



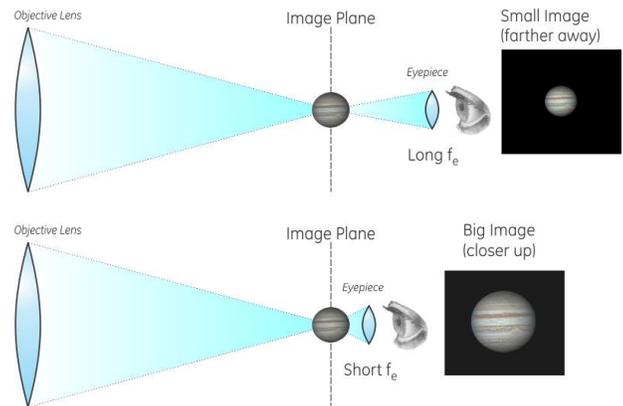
March, 2019

April Meeting

The Milwaukee Astronomical Society will hold its next Membership Meeting on Friday, **April 19th at 8 PM** at the Observatory.

Lee Keith will give a talk entitled: **Top 10 Telescope Properties All Amateur Astronomers Should Know**. We will learn how to determine telescope parameters such as Resolving Power, Limiting Magnitude, Magnification, True Field of View, Diameter of Exit Pupil, Surface Brightness, Minimum Magnification, Wide Field Magnification, Optimum Magnification, and Maximum Magnification and how to use that information to give recommendations as to what eyepiece focal lengths will be appropriate for you and your telescope.

The meeting will be preceded by a Board Meeting, which is open to the membership and starts at 7 PM. Everybody is welcome who is interested in organizational and Observatory related issues.



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Public Nights

The MAS will host the following 6 Open House events in 2019 : **June 22, July 19, August 23, September 6, October 5, and October 25.**

Four Public Nights scheduled for Friday, two (June 22 and October 5) for Saturday. The topic for June 22 is the Sun requiring daytime viewing. In October we want to test whether an off work day would better accommodate potential visitors and MAS members, given the early start time, and its effect on the attendance.

July 19 would be a special night dedicated to the 50th anniversary of Neil Armstrong's being the first human to set foot on the Moon (on July 20th, 1969). The emphasis will be on the Moon and the human history. Gene Hanson has offered to do that night's presentation.

October 25 will be a Halloween themed night. We will decorate the observatories, and encourage MAS members to wear costumes. Bowls of candy will be available at each dome/shed so the kids can "trick or treat" when they come with their maps. The topic maybe revolve around Halloween related objects.

The telescope viewing will be based on printed maps that was very popular during the past two years. Each station will show only the assigned objects until the crowd start thinning.

Speakers are to choose the topics they want to present (but no duplicate topics), with the exception of the 50th anniversary, Sun in June, and the Moon in September. Visible objects shown in our proposal are only suggestions. If you would like to be a speaker please contact Sue Timlin Committee Chair.

As every year, we need members willing to man a telescope, give a tour of the Observatory, or direct the traffic in the parking lot. Your kind help is appreciated!

Observatory Report

The parking lot and paths up to the buildings from the lot were plowed six times in the months of January and February. At a cost of \$40 per plow the total cost so far this season has been \$240. Being mid-March hopefully the need for plowing at the Observatory is over.

We have had a problem with a UV filter in the diagonal of the Solar Telescope fogging and deteriorating last year. Lunt was contacted and the filter was replaced at no cost to the Society. Upon inspection of this filter this week, I found the same thing happening to the new filter. Lunt is shipping us another new filter, at no cost, to replace the failing one. Lunt has concluded this problem with the filter happens when it is exposed to high humidity over time, causing a film to build up on the filter. To stop this from happening to our solar scope any more, an air tight case has been purchased that we can store the diagonal in with silica crystals. I have a two-inch cap to put in the OTA when the scope is not being used, and members are going to have to put the diagonal on the scope when using it and back in the box when done. This should stop the filter from reacting to the humidity and fogging.

The toilet's shutoff valve in the north restroom appears to be leaking. This will be investigated and repaired in the next week.

Respectfully Submitted,
Paul Borchardt, Observatory Director

Treasurer's Report

\$6,696.66	Starting Balance as of 02/13/2019
	<u>Expenditures</u>
\$1.36	PayPal fees
\$10.00	Annual expenses
\$198.67	Periodic expenses
\$186.81	Other expenses
\$137.78	WE Energies
\$534.62	TOTAL Expenditures
	<u>Revenue</u>
\$84.02	Private donations
\$10.00	Calendar sale
\$100.00	Membership dues
\$625.00	Equipment sale
\$819.02	TOTAL Revenue
\$6,981.06	Ending Balance as of 03/13/2019

Respectfully Submitted,
Sue Timlin, Treasurer

Meeting Minutes

The meeting was held on March 15th at the MAS Observatory, New Berlin and was called to order at 7:02PM by Tamas Kriska President.

Minutes, Treasurer's Report and Observatory Director's Report electronically submitted ahead the meeting were approved.

Membership Committee Report was electronically ahead the meeting. Applications Pamela Strunk, and David Donohue & Mary DeGroot were approved.

Old Business – F-scope: The new equipment has been installed. The remaining task includes wiring, polar alignment, and testing. **Small flat screens:** The small flat screens were purchased, arrived, and installed. **2019 Public Nights schedule:** The Open House Committee updated its proposal based on the discussion of the February Board Meeting. Motion was made and carried to accept the updated proposal.

New Business – E-mail voting: The possibilities of voting by e-mail will be investigated. **MAS Campout:** Organizing a campout on September 17th at the White Mound County Park is proposed. **Full Key:** Based on the Observatory Director's recommendation, Mike Bauer's application for a full key has been accepted.

Announcement – The NASA Nigh Sky Network awarded the MAS with 3 medals of the 50th Anniversary of Apollo 11 as recognition of the Club's astronomy outreach.

Program – Watching videos followed by discussion on the brightness and temperature of celestial objects. The videos were from Michael Stevens's YouTube channel **Vsauce**. These educational videos are highly recommended to anybody who wants to learn about how the Universe works.



Respectfully Submitted
Agnes Keszler, Secretary

Membership Report

Since the last Report we received 3 applications. We welcome Driton Rechi & Family, John Fleckenstein, and David and Kayla Fleckenstein and Paleka Family. The total number of active members is 144.

Respectfully Submitted,
Jeff Kraehnke, Committee Chair

Observatory News

MAS Recognition by NASA Night Sky Network

The MAS joined the NASA Night Sky Network program in July of 2017. The NSN is designated to promote astronomy outreach. They provide toolkits the participating amateur clubs, like ours, to make their public events and other programs more successful and popular. The member clubs give feed back to the NSN by logging all outreach events to their website. Our NSN Coordinators are Gene Hanson and Steve Volp, and the Contact Officer is Tamas Kriska. The toolkits ("Solar System", and "Shadowas and Silhouettes") we received so far were presented in our Memebrship Meetings and are available to use during any Open House activities.

This year NSN recognized its outstanding organizations for their commitment to sharing the wonders of the sky and the latest NASA's discoveries with award

Night Sky Network Star

50th Anniversary of Apollo 11: 1969-2019

honoring our first steps on a new world. On July 21, 1969, human beings took their first steps on the Moon. Neil Armstrong and Buzz Aldrin spent over two hours exploring the lunar landscape of the Sea of Tranquility, setting up instruments, making measurements, and taking samples of lunar soil and rock back into their lunar lander, the Eagle. High above, Michael Collins orbited the Moon in the command module Columbia, making certain that the command module was ready to bring them all safely back to Earth after Neil and Buzz's return from the lunar surface. This year we will remember together.

Our Club received 3 award pins to show appreciation towards the efforts of hard-working volunteer members. The pins will be awarded on the April Membership Meeting. If you would like to suggest awardee candidates, please see any Board Member or Officer.



Member's Project

Little Known Deep Skye Object of the Month

After the huge success of his "Crater of the Week" series, and inspired by Paul Borchardt's recently shared image, Russ Blankenburg is proposing to launch a new project called Little Known Deep Skye Object of the Month, or **LKDSOM**.

To participate, please post on the first Monday of the month by 9 AM an image you have taken of a deep sky object that has received little appreciation. Please enclose the details of capturing and post processing, and a brief story of the object.

Whoever posts first, takes it!

March, 2019



Scope: Stellarvue SVQ100 F5.8 Astrograph
Mount: iOptron iEQ45
Camera: ZWO ASI1600MM Cool
Guiding: SX Lodestar/ ZWO OAG
Filters: Astrodon 5nm H α , 3nm OIII, 5nm SII
Software: SGP, PHD 2.6, Pixinsight, Photoshop CC
Sub Gain:75 Offset:12
Temperature: -15C
H α : 30 x 300 sec.
OIII: 24 x 300 sec.
SII: 24 x 300sec.
Total integration: 6.5 hour

Found this nebula while searching through my Pocket Sky Atlas, never heard of it before that. It's rather faint but I decided to try for it through narrow band filters to see what I could get. I would like to add more subs in all filters to my image but the window for imaging around Orion is closing fast.

Very little on the internet about this nebula, but I was able to find a few facts: Sh2-261 (Sharpless 261), also known as the Lower's Nebula, is a faint region of doubly ionized hydrogen. The nebula is named after Harold Lower and his son Charles, who discovered the nebula in 1939 from a picture taken with their home-made 8 inch, F1 Schmidt camera.

Its apparent dimension is about 50 arcminutes in East-West direction and 30 arcminutes in North-South. So, it has an apparent size about twice the full Moon diameter. The nebula is about 3,200 light-years away from us, has a size of about 13.1 parsec and shines with an apparent surface brightness of about 10 mag.

Paul Borchardt

In the Astronomical News

The Milky Way is Warped

The Milky Way galaxy's disk of stars is anything but stable and flat. Instead, it becomes increasingly warped and twisted far away from the Milky Way's center, according to astronomers from National Astronomical Observatories of Chinese Academy of Sciences (NAOC).

From a great distance, the galaxy would look like a thin disk of stars that orbit once every few hundred million years around its central region, where hundreds of billions of stars, together with a huge mass of dark matter, provide the gravitational 'glue' to hold it all together.

But the pull of gravity becomes weaker far away from the Milky Way's inner regions. In the galaxy's far outer disk, the hydrogen atoms making up most of the Milky Way's gas disk are no longer confined to a thin plane, but they give the disk an S-like warped appearance.

"It is notoriously difficult to determine distances from the Sun to parts of the Milky Way's outer gas disk without having a clear idea of what that disk actually looks like," says Dr. Chen Xiaodian, a researcher at NAOC and lead author of the article published in *Nature Astronomy*.

"However, we recently published a new catalogue of well-behaved variable stars known as classical Cepheids, for which distances as accurate as 3 to 5 percent can be determined." That database allowed the team to develop the first accurate three-dimensional picture of the Milky Way out to its far outer regions.

Classical Cepheids are young stars that are some four to 20 times as massive as the sun and up to 100,000 times as bright. Such high stellar masses imply that they live fast and die young, burning through their nuclear fuel very quickly, sometimes in only a few million years. They show day- to month-long pulsations, which are observed as changes in their brightness. Combined with a Cepheid's observed brightness, its pulsation period can be used to obtain a highly reliable distance.

"Somewhat to our surprise, we found that



Artist's impression of the warped and twisted Milky Way disk.
Credit: Chen Xiaodian

in 3-D, our collection of 1339 Cepheid stars and the Milky Way's gas disk follow each other closely. This offers new insights into the formation of our home galaxy," says Prof. Richard de Grijs from Macquarie University in Sydney, Australia, and senior

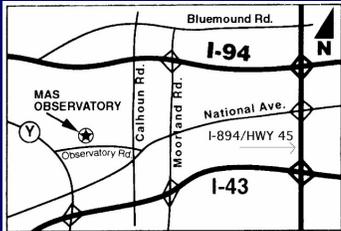
co-author of the paper. "Perhaps more importantly, in the Milky Way's outer regions, we found that the S-like stellar disk is warped in a progressively twisted spiral pattern."

This reminded the team of earlier observations of a dozen other galaxies which also showed such progressively twisted spiral patterns. "Combining our results with those other observations, we concluded that the Milky Way's warped spiral pattern is most likely caused by torques—or rotational forcing—by the massive inner disk," says Dr. Liu Chao, senior researcher and co-author of the paper.

from phys.org

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	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



MAS Observatory

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At Your Service

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April Keyholders

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04/20	Paul Borchardt	262-781-0169
04/27	Brian Ganiere	414-961-8745