

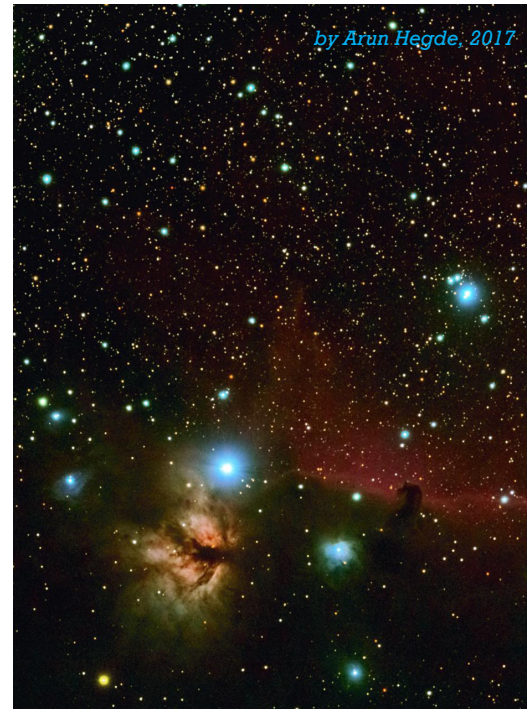


Next Meeting on February 16th

The Milwaukee Astronomical Society will hold its next General Meeting on Friday, February 16th, at 8 PM at the Observatory.

Dan Flynn store manager and Monica Laatsch from Art's Cameras Plus in Greenfield will give a presentation entitled **Astrophotography Overview**. The talk will provide insight into all kinds of details such as the equipment (from essentials through specialized ones), DSLR technology, camera settings, special techniques and resources. Dan considers himself an "experienced" photographer who has made just about every mistake possible which makes him well qualified at helping people avoiding making them.

The meeting will be preceded by a Board Meeting from 7 PM that is open for everybody who interested in organizational and Observatory related issues.



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Public Night Schedule for 2018

As you may have already seen on the MAS website, the Board of Directors has decided on the dates of this year's Public Nights, which will be following:

May 11 Friday, 7:00-10:00 PM

June 23 Saturday, 4:00-8:00 PM (The Sun)

August 17 Friday, 8:00-11:00 PM

September 7 Friday, 7:00-10:00 PM

October 12 Friday, 7:00-10:00 PM

As always, the events will start with a short presentation on the history of the MAS delivered by Gene Hanson, followed by the longer talk about the featured topic of the night. Then, weather permitting, the guests can view planets and deep sky objects through various telescopes.

The exact topics have not been specified yet, it could be a choice of the potential presenters. If you would like to be a speaker please contact Sue Timlin Open House Committee Chair, or any Officer or Board Member. Remember, the success of these Public Nights depend on the help that MAS members provide. Any help would be greatly appreciated.

Observatory Report

The new dome for the Solar Observatory, manufactured by NexDome arrived just before Christmas and was assembled at Vector Industries the first week of January. On Saturday, January 13th, several members endured the bitter cold to install the new dome on the old walls. Once a hold down system has been installed and the dome is secured the scopes will be replaced back into the dome and the Solar Scope will be ready for use.

It was found that a set screw on the Dec shaft of the Astro Physics mount that holds the G- scope causes the tracking problems when becomes loose. After tightening the screw, the tracking was resolved until the screw loosened again. Steps are being taken to keep the screw tight with a thread locking product.

A new plate has been produced to hold the mount of the 8" Celestron GOTO telescope to its pier. The new plate will ensure that once the scope is properly polar aligned it will stay aligned. Also, an adapter has been purchased for the scope so DSLR cameras can be mounted and the scope can be used for imaging now.

Member's nights have been attended on both clear and cloudy nights, and the First Wednesday meetings have been very well attended with many good responses.

Respectfully Submitted,
Paul Borchardt, Observatory Director

Treasurer's Report

\$4,368.80	Starting Balance as of 11/15/2017
	<u>Expenditures</u>
\$41.61	PayPal fees
\$100.00	Stipend
\$342.98	Annual expenses
\$511.67	Periodic expenses
-\$25.75	Observatory expenses
\$144.68	WE Energies
\$36.00	Water/sewer
\$1151.19	TOTAL Expenditures
	<u>Revenue</u>
\$831.20	Donations
\$2,182.00	Membership dues
\$152.00	Annual revenue
\$3,165.20	TOTAL Revenue
\$6,382.81	Ending Balance as of 01/17/2018

Respectfully Submitted,
Sue Timlin, Treasurer

Meeting Minutes

The meeting was held on January 19th at the MAS Observatory, New Berlin and was called to order at 7:05PM by Tamas Kriska President.

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

Membership Committee Report was electronically submitted by Jeff Kraehnke Committee Chair ahead the meeting. Membership application of Dale Graser, Jim Kaufman, Scott & Kim Derus, Matthew Pegoraro, Matt Hill, Melissa Schober, John Manning, William Kamper, Lynda Osterude, Lisa Niles, David Thornburg, and Matthew Genack were approved.

Old Business – Solar Observatory: The NexDome product has arrived, and been swapped with the dome part of the SkyShed POD product.

New Business – Eyepieces: Motion was made and carried to allocate \$280 buying 7 new eyepieces. *2018 Public Night schedule* was accepted. *Electroluminescent panel kit* to make flats with G-scope. A motion was made and carried to allocate \$250. *Quonset hall naming:* was proposed after late MAS member Cora Zemlock whose generous donation, capital of the

Endowment
Fund,
makes
possible the
Club's
prosperity.



Program – Casey McGrath and Shawn Kwang, UW Milwaukee gave a talk entitled: Citizen Science, the projects that you can be part of.

Respectfully Submitted
Agnes Keszler, Secretary

Membership Report

Since the last Report we received 34 renewals and fourteen new membership applications and would like to welcome Matthew Genack, Jim Kaufman & Family, John Manning & Family, William Kamper & Family, Scott & Kim Derus, Matthew Pegoraro, Lynda Osterude & Family, Matt Hill & Family, Melissa Schober, David Thornburg, Lisa Niles & Family, Yue Shen, Tigran Grigoryev & Family, Jim Bakic & Family. 38 members did not renewed their memberships for 2018. We now have 148 active members.

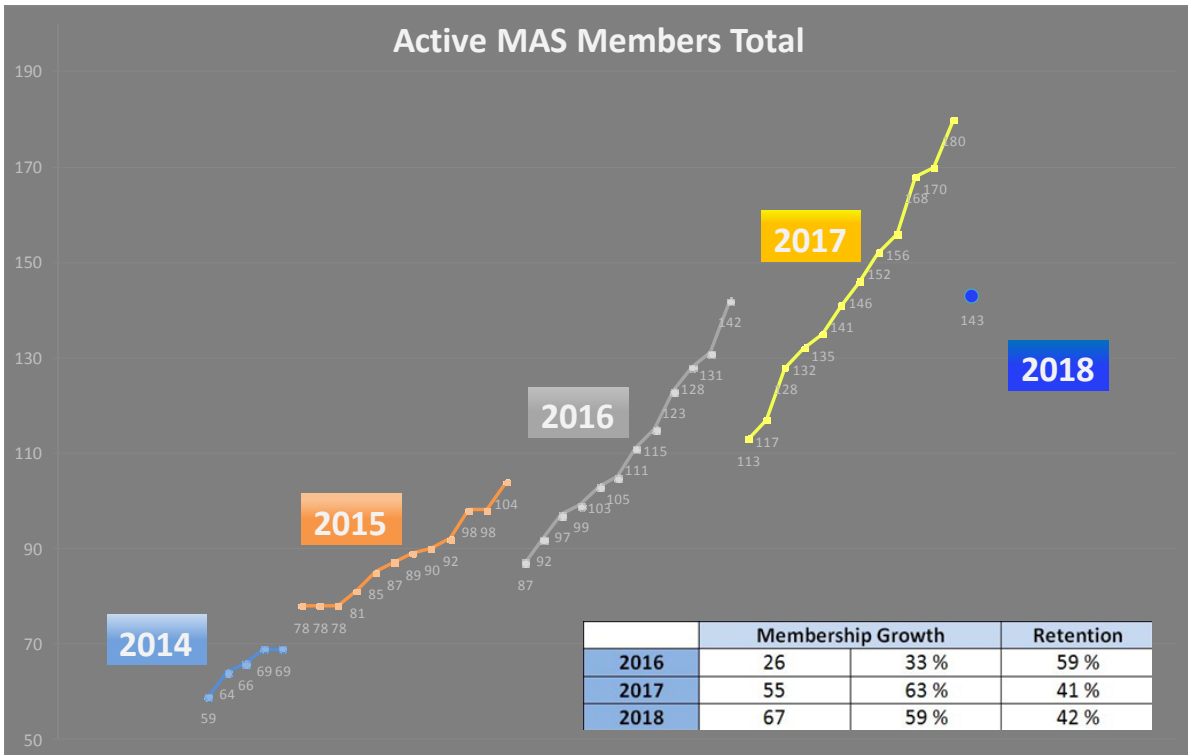
Respectfully Submitted,
Jeff Kraehnke, Committee Chair

Observatory News

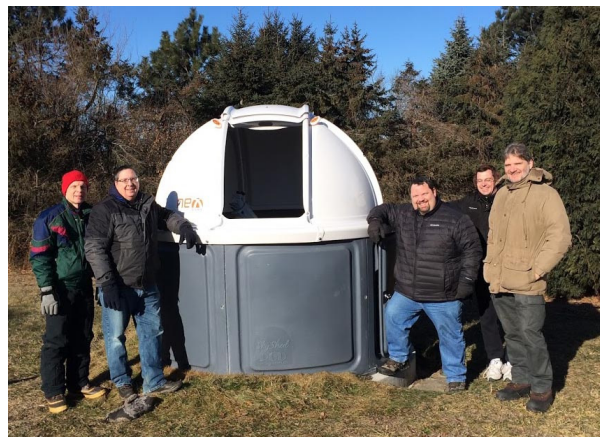
MAS Membership 2014-2017

Due to our public outreach effort and the well maintained website the MAS membership has been continuously growing in recent years. We welcome more than four new applicants every month. As the Club's popularity was growing, the membership doubled since 2014.

However, year by year there are many members who don't renew their membership. The retention numbers indicate that by far not everybody's expectations were met. The First Wednesday Meetings, the workshops, and the reshaped keyholder system were all introduced with a hope that these would help MAS members, newcomers and old timers equally, to have a much improved experience with the Club.



New Dome on Solar Observatory



Astronomical Events

Three Lunar Events Collide



by John Asztalos, Denver, CO

A cosmic trifecta occurs on January 31st: supermoon (when the moon is the closest to earth), blue moon (second full moon in the same month), and total lunar eclipse also called blood moon for its reddish color which is due to sunlight shining through the atmosphere refracted to the red region and is cast to the lunar disk.

Such an event has not been seen on the earth since 1982, and in the Americas in 150 years. For this exceptional occasion Paul Borchardt Observatory Director was interviewed by Ann Sterling from TMJ4 channel:

"Set your alarm early Wednesday morning for a rare cosmic event -- a blue moon, a supermoon, and a total

lunar eclipse, all rolled into one. Paul Borchardt with the Milwaukee Astronomical Society said it's something we'll never see again in our lifetime.

"It's a rarity. It's something we'll never see again in our lifetime," said Borchardt.

A blue moon is the second full moon in a month. January's first full moon happened on the January 1. A supermoon is a full moon at its closest point to Earth in its orbit. It looks bigger and brighter in the sky.

"Go out after sunset tonight. If it's clear, watch the full moon come up. That will be your super moon and blue moon.

You get 2 out of 3 immediately," said Borchardt.

The total lunar eclipse is when the moon is completely bathed in the earth's shadow.

"The eclipse is the most exciting to us of the events. That's where the moon gets into the shadow of the earth causing it to turn blood red during totality," said Borchardt.

Wednesday's Super Blue Blood Moon will be visible before dawn to people on the West Coast of the United States and most everywhere around the Pacific Rim. As long as it isn't a cloudy morning.

"Here in Wisconsin we will only pick up the partial phase where the moon is going into the shadow and it's partially eclipsed," said Borchardt. He said the last time the triple sky phenomenon of a blue moon, a supermoon and a blood moon happened on the same day was in the 1800's."



by Derek Rickert, West Hollywood, CA

In the Astronomical News

Dust Storms Linked to Gas Escape from Mars Atmosphere

Some Mars experts are eager and optimistic for a dust storm this year to grow so grand it darkens skies around the entire Red Planet. This biggest type of phenomenon in the environment of modern Mars could be examined as never before possible, using the combination of spacecraft now at Mars. A study published based on observations by NASA's Mars Reconnaissance Orbiter (MRO) during the most recent Martian global dust storm -- in 2007 -- suggests such storms play a role in the ongoing process of gas escaping from the top of Mars' atmosphere. That process long ago transformed wetter, warmer ancient Mars into today's arid, frozen planet.

We found there's an increase in water vapor in the middle atmosphere in connection with dust storms," said Nicholas Heavens of Hampton University, Hampton, Virginia, lead author of the report in *Nature Astronomy*. "Water vapor is carried up with the same air mass rising with the dust."

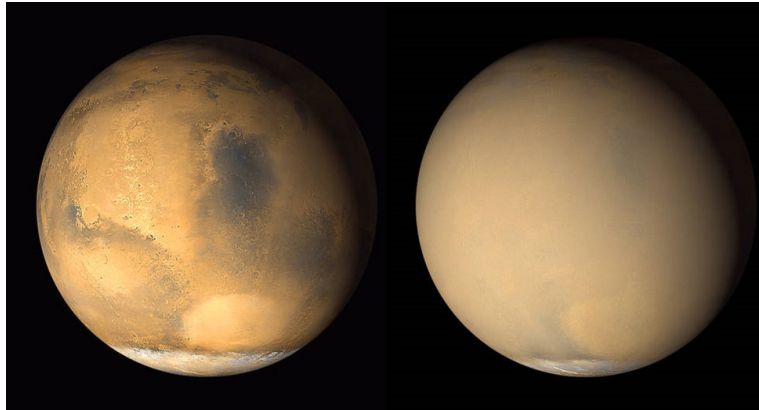
A link between the presence of water vapor in Mars' middle atmosphere -- roughly 30 to 60 miles high -- and escape of hydrogen from the top of the atmosphere has been detected by NASA's Hubble Space Telescope and the European Space Agency's Mars Express orbiter, but mainly in years without the dramatic changes produced in a global dust storm. NASA's MAVEN mission arrived at Mars in 2014 to study the process of atmosphere escape.

"It would be great to have a global dust storm we could observe with all the assets now at Mars, and that could happen this year," said David Kass of NASA's Jet Propulsion Laboratory, Pasadena, California. He is a co-author of the new report and deputy principal investigator for the instrument that is the main source of data for it, MRO's Mars Climate Sounder.

Not all Mars watchers are thrilled with the idea of a global dust storm, which can adversely affect ongoing missions. For instance: Opportunity, as a solar powered rover, would have to hunker down to save energy; the upcoming InSight lander's parameters would need to be adjusted for safe

entry, descent and landing in November; and all the cameras on rovers and orbiters would need to deal with low visibility.

Decades of Mars observations document a pattern of multiple regional dust storms arising during the northern spring and summer. In most Martian years, which are nearly twice as long as Earth years, all the regional storms dissipate and none swells into a global dust storm. But such expansion happened in 1977, 1982, 1994, 2001 and 2007. The next Martian dust storm season is expected to begin this summer and last into early 2019. The Mars Climate Sounder on MRO can scan the atmosphere to directly detect dust and ice particles and can indirectly sense water vapor concentrations from effects on temperature.



Two 2001 images from the Mars Orbiter Camera on NASA's Mars Global Surveyor orbiter show a dramatic change in the planet's appearance when haze raised by dust-storm activity in the south became globally distributed. The images were taken about a month apart. Credits: NASA/JPL-Caltech/MSSS

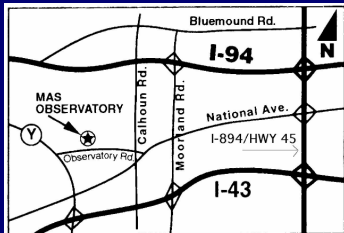
Heavens and co-authors report the sounder's data show slight increases in middle-atmosphere water vapor during regional dust storms and reveal a sharp jump in the altitude reached by water vapor during the 2007 global dust storm. Using recently refined analysis methods for the 2007 data, the researchers found an increase in water vapor by more than a hundred-fold in the middle atmosphere during that global storm.

Before MAVEN reached Mars, many scientists expected to see loss of hydrogen from the top of the atmosphere occurring at a rather steady rate, with variation tied to changes in the solar wind's flow of charged particles from the Sun. Data from MAVEN and Mars Express haven't fit that pattern, instead showing a pattern that appears more related to Martian seasons than to solar activity. Heavens and coauthors present the dust storms' hoisting of water vapor to higher altitudes as a likely key to the seasonal pattern in hydrogen escape from the top of the atmosphere. MAVEN observations during the stronger effects of a global dust storm could boost understanding of their possible link to the escape of gas from the atmosphere.

by Guy Webster, Jet Propulsion Laboratory
Laurie Cantillo / Dwayne Brown, NASA

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

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At Your Service

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Sue Timlin	414-460-4886
Steve Volp	414-751-8334

February Keyholders

02/03	Sue Timlin	414-460-4886
02/10	Steve Volp	414-751-8334
02/17	Paul Borchardt	262-781-0169
02/24	Brian Ganiere	414-961-8745