July, 2018

Summer Schedule

Traditionally, from June thru August the Milwaukee Astronomical Society holds only 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 **August 13th**.

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

Inside this

MAS Summer Picnic

Don't forget: Picnic!
On **Saturday, August 4th from 4 PM** at the Observatory!
Potluck, Solar observation, Fellowship, Lots of fun!
Please attend, and bring family and friends!
See you there!

Public Outreach

The next Public Night event will be on **Friday, August 17th** from 8:00 to 11:00 PM. The topic will be 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.

Mars Opposition Party

On Friday, July 27th we held a special observing party dedicated to Mars opposition. Jeff, NASA and the Solar System arranged an action-packed party. The full moon only added to the festivities. Eight true astronomers turned out for a warm night of observing and even photographing the wonders of this summer's night sky. The mosquitoes went to bed at 9:30. There was a very bright flare from one of the Iridium satellites. Two space station flybys 90 minutes apart reminded us just how fast that thing is moving at just 250 miles above us.

We saw some deep sky objects, saw Ganymede burst out from behind Jupiter. Saturn was in pretty good form, Mars was low in the sky, but the dust storm is reported to be calming down. Some surface features are coming back.

A good time was had by all. Unfortunately, over 150 members missed out on a fun night Friday. If there would be interest for a future event like this please let us know.

by Russ Blankenburg

Observatory Report

Work is moving along on this summer's projects. In the A-dome, the painting and the new floor is down, and new guards are covering the dome rollers, so A-Scope is open for use. Please note though a cable on the dome's slit has broken so you need to push the slit close to the middle of it.
Tree limbs were cut back that were laying on the Quonset building.
There is now the ability to move Z-Dome from inside the dome with use of a hand paddle.
A broken lock on the door to A-Building has been fixed and installed, so entry can be made with the usual key.
The bent hydrant outside of the A-building has been straightened and is working. A new handle is needed yet to turn the spigot on and off. Right now, a vise grips is being used.
The Astro Physics 1600 GTO has arrived, many thanks go out to Gene Hanson who so generously donated the mount to the MAS. Now work can begin on the bridge to span the tines on the fork of the old Z-Scope mount and the riser which is needed to create clearance for the scope above the bridge and provide the flat mounting surface needed for the AP mount. After the AP 1600GTO is installed and the Celestron 14" edge mounted on it we expect to see the problems of the old mount vanish.

Respectfully Submitted,
Paul Borchardt, Observatory Director

Treasurer's Report

$14,406.49	***Starting Balance as of 06/09/2018***
	Expenditures
$3.74	PayPal fees
$796.00	Insurance
$999.11	Three DSLR cameras
$66.11	Observatory expenses
$2,769.21	Maintenance
$53.61	WE Energies
$4,687.78	TOTAL Expenditures
	Revenue
$1,249.00	Private donations
$154.00	Membership dues
-$50.00	Key deposits
$61.00	Public donations
$1,414.00	TOTAL Revenue
$11,132.71	***Ending Balance as of 07/07/2018***

Respectfully Submitted,
Sue Timlin, Treasurer

Meeting Minutes

The meeting was held on July9th at the MAS Observatory, New Berlin and was called to order at 7:03PM by Tamas Kriska President.
Minutes electronically submitted ahead the meeting were amended and approved.
Treasurer's Report electronically submitted ahead the meeting and was approved.
Observatory Director's Report electronically submitted ahead the meeting was approved.
Membership Committee Report was electronically submitted by Jeff Kraehnke Committee Chair ahead the meeting. Membership application of Anthony Amuth & family, Gregory Volk, and Brian Frank & family were approved.
Old Business – *Motorized focuser*: The new focuser has arrived and will be installed to the A-scope. *Maintenance plan*: Interior work (painting and flooring) in the A dome is complete. We will continue with B-dome and exterior painting. *Strategic Planning*: The first meeting will be held on Friday, July 13th. *G-scope*: The new mount has been purchased by Gene Hanson, and arrived. Paul Borchardt is working on the bridge across the fork, Clark Brizendine will do the welding, and Jeff Kraehnke will install the necessary software and drivers. *Yard faucet*: The pipe has been re-bent and is usable now, but S&K Pump and Plumbing Co was asked for a quote for a new hydrant. *Tree removal*: Brian requested a quote from Dan's tree services for removing dead elm trees and apple tree stumps but it has not arrived yet. Tree limbs overhanging the Quonset building were cut.
New Business – *Insurance*: The insurance policy covers the new AP 1600GTO mount. *Solar Observatory*: Per Paul Borchardt's suggestion key will be available for members upon request, after completing the necessary training, for $10 deposit. *Super Member's Night*: Jeff suggested organizing a special internal event for July 27th with all night schedule as an attempt to retain the membership.

Respectfully Submitted
Agnes Keszler, Secretary

Membership Report

Since the last Report we received two new membership application and would like to welcome Brian Frank & family and John Pfannerstill.

We now have 167 active members.

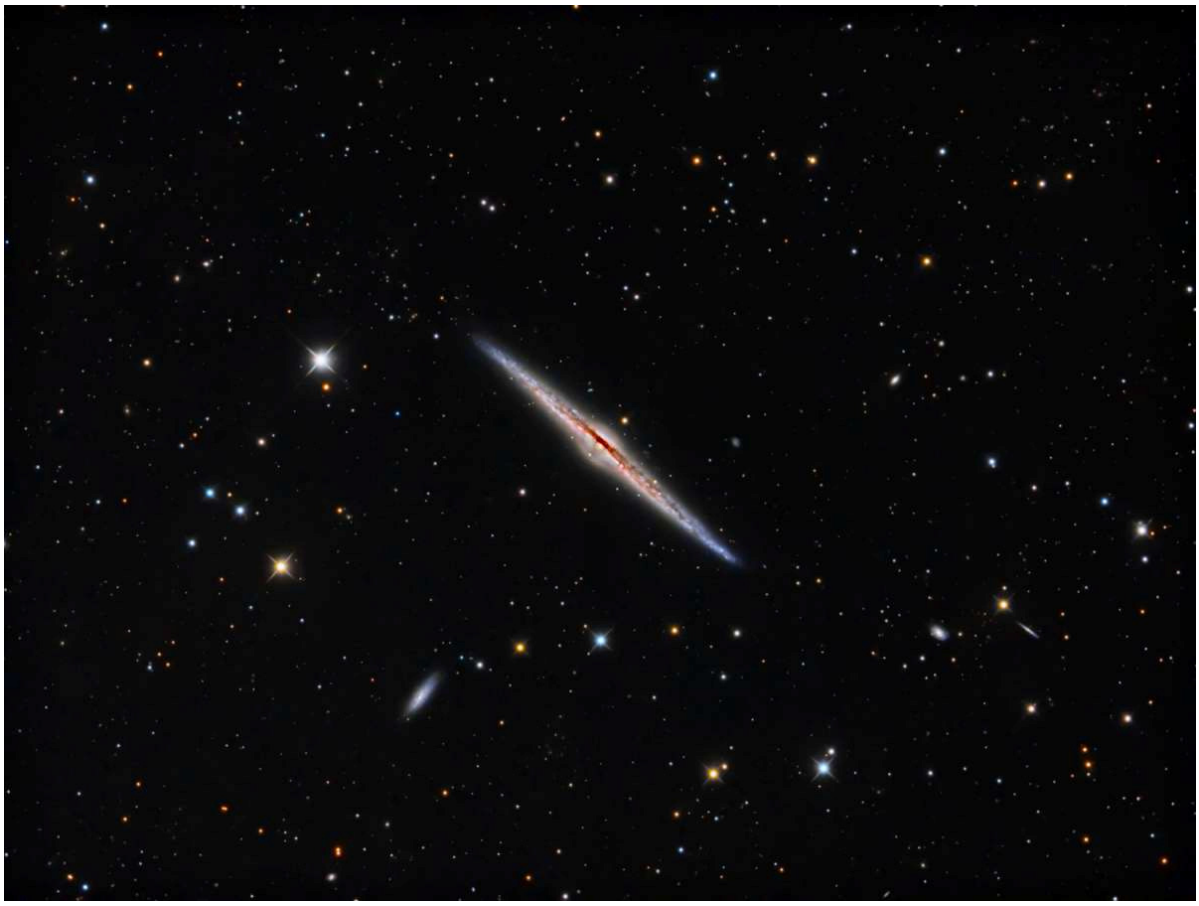
Respectfully Submitted,
Jeff Kraehnke, Committee Chair

Awards

AAPOD Award Goes to MAS Member

We are happy to share the exciting news that the beautiful image of the Needle Galaxy taken by **Chad Andrist** was chosen by the AAPOD community to be the Amateur Astronomy Picture of the Day for July 28, 2018. AAPOD is an international group of anonymous judges who select amateur images only.

Congratulations Chad!



Scope: TPO 8" RCT @ f/5.8, Camera: ZWO ASI1600MMC, Filters: Astrodon LRGB/ZWO EFW8. LRGB: Total 4.3 hours. Software: SGP, AP ASCOM, Pixinsight. April 2018

Needle Galaxy (NGC 4565 or Caldwell 38) is an edge-on spiral galaxy about 30 to 50 million light-years away in the constellation Coma Berenices. It lies close to the North Galactic Pole and has a visual magnitude of approximately 10. It is known as the Needle Galaxy for its narrow profile. First recorded in 1785 by William Herschel, it is a prominent example of an edge-on spiral galaxy.

NGC 4565 is more luminous than the Andromeda Galaxy. Its exponential shape suggested that it is a barred spiral galaxy. Studies with the help of the Spitzer Space Telescope confirmed the presence of a central bar and also showed a pseudo bulge within it as well as an inner ring.

NGC 4565 has at least two satellite galaxies, one of which is interacting with it. It has a population of roughly 240 globular clusters, more than the Milky Way.

Observatory Maintenance

A manual control device (joystick) was installed to rotate the dome of the Z-building when it is not controlled by the SkyX software. An emergency stop (red button) was also installed.

Finishing touches were applied to the A-dome: the trap door was also covered with vinyl planks, and the floor and peer perimeter was sealed with a vinyl wall base. New protective plexiglass sheets were installed.

Outside walls of the Quonset, A-building, and B-building were pressure washed, while the walls of the B–building were scraped to prepare them for paint.

Member's Story

Young Members Observe the Sun

On July 3, 2018, MAS members Livian and Whitaker visited the Observatory with their grandfather Mike Wagner to view the Sun.

Daytime telescope safety was addressed, only a few very special telescopes can be used to look at the Sun without risking lifetime blindness. The white light view of the Sun was featureless while the Ha view offered some faint prominences.

by Mike Wagner

Teaching Experience

My mother's friend came over, and brought her children along. One of them was interested in astronomy, it turns out he had a small telescope on his desk, I think it's a rather small reflector scope.

So, in the spirit of learning, I decided to show him my 130 mm reflector, and since it was daytime, take some quick solar observations (there was nothing on the disk, no sunspots or anything).

All in all, it was a great time, I really enjoyed teaching him a little bit. He thought it was really neat, so I took some pictures.

by Luke Zimmerman

In the Astronomical News

Giant Lake of Liquid Water Found Hiding under Mars' South Pole

We finally know where all that Martian water has been hiding! This latest epic discovery was achieved using a radar instrument on a Mars orbiter, with Italian scientists finding a huge liquid reservoir hidden 1.5 kilometers under the southern polar ice cap, extending 20 kilometers across. The researchers say it's a lot like the subglacial lakes trapped beneath the ice of the Arctic and Antarctica here on Earth. And, like our terrestrial subglacial lakes, it might be where we find surprising life.

A subglacial lake has long been hypothesized as a likely place to find water on the Red Planet, but probing beneath glacial regions is not an easy task even here on Earth.

It's only been in recent years that scientists have used satellites equipped with radar to uncover the mysteries of the hidden waters of our own planet. An instrument designed specifically for subsurface surveys is on board the European Space Agency's Mars Express probe - in orbit around Mars since 2003. The Mars Advanced Radar for Subsurface and Ionosphere Sounding (MARSIS) uses radar to look for features under the surface of Mars, and has been looking for signs of subsurface liquid water for over 12 years.

Credit: ESA/DLR/FU Berlin (G. Neukum), CC BY-SA 3.0 IGO

It was between May 2012 and December 2015 that the research team seriously investigated a 200-kilometre-wide section of the southern ice cap, in a location called the Planum Australe. They took 29 radar profiles of the region, bouncing radio waves deep beneath the surface of Mars, and collecting the return signal on a receiver. Radar returning through water is returned more strongly, or 'brightly', than radar returning through rock or sediment. This is what the research team found in their radar results: an anomalously bright region in the Planum Australe.

Other explanations, such as very cold and pure water ice, or carbon dioxide ice, could also explain a brightly reflective subsurface anomaly like this, but the research team ran simulations and found that the reflectivity profile did not match their results as well as liquid water. But there's one other big problem: the temperature of the body is estimated to sit at around 205 Kelvin. That is far below the point of freezing, even for hypersaline Antarctic lakes, which remain liquid above 260 Kelvin thanks to their salt content. But despite this, the water could still hypothetically remain liquid. We know that salts of sodium, magnesium, and calcium are abundant on Mars - they've been found on the surface. If dissolved into the water, and combined with the pressure of the ice cap on top, they could drop the freezing point to below 200 Kelvin.

Life has been found in subglacial Earth lakes. It's been previously proposed that a subglacial Martian lake might therefore also harbor life. This discovery reopens that possibility more prominently than ever before.

"There is evidence on Earth of substantial microbial life in the waters below the poles - and even microbes that can survive within ice veins," said astrobiologist Brendan Burns of the University of New South Wales, who was not involved with this research. "Whether similar scenarios are occurring on Mars remain to be experimentally established, but this finding of potential liquid water beneath the surface of Mars opens up fascinating areas of space exploration."

It is still important to keep our cool on this one. It's extremely possible that the sheer concentration of salt required to keep the water liquid is absolutely hostile to life.

We also have absolutely no means of sampling the water at this point, or any point in the near future. But it's a lot more accessible than Europa and Enceladus, the other Solar System candidates in the search for life; and the water itself could yield clues about the climate history of Mars, its hydrosphere, and what may have happened to its long-disappeared ocean.

In addition, now that the team has demonstrated its technique, other researchers know how to look for more such reservoirs on the Red Planet. But we're also going to take a moment to squee about the possibility of Martian microbes.

This is an amazing discovery from the Mars Express. For decades, we've been finding evidence of either ice or past flows. Now, we know that liquid water currently exists on Mars, and just as subsurface lakes exist in Antarctica here on Earth, we now have that on Mars. Every month, new discoveries are being made that is getting us closer to answering the fundamental question - does life exist somewhere beyond Earth.

by Samantha Mathewson, Space.com

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/Colin Boynton	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

At Your Service

Officers / Staff

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John Hammetter	414-519-1958
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Jeff Kraehnke	414-333-4656
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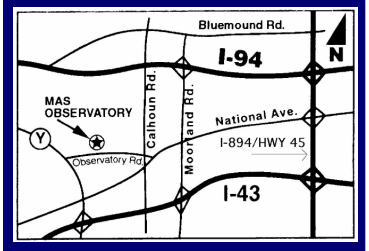
August Keyholders

08/04	Brian Ganiere	414-961-8745
08/11	Lee Keith	414-425-2331
08/18	Jeff Kraehnke	414-333-4656
08/25	Tamas Kriska	414-581-3623



MAS Observatory

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