



Open House

The first **MAS Open House** of the year took place on Saturday, June 18, and offered clear views of the sun slightly ahead of the longest day of the year. About 70 people, including members, attended the event, enjoying sun in an active phase. As the event took place during the day, we're pleased to offer readers a photo tour of the event inside this edition **continued on Page 3**.

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Drone photography by MAS member Jeff Kraehnke during the Open House

July Meetings

The **First Wednesday** meeting will be held in person at the Observatory grounds on **Wednesday**, **July 6** at 7:30 PM. New members are especially encouraged to attend this meeting. It is a chance to gain hands-on experience, receive tips on how to get started and/or get more involved in the Club's activities.

The next **Board Meeting** will be held on **Monday**, **July 18** at 7 PM in person at the **Quonset Meeting Hall**. Meetings will be in person going forward until further notice. All members are welcome to attend our Board Meeting with an interest in club happenings and news. There will be no Membership Meeting following the board meetings now through August. Preparations are underway for speakers, topics and presentations. Please contact any of our MAS officers if you have ideas, questions or speaking opportunities.

The **Astrophotography Interest Group** will not be meeting this month; however, any members who wish to participate in an imagers group forum should contact the <u>Matthew Ryno</u> for an invitation to a Southeastern Wisconsin Astro Imagers Slack group.

Observatory Director Report

A ZWO 290MM planetary has been purchased and is now in use at the Observatory.

Spring Clean-up of the Observatory turned out to be a great day, weather was good, and many members came out.

The Observatory is looking great. The door on the B Dome has been fixed once and for all... The door now locks very easily and will for a long time. But one of the slit's cables has snapped and needs to be restrung.

There's a problem with the communication between the F Scope and the control room. I think going to a Wi-Fi system would be the proper fix. I do not have a cost estimate at this time, but feel it would be under \$500 to convert.

Paul Borchardt, Observatory Director

Treasurer's Report

\$12,177.23	Starting Balance as of 05/14/22	
	<u>Expenditures</u>	
\$15.21	PayPal fees	
\$945.95	Periodic Expenses	
\$76.85	WE Energies	
\$35.00	Observatories Expenses	
\$1,073.01	TOTAL Expenditures	
	<u>Revenue</u>	
\$231.00	Membership dues	
\$434.56	Private Donations	
\$299.00	Other Revenue	
\$5.00	Grants	
\$15.00	Public Donations	
\$984.56	TOTAL Revenue	
\$12,088.78	Ending Balance as of 06/19/2022	

Sue Timlin, Treasurer

Membership Report

Since the last Report we received 5 new membership applications and welcome Peter Kelly and family; Sairam Samavedam and family; Richard Plevak and family; Darrin Polic and family; Carolee Biddle and family. The total number of active members is 209.

Matthew Ryno, Membership Chair

Minutes

The first in-person Board Meeting of 2022 was held at the Quonset Meeting Hall, on June 20th. The meeting was called to order at 7:03pm by MAS President, Jill Roberts. Minutes and reports were submitted electronically and distributed to the board prior to meeting. In attendance were: Dennis Roscoe, Mike Wagner, Mike Bauer, Jim Bakic, William Gottemoller, Lee Keith, Jill Roberts, Gene Hanson (FM), Paul Borchardt, Russ Blankenberg, Matthew Ryno, Sue Timlin and Brian Ganiere (FM).

Minutes of the May 16 board meeting, and May 16 Annual Business Meeting, prepared by outgoing secretary Agnes Keszler, were submitted by Matthew Ryno, Secretary, electronically and approved. The **Treasurer's Report** electronically submitted by Sue Timlin, treasurer, was summarized and approved. The Observatory Director's Report was electronically submitted by Paul Borchardt, Observatory Director ahead of the meeting and was summarized and approved. The Membership Committee Report was electronically submitted by Matthew Ryno, Committee Chair, ahead of the meeting. 5 memberships were approved, and all members were welcomed by the board: Peter Kelly and family; Sairam Samavedam and family; Richard Plevak and family; Darrin Polic and family; Carolee Biddle and family.

Old Business: A motion was approved and carried to accept \$400 to advocate for printing costs of materials promoting future Open Houses and the MAS, including maps for open house nights.

New Business: Dennis Roscoe made a motion to form an Internet Connectivity committee, seconded by Paul Borchardt. The motion passed, and Dennis agreed to lead the committee.

Paul Borchardt, announced he is seeking out other MAS members familiar with computerized imaging and hardware to join the Observatory Committee this year.

Board members discussed replacement of Open House signage designed for roadside awareness.

Jill Roberts announced a MAS picnic will take place on Saturday, August 6.

Matthew Ryno, Secretary

Open House: A Pre-Summer Solstice Celebration

Observatory Director, Paul Borchardt, used the new ZWO 290mm monochrome camera at the MAS, to test and display the sun during the open house, installed on the MAS Solar Scope. According to Paul, gradients are hard to get proper contrast with the camera – it is fast. For the photo of the sun he shared, about 80-90 frames per second were taken for a total of 6000 frames, from which he took the top 20% of photos with algorithms in Autostakkert!, one of the most commonly used image processing software for solar and planetary images. Additionally, due to the frame size of the camera, four processed segments of the sun were combined similarly in Adobe Photoshop to create the combination photo shown here, with additional image exposures layered in during postprocessing for surface details and prominences, which are a little dimmer.

In addition to in person instruction and views from the solar scope, attendees at the open house were treated to multiple in person presentations by planetary and solar imager, Lee Keith, who enjoyed introducing the sun to so many people in person at the Quonset Meeting Hall.

All of the pads at the MAS were occupied by members who also brought their own solar scopes sensitive to H-Alpha (single and double-stack options), or a SCT and Dobsonion with a white light filter. White light filters were also installed on MAS scopes.

(Continued on next page)



The sun on June 18th, from the MAS Solar Scope, and camera courtesy of Paul Borchardt, shown below, helping visitors see with the scope.



Drawing the Sun at the Open House

MAS Open House committee chair Sue Timlin and Colin Boyton coordinated kids activities near the Quonset Hall and in the yard. One activity utilized Solar Observing templates from the Astronomical League, for 15 participants (and some adults) who were asked to draw what they saw at the end of the event after looking at the sun through multiple scopes. Sue also led prism and sundial activities, while Colin showed the sun through a white light filter and explored the powers of convection to power a device.



Open House Gallery

For more pictures, follow MAS on Facebook at <u>facebook.com/milwaukeeastro</u>.













Observatory Automation

By Dennis Roscoe

I have had a remote-controlled observatory in the past, but have always wanted to go that next step and employ a fully-automated observatory. What is a fully-automated observatory? Simply put, once a target has been defined, there is no human intervention during the imaging session from beginning to end. This includes when the observatory should be opened and closed, running the image acquisition sequences, when to focus, when to do a meridian flip and monitoring the weather conditions. very elegant sequence generator for control of image acquisition parameters, auto focusing including finding an appropriate focus star and meridian flips.

Safety

Being a firm believer in Murphy's Law, building in safe guards to protect the observatory's assets is priority one. Starting with our number one enemy the weather. A robust and fully-integrated weather station is key to my peaceful sleeping while Voyager is working through the night. I have selected the SkyAlert weather station from Interactive

Basic System Architecture

The heart of my automation system uses Voyager and its associated hardware interface controller software called Viking. A year ago, when I started this project, I looked at Sequence Generator Pro (SGP) and Nighttime Imaging 'N' Astronomy (NINA) and they didn't come close to



Astronomy. It fully integrates with Voyager and can initiate an emergence closure of the observatory when weather turns for the worse and it is potentially unsafe for the observatory to be open. I also have four safety switches that are software independent to make sure that the dome is unlocked and in the right

having all of the features and customization offered by Voyager. A major factor for me was the control of all of the hardware that is needed to open and close the observatory. Viking supports numerous off-the-shelf devices that control the power to all of the telescope components (Digital Logger Web Power Switch 7) and the dome motor relays (KMTronic 8 Channel Web Relays). These devices along with all of Voyager's automation components are controlled via a powerful Voyager scripting language called DragScript. With DragScript, I am able to design the workflow for all of my automation. Voyager also has a

position before any motors can be activated. There is an override panel that can be used to



close the observatory in case of a city power failure. Of course, there is a system-wide power kill switch. The three open/closing observatory motors are all battery powered. Incremental testing of an automated system is critical. Making sure individual modules/components are working correctly will minimize any possible damage to your equipment. I still have a significant amount of testing remaining and a failure analysis to do before the observatory will fly solo.

Conclusion

It may appear that a fully-automated observatory is a mere convenience. but it is far more than that. For me, it is all about the precision, quality and guantity of image data. Strict rules on when to focus, optimal altitudes of objects and being able to plan imaging sessions when I am not available is my driving force. No automated system will be 100% foolproof and there are risks. The probability exists that I will remain a proud father looking after his child, but even in this role, I have seen significant gains in my astrophotography productivity and the quality of my images.



Pictured: (Top) IC 405, the Flaming Star Nebula, an emission and reflection nebula and SH2-171, the Teddy Bear Nebula.

Astronomical Events

Full "Buck" Supermoon: Also known as the Hay or Thunder Moon, the moon is within 221,993 miles at perigee, July 13.

Moon and Jupiter Conjunction: July 19, The Moon is 2 degrees south of Jupiter at 1:00am.

Carbon Star of the Month: T Draconis is a notable carbon star to observe this month.

Delta Aquarid Meteor Shower: On July 28-29 the radiant is located northwest of the firstmagnitude star Fomalhaut (Alpha Piscis Austrini), near the third-magnitude star Skat (Delta Aquarii), and will be at its highest around 2:00 a.m. local time, with 20-30 per hour possible.

Adopt a Telescope Program - Signup Sheet

	Adopter	Scope	Location
1	Sue Timlin/John Hammetter	18" F/4.5 Obsession	Wiesen Observatory
<u>2</u>	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
<u>5</u>	Jeff Kraehnke	14" F/7.4 G-scope	Z Dome
<u>6</u>	Lee Keith/Tom Kraus	12" F/10 LX200 EMC	Tangney Observatory
7	Colin Boynton	10" Г/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	Jill Roberts	262-765-7092
Vice President	Sue Timlin	414-460-4886
Treasurer	Sue Timlin	414-460-4886
Secretary	Matthew Ryno	414-248-1455
Observatory Director	Paul Borchardt	262-993-8870
Asst. Observatory Director	Russ Blankenburg	262-938-0752
Asst. Observatory Director	Lee Keith	262-875-9103
Newsletter Editor	Matthew Ryno	414-248-1455
Webmaster	Gene Hanson	262-269-9576
Membership Chair	Matthew Ryno	414-248-1455

Board of Directors

Jim Bakic	414-303-7765
Matthew Ryno	414-248-1455
Jill Roberts	262-765-7092
Sue Timlin	414-460-4886
Jason Doyle	414-678-9110
Dennis Roscoe	608-206-0909
Lee Keith	262-875-9103
Jim Schroeter	414-333-3679
Mike Bauer	262-894-1253
Mike Wagner	262-547-3321
William	262-442-3686
Gottemoller	

July Keyholders

0	7/02	Gene Hanson	262-269-9576	
0	7/09	Mike Bauer	262-894-1253	
0	7/16	Russ Blankenburg	262-938-0752	
0	7/23	Paul Borchardt	262-202-8029	
0	7/30	Brian Ganiere	414-961-8745	



MAS Observatory

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