



The W.A.S.P.



Volume 56 Issue 08

August 2024

The Warren Astronomical Society Publication

W.A.S. Annual Picnic & Stargate Open House/Swap Table 4:30 pm August 24th at Camp Rotary Pavilion



The WASP

Published by
Warren Astronomical Society, Inc.
P.O. Box 1505
Warren, Michigan 48090-1505

Dale Thieme, Editor

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The Warren Astronomical Society, Inc., is a local, non-profit organization of amateur astronomers. The Society holds meetings on the first Monday and third Thursday of each month, starting at 7:00 p.m.

First Monday meeting:	Third Thursday meeting:
Cranbrook: Institute of Science	Macomb Community College
1221 North Woodward Ave	South campus, Bldg. E, Room 208
Bloomfield Hills, Michigan	14600 Twelve Mile Rd.
	Warren, Michigan

Membership and Annual Dues

Student	Individual	Senior Citizen	for families
\$17.00	\$30.00	\$22.00	add \$7.00

Astronomical League (optional) \$7.50

Send membership applications and dues to the treasurer:

c/o Warren Astronomical Society, Inc.

P.O. Box 1505

Warren, Michigan 48090-1505

Pay at the meetings

Also via PayPal (send funds to treasurer@warrenastro.org)

- Among the many benefits of membership are
- Loaner telescopes (with deposit). See 2nd VP.
- Free copy of each WASP newsletter.
- Free use of Stargate Observatory.
- Special interest subgroups. See chairpersons.

The Warren Astronomical Society Publication (WASP) is the official monthly publication of the Society.

Articles for inclusion in the WASP are strongly encouraged and should be submitted to the editor on or before the end of each month. Any format of submission is accepted. Materials can either be transmitted in person, via US Mail, or by email (publications@warrenastro.org)

Disclaimer: The articles presented herein represent the opinion of their authors and are not necessarily the opinion of the Warren Astronomical Society or this editor. The WASP reserves the right to edit or deny publication of any submission.

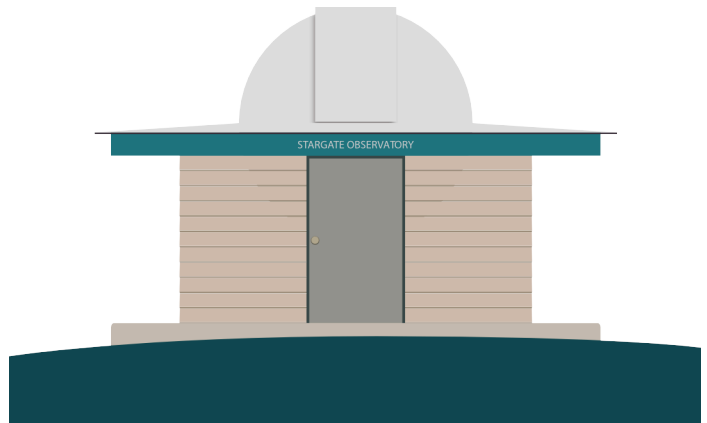
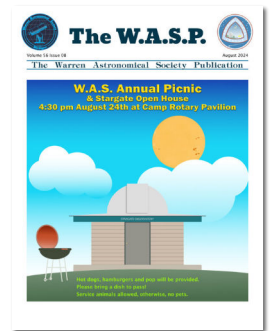
Stargate Observatory is owned and operated by the Society. Located on the grounds of Camp Rotary on 29 Mile Road, 1.8 miles east of Romeo Plank Road, Stargate features an 8-inch refractor telescope under a steel dome. The observatory is open according to the open house schedule published by the 2nd VP.

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About the cover

The rendition of the Stargate Observatory by Brian Thieme (below) has become something of a newsletter mascot, getting a role in several of the newsletter cover themes. This much appreciated artwork has provided the current editor with cover art inspiration.





Field of View

It's Full of Stars! Sagittarius Star Cloud

Way back when I was a teenager, my bedroom walls were covered with astronomy and space program posters. I had a poster of the Viking Lander from Martin Marietta, and numerous astronomical posters from the Astronomical Society of the Pacific. One of my posters was the Sagittarius Star Cloud - a beautiful splash of stars, with large regions obscured by lanes of dust.

I remember staring at that poster in awe at the vast number of stars, knowing that they were incredibly far away from us, as well as far away from each other! Yet, there are so many stars there, they literally form a cloud. *So many stars, so many places, so many possibilities.*

I asked Br. Guy if the Vatican Observatory had taken any images of the Sagittarius Star Cloud; he sent me an image taken by [Claudio Costa](#), which just amazed me. Claudio was appointed Technical Assistant to the Director of the Vatican Observatory with the task of maintaining their historical instruments at their headquarters in Castel Gandolfo.

The dust lanes in his image really caught my attention; what I find astounding is that many of the dark and redder regions would be just as bright as the brightest star-filled regions, were it not for all the dust. Even now, I don't think I have a proper appreciation for the amount of dust in our galaxy...

Claudio's pic was taken using his older Esprit 100; he offered to take another photo with his brand new [RedCat 71](#). *Yes, please!*

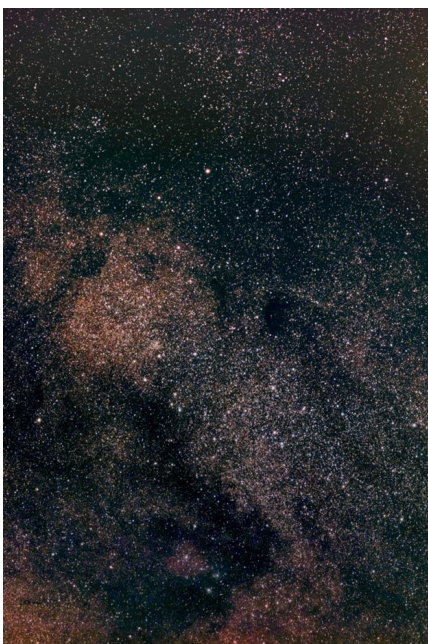


Image: M24 and the Sagittarius Star Cloud.
Credit: Claudio Costa

That's the image I pasted here - it's a VERY scaled-down version taken with Claudio's RedCat 71; the original file comes in at 23 megs, and is around 6K x 4K in size! It is now my Zoom background too!

Note: this section was taken from a [post](#) on the Vatican Observatory website

Exoplanet Update

5741 Confirmed, 7203 Candidates

The [NASA Exoplanet Archive](#) added 52 new planets [this week](#), 39 of them from the TESS-Keck Survey Catalog; they also add spectra for exoplanets practically every week.



Image credit: W. M. Keck Observatory/Adam Makarenko

WAS Picnic

The WAS picnic this year will be held on Saturday August 24th at 4:30 PM

Several board members will be at this picnic this year; some will be showing up a bit early to set up.

The board will be supplying:

- Burgers, hot dogs & buns
- Condiments & dry goods
- 2 liter sodas

Please bring a dish to pass around

Mark Kedzior will be the master of the grill again!

We'll have a swap table for astronomical equipment and members from other GLAAC associate clubs are welcome to attend too!

Bob Trembley,
President

Pictures at an Exhibition

Apologies to Modest Mussorgsky

Spotted at an art exhibition in Grand Rapids.

Below are some art pieces that use astronomy as the theme. Seeing the images, Gary Ross suggested that Aubrey Maron send them along for our enjoyment.

Below left:
Moon and Stars
by Mary Doezema
Medium: Raku fired with paint



Below right:
Earth, Water, and Fire
Ceramic Artwork by the West Michigan Potters Guild

Bottom right:
The Starry Night
by Mary Bajcz
Medium: Textile-Machine pieced and quilted



WAS Apparel Price List

T-SHIRTS

Black - Navy - Gray (Pink or Yellow if desired) - one imprint

Small - XL	\$15.00
2XL	\$18.00
3XL	\$19.00

LONG SLEEVE T-SHIRTS

Black - Navy - Gray - one imprint

Small - XL	\$19.00
2XL	\$21.00
3XL	\$22.00

CREW NECK SWEATSHIRT

Black - Navy - Gray - one imprint

Small - XL	\$22.00
2XL	\$24.00
3XL	\$25.00

LOGO COLOR SCHEMES:

Black background with gold/yellow artwork and lettering

Black background with blue lettering and gold/yellow artwork

Choose when placing order

ZIPPER HOODIE W/Pockets

Black Only (at this time) - one imprint

Small - XL	\$27.00
2XL	\$33.00
3XL	\$34.00

HATS

Black - Blue 2 ½" logo

\$15.00

IMPRINT LOCATIONS:

Front left chest (3 ¼" logo)

Front or back (9" or 10" logo)

Back (12" logo for jackets or sweater)

Combination front left chest (3 ¼" logo) and back (9", 10" or 12" logo) - add \$7.00

Choose when placing order

IMPRINT ON YOUR CLOTHING ITEM: Logo + Imprint Charge

3 ¼" Logo - \$8.00

9" - 10" Logo - \$12.00

12" Logo - \$15.00

HOW TO ORDER:

Place order at the Cranbrook meeting on the first Monday of month -

Select garment type - color of garment - logo imprint and color scheme -

Pay in full for order to be placed -

Your order will be ready for pickup at next Cranbrook meeting -

(Your order may possibly be ready for the Macomb meeting following the Cranbrook meeting of that month - you will be notified if that is the case)

Contact Mark Kedzior @ bazonga952@hotmail.com with any questions

LOGO COLOR CHOICES



Gold/Blue



Gold-3D

Observing Eclipsing Binaries - Continental Style

by Gerald Persha, AAVSO, BAS, WAS

I have been observing eclipsing binaries for many years and have submitted over 100 observations of their light curves and ToMs (Time of Minimums). The American Association of Variable Star Observers (AAVSO for short) is the primary recipient for observers in North America but it is not the case for continental Europe. The British are not part of what is considered "continental" and the British Astronomical Society (BAS) not surprisingly do their own thing with eclipsing binaries. The Czech Astronomical Society is the premier site for submitting observations of eclipsing binaries and exoplanet transits and that is where I submit my data. Their web site can be found at: <http://var2.astro.cz/EN/>.

Eclipsing binaries are variable stars whose brightness changes are due to a mutual eclipse of one or more stars in the system. They are crudely divided into three groups: contact binary with the W Ursae Majoris the prime example, semi-detached binary as in Beta Lyrae and detached binary often called Algol type. I'm not going to get into the astrophysics and minutiae of eclipsing binaries since the web has plenty of good material online that does this much better than I in explaining it. Start with: https://en.wikipedia.org/wiki/Binary_star. My purpose is to promote the observations of eclipsing binaries and give a primer on how and what to do.

Besides recording their light curves which can give the type of binary as stated above the most important and easiest observation is the time of minimum of either the primary or secondary eclipse. The primary eclipse is defined as the greatest dip in the stars brightness. Not all eclipsing binaries have an observable secondary eclipse as in the case of Algol which is only observable in the near-IR because of it being a high mass/luminosity spectral class hot B orbited by a low mass/luminosity spectral class cool K star. In the case of contact binaries where the exchange of matter between the two stars results in evolution of nearly identical stars, it is sometimes hard to distinguish the primary and secondary eclipse since the brightness change is nearly identical as well. The semi-detached binaries are the easiest of them all to distinguish as the two stars are usually much different in type and brightness. See figures 1¹ and 2².

Observing the time of minimum here after referred to as ToM one obviously needs a CCD/CMOS camera or photometer. In my case, I use an Optec SSP-5a photometer with a multialkali PMT (photomultiplier tube) which uses custom software to control the telescope and SSP-5a. Since these instruments have fallen out of favor in recent years, I will briefly describe the use of CCD/CMOS cameras. My brief description: take a pic every one minute of the eclipsing binary and use tools found on the AAVSO web site to process your data. For those wishing to use the Czech site, check out the free camera/image processing software at: <https://c-muni-pack.sourceforge.net/>. This software will produce data files that meet the Czech's protocol. It is beyond the scope of this paper to describe in detail the use of these tools as it would take a book to describe. I said I would be brief.

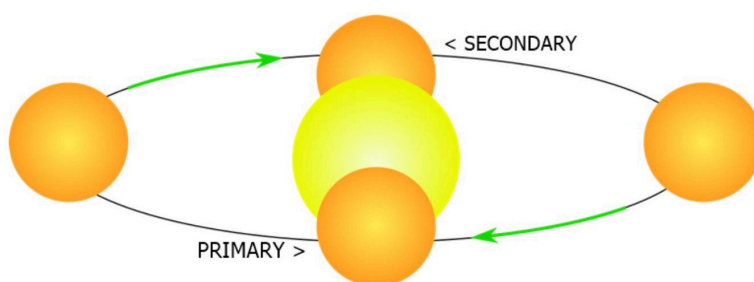


Figure 1

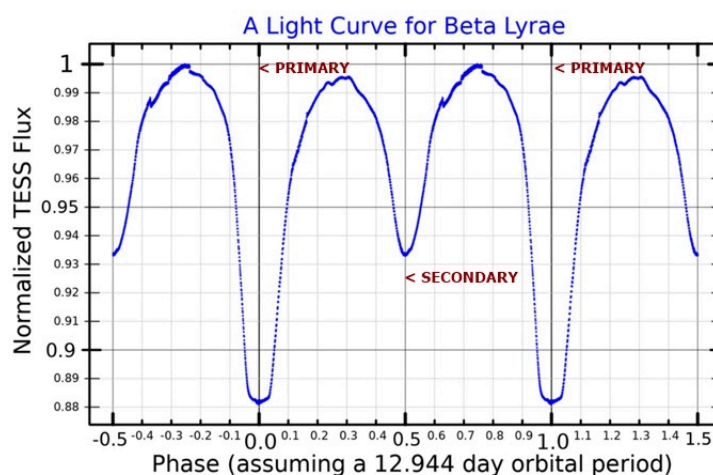


Figure 2

It is important to have your controlling PC's clock accurately set to UTC by online sync or GPS sync. Since the ToM can be measured to a precision of around 10 seconds in some cases, you can see the importance of an accurate clock. Amazon has plenty of these USP GPS Receiver Antenna for sale for about \$20.00. There is also plenty of free software available on the web for download that will sync you PC clock. Just google "gps clock software for pc free". I have been told that this will set the clock to about 50ms accuracy.

I usually take data for about 3 to 4 hours to capture a minimum comprising of about 50 to 100 data points. In planning your session, it is important to find the approximate time for the ToM so that you can bracket it with about an equal number data points before and after the ToM. The Czech site had a decent eclipse predictor at one time but for some reason it doesn't work for those outside central Europe location and they have not been responsive to my e-mails. I don't speak Czech. You can access the eclipse predictor at: http://var2.astro.cz/EN/brno/predictions_worldwide.php. Never give up that easily, I resurrected an old eclipse predictor that I once used called Ephemerides, for lack of more jazzy name, which can be downloaded free at: <http://www.motl.cz/dmotl/predpovedi/>. They have not updated the ephemerides since 2018 (why I discontinued using it) so there could be considerable error in the ToMs since they change in unexpected ways. The program allows

one to input location, the time allotted for observing, the minimum altitude and the limiting magnitude plus other less important parameters to find a list of observable binaries for that night.

Also found in continental Europe, the Mount Shuora Astronomical Observatory in Krakow, Poland (<https://www.as.up.krakow.pl/ephem/>) keeps an up-to-date database of eclipsing binaries but it doesn't allow searches like in Ephemerides. However, they do have the current data to download and I did just that and with a little manipulation using my 20 years old Microsoft Works, I generated DAT files that are readable with Ephemerides. This file you can download from my web site at: <http://sspdataq.com/Krakow.zip>. Just copy the extracted KRAKOW.DAT to the folder containing Ephemerides and the select it in the catalog selection pull down.

The AAVSO has provided VPhot for reducing your images and generate light curves for submission. You can calculate your ToM from your light curve yourself and then inform Gerry Samolyk the leader of the Eclipsing Binaries Section of your results. However, it is strongly suggested that you inform Gerry that you have posted your data on WebObs and he will calculate the ToM and eventually publish your results and include it in the AAVSO O-C database. What fun is that?

The Czech site take a completely different approach as, after you upload your data file, you proceed with their online tools to calculate the ToM and then include it tentatively in their O-C database. As an example, see figure 3 of my 2024 submission of V0781 Tau a contact binary with a period of 0.345 days. Along with the data file with time in geocentric format, you must upload a chart or image of the field indicating the binary and comparison stars. The data reduction process includes an advanced curve fitter which finds the ToM perhaps a little better than a simple parabolic (2nd order) fit as I use in my SSPDataq software as you can see in figure 4. The ToM error in the Czech process is about 14 seconds whereas the ToM calculated with my parabolic fit differs by about 7 seconds from the Czech ToM. The epoch for software is for J2000 which is differs from Julian Date (JD) by 24515445.0. Much more satisfying than just a simple upload of data.

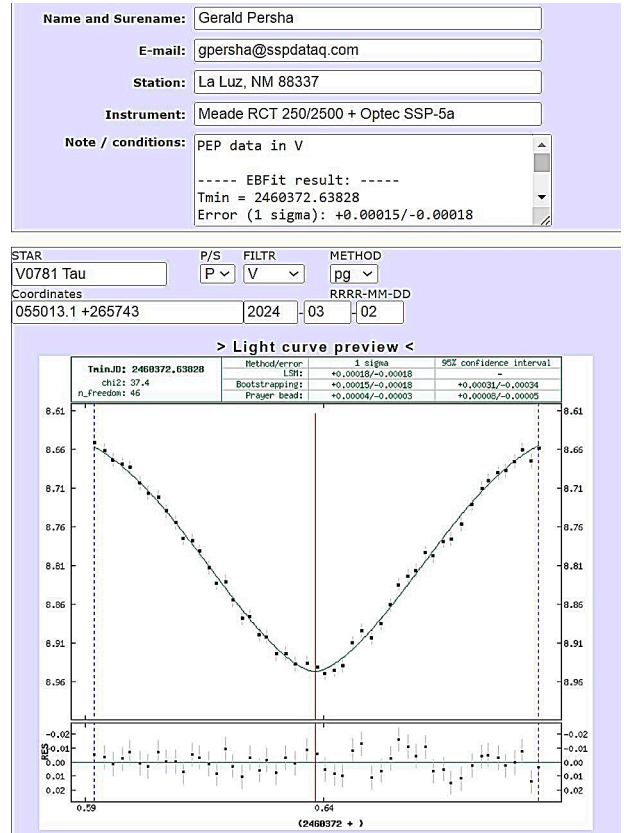


Figure 3

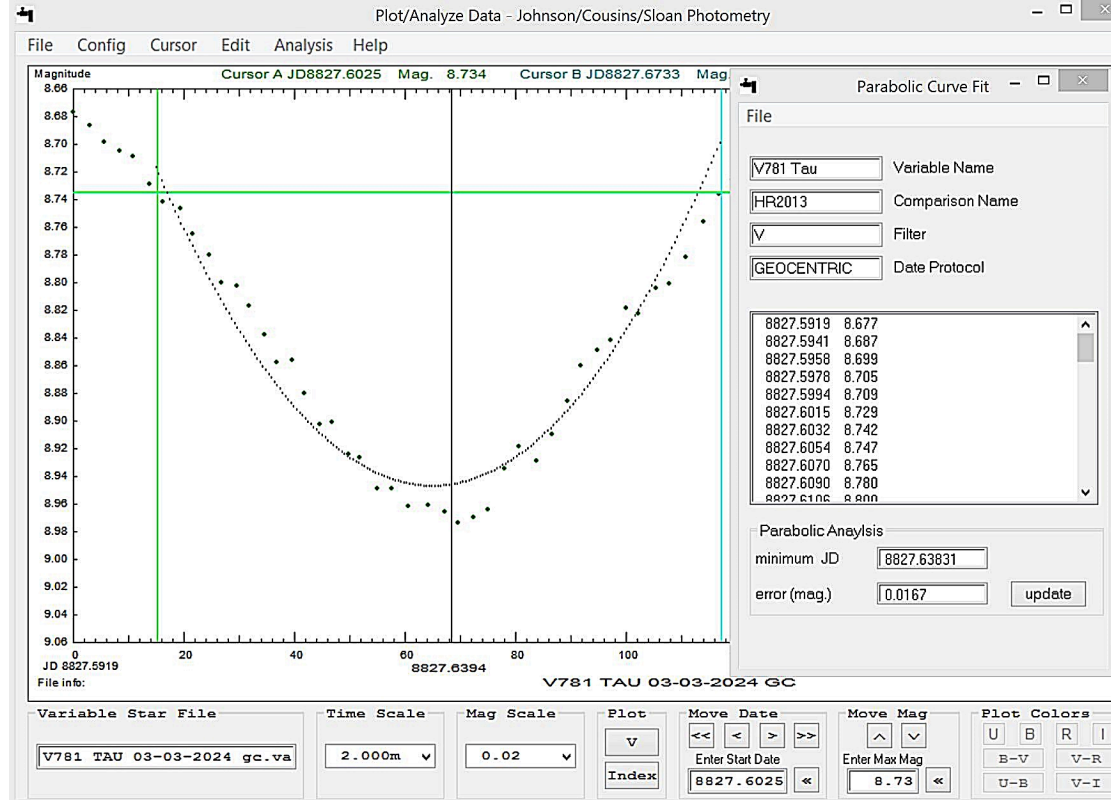
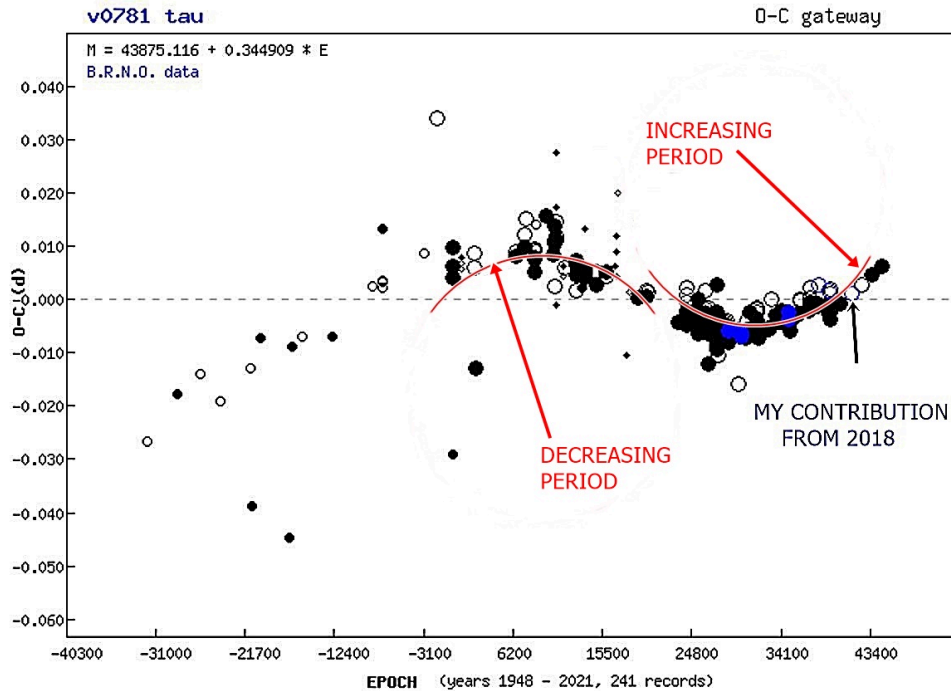


Figure 4

Continued on page 8

Continued from page 7

The final result is your place in the O-C diagram as shown in figure 5 which displays all the data from many observers over the decades in a scientific understandable format. This plot of Observed time minus Calculated time (based on some prior epoch and period) shows the changes in the period of the binary. This could have many causes but the two primary ones are an exchange of mass between the two or the existence of more stars in the system. A straight line through the data indicates that period is constant. A curve (parabola) in the data points indicates that the system's period is either slowing or gaining depending on the direction of the focus being above or below the vertex. In the case of V0781 Tau, recent professional astronomer studies of this star indicate that the period is decreasing slowly due to angular momentum loss caused by magnetic stellar winds and possible mass transfer. However, it has been observed in the O-C data a cyclic modulation with a period of 45 years which may be evidence of a third star in the system³. More observations are needed. This may be a little daunting at first, but if a 75 year old man can do it, you can too.



References

¹ Messer Woland, Wikipedia, "Binary Star", 19 September, 2006. Ripped from Wikipedia and free to distribute under terms of the GNU Free Documentation License, Ver. 1.2

² Pope Pompus, Wikipedia, "Beta Lyrae" 20 July, 2022. Ripped from Wikipedia and free to distribute under Creative Commons Attribution-Share Alike 4.0 International license (<https://creativecommons.org/licenses/by-sa/4.0/deed.en>)

³ Astrophysics and Space Science, January 14, 2016, "The Active W UMa Type Binary Star V781 Tau Revisited", Kau Li, Dongyang Gao, S. Hu, D. Guo, Y. Jiang, X Chen. Available at: <https://arxiv.org/abs/1601.00412>

Join the Astronomical League



The mission of the Astronomical League is to promote the science of Astronomy. The major benefit of belonging to this organization is receiving the quarterly newsletter, The ReflectoR, which keeps you in touch with amateur activities all over the country.

Also:

- Participate in the Observing Program
- Avail yourself of the League Store
- Astronomy Books at a discount
- Attend Astronomical League Conventions



Only \$9.00 annually,
(Membership starts July 1)

alcor@warrenastro.org



WAS Astrophotos



Photo of Spica about to slide behind the moon.

Photographer: Ray Bosshard

Date photographed: July 13, 2024

Ray comments, "This was the last photograph that I took before Spica slithered behind the moon."

Spica is a bit hard to spot, it is at the 10 o'clock position by the "dark side" of the moon.

Continued on page 10

Sharpless-2 174



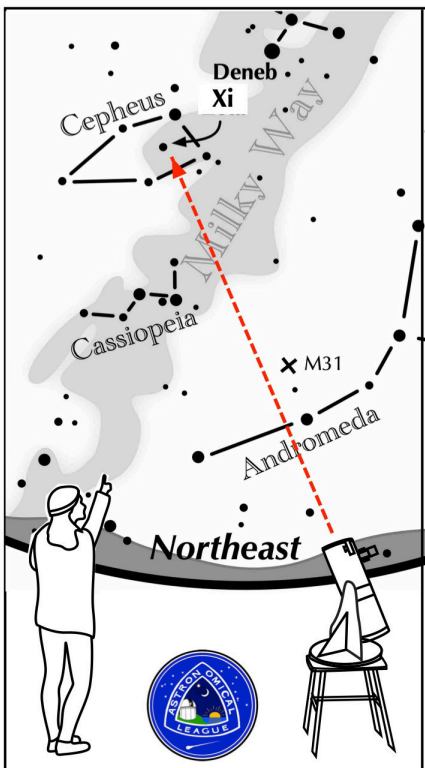
Bob Berta captured this object early in July. He thought it was pretty cool and with an interesting "story":

Bob says, "I used my 8" SCT with Hyperstar to capture it. The Hyperstar images at f 1.9 so very sensitive which was needed for this very dim object shot through my dual narrow band filter which is very dense. This was from my Bortle 6 backyard in Macomb Twp. with a bit of moon out. The camera was my ASI 071 OSC camera. Mount is ZWO AM-5 Hyperdrive auto-guided with a 60mm refractor. All image capture and stacking was done with ASI AIR Plus. Minimal tweaking with Photo Shop and Gradient Exterminator This is a stack of 5 minute partials for total of one hour. The exposure total time would need to be 10 hours long if I imaged at f7 with the SCT. That is a huge benefit of Hyperstar."

This is the second farthest northern object in Stewart Sharpless catalog and is very close to Polaris. Sharpless-2 174 is in Cepheus and known as Valentines Rose Nebula. It was found in 1959 and described both as an emission nebula and planetary nebula. But it being a planetary nebula is questioned as it has a high natural motion and carries its nebula masses with it. In 2008 a doctoral student found that the white dwarf was much too cool and much older than the nebula. The nebula was thus a Strömgren sphere and not caused by the mass loss of the dying star. Some astronomers don't agree with that and it still has a planetary nebula number designation.... but the lack of a shock front or a spherical shell edge brighter than the center is also an issue.

I was surprised at how strong the blue component of the image was without any special processing to emphasize that color. The nebula is 13x15 arc minutes in size."

ASTRONOMICAL LEAGUE Double Star Challenge



Other Suns: Xi Cephei

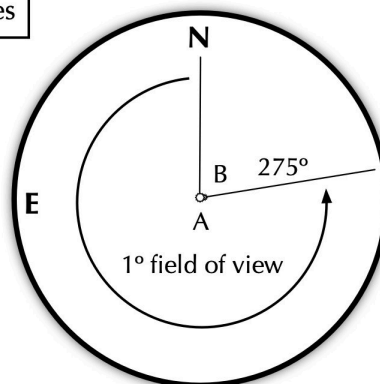
How to find Xi Cephei on an August evening

Find the stars forming the house shape of Cepheus, which is the constellation above Cassiopeia in the early evening in August. Xi is the central star in the southerly portion of the house shape of Cepheus.

Suggested magnification: >50x
Suggested aperture: >3 inches

Xi Cephei

A-B separation: 7.9 sec
A magnitude: 4.4
B magnitude: 6.4
Position Angle: 275°
A & B colors: white & blue



W.A.S.P. Photo and Article Submissions

We'd like to see your photos and articles in the W.A.S.P. Your contribution is ESSENTIAL! — This is YOUR publication!

Send items to:

publications@warrenastro.org

Documents can be submitted in Microsoft Word (.doc or .docx), Open Office (.ods), or Text (.txt) formats, or put into the body of an email. Photos can be embedded in the document or attached to the email and should be under 2MB in size. Please include a caption for your photos, along with dates taken, and the way you'd like your name to appear.

WAS Merchandise

Available at Cranbrook and Macomb meetings

WAS Pins

\$2.50
Each



WAS Bandana

\$5.00
Each



Endorsed by
the Unicycle
Cowboy!

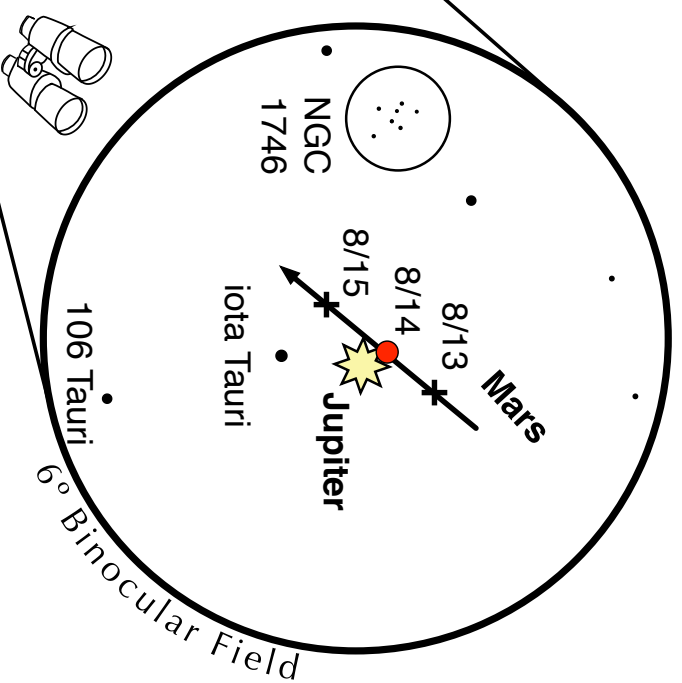
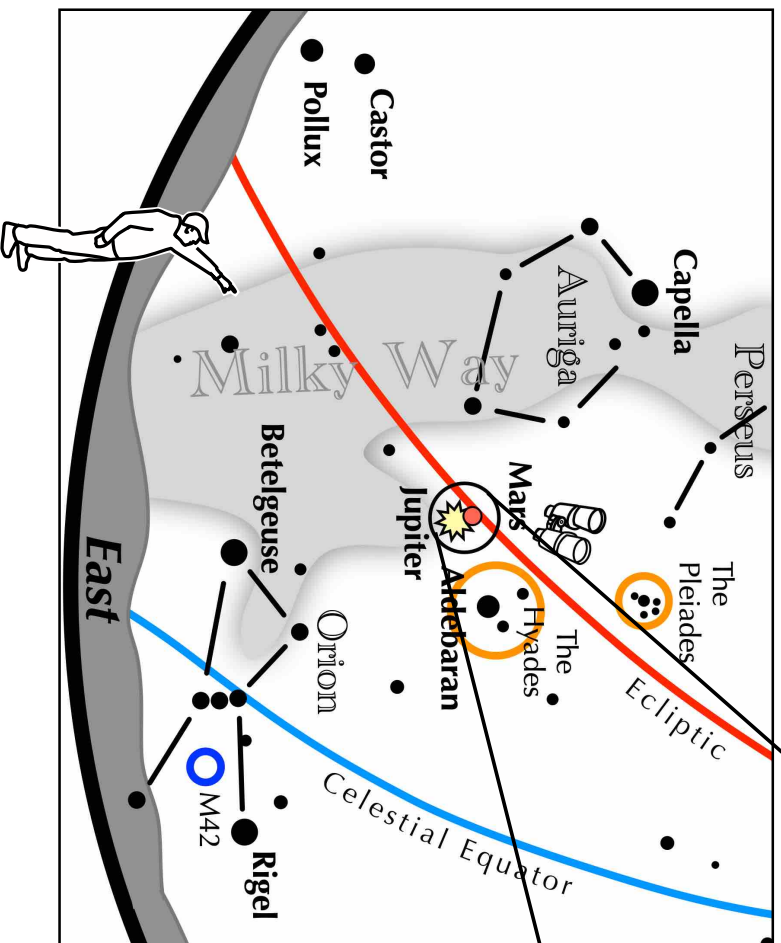


Astronomical Bandanas at an astronomically low price, just \$5! featuring 33 Glow in the dark constellations and a WAS logo.

If you can view only one celestial event this month, view this one.

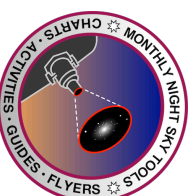
A slowly brightening Mars passes immediately north of the much brighter Jupiter.

1. Look to the east 90 minutes before sunrise on August 13, 14, and 15.
2. Find Mars and Jupiter shining left of the red star Aldebaran. Mars' brightness will nearly match that of Aldebaran.



Binocular View

3. Aim binoculars at Mars and Jupiter.
4. On the morning of August 14, they will be only 20 minutes apart.
5. They will be just 1.5° southwest of the open cluster NGC 1746.
6. A telescope at > 100 power will reveal Mars' tiny red disk and Jupiter's larger disk along with its four Galilean moons.



The View From C.W. Sirius Observatory

Sh2-188 - The Shrimp Nebula



Sharpless 2-188, also known as the Shrimp Nebula is a very dim object located 711 light-years away in the constellation Cassiopeia. It gets its name due to the resemblance of a shrimp. Although it was included in the Sharpless Catalogue, it is actually a planetary nebula. A planetary nebula is caused when an old dying star expels its gas into space. The Shrimp was once believed to be a super nova remnant, but that's not the case. Planetary nebulae are usually symmetrical in shape, but that isn't the case with Sh2-188. The Shrimp Nebula is believed to travel through space at an incredible rate (about 300,000 miles per hour) and to be going through layers of the interstellar medium. This impacts the shape of the nebula and makes it asymmetrical. The di-

rection of movement is towards the brighter filament on the left while the fainter structure is the trailing side. Research done by C.J. Wareing in 2005 using a computer generated "Triple Wind" modeling has produced results that verify the formation of the Sh2-188 structure and its bow shock movement. It is very unlikely that you can observe the Shrimp through a telescope because it is very dim and faint, but it makes for a cool astro photo. I took this image using the 11" SCT f/7, ZWO2600MC one-shot color camera, with the Lextreme narrow band filter. It is a total of 9 hours of exposure time. If you like sea food, enjoy the Shrimp.



About CW Sirius Observatory

C.W. (Cadillac West) Sirius Observatory is located 15 west of Cadillac Michigan. Owned and operated by WAS member Bill Beers. The dome is an 8' Clear Skies Inc dome which houses an 11" f/10 SCT telescope, a 102mm f/7 refractor telescope, Celestron CGEM DX mount, and uses an ASI ZWO 071 color CMOS camera, as well as a QHY8L color CCD camera. The telescope can be remotely operated from inside Bill's house.

Anyone interested in learning about astrophotography, or any questions regarding equipment, or how to take astrophotos using your iPhones, or any related questions, can contact Bill at: BEEZOL-L@AOL.COM



Presentations

Cranbrook

7:00 pm, August 5, 2024

Main Talk

Astro Jeopardy

With Bob Trembley

Bob Trembley will host a couple rounds of Astro Jeopardy! It's Jeopardy, but with an astronomy and space science theme - with topics ranging from basic astronomy to gravitational-lensing!

Bob will need a couple volunteers to act as referees for who raised their hands first (since he doesn't have a fancy interrupting buzzer system).

About the Host

Bob is the president of the Warren Astronomical Society, a volunteer NASA/JPL Solar System Ambassador, a podcast host and factotum for Vatican Observatory Foundation, and he's on the board of the Great Lakes Association of Astronomy Clubs which hosts the amazingly successful Astronomy at the Beach event.



Short Talk

Tides

By Jeff MacLeod

Jeff MacLeod goes down a rabbit hole because of a YouTube video titled "The Most Dangerous Part of the Moons Orbit Is Coming in the 2030s". In this short talk he will cover what you need to know, and some things about tides you may never have heard of. Like many daily occurrences, the tides are much more complex than they may appear.

About the Speaker

Jeff MacLeod is a former WAS president, Observatory Chair, and now Outreach Chair. During his time at Wayne State, he was a presenter in their Planetarium while getting a bachelor's in physics and another in astronomy. Jeff recently started work in the aerospace sector simulating missiles (the rest is classified). Nowadays most of his free time is spent working on his space-flight simulator, a life size recreation of a Gemini spacecraft you can actually fly in.



Macomb

7:00 pm, August 15, 2024

Feature

Introduction to Smart Telescopes Featuring the ZWO Seestar S50

By Dale Hollenbaugh

In the past few years, Smart Telescopes have come on the scene and are making astronomy and astrophotography easier than ever and are bringing more people into the hobby. In this presentation, Dale will discuss the history of smart telescopes, what makes a telescope "smart", compare the various makes and models of smart telescopes on the market, discuss their strengths and weaknesses and finally delve into more detail about his ZWO Seestar S50 telescope including some example photos taken with smart telescopes. There will be a free giveaway of 3D-printed accessories for the Seestar.

About the Speaker

Dale holds a Bachelor of Science degree in Mechanical Engineering from Bucknell Univ. He is a Sr. Mechanical Engineer at BAE Systems and has one U.S. Patent. He is an avid photographer and astrophotographer and loves to travel with his wife. He has been a member of the W.A.S. since 2019 and has had numerous astro photos published in the W.A.S.P. and W.A.S. calendars.



WAS PRESENTATIONS

If you would like to present either a short talk (10-15 minutes) or a full-length talk (45-60 minutes) at a future meeting, please email Dale Partin at:

firstvp@warrenastro.org



The Mysterious Eclipse Monument

By Brad Young, Astronomy Club of Tulsa

*"Mystery is my mistress – I must heed her sweet call"
- Velma from "Scooby-Doo 2"*

Along our dog walk a few years ago, my wife and I (and I guess, you could say, the dogs) came across a strange metal plate embedded in the sidewalk near 17th and Boulder Ave in Tulsa. It looked like it was a surveyor's monument, the kind you may have seen as a marker at the corner of your property. Those are usually round, but who knows? One glance though showed this was certainly not a boundary marker as it was right in the middle of a sidewalk alongside a large parking lot.

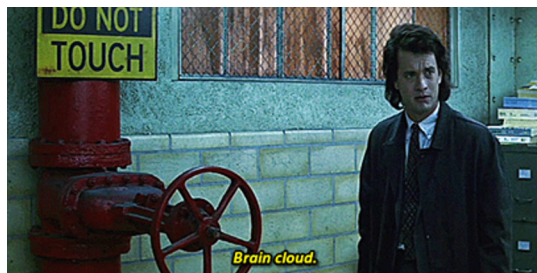


Even more peculiar was that the plate read "Total Eclipse St. Louis". It was not dated; however the sidewalk was relatively new compared to the ragged downtown sidewalks nearby, and we thought we remembered that it may have been poured around 2017. For those of you familiar with downtown, this is catty corner from the "Darth Vader" building that used to house Mapco and Williams, and across the street from the old [Abundant Life Building](#), raised in 1958 as the world headquarters for Oral Roberts ministries. The windowless "modern style" building is unique in a variety of ways but was long ago abandoned and is quite decayed.



Oral ran his fundraising campaigns from here, so the lack of windows seems fitting. It was said that with modern appurtenances like AC and lighting fixtures it was quite comfortable, but I must think it was more like the office Tom

Hanks endures (with the first of three characters by Meg Ryan) in "Joe vs. the Volcano":



SAVE OUR (?) MONUMENT!

Fun fact: the previous total solar eclipse in St. Louis (before 2017) was in 1442

But where did the marker come from and who put it there? Why would someone commemorate the total eclipse that did indeed pass over St. Louis but wasn't total here in Tulsa? And, unless you gaze at your shoes when you walk, you might never see this marker; why not put it on the fence or on a stand (foreshadowing alert...).

Perhaps it was to describe how both the 2017 and 2024 eclipses were visible from St. Louis. That would explain the lack of a date. There were an awful lot of oddities about the little 2x3 plate in the ground, but I knew I had to find out what the story was, and make sure other astronomy enthusiasts did too. When people came to Tulsa, we could show them the strange little marker, a sort of oddity to match any along Route 66. After all, St. Louis is on the Mother Road too.



17th and Boulder - Very Original Name for new office building

*"It's always something" – Roseanne Rosannadanna
(Gilda Radner)*

I continued searching for information. When I looked up the address and recent news, I found that a [new three-story building designed by 1Architecture](#) will be built where the parking lot is now. According to their website, "17th and Boulder is a 3-story mixed-use building...(that) will house 360 Engineering's new headquarters." And it also mentions

“the project will have a strong presence along the street to support and engage urban pedestrian life.”

This was not good. That might mean they would relocate or even destroy the plate! And there might not be much time to act, because, according to their website, the new building was to have been completed in 2023. I have not seen any activity so far, but it could be coming very soon. I considered checking daily when the crews start to show up, with my only hope that when construction begins, I can talk them into either keeping the plate or let me have it so I can save it. Or perhaps I could reach the City, after all, they are responsible for the sidewalks. And shouldn't they already know about this? Isn't this, as small as it is and easy to miss, still kind of a thing?

REALLY?!?!?

“Oh! Never mind” – Emily Litella (Gilda Radner)

Then, another search and I found I'm **not the only person** to have discovered this and thought it was a relic of some import. It was not a marker put in the sidewalk to commemorate the eclipse, it is a *hydrant* that is placed there so you can wash the sidewalk and surrounding area with a garden hose!



The device itself is called a box hydrant and this website describes another person's wonderful discovery that turns out to be a piece of plumbing. I don't know how it works, since the plate is cemented in (just like the one in the comments of the article I found); perhaps it is a different device. There's other plumbing nearby, so who knows?

Even if it has nothing at all to do with it, this strange little item reminds me of a spectacular experience personally, as the 2017 event was my first total eclipse and I watched it in St Louis. I would prefer that they leave it installed so everyone can see it. Then, they can either be pleased to erroneously believe they see the eclipse memorialized or do some digging and find out a funny bit of trivia that has fooled at least a few people.

This article brought to you by Total Eclipse brand Yard Hydrants:

Yard Hydrants

Total Eclipse #36 Street Washer
Permanent Box Hydrant for All Climates

The Total Eclipse #36 Street Washer is designed and engineered for wash down and filling needs. The Total Eclipse #36 provides a point to retrieve water to wash down sidewalks and streets or used to water gardens and lawn areas. The Total Eclipse #36 fits flush with the ground saving space to walking areas. The cast iron box and lid is not traffic rated.

The Total Eclipse #36 comes standard with all brass principle working parts, available nozzle and inlet sizes are 1/2" or 3/4", compression type self draining non-freezing drain, cast iron box and lid. The Total Eclipse model #36 is fully accessible from above ground.

Standard Features

- 1/2" Brass Inlet
- Cast Iron Box
- 1/2" or 3/4" Inlet
- 1/2" Brass Principle Working Parts
- Self Draining

Additional Options and Accessories

- 1/4" Brass Inlet
- Cast Iron Lid
- 1/2" Brass Inlet
- 1/2" Brass Inlet with Drain Box
- 1/2" Check Valve with Drain Box
- 1/2" Brass Inlet with Drain Box
- 1/2" Brass Inlet with Drain Box
- 1/2" Brass Inlet with Drain Box

Approx. shipping weight for 1/2" 28 lbs., 2 lbs. for every 1/2"
Approx. shipping weight for 3/4" 22 lbs., 1 lbs. for every 1/2"

1-800-333-9990 / www.hydrants.com

MORE PERSONAL CONSTELLATIONS

The Alternate Constellations Observing Program has been around for four years now, with little response from the Tulsa Club (hint hint). Part of it is to include a sketch or description of any “alternative” constellations you enjoy personally, one not recognized on the official list of 88. I know of one Tulsa member who has invented an **Elephant near Camelopardalis**, and I received some quite interesting ones with the submissions for the observing program.

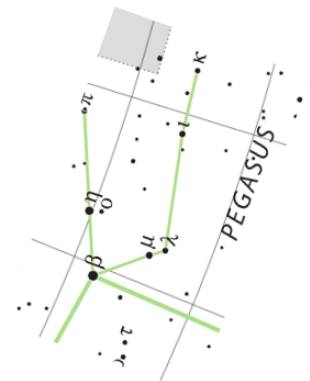
One was a re-imagining of the markings of the Moon. In this case, the observer saw a child with a ball playing soccer:



My version – the Little Box, is part of a defunct constellation Testudo the Tortoise as I discussed in an earlier article “[Your Name Here]” .

My wife sees an old-fashioned TV “rabbit ears” antenna in Pegasus, as it rises:

If you have any to add, please send to me at allenb_young@yahoo.com.



Images by author unless attributed below.

Sources:

- <https://www.atlasobscura.com/places/abundant-life-building>
- <https://www.1architecture.com/project/17th-and-boulder>
- <https://www.nightwise.org/single-post/2018/04/02/the-eclipse-marker-that-really-wasnt>
- <https://reasonandfaithinharmony.tumblr.com/post/190841345932/joe-versus-the-volcano-1990>
- <https://funny.allwomenstalk.com/wry-observations-of-life-at-work-by-dilbert/amp>
- <https://www.newyorker.com/tech/annals-of-technology/st-louis-first-total-solar-eclipse-since-1442>
- <https://www.flickr.com/photos/gsf/5836482263>
- https://upload.wikimedia.org/wikipedia/commons/f/f4/Pegasus_IAU.svg



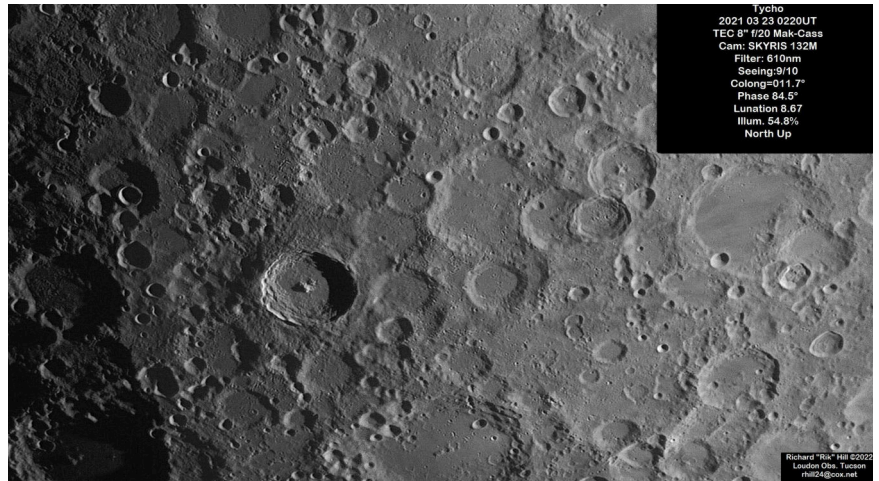
Over the Moon



With Rik Hill

Brahe's Greatest Hit

At the focus of the bright rays that encircle the whole Moon is the young (< 1 billion years old) crater Tycho (88km dia.) named after the famed astronomer Tycho Brahe seen here just left of center in this image. Prominent in the southern highlands it is a feature most lunar observers learn about early on. You don't see the rays here because the Sun is just rising on this moonscape while the rays are best seen with high sun, especially at full Moon. But here we can enjoy oft missed features of topography. First notice the region surrounding Tycho about width of the crater diameter where many of the features look soft, almost out of focus. This is from the material that was ejected from the crater during impact. Other material, of larger size, formed secondary craters like the cluster seen just above Tycho. There are more such small fresh craters to the right of the Tycho as well.



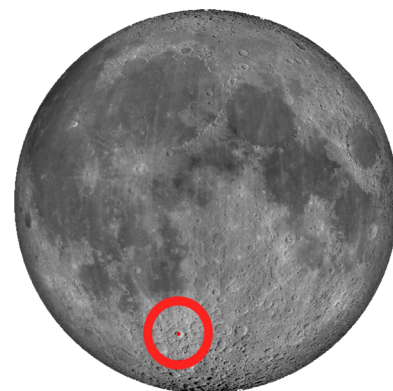
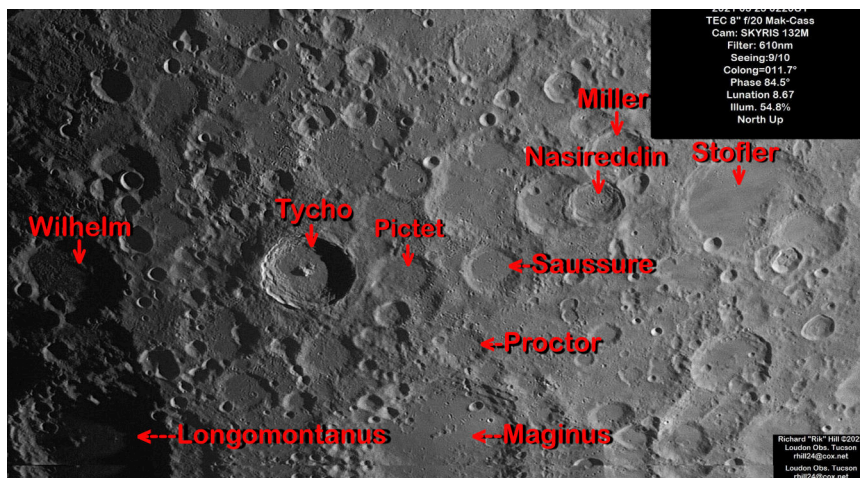
The flat bottomed crater just right of center is Saussure (56km) and between it and Tycho is Pictet (65km). Notice how the left half of Pictet is softened by ejecta while the right half is much better defined. Above and further right from Saussure are two overlapped craters Nasireddin (54km) the lower one and Miller (77km) the upper. The very large flat floored crater to the right of them is Stofler (129km). Here is a place where you can see a bit of the rays from Tycho splayed out on the floor of Stofler. Once you see them here you can trace them back and see more south of Nasireddin.

The large crater south of Tycho is Maginus (168km) with its unusual central peak and on it's northern wall is Proctor (54km). On the left side of Tycho, on the edge of this image is Wilhelm (111km) and below it is Longomontanus (150km). Just north of Tycho is the landing site for Surveyor 7, the last in that spectacular series of lunar landers. It be-

gan operations on the moon on Jan. 10, 1968 and ended on Feb. 21 from battery failure having sent back over 21,000 images. Before we leave Tycho, one more treat. Notice the trail of secondary craters from the northwest wall of Tycho stretching over two crater diameters farther to the northwest. I have not seen this catena at high sun but it is fairly easy to find at a low sun angle like this image.

While this image has very good resolution, around 1-1.5km, I still did not find the obelisk!

This montage was made from 2 1800 frame AVIs stacked with AVIStack2 (IDL) stitched together with Microsoft ICE and finally processed with GIMP and IrfanView.



Location Maps by Ralph DeCew



History S.I.G.



By Dale Thieme

August 1994

In this issue: Two articles from club SIGs, Cosmology Group and the Computer Group. Cosmology Update by Mike Cyrek, among other items, notes the comet collision with Jupiter and Computer Chatter by Larry Kalinowski covers Apollo Rendezvous'94. Filling out the issue is a copy of the article, "The N1 Moon Rocket (Type G-1e or SL-15)" submitted by Mike O'Dowd from Rockets of the World.

August 2004

Leading off this issue, as a matter of course, is "Astro Chatter" by Larry Kalinowski (an *ad hoc* club historian) where he not only talks about the 2004 Venus Transit, but covers club activities from meetings to the picnic.

More of the club's workings can be gleaned from the meeting minutes by Bob Watt.

Steve Uitti presents some VHS tapes available from the WAS Library. NASA Space Place article "Waiting for Cassini's 'Safe Arrival' Call". The issue finishes with another member contribution: "One Thousand Six Hundred And Seventy Miles To Darkness" by Dr. Philip D. Martin.

From the Scanning Room

A bit of a flashback for me when I came across this ad in the August 2004 newsletter from Ryder's Hobby Shops. The store that got my son, and then, me, going in the hobby.



Mea Culpa: In last month's issue, I posted the calendar for July. Or, so I thought. Turns out there is glitch in the process of copying a calendar page from my creation of the club calendar to the newsletter in that, if I copy the whole page, the pasting comes out as the October page. I figured out a workaround but forgot it last month. With apologies to Dale Hollenbaugh, I replaced the calendar with the August page. If you want to see the correct issue, it's online now ([WASP-2024-07](#)).

Dale Thieme,
Chief Scanner



AUGUST 2024

Notable Sky Happenings

Aug. 1 - 7

Mars is at the upper right of Jupiter on the 1st. Watch Mars draw closer to and pass Jupiter this month (E predawn).

Aug. 8 - 14

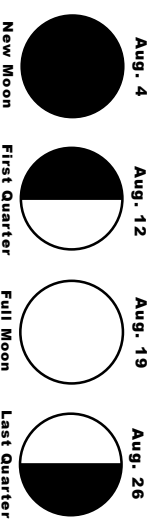
Perseid meteors peak between midnight and dawn on the 12th-13th. Expect 60+ "shooting stars" per hour in a dark sky. Mars is above Jupiter on the 14th (E predawn).

Aug. 15 - 21

The Moon is below and to the right of Saturn the evening of the 20th (ESE).

Aug. 22 - 31

24th: Voyager 2 encountered Neptune 35 years ago. On the 27th the Moon is above and to the left of Jupiter and Mars is to the lower left (E predawn).



Now Showing

"Tales of a Time Traveler"

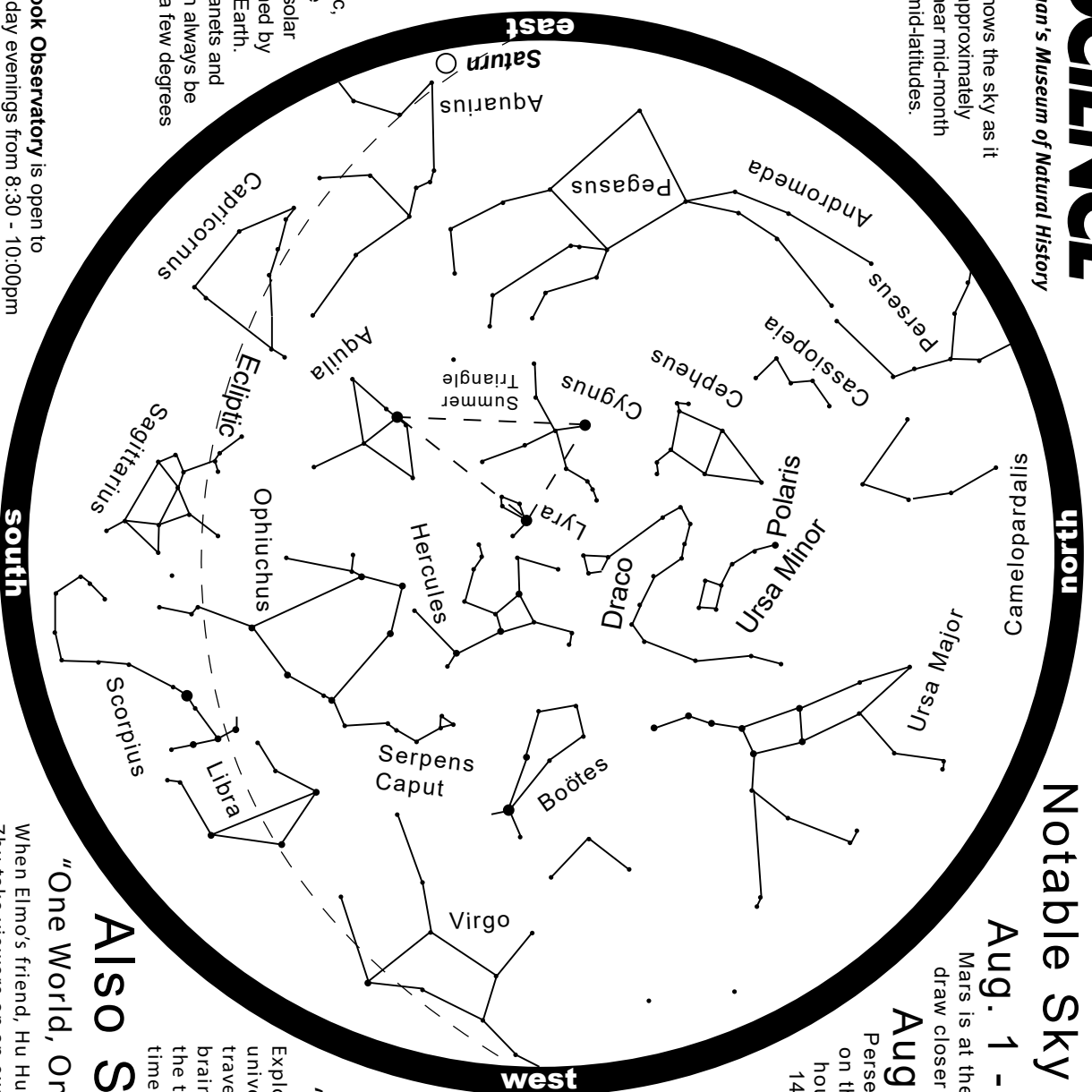
Explore ancient civilizations. Witness the birth of the universe. Journey from the edge of a black hole. Time travel surrounds us – from the biological clock in our brain to the history of life on Earth to the lives of stars, the time scale of the Big Bang, and the distortion of time by gravity. Narrated by David Tennant.

Also Showing

"One World, One Sky: Big Bird's Adventure"

When Elmo's friend, Hu Hu Zhu, visits from China. Big Bird, Elmo and Hu Hu Zhu take viewers on an exciting discovery of the Sun, Moon, and stars. They learn about the Big Dipper and the North Star and take an imaginary trip to the Moon where they learn that the Moon is a very different place.

For astronomy information visit <http://science.cranbrook.edu>



What is that dashed line? It's the ecliptic, the reference plane of the solar system, defined by the Sun and Earth. The major planets and the Moon can always be found within a few degrees of this plane.

The Cranbrook Observatory is open to the public Friday evenings from 8:30 - 10:00pm EDT, and the first Sunday of the month from 1:00 - 4:00pm for solar viewing.

For observatory information visit <http://science.cranbrook.edu/explore/observatory>





Milky Way from Cherry Springs State Park, PA - Steven Tennenberg

August 2024


Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
4	5	6	7	8	9	10
NEW MOON	Cranbrook			Moon at Apogee: 405298 km		
11	12	13	14	15	16	17
	Perseid Meteor Shower			Macomb		
18	19	20	21	22	23	24
	FULL MOON		Moon at Perigee: 360199 km			WAS Picnic Stargate
25	26	27	28	29	30	31

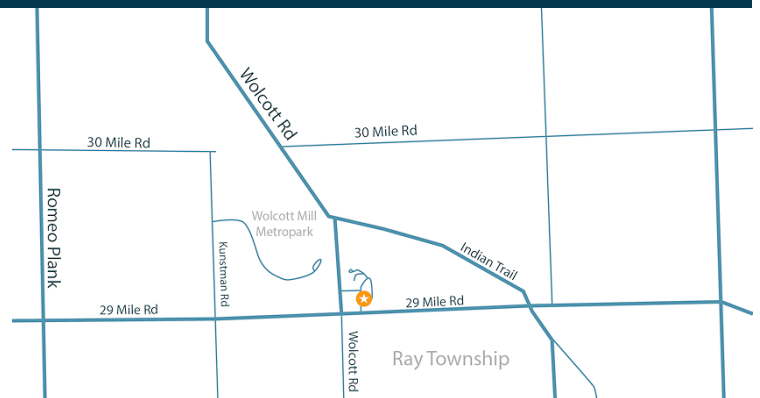


Stargate Observatory

Monthly Free Astronomy Open House and Star Party 5:00 PM, Saturday, August 24th (Annual Picnic) Wolcott Mill Park - Camp Rotary Entrance

Advisory: Concerns are circulating in the amateur astronomy community about a possibility of COVID-19 being passed from one person to another via contact of different persons' eyes with a telescope eyepiece. Sharing telescopes may be considered by some to be high-risk due to the possibility of eyes touching eyepieces. Masks are encouraged, mandatory for children.

- Sky tours.
- See different telescope types in operation.
- Get help with your telescope.
- We can schedule special presentations and outings for scouts, student or community groups.
- Contact: outreach@warrenastro.org
- Find us on Meetup.com 



20505 29 Mile Rd (1.8 miles east of Romeo Plank Rd) Ray, MI 48096
82° 55'04" West Longitude, 42° 45'29" North Latitude

Observatory Rules:

- Closing time depends on weather, etc.
- May be closed one hour after opening time if no members arrive within the first hour.
- Contact the 2nd VP for other arrangements, such as late arrival time. Call 586-909-2052.
- An alternate person may be appointed to open.
- Members may arrive before or stay after the scheduled open house time.
- Dates are subject to change or cancellation depending on weather or staff availability.
- Postings to the Yahoo Group and/or email no later than 2 hours before starting time in case of date change or cancellation.
- It is best to call or email the 2nd VP at least 2 hours before the posted opening with any questions. Later emails may not be receivable (secondvp@warrenastro.org).
- Generally, only strong rain or snow will prevent the open house... the plan is to be there even if it is clouded over. Often, the weather is cloudy, but it clears up as the evening progresses.

Stargate Report

July 27, 2024 Open House

The observatory was opened at 7:45 pm and the sky was clear. A few members were already at the observatory.

Many people attended the open house and there were a few telescopes set up south and west of the observatory.

We started observing close to sunset looking at Venus. Mercury was just behind the trees. Later we observed many deep sky objects, double stars and for those who waited until after midnight, we observed Saturn, Neptune, and M31 the Andromeda Galaxy. The recently repaired dome drive worked very well, and we did not have to move the dome manually.

The observatory was closed after everyone left at about 2:30 am.

Next events:

The Perseid meteor shower open house is scheduled for Saturday, August 10.

The Picnic - observatory open house is scheduled for Saturday, August 24.

Riyad I. Matti
2024 WAS 2nd VP
Observatory Chairperson

Treasury Report

Treasurer Report for July 31, 2024

BOA Checking

Balance.....\$25,497.42

BOA Credit Card

Balance.....\$12.67

PayPal

Balance.....\$400.67

Membership:110

We wish to welcome new members: the Jeff Flynn family, Michael Krause, Timothy and Marlene Stolarski, and Tina Wong.

Reminder:

Anyone joining our club after July 1 gets an extension through the following year (for instance, the memberships of the above expire December 31, 2025.)

Dave Baranski,
Treasurer

Astronomical Events For August 2024

Add one hour for Daylight Saving Time

Source:

<http://astropixels.com/almanac/almanac21/almanac2024est.html>

Date	Time (h:m)	Event
2	17:58	Pollux 1.8°N of Moon
3	20:20	Mars 4.9°N of Aldebaran
4	6:13	NEW MOON
4	17:51	Venus 1.0°N of Regulus
5	13:54	Regulus 2.9°S of Moon
5	17:04	Venus 1.7°S of Moon
8	20:06	Moon at Descending Node
8	20:32	Moon at Apogee: 405298 km
10	4:34	Spica 0.7°S of Moon
12	9:00	Perseid Meteor Shower
12	10:19	FIRST QUARTER MOON
13	23:38	Antares 0.0°S of Moon
14	10:00	Mars 0.3°N of Jupiter
18	21:00	Mercury at Inferior Conjunction
19	13:26	FULL MOON
20	21:54	Saturn 0.4°S of Moon: Occn.
21	0:05	Moon at Perigee: 360199 km
22	5:27	Moon at Ascending Node
25	21:54	Pleiades 0.1°S of Moon
26	4:26	LAST QUARTER MOON
29	23:47	Pollux 1.7°N of Moon

Outreach

Coming up in August:

Saturday August 10th special open house for the Perseids at Stargate Observatory

Saturday August 17th Kensington Metropark, Blue Moon on the Beach Concert 8-11pm: They would love us to

bring some telescopes, more info <https://www.metroparks.com/bluemoon/> (personal note: this is not a blue moon)

Jeff MacLeod
Outreach Chair

Meeting Minutes

Warren Astronomical Society

Board Meeting

Monday June 24, 2024 (Zoom)

The meeting went live promptly at 7pm followed by role call, Officer introductions and reports.

Board attendance: Bob Trembley, Dale Partin, Riyad Matti, David Baranski, Jeff Macleod, Vatshalya Dandibhotla

Officer Reports

President Bob Trembley reported details of the Hybrid meeting with Michigan Meteorology Society (MMS) and its Vice President, Brad Zylman.

First VP Dale Partin reports he has speakers lined up through October and needs short presentations.

Observatory Chair Riyad Matti reports the latest Open house was on June 22nd and 5 people attended. Dale Partin moved, and Jeff Macleod 2nd's to send \$500 to Jeff Flynn with a family membership.

In the treasury report David Baranski, reports all is in order and we have approximately \$500 in PayPal, and over 25,000 in bank, Please refer to the Treasurers report elsewhere in the issue.

The Secretary was away at Astronomy Class. For details of WAS in the community, please refer to the Outreach Report, elsewhere in this issue.

Old Business

We discussed the PO Box and need for authorized users for 2024 and need to update the document on file at Warren Post Office, Mark Kedzior has been discussed for that role. Bob Trembley has the mailbox key. The NASA Night Sky Network Plans need about a hour long meeting between Outreach Chair Jeff Macleod and President Bob Trembley. Bob suggested Tuesday the 21st at 2:30 PM. See future notes for details. Jeff Macleod now has an NSN account.

Bob Trembley intends to institute a Best Practices Document in the Gmail Cloud Drive and eventually, these entries will be moved into a document of its own. Within President Bob Trembley would like to see a calendar for board use, with suggestions for: ISO 9001, a Google Document created with descriptions of board positions, To do's for the Start of year, such as send out letter, urging sign-ups, Contact Libraries

and parks about outreach availability, An updated board email list, Events such as Perseids at Stargate with Metroparks, and when to advertise with club and public, AATB - when to pay fee, when to advertise within club and public, timeline and other details about Paul Strong scholarship, the process, details and timelines for Board Elections - when to start paying attention to them, and the process, Banquet Plans, process and timelines and - when to start paying attention to them, Picnic Plans such as reserve pavilion for picnic before the new year and what governmental things do we have to do each year such as Tax form 990-N and 501C3 Documentation. Stargate Dome Repair are complete.

In New Business

We noted June 30th is Asteroid Day. We spoke about Astronomical League memberships and Adrian's current role. We also spoke of contacting State Parks about outreach. We noted Beaver Island State Wildlife Research Area is certified as Michigan's first International Dark Sky Sanctuary and to Follow up with them, they seem interested via Facebook.

Treasurer needs to Talk with Adrian and get \$400 to GLAAC, The Stargate Dome Repairs are complete We will be ordering new cards and tri-folds and Stargate Dome Repair Plans are ongoing. We will be following up on our meeting with MMS at Cranbrook on July 8th, this will be a combined meeting with MMS and will be following up to dial in the details including promotion and advertising. We will be including something in the WASP about it. We also plan to Follow-up with Nicole Zellner as banquet speaker - she said she might be able to, had to check her schedule.

Dale P called to adjourn at 7:35 PM, Riyad 2nd.

Respectfully submitted,
Charlie Strackbein
WAS Secretary 2024

Warren Astronomical Society

Cranbrook Meeting

Monday, July 8, 2024

We had 34 at Cranbrook, 6 on Zoom, 3 on YouTube in attendance. A few first-time attendees were recognized and notified about our monthly Stargate events. After

introductions the audience members were encouraged to join or renew memberships via PayPal with details found on our website, or with our Treasurer: David Baranski, at the snack break. If anyone wants a WAS lanyard badge let Publications know (publication-s@warrenastro.org)

Officer Reports

1st VP: Dale Partin reports he has speakers through the fall and is looking for short presentations, they can be any subject and 10 - 15 minutes long, this is a great opportunity to sharpen your public speaking and presentation skills.

2nd VP: Riyad Matti reports the dome at Stargate has been fixed! There will be an open house for the Perseids meteor shower on August 10. The picnic and open house is planned for August 24.

Treasurer: David Baranski reports We have in excess of 25K in the bank and over \$500 in PayPal and that our finances are all in order (please see his report elsewhere) in this edition of the WASP.

Secretary: Charlie Strackbein reports the June Meeting Notes were published in the July Edition of the WASP.

Outreach Chair: Jeff MacLeod's Outreach updates can be found elsewhere in this edition

Publications: Vatshalya Dandibhotla reports the July Newsletter was published July 1st. If you need to contact the board, you can email us at: board@warrenastro.org.

Astronomy In the News

5,678 Confirmed Exoplanets, up 40 - and 7,203 Candidates, up 56 from last Month's counts. The Perseid Meteor Shower will peak the weekend of August 9, as debris from the Swift-Tuttle comet burns up in the Earth's atmosphere. As one of the most active shooting star displays of the year, expect to see 50 or more meteors every hour!

Don't miss our open house for the Perseids meteor shower on August 10 at Stargate!

Astronomy at the Beach is going to be held Sept. 21 & 22 at Maybury State Park - west of Northville this year. Island Lake State Park will be closed due to construction. The WAS Picnic will be August 24th 4th Saturday at 4:30pm - (Star Party day)

Special Interest Groups

David Levy shared a poem and some solar news. Double Star/Perseids (check with Riyad Matti about viewing them at Stargate) If anyone wishes to start a special interest group, great! Suggestions include Radio, Computers and Technology, Education, Light Pollution, Podcasting

Short Talk

1st VP: Dale Partin, introduced our Short Talk about the Michigan Meteorological Society by their Vice President Brad Zylman, who provided us with a quick overview of their website.

Break: brought to us by Mike O'Dowd and Laura Wade.

Main Talk

After the break Dale Partin introduced our featured speaker, Mark Jeffery, a member of the Oakland Astronomy Club for over 25 years and his "Meteorites: Interesting Answers to Questions You'd Never Ask", complete with his traveling meteorite display.

The meeting ended around 9:15pm.

Respectfully submitted,

Charlie Strackbein
WAS Secretary 2024

Warren Astronomical Society

Macomb Meeting

Thursday July 18, 2024

The meeting started promptly at 7:00 PM. There were 14 in the room, 8 on Zoom, and 4 on YouTube.

Dale Partin Presided over the meeting as Bob was out of town,

Officers' reports

1st VP: Dr. Dale Partin reports he has speakers through the fall and is looking for short presentations, they can be any subject and 10 - 15 minutes long, this is a great opportunity to sharpen your public speaking and presentation skills.

2nd VP: Riyad Matti reports the dome at Stargate has been fixed! There will be an open house for the Perseids meteor shower on August 10. The picnic and open house is planned for August 24.

Treasurer: David Baranski reports We have \$25,497.42 in the bank, \$398.67 in PayPal and that he is preparing to send a check of \$500 for the repair of the dome motor.

Outreach Chair: Jeff MacLeod reported that Mark Kedzior would be visiting the Memphis, MI public library in August, of course, the Perseids at Stargate and a Metropark event (details in this issue's Outreach section.)

Secretary: June Meeting Notes are in the WASP.

Publications: The WASP for July is online.

WAS Announcements

Don't miss our open house for the Perseids meteor shower on August 10 at Stargate!

Astronomy at the Beach is going to be held Sept. 20 & 21 at Maybury State Park - west of Northville this year. Island Lake State Park will be closed due to construction.

The WAS Picnic will be August 24th 4th Saturday at 4:30pm - with a swap table and Stargate Open House

Astronomy In the News

Bob Berta reported that Meade and Orion are now defunct.

Dale Hollenbaugh reported that, on July 20th, Comet 13p/Olbers would be making its closest passage by Earth.

Dale Partin mentioned that a Falcon 9 rocket second stage malfunctioned during launch, with the ensuing problems.

Astronomy Questions

Dale Partin invited astronomical questions. Most of which centered around when will we have clear skies again - turns out someone in the room just bought a new telescope. Discussion about a recurring nova to watch out for.

Break: refreshments brought to us by Mike O'Dowd.

After the break, Bob Berta showed some beautiful nebulae (IC 405, Sharpless 2-174) photographed near his home by 25 mile and Romeo Plank.

Main Talk

Jeff MacLeod introduced our featured speaker, 1st Vice President Dr. Dale Partin, a member of the Warren Astronomical Society since 1998 and Professor of Astronomy at Macomb Community College and his thought provoking presentation "Astronomy from the Moon" where he spoke of advantages of telescopes on the far side of the moon, radio astronomy and a little bit of the need for International agreements to protect the moon.

The meeting ended around 9:15pm.

Respectfully submitted,

Charlie Strackbein
WAS Secretary 2024



WAS Name Tags

Name tags are back. If you wish to have one and are a dues paying member, contact publications@warrenastro.org and we'll get one printed up for you.



A patriotic red, white, and blue sunset suitable for a warm July evening.

Date Taken: July 8, 2024

Taken By: Ray Bosshard

The Warren Astronomical Society is a proud member of the

Great Lakes Association of Astronomy Clubs

GLAAC is an association of amateur astronomy clubs in Southeastern Michigan who have banded together to provide enjoyable, family-oriented activities that focus on astronomy and space sciences.

Club Name and Website	City	Meeting Times
Astronomy Club at Eastern Michigan	University Ypsilanti/EMU	Every Thursday at 7:30PM in 402 Sherzer
Capital Area Astronomy Club	MSU/Abrams Planetarium	First Wednesday of each month 7:30 PM
Farmington Community Stargazers	Farmington Hills	Members: Last Tuesday of the month Public observing: 2nd Tuesday of the month
Ford Amateur Astronomy Club	Dearborn	Fourth Thursday of every month (except November and December) at 7:00 PM
McMath-Hulbert Astronomy Society	Lake Angelus	Board and paid members-First Sunday of the month
Oakland Astronomy Club	Rochester	Second Sunday of every month (except May)
Seven Ponds Astronomy Club	Dryden	Monthly: generally the Saturday closest to new Moon
Sunset Astronomical Society	Bay City/Delta College Planetarium	Second Friday of every month
University Lowbrow Astronomers	Ann Arbor	Third Friday of every month
Warren Astronomical Society	Bloomfield Hills/Cranbrook & Warren/MCC	First Monday & third Thursday of every month 7:30 PM

Club and Society Newsletters

Warren Astronomical Society:	http://www.warrenastro.org/was/newsletter/
Oakland Astronomy Club:	http://oaklandastronomy.net/
McMath-Hulbert Astronomy Club	http://www.mcmathhulbert.org/solar/newsletter/
Ford Amateur Astronomy Club:	http://www.fordastronomyclub.com/starstuff/index.html
University Lowbrow Astronomers:	http://www.umich.edu/~lowbrows/reflections/

WAS Member Websites

Steven Aggas: <http://apache-sitgreaves.org/>

Jon Blum: [Astronomy at JonRosie](#)

Doug Bock:

Facebook: Northern Cross Observatory: <https://www.facebook.com/NorthernCrossObservatory>

Boon Hill and NCO Discussion <https://www.facebook.com/groups/369811479741758>

Flickr (astrophotography album): <https://www.flickr.com/photos/141833769@N05/>

YouTube channel: <https://www.youtube.com/channel/UC-gG8v41t39oc-bL0TgPS6w>

Bob Trembley:

<https://www.vaticanobservatory.org/profile/rtrembley>

[Vatican Observatory Foundation Blog](#)

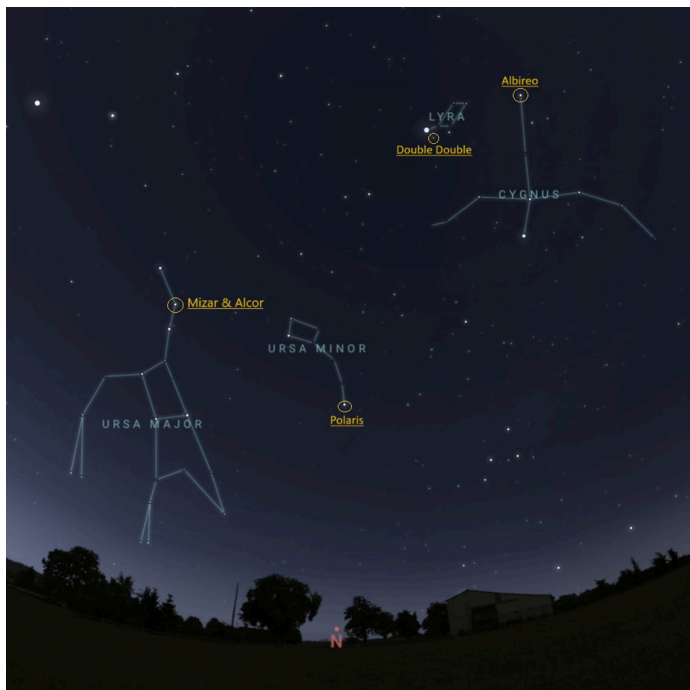


This article is distributed by NASA's Night Sky Network (NSN). The NSN program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit nightsky.jpl.nasa.gov to find local clubs, events, and more!

Seeing Double

By Kat Troche

During the summer months, we tend to miss the views of Saturn, Jupiter and other heavenly bodies. But it can be a great time to look for other items, like globular star clusters such as Messier 13, open star clusters such as the Coma Star Cluster (Melotte 111), but also **double stars**!



Mid-August night sky constellations with the following multiple star systems highlighted: the Double Double in Lyra, Albireo in Cygnus, Polaris in Ursa Minor, Mizar and Alcor in Ursa Major. Credit: [Stellarium Web](#)

What Are Double Stars?

If you have seen any movies or read any books that refer to having two suns in the sky, that would be a *double star system*. These star systems typically come in two types – binary and optical doubles. Binary stars are two stars that are gravitationally bound and orbit each other, while optical double stars only *appear* to be close together when viewed from Earth, but in reality, are extremely far apart from another, and are not affected by each other's gravity. With a small telescope, in moderately light polluted skies, summer offers great views of these stellar groupings from the Northern Hemisphere:

- **Double Double:** also known by its technical name, Epsilon Lyrae, this multiple star system appears as one star with naked eye observing. But with a small telescope, it can be split into 'two' stars. A large telescope reveals Epsilon Lyrae's secret – what looks like a single star is actually a *quadruple* star system!
- **Albireo:** a gorgeous double star set – one blue, one yellow – in the constellation Cygnus.
- **Polaris:** while technically a multiple star system, our North Star can easily be separated from one star to two with a modest telescope.
- **Mizar and Alcor:** located in the handle of the Big Dipper, this pair can be seen with the naked eye.

Aside from looking incredible in a telescope or binoculars, double stars help astronomers learn about measuring the mass of stars, and about stellar evolution. Some stars orbit each other a little too closely, and things can become **disastrous**, but overall, these celestial bodies make for excellent targets and are simple crowd-pleasers.

Up next, learn about the Summer Triangle's hidden treasures on our mid-month article on the [Night Sky Network page](#).

This schematic shows the configuration of the sextuple star system TYC 7037-89-1. The inner quadruple is composed of two binaries, A and C, which orbit each other every four years or so. An outer binary, B, orbits the quadruple roughly every 2,000 years. All three pairs are eclipsing binaries. The orbits shown are not to scale. Credit: [NASA's Goddard Space Flight Center](#)

