



November Meetings

The next **Membership Meeting** will be on Monday, November 15th from 8 PM via Zoom videoconference. We will be screening a feature documentary, *Luminous*, by award-winning filmmaker Sam Smartt. The director will join us to introduce the movie and for the Q&A session afterwards.

Professor Larry Molnar developed a predicted curve of exponential period decay in KIC 9832227, which predicts a red nova outburst in 2022. With only one such event estimated to occur in our galaxy every ten years, it seems wildly improbable that Larry has stumbled upon the next one to explode, but when the system follows the prediction perfectly for two years, Larry decides to go public



with his prediction so that everyone can watch the event if it occurs. For the audience, the central dramatic question of the film is clear— “Is Larry right? Will the star actually explode?” But as a scientist Larry sees it differently: “In a sense, I don’t care whether I’m right or not. What I want to know is the truth.” In production since 2014, the documentary follows Larry’s journey to test his unprecedented prediction, knowing that its success or failure will unfold squarely in the international spotlight.

As always, the **Board Meeting** will be held right before the Membership Meeting, from 7 PM, and is open to every MAS member who is interested in organizational and Observatory related issues.

The **First Wednesday meeting** will be held in person at the Observatory on November 3rd from 7:00. The focus of this meeting is the use of the Observatory and its equipment. A great place for new members who want to learn about the Observatory to start. Paul Borchardt and Lee Keith will be hosting the meeting.

The **Astrophotography Interest Group** will meet on Wednesday, November 10th at 7 PM through Zoom videoconference.

Invitations will be sent out prior to Zoom meetings.

The MAS Google Group is as active as ever. Learn about the astronomical news, follow equipment related discussions, or just check out the latest images taken by fellow Club members.

Membership Renewal

The Membership renewal period has started. There are several renewal methods you can choose from. If you prefer to do it online just follow this link:

<http://milwaukeeastro.org/membership/masRenewal.asp>

The renewal form can also be printed out and send it back along with a check made payable to The Milwaukee Astronomical Society.

If you are wondering whether you need to renew your MAS membership, simply look for your name on this list:

<http://milwaukeeastro.org/membership/membersRenewed.asp>

If your name is there, your membership is active through 2022.

Thank you for being a member of the Milwaukee Astronomical Society.

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Observatory Director Report

Mike Wagner removed a tree stump near the septic tank, filled in the hole, and planted grass there and next to the septic tank. Several members have been cleaning out the buildings and domes. Agnes, Lee, and Tamas re-attached the flooring edge in A-dome and cleaned the whole dome including the telescope. Jerry Roeder and Tamas removed the east half of the gate that Jerry took home to make some bushings to tighten it up. He reinstalled it and is back up and working. With this modification it is much easier to install the lock now. Also, with the hinge modification Jerry put on a friction brake. When you open the gate, it will now stay in the position that it is placed in. This will probably need to be adjusted as it wears in and is used. Thank you everyone for all your efforts! All the new camera equipment for "F" and "G" Scopes have arrived. The installation of the ZWO ASI2600 Camera and related equipment has been completed on the "F" scope. Testing was done and the scope is now up and running, ready for member use. The camera has been removed from the "G" Scope. Needed adaptors have been ordered, installation of the ZWO ASI6200 Camera will continue when these added parts arrive. The old cameras, filters, filter wheels, and off axis guiders will start to go on sale this week though the Cloudy Nights.

Respectfully Submitted,
Paul Borchardt, Observatory Director

Treasurer's Report

\$14,562.97	Starting Balance as of 09/18/2021
	<u>Expenditures</u>
\$84.40	PayPal fees
\$265.04	Fire Extinguisher
\$125.00	Stump removal
\$89.38	WE Energies
\$36.00	Water/Sewer
\$607.32	TOTAL Expenditures
	<u>Revenue</u>
\$1,304.00	Private Donations
\$2,121.00	Membership dues
\$75.00	Public donations
\$5.00	Grants
\$8.00	Astronomical League
\$3,513.00	TOTAL Revenue
\$6,881.60	Ending Balance as of 10/16/2021

Respectfully Submitted,
Sue Timlin, Treasurer

Minutes

The last Board Meeting was held via Zoom videoconference on October 18th. Meeting was called to order at 7:00 PM by Tamas Kriska President.

Minutes, and **Observatory Director's Report** electronically submitted ahead of the meeting were approved. **Treasurer's Report** electronically submitted ahead of the meeting was corrected and approved. Correction: The \$75 was a Public (and not Private) Donation. **Membership Committee Report** was submitted electronically of Ryan and Amanda Rosmann & family, Elaine Kubicki, Jim Nelson & family, Aaron Feest, Chris Willey, Michael Kennedy & family, Rob Carman & family, and Andi Seiter & family were approved.

Old Business – Public Nights: The October 29th event is on. A Halloween themed astrophotography slide show without presentation will be projected in the Quonset and on the A-building TV. Sue will set up a Halloween decoration, candy bars are needed. G-scope will be put to visual observation mode. Guided tours are planned at 7PM and 8PM. Volunteers are needed for manning the telescopes and for general help. Halloween costumes are welcome. **Equipment upgrade:** The conversion of F-scope is done. The camera and filter wheel from G-scope have been removed, arrival of an adaptor is needed to go ahead with the conversion.

New Business – Meetings: A discussion has started about holding meetings via Zoom vs. in person in the future. Online survey among Board members showed an overwhelming favor for keeping meetings on Zoom. Other discussion about a potential internet access has also started. Both discussions will be continued. **First Wednesday:** From November the First Wednesday meeting will resume in person in the Observatory. Paul will send out heads up each month. He and Lee will lead the meetings.

Announcement – The next meeting will be on November 15th, 2021, via Zoom videoconference.

Program – MAS member Dennis Roscoe gave a presentation entitled: The James Webb Space Telescope: Seeing Farther.

Respectfully Submitted,
Agnes Keszler, Secretary

Membership Report

Since the last Report we received 5 new membership applications and 48 renewals. We welcome Andy and Tori Seiter & Family, Chris Voelz & Family, John Keese, Jasmine Rocha & Family, and Alicia Dendura & Family. The total number of active members is 229.

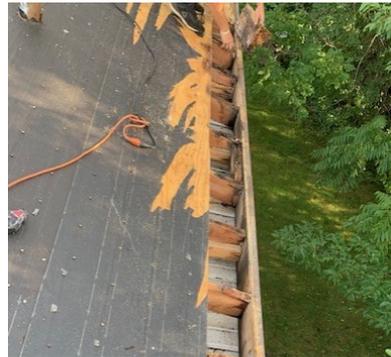
Respectfully Submitted,
Jeff Kraehnke, Committee Chair

Observatory News

Mike Wagner had the one large White Mulberry stump and three small stumps ground out from the vicinity of the septic tank. This will go a long way to killing off the Mulberry roots that sent up aggressive growth this past summer. The roots from the Mulberry were found in the septic tank when it was pumped last year. Mike dumped a load of top soil on the area and got some grass seed growing so that normal grass cutting would keep any additional growth at bay. Some pictures of the grinding operation. The agreed price was \$125.



On August 26th Vidmar Roofing replaced the A-dome's damaged shingle roof with a rubber one. Rotten wood was taken out from several spots. The trim of the Z-dome's rubber roof was also replaced to prevent water damage. The \$5,010 project was coordinated by Jill Roberts.



Member's Story

Milky Way Imaging in Utah

Recently I had the opportunity to participate in a workshop in Utah on Milky Way photography conducted by nightscape photographer Aaron King. This 4-night workshop took place in South-eastern Utah at Goblin Valley State Park, Factory Butte, Dead Horse Point State Park and Canyonlands National Park. This was my second trip to Utah and both times I found Utah to have a great variety of beauty from the hoodoos at Goblin Valley State Park to the moonlike surface features and unique rock formations at Factory Butte to the ancient rock formations at the Island in the Sky section of Canyonlands National Park. Aaron has been conducting Milky Way photography workshops for about 5 years and he is familiar with many of the 'off the beaten track' locations in Utah. Some of the locations require a four-wheel vehicle to get to the site. Many of the sites we saw and photographed looked like they should be on a moon of Jupiter or Saturn instead of in the desert southwest of the United States. This workshop focused on Nightscape photography, capturing the chosen landscape in the foreground along with the Milky Way, all from a very dark location.

The best way to prepare for Aaron's workshops is to purchase access to his videos on Milky Way Photography from his website. They can be purchased for \$30. The videos are about 6 hours in total and they cover planning, composition, and camera settings, along with a section on additional equipment needed. Besides cameras and lenses, he discusses items such as ball heads, L brackets and a loupe to assist in focusing. There



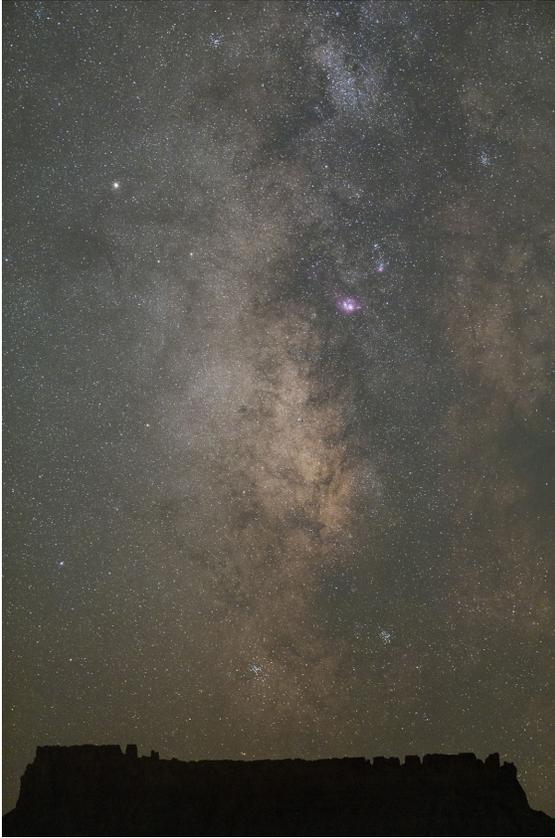
is also a section on Post-Processing. Aaron concentrates heavily on composition, matching a unique foreground with the Milky Way well positioned above that foreground. Two of the tools he uses for location scouting, are PhotoPills and Google Earth. PhotoPills is a smartphone app that combines the position of the Milky Way, Sun and Moon and displays this information for any specific location that the user chooses. The user can 'pin' a precise location and the app will display the exact time the Galactic core will be visible, the elevation above the horizon, the azimuth

and the 'tilt' of the Milky Way arch for that 'pinned' location. For example, instead of 'pinning' Canyonlands National Park, you can narrow that point down to, say, Grand View Point Overlook inside the park and PhotoPills will provide information and show you what the Milky Way will look like for that exact location.

There were no daytime classes, so our group of 5 plus Aaron would meet for an early working dinner in either Moab or Green River, Utah, the two cities where we stayed. At dinner we discussed and finalized our plans for the evening. Typically, our imaging site was about an hour's drive so we all caravanned to the site in our own vehicles. We arrived about 30 minutes before sunset to set up. During our workshop the Milky Way core began setting on us about 11:00 pm so we were usually back to our hotel by 1:00 am.

The smoke for the first 2 nights of the workshop was evident and continued to get worse for

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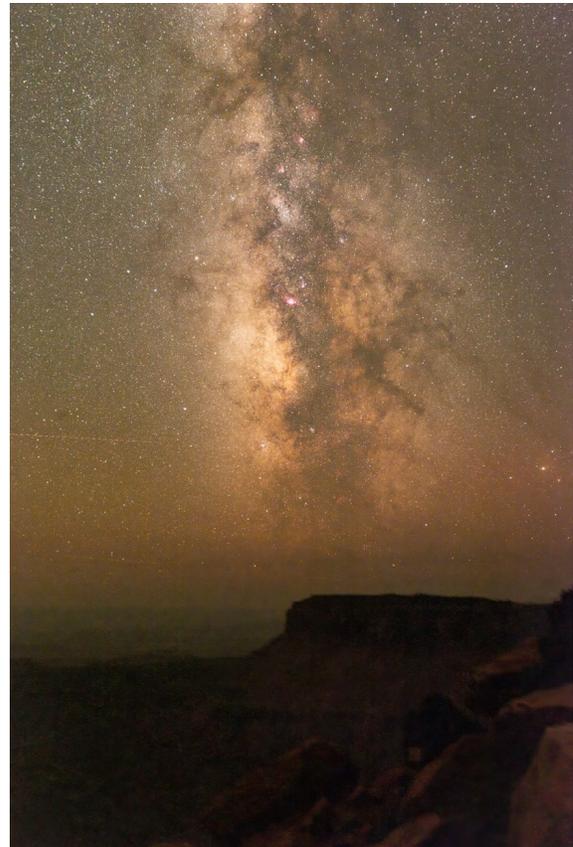


the last 2 nights of the workshop. It appeared that light was bouncing off of the smoke particles and brightening the sky somewhat as the sky looked to be more luminous to me on this trip than the first time I was in Utah. The SQM readings I was getting over the 4 nights ranged from as well as the arch of the Milky Way that extended well past our zenith. The core of the Milky Way has a yellowish cast to it while the remaining portion of the arch has more of a blueish-violet-white color due to the preponderance of yellow and red giant stars (older stars) and lack of blue stars in the core region while much of the arch that extended overhead has more blue stars (younger stars), giving the arch it's bluish tint. At its optimal viewing time during this workshop the Milky Way was vertical to us above the southern horizon. Our Solar system sits on the inner edge of the Orion Arm so the Milky Way arch we were seeing overhead was the remaining outer portion of the Orion Arm looking out toward the Perseus Arm of our Galaxy. It was a fantastic sight!

Goblin Valley sits at the southern end of the San Rafael Swell, a large anticline that was uplifted about 40-70 million years ago. The goblins, or hoodoos as they are scientifically called, were formed through erosion of the sandstone and gypsum that makeup the hoodoos forming the otherworldly stone gnomes that inhabit the valley.

These various shapes of spires and mushroom shaped rock provide a unique foreground to nightscape imaging of the Milky Way.

Another area of interest for me is navigation, both celestial and galactic navigation, as I wanted to better understand why the Milky Way appears to us, at different angles, at different times of the year. While we are in the plane of the Milky Way, the ecliptic of Earth's orbit is tilted about 60 degrees to the plane of the Milky Way. Because of the high degree of inclination of Earth's celestial equator and the ecliptic tilt relative to the galactic plane and the rotation of Earth, the Milky Way arch may appear relatively low or high in the sky depending on the time of night and time of the year. For observers from latitudes 65 de-



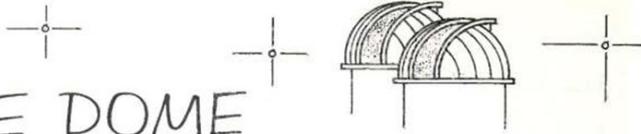
grees North to 65 degrees South the Milky Way passes directly overhead twice a day. Viewing the Milky Way from a dark location makes this much easier to understand since the Milky Way is so visually well defined.

Utah is a great location to view the Milky Way or any other celestial object from and if you get a chance to observe or image from Utah you will not be disappointed.

by Mike Hendren

Fifty Years Ago This Month

the DOUBLE DOME



Issued by the
MILWAUKEE ASTRONOMICAL SOCIETY
OCTOBER - 1971

OCTOBER GENERAL MEETING

Stars in clusters, such as the Pleiades, are assumed to be about the same chronological age and about the same distance from us. Further, they condensed out of the same material that once filled the space now occupied by the cluster. Also, since more massive stars evolve faster than lighter ones, something of their evolution can be learned by comparative study.

Fifty years ago this was the MAS newsletter for October, 1971. We note it here because of two new members shown on page 3.



Paul Borchardt

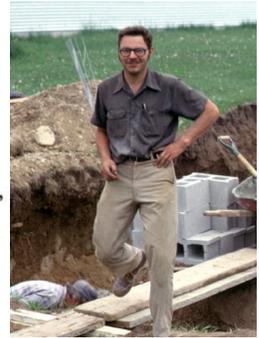
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NEW MEMBERS

Get acquainted with our new members and their interests!

Mr. Paul Borchardt, 829 S. 120 St., West Allis 53214
774-7725. Gen. astronomy, especially star clusters & Mars,
and coin collecting.

Mr. Gerry Samolyk, 4483 N. 53 St., Milw. 53218 462-1340.



Gerry Samolyk



Gerry and Paul in 1982, lifting the right ascension ring.

That month two current MAS members joined our club: Paul Borchardt who is our current Observatory Director, and Gerry Samolyk who was our Observatory Director for 33 years. So they have now been members for 50 years.

We congratulate Paul and Gerry for their combined 100 years of membership, but especially their service.

by Gene Hanson

A Night at the Observatory

In astrophotography, sometimes we take such nice deep sky photos that we get accustomed to the view through the lens or get a fever to go deeper into the stars. Not only that, but as phones beckon us back into their digital spaces, it's increasingly rare to get a unique opportunity to stare at the stars without disruption. So that's exactly what I did during a crisp fall night in October at the MAS grounds, camping out at the E-Scope shed and staying long enough to see Orion rise.

This widefield was shot using a 135mm Rokinnon lense and a modded Nikon D5600 (44min stack) while piggybacked on the E-Scope at the MAS grounds at 2am, taking unguided two minute images, and then stacking them together which is something any member can enjoy doing. The inset pic I took from the Unistellar eVscope that same night, once I was done observing Heracles, the latest near Earth asteroid I'm tracking. The moon was sinking lower by that time for darker skies. Astrobin is here (<https://astrobin.in/xhuqa4/B/>), but enjoy with the inset:

Earlier during a well attended members night, I sent the Unistellar eVscope 4.5in reflector on the first mission to M92, one of the brightest globulars in the Milky Way.

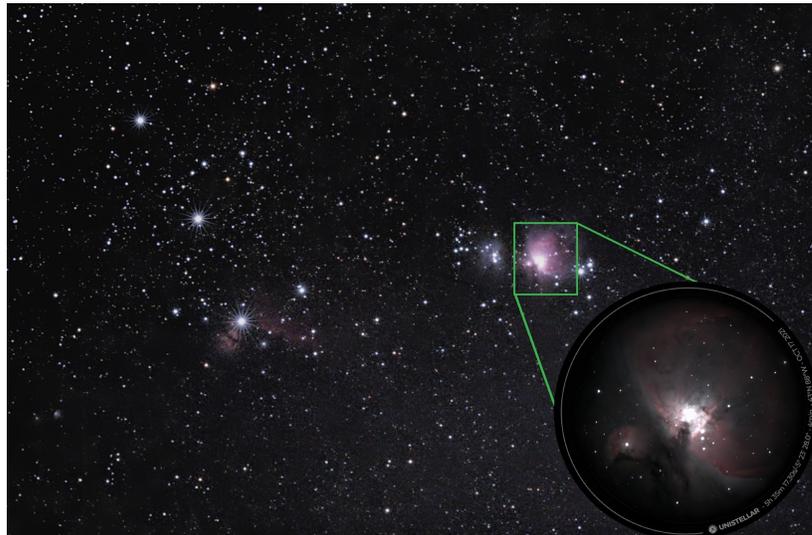
Feeling up for a visual and EAA combination, I also slewed to M92 on the 10 inch f/6.3 LX-200 (E-Scope) on a CGE PRO computerized equatorial mount and enjoyed seeing the bright globular pop into the center of view, all 330,000 stars appearing as only a few hundred, packed so closely together the light seems to merge together. This is the shed I wound up home-basing at for the rest of the night to tackle targets in the book I'd brought, The



Hundred Greatest Stars by James B Kaler, as well as to take endless moonshots, and enjoy a few random Stellarium finds along the way.

With some other members, we moved through the skies to M56, M31 and M101, each presenting an interesting view in the eyepiece. The Cats Eye Planetary nebula looked like another star to some - so we checked it out in the eVscope which revealed the blues in contrast to the nearby red in detail - below. Sometimes we had paused to admire the go-to alignment star the hand controller picked, especially when the Albireo double came into view. Some see blue and gold - Brewers colors, and others see Green and Gold, Packers colors. I saw blue that night. Meanwhile back at the eVscope, a junior observer asked if M27 was an apple from California, and how long light travelled from the nebula.

The seeing wasn't stupendous in the visual



scopes that night, and when trying to view some of the challenges of the book I was taking on - including splitting the Double-Double of Epsilon Lyrae near Vega, I couldn't quite get the stars to part. And we tried

- at some point Russ brought over a 1.25" adapter to try a few of my own eyepieces in the 2" diagonal, but still no luck, although the hunt will go on another night. It's remarkable that their orbits last about a half a million years!

At this point, I refocused, took a dark frame, and set the eVscope in science mode for 3 hours, to track Near Earth Asteroid 5143 (Heracles), which was higher in the East and at magnitude 14, was still visible in the scope. Now completely tied to the go-to telescope for sky vision or binoculars, I slewed to NGC 6883, a very faint cluster that did well in the wide view of the 2" eyepiece available in the shed. I then moved on to NGC 6871, another open cluster. I think I'd describe it as an open cluster in the shape of a question mark after spending a little time sketching out the view.

by Matthew Ryno

In the Astronomical News

A Volcanic Comet Blows its Top

So you think you know what a comet is? Think again. Comet 29P/Schwassmann-Wachmann is challenging old ideas. Astronomers call it a comet, but, really, "giant space volcano" might be a better description. It's a 60-km-wide ball of ice orbiting the Sun beyond Jupiter, and it appears to be one of the most volcanically active bodies in the entire Solar System.

Comet 29P just blew its top ... again. In late September 2021, 29P erupted four times in quick succession, blowing shells of "cryomagma" into space. Arizona amateur astronomer Eliot Herman has been monitoring the debris.

"Initially it looked like a bright compact object," says Herman. "Now the expanding cloud is 1.3

arcminutes wide (bigger than Jupiter) and sufficiently transparent for background stars to shine through."

When this object was discovered in 1927, astronomers thought they had found a fairly run-of-the-mill comet, unusual mainly because it was trapped in a nearly circular orbit between Jupiter and Saturn. 29P quickly proved them wrong as it began to erupt over and over again. Modern observations show that outbursts are happening as often as 20 times a year.

"The current outburst, which began on Sept. 25th, appears to be the most energetic of the past 40 years," says

Dr. Richard Miles of the British Astronomical Association (BAA). "Within a span of only 56 hours, four eruptions took place in quick succession, creating a 'superoutburst.'"

Miles has developed a theory to explain what's happening. The "comet," he believes, is festooned with ice volcanoes. There is no lava. Instead, the volcanoes are powered by a mixture of liquid hydrocarbons (e.g., CH_4 , C_2H_4 , C_2H_6 and

C_3H_8) akin to those found in the lakes and streams of Saturn's moon Titan. In Miles's model, the cryomagma contains a sprinkling of dust and it is suffused with dissolved gases N_2 and CO , all trapped beneath a surface which, in some places, has the consistency of wax. These bottled-up volatiles love to explode when a fissure is opened.

In a seminal paper published 5 years ago, Miles studied more than a decade's worth of eruptions, and he found some patterns. The data suggest that 29P rotates every 57.7 days. The most active vents are concentrated on one side of

the ice-ball in a range of longitudes less than 150 degrees wide. At least 6 discrete sources have been identified.

While most outbursts fade within a week or so, this super outburst is still visible. The rat-a-tat-tat eruption in September boosted the comet's brightness 250-fold, and it hasn't declined much since then. With an integrated magnitude between +10 and +11, the expanding cloud is well within reach of backyard telescopes.

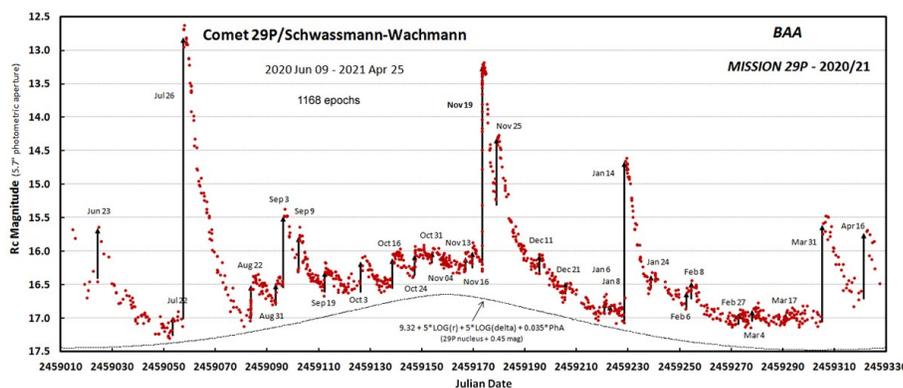
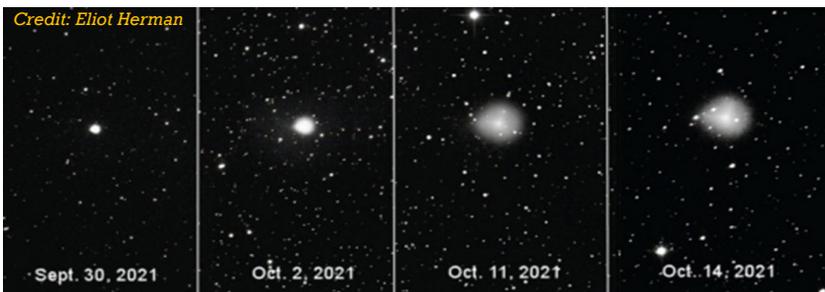
"Comet 29P can be seen with an 8 inch 'scope," says Herman. "In smaller instruments it will appear to be a bright dot. To resolve the

cloud and photograph individual stars shining through it, I used the big half-meter iTelescope T11."

Ready see something weird? 29P is locat-

ed in the constellation Auriga, easy to find high in the sky at midnight. Visit Sky&Telescope for observing tips. Also, for the latest news check out the BAA's MISSION 29P website.

Dr Tony Philips
spaceweatherarchives.com



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Adopt a Telescope Program - Signup Sheet

Adopter	Scope	Location
1 Sue Timlin/John Hammetter	18" F/4.5 Obsession	Wiesen Observatory
2 Steve Volp	12.5" F/7.4 Buckstaff	B Dome
3 Robert Burgess	12.5" F/9 Halbach	A Dome (Armfield)
4 Russ Blankenburg	9-1/4" F/10 Celestron	Albrecht Observatory
5 Jeff Kraehnke	14" F/7.4 G-scope	Z Dome
6 Lee Keith/Tom Kraus	12" F/10 LX200 EMC	Tangney Observatory
7 Colin Boynton	10" F/6.3 LX200	Ray Zit Observatory
8 Tamas Kriska	Stellarvue SVQ 100 F/5.8	Jim Toeller Observatory
9 Paul Borchardt	Solar scope	SkyShed POD

At Your Service

Officers / Staff

President	Tamas Kriska	414-581-3623
Vice President	Jeff Kraehnke	414-333-4656
Treasurer	Sue Timlin	414-460-4886
Secretary	Agnes Keszler	414-581-7031
Observatory Director	Paul Borchardt	262-781-0169
Asst. Observatory Director	Russ Blankenburg	262-938-0752
Newsletter Editor	Tamas Kriska	414-581-3623
Webmaster	Gene Hanson	262-269-9576

Board of Directors

Jim Bakic	414-303-7765
Mike Bauer	262-894-1253
Jill Roberts	262-765-7092
Clark Brizendine	414-305-2605
Jason Doyle	414-678-9110
Dennis Roscoe	608-206-0909
Lee Keith	414-425-2331
Jim Schroeter	414-333-3679
Gabe Shaughnessy	262-893-4169
Steve Volp	414-751-8334
Mike Wagner	262-547-3321

November Keyholders

11/06 Steve Volp	414-751-8334
11/13 Jim Bakic	414-303-7765
11/20 Paul Borchardt	262-202-8029
11/27 Russ Blankenburg	262-938-0752



MAS Observatory

18850 Observatory Rd
New Berlin, WI 53146

www.milwaukeeastro.org