MILWAUKEE ASTRONOMICAL SOCIETY

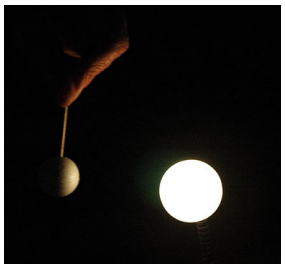
FOCAL POINT

September, 2018

Inside this

October Meeting

The Milwaukee Astronomical Society will hold its next meeting on **Friday, October 19th, from 7 PM at the Observatory.** This is going to be a combined Board / Membership Meeting.



During the first hour organizational and Observatory related issues will be discussed. Every Member is welcome to attend. During the second hour there will be a presentation entitled Shadows and Silhouettes. It will be based on the Night Sky Network's Toolkit that provides hands-on activities on Moon phases, lunar and solar eclipses, transits, and Venus phases. Many people think that the moon doesn't rotate, but it actually does! This fun activity helps you demonstrate this rather unintuitive fact. It also features NASA's Kepler Mission and provides activities to explore searching for planets orbiting in the habitable zone around other stars.

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

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://www.milwaukeeastro.org/sendmsg/onlineRenew.asp. The renewal form can also be printed out and sent 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://www.milwaukeeastro.org/membership/membersRenewed.asp. If your name is there, your membership is active through 2018.

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

Public Nights

We were hosting the September 7th Open House event under cloudy skies, but we still welcomed many visitors who were given a tour of the Observatory ground. Paul Smith gave an interactive talk about the Solar System with a focus on Ice Giants. Children who collected stickers at every open telescope station were treated with a Milky Way bar.

The last Public Night of this season will be on Friday, October 12th from 7:00 to 10:00 PM. The topic will be the Constellations and Asterisms. 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 painting has been finished on the B-Dome, both inside and outside of the dome are painted as are the floor and walls. A new counter is also being made for the B Dome. The exterior of the Quonset building has one coat of the special roofing paint on the walls and two coats have been applied to the roof. The Observatory is looking much better now thanks to all of the hard work done by the members over this summer.

A new motor driven focuser has been installed on the A-Scope and is working fine. The slow-motion control on A-Scope is not working and by the looks of the forty plus year old electronics it may take a lot of effort and some new hardware to get the slow-motion feature working again on this scope. Plans are to paint the A-scope soon now that the planetary imaging on this scope is winding down for the season.

The new bridge and riser are finished for G-scope having both been power coated. The cost for these two pieces came to roughly $650 for materials and $62 for the powder coating. All of the machining and welding was donated by Clark Brizendine and me, which is helping keep the cost of installing the new mount to a minimum.

Other items: The water pump was recharged, the driveway was top-coated, and an 8- inch Meade LX10 telescope was donated.

Respectfully Submitted,
Paul Borchardt, Observatory Director

Treasurer's Report

$11,551.23	***Starting Balance as of 08/11/2018***
	Expenditures
$10.89	PayPal fees
$40.87	Annual expenses
$36.03	Periodic expenses
$656.56	Observatory expenses
$587.97	Other expenses
$52.73	WE Energies
$1,385.05	TOTAL Expenditures
	Revenue
$29.35	Private donations
$679.00	Membership dues
$-50.00	Key deposits
$358.00	Public donations
$1,016.35	TOTAL Revenue
$11,182.53	***Ending Balance as of 09/19/2018***

Respectfully Submitted,
Sue Timlin, Treasurer

Meeting Minutes

The meeting was held on September 21st at the MAS Observatory, New Berlin and was called to order at 7:00PM by Tamas Kriska President. **Minutes, Treasurer's Report, Observatory Director's Report,** and **Membership Committee Report** electronically submitted ahead the meeting were approved. Membership application of Donald Krailing, Brian Jensen & Family, Ted Makowka, Heather Myers, Jon Gamache & Family, Joseph Bichanich & Family, and Jennifer Zyzo were approved.

Old Business – *Motorized focuser*: The new focuser to the A-scope has been installed. *Maintenance plan*: All the planned maintenance but the Z2 shed re-roofing was completed. All work was done within budget. *G-scope*: The riser and the bridge were prepared and powder coated. *Yard faucet*: Quote of $1898 for a new hydrant has arrived from S&K Co. Motion was made and carried to allocate the money.

New Business – *Student membership*: A motion was made and carried to update the student membership to youth membership available for members 20-year-old or younger. *Dehumidifier*: Motion was made and carried to allocate $250 for buying a dehumidifier to the Quonset. *Work platform*: The new equipment setup in the Z dome requires a higher platform. Motion was made and carried to buy a new one for $969. *Loaner scope*: A new policy will be proposed.

Program – Gene Hanson gave a talk about the MAS History (1978-2002).

Respectfully Submitted
Agnes Keszler, Secretary

Membership Report

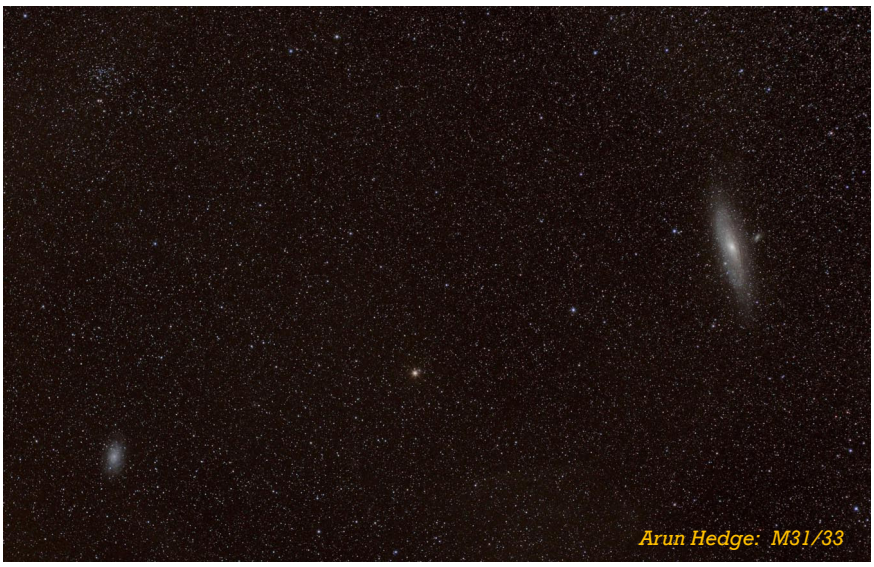
Since the last Report we received 6 renewals and 7 new membership applications and would like to welcome Brian Jensen & Family, Ted Makowka, Heather Myers, Jon Gamache & Family, Joseph Bichanich & Family, and Jennifer Zyzo. We have 176 active members.

Respectfully Submitted,
Jeff Kraehnke, Committee Chair

Star Party at Harrington Beach

Unfortunately, the Summer Campout had to be cancelled for this year. However, as an alternative a star party was arranged to the Harrington Beach for Saturday, September 15th.

Nine MAS members made the under-an-hour drive to Harrington Beach State Park north of Port Washington. The astrophotos taken there are of course speak for themselves, but for those members just wanting to see the milky stripe of our own galaxy, this was as convenient as it gets. There were two 12inch scopes to just look through, and our experienced members took us on a tour of the constellations and galaxies and nebulae that you just can't see from here. We saw the Veil nebula visually, and Andromeda hurt the eyes to look at (ok, that one's an exaggeration). Then at about 11pm the internet informed us that the skies were a perfect 5/5 transparency for deep sky and 5/5 seeing for planets- we all agreed.



Arun Hedge: M31/33

Logistically this is an easy one. This was the first time out there for two of us and we had no problems. It's three minutes off the expressway. A state park sticker or 8 bucks in the night box by the always-open gate and your in. A one minute meander down a paved road with your fog lights on and you're at the parking lot where everyone is. The outhouse is pungent but clean.

We are planning to launch an informal star party in October that would be great for newer members to get to know each other and the sky. This would be even more casual than coming out to the observatory. The weather is still reasonable, and one could get there at about 8 pm and be home by midnight. Harrington Beach is open to astronomers past 11pm thanks to the arrangement Northern Cross Science Foundation has with the park.

Obviously it would have to be arranged with only a few days notice when a clear Friday or Saturday night appears. **So stay flexible and stay posted**.

by Russ Blankenburg

Photo credit: Jeff Kraehnke

Observatory Maintenance

The long summer maintenance season finally comes to an end.

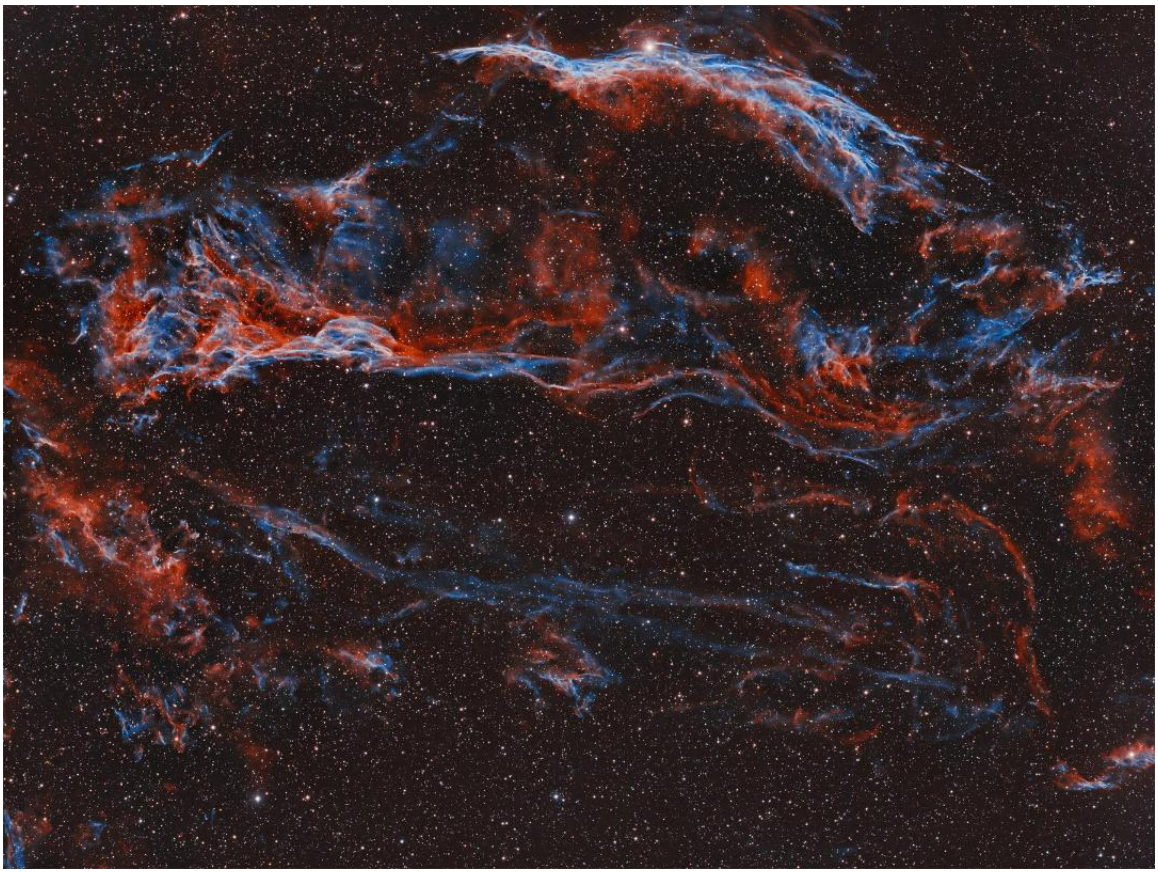
The Z building's walls were painted to the same color as A and B. The old shelf in B-dome was replaced with a newly made one. The roof of the Tangney Observatory was repainted white.

A dehumidifier was purchased and installed into the Quonset to prevent mold growth. The outer shell of the Quonset has got three layers of roofing coat, which not only gives the building a fresh look but also protects it from water damage.

Lastly, the old and worn out asphalt of the drive way was repaired and sealed.

Image of the Week

Chad Andrist was awarded with the image of the week on the Astroimaging Channel for his image of the Western Veil nebula. Way to go Chad!! Well deserved!



The Veil constitutes the visible portions of the Cygnus Loop, a supernova remnant, many portions of which have acquired their own individual names and catalogue identifiers. The source supernova was a star 20 times more massive than the sun, which exploded around 8,000 years ago. The remnants have since expanded to cover an area of the sky roughly 3 degrees in diameter (about 6 times the diameter, or 36 times the area, of the full Moon). The distance to the nebula is about 1,470 light-years. The analysis of the emissions from the nebula indicate the presence of oxygen, sulfur, and hydrogen. The Cygnus Loop is also a strong emitter of radio waves and x-rays.

The Western Veil (also known as Caldwell 34), consisting of NGC 6960 (the "Witch's Broom", "Finger of God", Lacework Nebula, "Filamentary Nebula") near the foreground star 52 Cygni.

"This object is a favorite of many imagers every time summer comes around, to me the Veil is as quintessential to summer as baseball and lazy days on the beach.

The Takahashi FSQ106ED coupled with the QE.73x reducer offers a nice wide 2.58x1.95° field of view which allowed me to take in the wisps of nebulosity that stretch all the way to the Eastern Veil. In fact, if I were to rotate the camera 90°, I can nearly get both the east and west segments in one frame. Perhaps next season. " - *Chad Andrist*

Details:
Scope: FSQ106EDXIII reduced .73x , camera: ZWO ASI1600MMC, mount: Mach1GTO, guiding: Lodestar/ZWO OAG, filters: Astrodon 5nm Ha/ 3nm OIII, Ha: 25x300s, OIII: 25x300s, 4.16 hours.

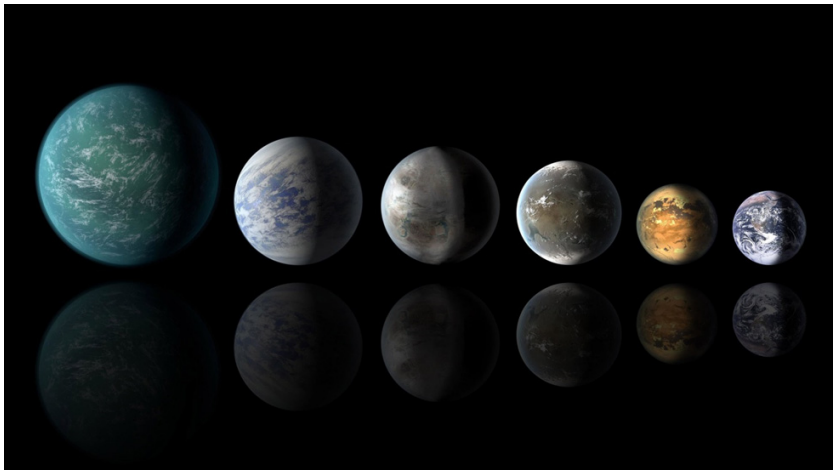
Software:
Acquisition:Sequence Generator Pro, guiding: PHD 2.6, processing: Pixinsight 1.8.5, Lightroom 4, Photoshop CS5.

In the Astronomical News

Water-Worlds are Common: Exoplanets May Contain Vast Amounts of Water

Scientists have shown that water is likely to be a major component of those exoplanets (planets orbiting other stars) which are between two to four times the size of Earth. It will have implications for the search of life in our Galaxy. The work is presented at the Goldschmidt Conference in Boston.

The 1992 discovery of exoplanets orbiting other stars has sparked interest in understanding the composition of these planets to determine, among other goals, whether they are suitable for the development of life. Now a new evaluation of data from the exoplanet-hunting Kepler Space Telescope and the Gaia mission indicates that many of the known planets may contain as much as 50% water. This is much more than the Earth's 0.02% (by weight) water content.



Exoplanets similar to Earth, artist concept. Credit: NASA

"It was a huge surprise to realize that there must be so many water-worlds", said lead researcher Dr. Li Zeng (Harvard University),

Scientists have found that many of the 4000 confirmed or candidate exoplanets discovered so far fall into two size categories: those with the planetary radius averaging around 1.5 that of the Earth, and those averaging around 2.5 times the radius of the Earth.

Now a group of International scientists, after analyzing the exoplanets with mass measurements and recent radius measurements from the Gaia satellite, have developed a model of their internal structure.

"We have looked at how mass relates to radius, and developed a model which might explain the relationship", said Li Zeng. The model indicates that those exoplanets which have a radius of around x1.5 Earth radius tend to be rocky planets (of typically x5 the mass of the Earth), while those with a radius of x2.5 Earth radius (with a mass around x10 that of the Earth) are probably water worlds".

"This is water, but not as commonly found here on Earth", said Li Zeng. "Their surface temperature is expected to be in the 200 to 500 degree Celsius range. Their surface may be shrouded in a water-vapor-dominated atmosphere, with a liquid water layer underneath. Moving deeper, one would expect to find this water transforms into high-pressure ices before we reaching the solid rocky core. The beauty of the model is that it explains just how composition relates to the known facts about these planets".

Li Zeng continued, "Our data indicate that about 35% of all known exoplanets which are bigger than Earth should be water-rich. These water worlds likely formed in similar ways to the giant planet cores (Jupiter, Saturn, Uranus, Neptune) which we find in our own solar system. The newly-launched TESS mission will find many more of them, with the help of ground-based spectroscopic follow-up. The next generation space telescope, the James Webb Space Telescope, will hopefully characterize the atmosphere of some of them. This is an exciting time for those interested in these remote worlds".

Sara Seager, Professor of Planetary Science at Massachusetts Institute of Technology, and deputy science director of the recently-launched TESS (Transiting Exoplanet Survey Satellite) mission, which will search for exoplanets, said:

"It's amazing to think that the enigmatic intermediate-size exoplanets could be water worlds with vast amounts of water. Hopefully atmosphere observations in the future—of thick steam atmospheres—-can support or refute the new findings".

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	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

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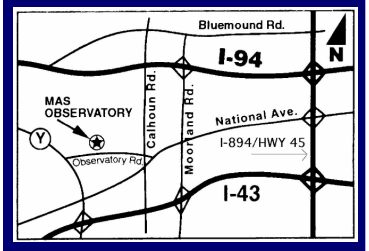

MAS Observatory

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www.milwaukeeastro.org

October Keyholders

10/06	Brian Ganiere	414-961-8745
10/13	Gene Hanson	262-269-9576
10/20	Lee Keith	414-425-2331
10/27	Sue Timlin	414-460-4886