



Summer Schedule

Traditionally, the Milwaukee Astronomical Society will not have General Meetings on the summer months of June thru August.

However, we will have Monthly Board Meetings on the second Monday of each month from 7 PM that is open for everybody who interested in organizational and Observatory related issues. The next Board Meeting is scheduled for July 9th.

As always, the Observatory is open on Saturday nights, and also when it is posted on the Google Group.

Inside this

Summer schedule	1
Picnic	1
Public Nights	1
Meeting Minutes	2
Membership	2
Treasurer Report	2
Observatory Director's Report	2
Summer Campout	3
A-dome turned 80	4
Maintenance	6
In the News	7
Adopt a Scope	8
Officers/Staff	8
Keyholders	8

MAS Summer Picnic



The MAS organizes the Annual Picnic on **Saturday, August 4th at 4 PM** at the Observatory.

It is going to be a potluck, a dish to share is appreciated. Soft beverages and charcoal grill will be provided.

The event will be on in rain and shine. Weather permitting solar observation is possible.

Please join us, and bring along family and friends.

Public Nights

The second Open House of the year was held on Saturday, June 23rd. Since the topic was the Sun, the event started well in daylight, at 4 PM. All week long the weather forecast was bad, but at the last moment it changed to partly cloudy, so our visitors had a chance to see the Sun's various features through the Lunt solar scope, and also through regular telescopes equipped with solar filter. Lee Keith gave a presentation around 5 PM, and has repeated it two more times later on.

The next Public Night event will be on Friday, August 17th from 8:00 to 11:00 PM. The topic is the Moon. If you are willing to participate with manning a telescope, giving a tour of the observatory, or helping in the parking lot, please join us. Thank you for your kind contribution that would make the nights successful.



Observatory Report

The 26" scope's OTA has been taken to the recycle center and sold. The total for all the material sold was \$474. Thank you, Russ, for the use of your truck and helping get the 700 plus lbs. of material to the recycle center.

I have now found out that I will not be able to get a motor for the JMI Focuser purchased for the B-Scope contrary to what I was told at the time the focuser was purchased. I have found a focuser made by Moonlite that is available with a motor for \$360 to replace the existing one.

The JMI focuser could be repurposed to one of the 18" Obsessions that could use an upgrade.

Designing of a new bridge to go across the tines of the old Z-Scope fork is under way. When it has been mounted the 14" Celestron Edge will be able to be mounted in the center and not off set in the dome. The new bridge will be made of steel which will be power coated for both appearance and stopping rust.

Materials for this summer's renovation projects have been purchased by Tamas and Agnes and are at the Observatory. Work parties will be scheduled through out the summer and fall to get a list of projects completed. The first work party was held today.

Respectfully Submitted,
Paul Borchardt, Observatory Director

Treasurer's Report

\$13,698.66	Starting Balance as of 05/16/2018
	<u>Expenditures</u>
\$5.43	PayPal fees
\$100.00	Stipend
\$40.42	WE Energies
\$145.85	TOTAL Expenditures
	<u>Revenue</u>
\$21.68	Private donations
\$358.00	Membership dues
\$474.00	Other revenue
\$853.68	TOTAL Revenue
\$14,406.49	Ending Balance as of 06/09/2018

Respectfully Submitted,
Sue Timlin, Treasurer

Meeting Minutes

The meeting was held on June 11th at the MAS Observatory, New Berlin and was called to order at 7:00 PM by Tamas Kriska President.

Minutes, Treasurer's Report, Observatory Director's Report, and Membership Committee Report electronically submitted ahead of the meeting were approved. Membership application of Scott Castello & family, Marilyn Sameh, Billy Williams & family, Joel Kaczinski & family, Carolyn Kastern & family, Shubhendu Sadhukhan, and Mike Schiesl were approved.

Old Business – *B scope focuser*: The motor will not arrive due to being discontinued.

Maintenance plan: Materials were purchased and the work has started. *Long range planning*: Instagram account has been established. An Operating, Emergency, and Capital Budget is considered. Scott Berg will give update on the July meeting. *G-scope*: The Observatory Committee decided to get an AP 1600GTO mount (\$10,870). Paul is working on building a bridge between the tines of the old Z-scope fork to install the new mount. *Fundraising*: Any fundraising idea is welcome.

New Business – *A-scope*: A new motorized focuser will be purchased as part of the A-dome renovation. *Yard faucet*: The rod leading to the underground valve has been distorted due to an accident. S&K Pump and Plumbing Co will be asked for a quote to fix it. *Tree removal*: Brian Ganiere will ask for a quote to remove or take down dead trees overhanging to the Quonset to a safe size. The project should be coordinated with the neighbors, since the trees are on their property.

Respectfully Submitted
Agnes Keszler, Secretary

Membership Report

Since the last Report we received six renewals and would like to welcome Joel Kaczinski & family, Carolyn Kastern & family, Shubhendu Sadhukhan, Mike Schiesl, Antony Asmuth & Family, and Gregory Volk.

We now have 164 active members.

Respectfully Submitted,
Jeff Kraehnke, Committee Chair

Observatory News

Summer Campout

Now we are excited to announce that just like last year, **Tom Maxwell and his wife Toni** kindly offered to host a Club campout on their land in the Nicolet Forest.



The address: 8604 Atkins Road, Hiles, WI 53235. The date: September 14-16, 2018 (Friday to Sunday).

On the area there is electricity, water, and a port-a-john available to use. Otherwise bring everything you'd want/need to camp out. People are asked to bring a dish to pass as it makes a nice pot luck at dinner time. Snacks are well kept throughout the weekend in a screened-in gazebo. There's a small weber there and a tripod fire pit grate as well as about 6-8 hot dog sticks available to use.



For those who want to come to the star party but can't see staying in a tent for the weekend there is lodging within minutes. Little Pine Motel - affordable rooms within a couple minutes. (Phone: (888) 541-4150).

During the last year's campout the weather was far from perfect, which limited observation to several short periods. But we still had a great time. Hopefully this year we will have a better luck and will be able to enjoy all the observing opportunity the gorgeous dark sky can offer.

Please RSVP on the Google group so Tom and Toni can get an idea how many people will be coming.



Observatory History

The A-dome Turns 80



The Armfield Observatory, which everyone refers to as the A-Dome, turned 80 years old on June 18. It is a remarkable building, not just because of its age, but of its significance.

The MAS was officially formed on September 21, 1932, and immediately the backyard of Luverne Armfield became the Society's unofficial observatory. Being in the depths of the Great Depression, any possibility of a remote observatory was almost nonexistent. But out of the blue in January of 1934

came an offer of one acre of land in the then remote Town of New Berlin by M.J.W. Phillips from his family farm. But the offer had one particularly nasty stipulation: construction of an observatory must occur within 5 years.

At this same time, the AAVSO lent Luverne Armfield a 13 inch plate glass mirror which could be used as long as we pursued the study of variable stars. Members immediately began fashioning a telescope for this mirror. It was finished by the end of that year and without a remote observatory as yet, it was placed in the backyard of Armfield, with the dream that one day it would be moved.

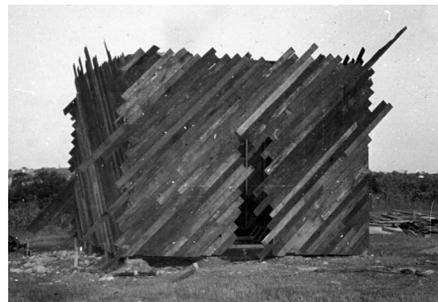
Read the complete story about the A-Scope on our website:

www.milwaukeeastro.org/history/AScope.asp



Finally, in July of 1937, construction began on the observatory now known as the A-Dome. They began by digging a 6' deep, 3' wide hole to receive the form for the pier which would extend 12' above the ground, tapering to a cross-section of 12X18 inches. Today it is hard to imagine them manually hoisting half the concrete for the 8-ton pier to the top of the form, 12 feet above the ground with just a small bucket! All of the construction was done with an average of 8 members traveling the 15 miles to Milwaukee.

The building was wood framed, 16' by 16' and 13' high, to support a 14.5' dome. 12 small concrete piers were laid to support the building and dome. The frame and sheathing of used lumber were covered with new siding. The top of the side walls, 3' above the floor, supported by circular laminated ring, 14' inside diameter was constructed of a double layer of 2-inch planks. Eight 5-inch inverted truck casters were bolted to the ring to support the dome.





The skeleton of the dome was constructed of structural steel and covered with 24-gauge black sheet iron. A base ring of 4-inch channel iron, rolled with the flanges outward, provide both a smooth track and rigid base to which the vertical ribs were welded. The dome was completely fabricated in its final position. To keep the dome centered, 2-inch rolled brackets were mounted on top, fastened adjacent to each large caster. There are 25 vertical ribs of 1 3/4-inch angles were welded to the base ring and to the 2-

inch angles which form the 3' wide slit. The arc welding was done by Nordberg Mfg and the portable arc welder courtesy of the Harnischfeger Corp. All the metal work was painted with two coats of red-lead paint and the exterior was finished in aluminum.



In May of 1937, Armfield's 13-inch reflector was mounted on the pier, having been extensively modified and upgraded when the scope was out of commission. In order to get power immediately for the observatory, a 1500' power line was strung from the Phillips

Farm. On June 16th the observatory was officially dedicated.

The building has hardly changed through the years, although new roofs, sidings, and doors have been installed as needed. In 1955 the Quonset was obtained and attached to the north wall. In 1964 the building was extended to the east for the addition of 2 bathrooms and a darkroom. In 1975, the dome was finally power driven.

Finally, very recently as nearly everyone knows, the interior was extensively remodeled, complete with a new electrical panel. And currently we are repainting the interior and exterior of the dome and laying a new floor.

Note: all but the first photo can be found on our website in higher resolution at:

www.milwaukeeastro.org/history/MAS_History.asp

Happy Birthday, A-Dome!



by Gene Hanson
MAS Historian

Observatory Maintenance

The A-dome Remodel

The summer maintenance has started with sprucing up the inside of the A-dome. This is the continuation of the Quonset/A building remodeling project. The dome and walls were repaired and repainted, the water damaged floor was repaired and a new vinyl flooring was laid down. The ladder also got a fresh coat of paint.



In the Astronomical News

Days on Earth Are Getting Longer, Thanks to the Moon

Days on Earth are getting longer as the moon slowly moves farther away from us, new research shows.

The moon is about 4.5 billion years old and resides some 239,000 miles (385,000 kilometers) away from Earth, on average. However, due to tidal forces between our planet and the moon, the natural satellite slowly spirals away from Earth at a rate of about 1.5 inches (3.82 centimeters) per year, causing our planet to rotate more slowly around its axis.

Using a new statistical method called astrochronology, astronomers peered into Earth's deep geologic past and reconstructed the planet's history. This work revealed that, just 1.4 billion years ago, the moon was significantly closer to Earth, which made the planet spin faster. As a result, a day on Earth lasted just over 18 hours back then, according to a statement from the University of Wisconsin-Madison.

"As the moon moves away, the Earth is like a spinning figure skater who slows down as they stretch their arms out," study co-author Stephen Meyers, a professor of geoscience at UW-Madison, said in the statement. "One of our ambitions was to use astrochronology to tell time in the most distant past, to develop very ancient geological time scales. We want to be able to study rocks that are billions of years old in a way that is comparable to how we study modern geologic processes."

Astrochronology combines astronomical theory with geological observation, allowing researchers to reconstruct the history of the solar system and better understand ancient climate change as captured in the rock record, according to the statement.

The moon and other bodies in the solar

system largely influence Earth's rotation, creating orbital variations called Milankovitch cycles. These variations ultimately determine where sunlight is distributed on Earth, based on the planet's rotation and tilt.

Earth's climate rhythms are captured in the rock record, going back hundreds of millions of years. However, regarding our planet's ancient past, which spans billions of years, this geological record is fairly limited, researchers said in the statement.



This gorgeous photo of Earth with the moon in the foreground was captured on Oct. 12, 2015, by NASA's Lunar Reconnaissance Orbiter spacecraft. Credit: NASA/Goddard/Arizona State University

layers: The 1.4-billion-year-old Xiamaling Formation from northern China and a 55-million-year-old record from Walvis Ridge, in the southern Atlantic Ocean.

Examining the geologic record captured in the rock layers and integrating the measure of uncertainty revealed changes in Earth's rotation, orbit and distance from the moon throughout history, as well as how the length of day on Earth has steadily increased.

"The geologic record is an astronomical observatory for the early solar system," Meyers said in the statement. "We are looking at its pulsing rhythm, preserved in the rock and the history of life."

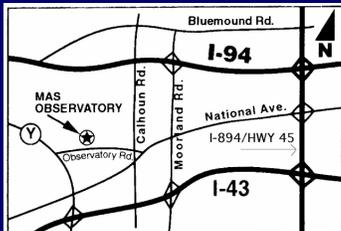
by Samantha Mathewson, Space.com

This can lead to some uncertainty and confusion. For example, the current rate at which the moon is moving away from Earth suggests that "beyond about 1.5 billion years ago, the moon would have been close enough that its gravitational interactions with the Earth would have ripped the moon apart," Meyers said.

Using their new statistical method, the researchers were able to compensate for the uncertainty across time. This approach was tested on two stratigraphic rock

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	18" F/4.5 Obsession	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	Herman Restrepo/Matt Mattioli	8" F/11 Celestron EdgeHD	Ray Zit Observatory
8	Tamas Kriska	14" F/1.9 F-scope	Jim Toeller Observatory
9	Paul Borchardt	Solar scope	SkyShed POD



MAS Observatory

18850 Observatory Rd
New Berlin, WI 53146

www.milwaukeeastro.org

At Your Service

Officers / Staff

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

Board of Directors

Jim Bakic	414-303-7765
Scott Berg	262-893-7268
Russ Blankenburg	262-938-0752
Clark Brizendine	414-305-2605
Jason Doyle	414-678-9110
John Hammetter	414-519-1958
Lee Keith	414-425-2331
Jeff Kraehnke	414-333-4656
Jim Schroeter	414-333-3679
Sue Timlin	414-460-4886
Steve Volp	414-751-8334

July Keyholders

07/07 Russ Blankenburg	262-938-0752
07/14 Gene Hanson	262-269-9576
07/21 Paul Borchardt	262-781-0169
07/28 Steve Volp	414-751-8334