. Soon route 78 was cut through the area, and within a few years, further development in the Saucon Valley area endangered the southern horizon as well. By 1967, LVAAS knew that the end of South Mountain as a dark sky site was imminent, and so the search for another site culminated in our acquisition of Pulpit Rock.

The South Mountain Preservation Association formed in August 1972. The association was an organization comprised of concerned residents of the Lehigh Valley who had a shared objective of preserving South Mountain by opposing any further development on the slopes of South Mountain that would be inconsistent with sound ecological planning. There were a lot of “presidents” of the group early on: Charles Ayers and Walter Spadt of Emmaus, Paul R. Snyder of Allentown, and William Mahon. LVAAS member and Salisbury Township resident Rae Klahr soon became the petition chairman for the new group.

Early in 1973, the South Mountain Preservation Association advocated for a 1400-acre state park in South Mountain, encompassing about 800 acres in Salisbury Township, 400 acres in Upper Saucon, 30 acres in Allentown, and 20 acres in Lower Milford Township. The Preservation Association admitted this was far short of their ultimate goal of preserving 9000 acres from Macungie to Fountain Hill. Almost immediately, the South Mountain Preservation Association butted heads with Allentown City Council. At a meeting of the Allentown City Council on February 6, 1973, a representative of the Preservation Association chided the Allentown Planning Commission for not being “forward thinkers.” Planning Commission Chairperson William D. Miller said that while a “certain percentage” of the preservation group’s members are “altruistic,” the others were only interested in South Mountain because they owned or rented land there, and were opposed to development. The City Council was hoping that the state would purchase 90 acres of land to build a park, rather than the city. That acreage was virtually all the remaining undeveloped South Mountain land in Allentown.



Note how LVAAS was accessed from East Rock Road. The road led under the guy wires of the WLVT antenna. From the Allentown Morning Call, Friday, April 20, 1973.

In May 1973, the Preservation Association sought a charter as a nonprofit charitable foundation. They would do this as a conservancy, a private group that acquires land for environmental preservation. In June 1973, the Preservation Association was handed a major setback when final approval was given for development of Life Style Estates on West Rock Road and Uhl Avenue. Rae Klahr and 20 members of the Preservation Association were in attendance at the emotionally charged Salisbury Township planning commission meeting, advocating against the development.

In June 1973 with the support of Bob Rodale, chairman of Rodale Press, the Lehigh Valley Conservancy was formed. The Conservancy benefitted from a powerful and influential board of directors. The South Mountain preserve became the Lehigh Valley Conservancy's first acquisition in 1973. In 1975 Air Products founder Leonard Pool donated his 72-acre wildlife sanctuary to the Conservancy.

In 1987, the Lehigh Valley Conservancy changed its name to the Wildland's Conservancy. That year, the Conservancy purchased the 9 acre Stevens tract, bringing the total area protected by the group to 226 acres. Together with land preserved by Allentown, 500 acres were protected. The next year, Bob Rodale donated another 24 acres.

The South Mountain Preservation Association was folded into The Wildlands Conservancy in 2016. At that time the Conservancy purchased a 1.5-acre tract in Salisbury Township that straddles the city of Allentown and Borough of Emmaus, near the Ithaca Street entrance to the preserve. The South Mountain Preserve contains woodland trails, rocky outcroppings and sweeping vistas that now encompass over 440 acres and is considered part of the 800-acre Rodale Preserve. Other preserved areas include The Scholl Woodlands Preserve (21 acres), South Mountain Big Rock Park (56 acres), and The Woodland Hills Preserve encompasses 148 acres owned by Lower Saucon Township. This tract was once a golf course.

Despite five decades of preservation efforts, night skies at South Mountain did not improve. Preservation did not protect the majority of land south of the LVAAS headquarters, where the sprawling Promenade Shops, office parks, hotels, and the Penn State Lehigh Valley campus throw up light that contribute to the ongoing deterioration of our southern skies. As those preservation efforts have peaked for now, perhaps the better course to take would be tighter dark-sky friendly lighting ordinances.

References

- Siegel, Ken. South Mt. Group Spokesman Says Planners Not Doing Job. Allentown Morning Call, p. 5, February 7, 1973.
- South Mountain Park Area. Allentown Morning Call, p. 6, April 20, 1973
- Conservancy Being Formed. Allentown Morning Call, p. 6, May 29, 1973
- Wildlands Conservancy <https://www.wildlandspa.org/south-mountain-preserve/>



M8 The Lagoon Nebula Imager: Paul Tracy

Data acquired July 2022 from Paul's backyard in Schnecksville, PA.

Processed in Pixinsight with BlurXterm and NoiseXterm.

38 x 300 sec. = 3 hour light integration; Takahashi FSQ106EDX4 f/5 refractor;

Paramount MyT GEM mount; Atik490EX OSC camera; Radian Triad Quad

Narrow Band Filter



StarWatch

Calendar Keepers

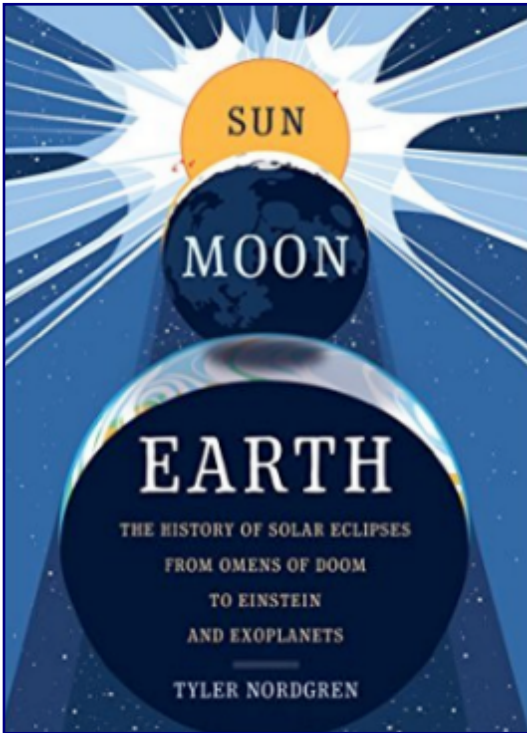
Virtually all cultures began their calendar making systems by using the moon's phases for farming purposes, even though it was obvious that it was the sun that was responsible for growing crops. There was a good reason for this. The moon was easy to observe. It changed its shape and position in the sky nightly, and perhaps most importantly, it repeated this same sequence of events every 29.53 days. The challenge was keeping the sun and the moon synchronized because the mathematics of ancient cultures dealt only in whole numbers. There were no symbols for fractions. * If the modern phase period of the moon is divided into the true orbital period of the Earth, the Sidereal Year which contains 365.26 days, then there are 12.37 lunations occurring within a year's time. How were ancient astronomer priests to handle the 0.37 lunation or the extra 10.93 days when only whole numbers were used? Keep in mind that we are looking at a problem faced by keepers of the calendar through the eyes of modern calendric systems and arithmetic which incorporates fractions. * Let's say on the first year that farmers were called to plant on the 13th of May, within the period of the last killing frost for Allentown and Bethlehem, PA (May 11-20), and it was decreed that the next planting would happen 12 full moons later. The following year, planting would happen on May 2, probably still not a problem since that date was still close to the limit of a killing frost. However by the third year, seeds would be planted on April 21, and that would entail a greater risk of crop failure. The year after that would be pure folly, planting on April 10, so why not have 13 full moons on the fourth year, intercalating an extra lunar cycle, by adding 30 days to April 10 and

planting on May 10? Then on year five planting would happen on April 29, but on year six, you might add an extra lunation to bring the planting date to May 29, well beyond the last killing frost for our area. * Even with this nonuniform arrangement, you can see how a mistake was inevitable which would result in a killing frost destroying crops either before they had a chance to grow or before farmers could harvest. Your future as a calendar keeper would end badly if mistakes were made. * Astronomer priests did not rely solely on celestial happenings for their decisions. They observed the routines of animals, the return of migratory birds, insect populations, plant rejuvenation, soil moisture, temperature, and other aspects of the changing seasons to best fit a time when to announce publicly to the local farming community that planting should get underway. * The plight of early calendar keepers using the moon reminds me very much of the original reason for a Blue Moon. *The Maine Farmers' Almanac* kept an ecclesiastical calendar linking full moons with occurrences happening during the church year. If there were four full moons transpiring during a quarter year period, the full moon names would get out of step with the seasons. To correct for this, the third full moon in a three-month sequence which contained four full moons was named the Blue Moon, thus keeping the full moon names in step with the church year. Millennia ago, it was a little more complicated with much higher stakes, but somehow civilizations and cultures managed to survive and prosper. They all eventually adopted a solar calendar for farming and civil functions, but not necessarily religious events. Ad Astra!

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Moravian University Astronomy - astronomy.org also facebook.com/StarWatchAstro/

Forward this **StarWatch** to a friend by clicking [Join](#)

LVAAS Book Club



The LVAAS Book Club will be reading “Sun, Moon, Earth: The History of Solar Eclipses from Omens of Doom to Einstein and Exoplanets” by Tyler Nordgren.

This book is loaded with information and is a great way to begin to prepare for the two upcoming solar eclipses - an annular solar eclipse on October 14th, 2023, and a total solar eclipse on April 8th, 2024.

“Astronomy is, in part, made possible by the shadows that span the stars.” This book tells the story of eclipses, and how they went from events of terror, to scientific tool, to tourist attraction.

Pick up your copy and start reading soon. We will meet sometime in April or May for refreshments and discussion. There is one copy of the book in the LVAAS library if you want to get a preview, but this is a book that you will want on your shelf.

If you are interested in joining the discussion, send an email to blaine@ieee.org and let him know if you want to join the Slack channel.

Two Reviews:

<https://cs.astronomy.com/asy/b/daves-universe/archive/2016/11/04/book-review-sun-moon-earth-by-tyler-nordgren.aspx>

<https://www.planetary.org/articles/20170814-book-review-sun-moon-earth>

Submitted by Blaine Easterwood, Education Director

2023 Spring Skywarn Training Schedule

Webinars (all times EDT):

Basic: Thursday, May 11, 6 PM – 8 PM

Advanced*: Wednesday, May 31, 6 PM – 8 PM

In person Basic Presentation (all times EDT):

Tuesday, April 25, 6 PM – 8 PM; Centreville, MD

Saturday, May 13, 2 PM – 4 PM; Ocean Township, NJ



*Must take a basic class before the advanced class



For information on how to register for these webinars, or how to view a recorded version (with captions), please visit our Training Schedule at

www.weather.gov/phi/skywarn

Fellow Astronomers, become a trained NOAA/NWS spotter!

As astronomers, we are interested in the weather way more than most folks. Here is an excellent opportunity for you weather-watchers to perform a valuable public service. Skywarn is a country-wide network of volunteers who watch, measure and report weather phenomena and data to the National Weather Service. This information allows NOAA to verify records and to localize and improve future weather forecasts.

You can take the basic training via webinar. The next session is May 11. Pre-registration is required. Every so often in-person training is available locally. Upon completion of the training you will get an official identification number, access to a telephone hot-line and direct email access to NOAA Mount Holly, NJ to file your reports. Mount Holly is the local forecast office for the Lehigh Valley and a large part of Eastern Pennsylvania.

Submitted by Dave Moll

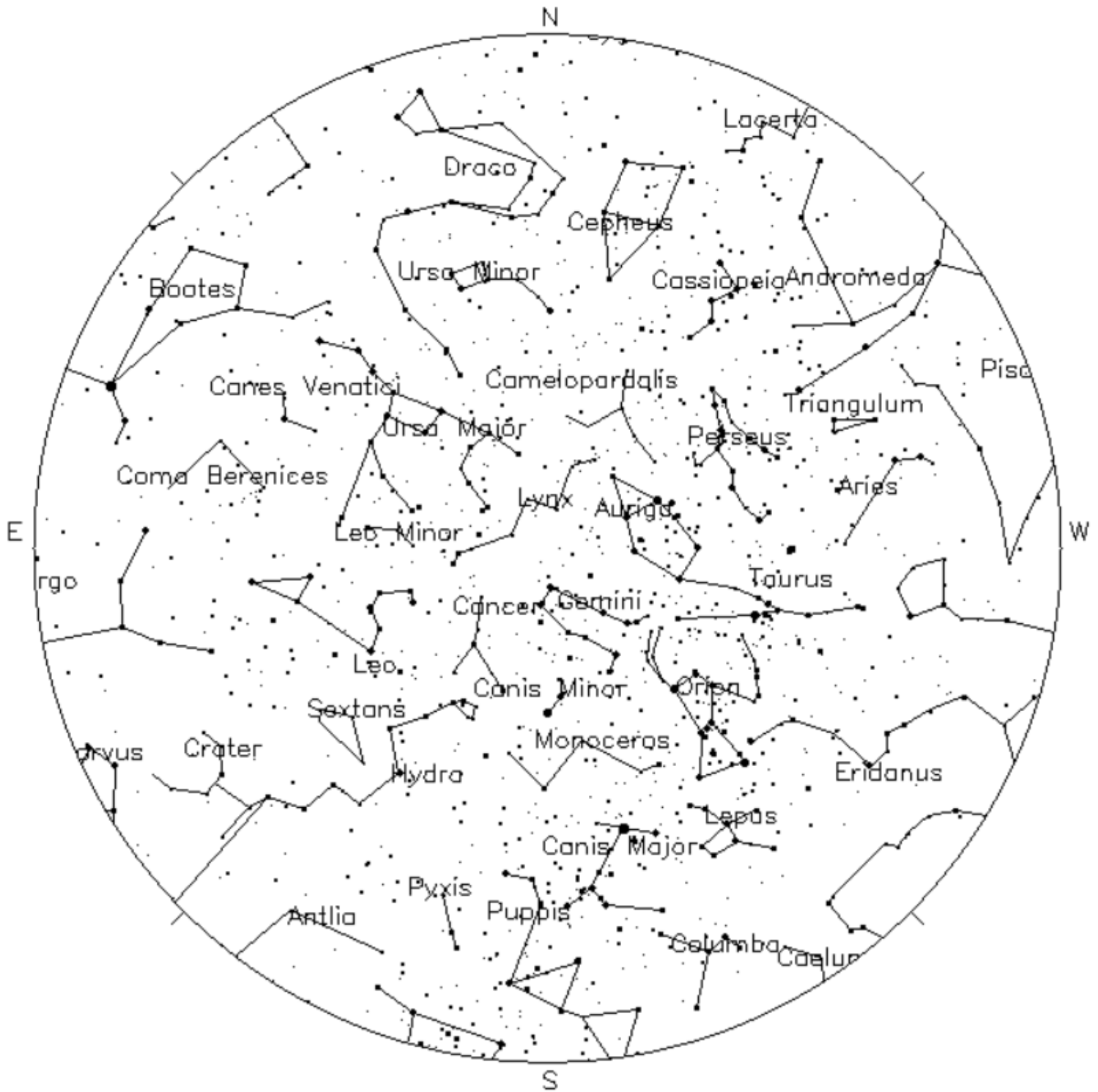
MAY 2023

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	01	02	03	04	Full Moon 05 Scout Camping Weekend	Scout Camping Weekend 06
Scout Camping Weekend 07 General Meeting - 7:00 PM	08	09	10	11	Last Quarter Moon 12	13
Mothers Day 14 Deadline for submissions to the Observer	15	16	17	18	New Moon 19 MegaMeet at PR	MegaMeet at PR 20 Astroimaging Meeting - 7:00 PM
MegaMeet at PR 21 LVAAS Board of Governors Meeting	22	23	24	25	26	First Quarter Moon 27 Star Party
28	Memorial Day 29	30	31			

JUNE 2023

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
				01	Scout Camping at Pulpit Rock 02	Scout Camping at Pulpit Rock 03 Full Moon
Scout Camping at Pulpit Rock 04	05	06	07	08	09	Last Quarter Moon 10 Astroimaging Meeting - 7:00 PM
General Meeting - 7:00 PM 11	12	13	14	CSSP 15	CSSP 16	CSSP 17
CSSP 18 Fathers Day New Moon Deadline for submissions to the Observer	19	20	21	22	23	Star Party 24
LVAAS Board of Governors Meeting 25	First Quarter Moon 26	27	28	29	30	

Sky Above 40°33'58"N 75°26'5"W Friday, May 5, 2023 00:00 UTC



Your Sky was implemented by John Walker in January and February of 1998. The calculation and display software was adapted from Home Planet for Windows. The GIF output file generation is based upon the ppmtogif module of Jef Poskanzer's pbmplus toolkit, of which many other components were used in creating the images you see here.

ppmtogif.c - read a portable pixmap and produce a GIF file

Based on GIFENCOD by David Rowley

Lempel-Zim compression based on "compress"

Modified by Marcel Wijkstra

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Customize Your Sky at <http://www.fourmilab.ch/yoursky/>

2023 LVAAS EVENT CALENDAR

Contributed by Bill Dahlenburg

2023 LVAAS Event Calendar											
	Sundays			Saturday			Multi-Day Weekends	Moon Phase			
	General Meeting time	location	Board meeting	Astro- Imaging	Star Parties	Scouts at S. Mountain	Scouts at Pulpit R.	New	1 st	Full	3 rd
January	8	3:00 PM Muhlenberg	29	no meeting	no meeting		no camping	21	28	6	14
February	5	3:00 PM Muhlenberg	26	no meeting	no meeting		no camping	20	27	5	13
March	12	3:00 PM Muhlenberg	26	no meeting	25		no camping	21	28	7	14
April	2	7:00 PM S.M.	30	22	29			20	27	6	13
May	7	7:00 PM S.M.	21	20	27			19	27	5	12
June	11	7:00 PM S.M.	25	10	24			18	26	3	10
July	8	5:00 PM S.M.	30	15	22			17	25	3	9
August	12	7:00 PM Pulpit	27	19	26			16	24	1 & 30	8
September	10	7:00 PM S.M.	24	9	23			14	22	29	6
October	8	7:00 PM S.M.	29	14	21			14	21	28	6
November	12	2:00 PM S.M.	26	11	18			13	20	27	5
December	9	2:00 PM ?	17	16	no meeting		no camping	12	19	26	5

July, Aug & Dec are Saturday meetings with rain date on Sunday
 Jan, Feb & March meetings are at Muhlenberg College
 August meeting is at Pulpit Rock
 December meeting / Holiday Party (TBD)

NEAF 4/15 – 4/16
 Mega Meet 5/19 – 5/21
 CSSP 6/15 – 6/18
 Stellafane 8/17 – 8/20
 BFSP 9/15 – 9/17 ??

Publishing images is a balancing act!

When preparing your images for publication in The Observer, please consider the following guidelines:

Put the quality in:

- ▶ Considering the "print" size of the image, make sure you have at least 150 pixels/inch.
- ▶ Use a reasonably good quality for the JPEG compression ratio.

But watch the "waistline"!

- ▶ Don't go too much above 200 pixels/inch max.
- ▶ Use the lowest JPEG quality that still looks good!
- ▶ Shoot for <300KB for a 1/2 page image or <600KB for a full page.

Tip: If you're not Photoshop-savvy, you can re-size and compress undemanding images ("human interest" not astroimages), with an online tool such as:

<https://www.ivertech.com/freeOnlineImageResizer/freeOnlineImageResizer.aspx>. It will also tell you the pixel size and file size of your original, even if you don't download the processed copy.

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