



February, 2017

Next Meeting on March 14th

The Milwaukee Astronomical Society will hold its next meeting on **Tuesday, March 14th, from 7 PM till 8:45 PM** in the New Berlin Public Library's Heritage Room. Address: 15105 W Library Lane, New Berlin, WI 53151 (corner of National and Coffee Rd).

According to the new format it is going to be a combined Board and Membership meeting, where during the first hour organizational and Observatory related issues will be discussed. During the second hour we will have a presentation on the basic facts and observational information of Solar Eclipses.

As always, the Observatory is open on Saturday nights, or when it is announced on the Google Group.



*Partial eclipse
John Asztalos, 2014*



*Total eclipse
(Gerry Samolyk, 1999)*



*Annular eclipse
(Russell Chabot, 2012)*

Inside this

February Meeting	1
Public Nights	1
Meeting Minutes	2
Membership	2
Treasurer Report	2
Observatory Director's Report	2
Quonset Remodel	3
Project Fair	4
Flaming Meteor	5
In the News	6
Adopt a Scope	7
Officers/Staff	7
Keyholders	7

Public Nights of 2017

The Open House Committee has finalized the 2017 Public Night schedule. The starting times are adjusted to the sunset, and a closing time has been set so that our guests would know a time frame when the Observatory is open. Based on the last year success each telescope will be assigned to a single object to show.

May 26	20:00-23:00
June 17	16:00-20:00
August 11	20:00-23:00
August 25	20:00-23:00
September 22	19:00-22:00
September 29	19:00-22:00
October 13	19:00-22:00

Among those who visit all scopes and collect stickers at each station prizes will be raffled out.

Speakers wanted for the Public Nights. The topic of June 17th is the Sun, and the September 29th is designated to the Moon. On all other nights the presenters are asked to chose a topic that is related to a prominent object visible on the night of the presentation.

Observatory Report

Quonset remodel has had tremendous activity. This month a 14.25" mirror along with the matching secondary mirror, spider, and mirror cell have been sold as a package for \$750. Club member Tom Clark has bought two old mirrors as blanks for \$140. A new switch has been purchased for the operation of the B-dome slit, but due to a difference in wiring from the old switch we still are working on the install, so B-scope cannot be used at this time. The chains and other hardware for the operation of the Z-dome has been installed, but a little bit of adjustment is needed to obtain smooth operation. A Skyris 132C planetary imaging camera has been purchased used (a \$100 saving over the cost of a new unit). This color camera has smaller pixels than the Skyris 618 has and should match up better to the focal lengths of the A and B-scopes for sharper images. Also 2" nose pieces have been purchased for both of the Skyris cameras so they can be mounted directly into the scopes focuser without the need of a reducing adaptor. This way the camera requires less back focus. Use of the observatory has still been pretty light, but some members have been braving the cold on the few clear nights there have been. The F-scope has been used the most, most likely because it is operated from the heated control room.

Respectfully Submitted,
Paul Borchardt, Observatory Director

Treasurer's Report

\$13,856.21	Starting Balance as of 1/09/2017
	Expenditures
\$10.00	PayPal fees
\$49.90	Mount adapter
\$211.00	Skyris 132C camera
\$157.69	WE Energies
\$96.06	B-dome slit switch
\$17.09	B-dome slit repair
\$541.74	TOTAL Expenditures
	Revenue
\$23.79	Donations
\$125.00	Equipment sales
\$184.00	Membership dues
\$332.79	TOTAL Revenue
\$13,647.23	Ending Balance as of 2/6/2017

Respectfully Submitted,
Sue Timlin, Treasurer

Meeting Minutes

Held on February 8th at the New Berlin Public Library. The meeting was called to order at 7:00PM by President, Tamas Kriska.

Minutes, Treasurer's Report, Observatory Director's Report, and the Membership Report were submitted electronically.

Old Business - Solar Eclipse: The Club will reserve a group camp site for the August 20th night/\$50. Electric service upgrade: An electrician was hired for \$1980 to replace the panel to be ready to upgrade from 100A to 200A. Quonset Hut remodeling: The remodeling is progressing. We need 6-7 persons for the upcoming Saturday work party to hang the 12 feet long wall panels.

Water pump switch: The switch was not purchased because the existing one is in working conditions right now. The Board decided to buy a spare one anyways. Public Night schedule: New suggestion was made. Membership loss: The planned questionnaire about the reasons of not renewing membership is still to be compiled and sent. Skyris 132C color planetary camera: The camera has been purchased as used on Cloudy Nights, and will be tested soon. Z-dome chain: The chain was installed, however some fine adjustment is still needed.

Broken switch in B-dome: New switch was purchased, has not been installed yet.

New Business - The Karl Junginger Memorial Library in Waterloo, WI. asked for an MAS brochure. The Club has an old version, and now we need to come up with a modern and up-to-date one. Sue Timlin, Steve Volp and Pete Smith volunteered to help out.

Correspondence - The Franklin Public Library asked for a speaker about Solar Eclipse. The date was not specified.

Program - Tamas Kriska gave a presentation about the Hertzsprung-Russell diagram.

Respectfully Submitted,
Agnes Keszler, Secretary

Membership Report

Since the last Report we received seven new membership applications and would like to welcome Grant Tillman, Danny Schlei, Luke Zimmerman & Family, Derek Rickert, Alex Martinelli, Thomas Guhl & Family, and Ricardo Lima-Martinez. We now have 124 active members.

Respectfully Submitted,
Jeff Kraehnke, Committee Chair

Observatory News

The Quonset Hut Remodeling

The success story of the Quonset remodeling project is continuing. Thanks to the huge turnout on February 11th, we managed to finish hanging all wall panels. Installation of decorative cover for the accent walls has been also completed. We have replaced the entrance door to the A building, doors of the dark room and storage

room and of both bathrooms, one of them widened to allow wheelchair accessibility. A professional electrician replaced the electric panel, which is now ready for upgrade from 100 Amp to 200 Amp service. We will mount the wall panels and ceiling tiles in the A building during the coming weekends. As always, any help is appreciated.



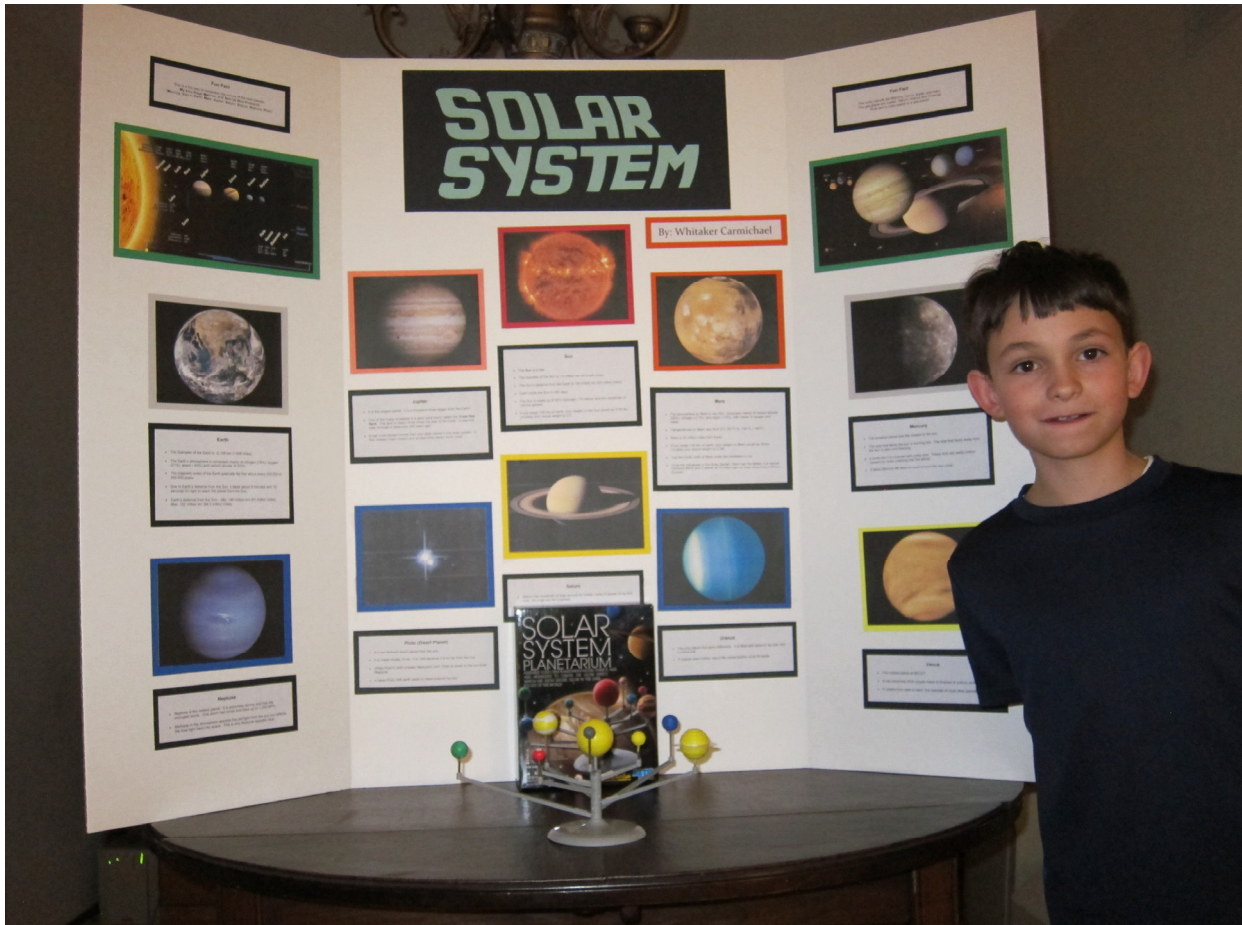
Observatory News

From Public Night to Project Fair

Last summer we introduced a new format for our Public Nights where each telescope was assigned to a single object to show. Objects were chosen based on their visibility during the astronomical twilight and assigned based on the best match with the telescopes. Among those who visited all scopes and collected stickers upon successful observation of every object, prizes were raffled out. As a result people stayed much longer and were much more engaged in the visual observation. One of the guests who entered the raffle was Whitaker Carmichael, an elementary school student. Whitaker was one of the winners and his

prize was a Solar System model. This inspired him to participate in the Project Fair organized by the Section School of the Mukwonago School District. Participants could build a project on anything that interested them (family, pet, a trip, place they want to visit, historical event, book, sport, or a hobby). Whitaker chose the Solar System as a topic where he integrated the model as part of the display. He even requested some MAS brochures and business cards to distribute during the event.

Congratulations Whitaker, you did a great job! We hope to see you again on this year's Public Nights.



Whitaker with his informational backboard and the Solar System model

Astronomical Events

Flaming Meteor Spotted

The American Meteor Society reported a fireball event that occurred over Wisconsin and Illinois on February 6th around 1:27 AM. The trajectory of the meteor pointed to the northern Lake Michigan, however it was uncertain whether it actually struck the Earth or burned out.

Despite the early hour many people had a chance to admire the spectacular event. Paul Borchardt, who was among them, fielded

some questions from TMJ4 about it at the Observatory. You can watch the report at: <http://www.tmj4.com/news/bright-flash-of-light-seen-in-sky-across-wisconsin>



The huge fireball was caught on a Police Dash cam (Lisle, IL PD)

In the Astronomical News

Earth-Size Planets: The Newest, Weirdest Generation

A bumper crop of Earth-size planets huddled around an ultra-cool, red dwarf star could be little more than chunks of rock blasted by radiation, or cloud-covered worlds as broiling hot as Venus. Or they could harbor exotic life forms, thriving under skies of ruddy twilight. Scientists are pondering the possibilities after this week's announcement: the discovery of seven worlds orbiting a small, cool star some 40 light-years away, all of them in the ballpark of our home planet in terms of their heft (mass) and size (diameter). Three of the planets reside in the "habitable zone" around their star, TRAPPIST-1, where calculations suggest that conditions might be right for liquid water to exist on their surfaces—though follow-up observations are needed to be sure. All seven are early ambassadors of a new generation of planet-hunting targets.

Red dwarf stars -- also called "M-dwarfs" -- outnumber others, including yellow stars like our sun, by a factor of three to one, comprising nearly 75 percent of the stars in our galaxy. They also last far longer. And their planets are proportionally larger compared to the small stars they orbit. That means small, rocky worlds orbiting the nearest red dwarfs will be primary targets for new, powerful telescopes coming online in the years ahead, both in space and on the ground.

Red dwarfs smolder at much lower energy than our sun, but live much longer, perhaps with lifespans in the trillions of years -- longer than the present age of the universe. Our sun is expected to burn out after shining for something on the order of 10 billion years; we're about halfway through its lifespan. The exact age of the TRAPPIST-1 star is unknown, but scientists believe it is at least 500 million years old, or about one-tenth the age of our 4.5-billion-year-old sun.

Red dwarfs could take their first billion years just to calm down enough to allow any nearby planets to be habitable. And the "habitable zone" around such stars is very close indeed. All seven of the Earth-size planets crowd so close to their star that they complete a single orbit -- their "year" -- in a matter of days, 1.5 days for the nearest planet and 20 days for the farthest. That kind of proximity means the planets are probably

tidally locked, with one face always turned to the star, the same way our moon presents only one face to Earth. And while red dwarfs are "cool" compared to our sun, they would loom large in the sky of a close, tidally locked planet, perhaps baking the sunward face. The far side, meanwhile, could be trapped in an eternal, frozen night. The right kind of atmosphere could mitigate such effects, transporting heat to the planet's far side and helping to moderate the climate overall.

A recent study that relied on computer simulations of red dwarf planets, however, delivered more grim news. The flaring tempers of young red dwarfs, with their bursts of high-energy X-rays and ultraviolet emissions, could

actually strip oxygen from the atmospheres of nearby planets, according to the study by a team at NASA. Yet another potentially sterilizing effect, even for M-dwarf planets that manage to hold on to their atmospheres, would

result from high-energy radiation triggering a runaway greenhouse effect.

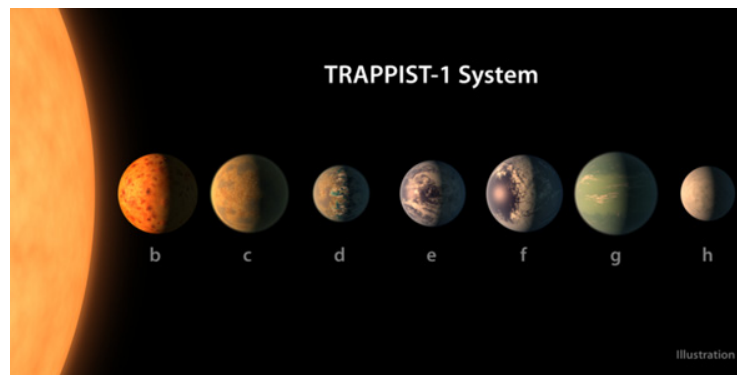
But so little is known about how life gets its start, and how common or rare it might be in the cosmos, that tenacious life on M-dwarf planets remains a distinct possibility.

As for TRAPPIST-1, "The current relative quietness of the star and plausible sources of atmospheric replenishment still make possible for the planets to have atmospheres and surface habitable conditions," said principal investigator of TRAPPIST at the University of Liège, Belgium.

"Maybe the atmosphere can recover, and it's just fine," said a senior research scientist at the NASA Ames Research Center in Moffett Field, California. In his scenario, life forms find a way to adapt to bursts of stellar radiation.

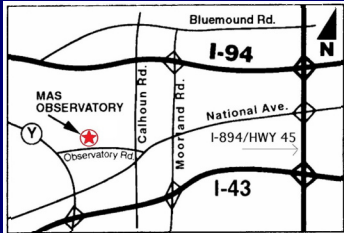
Future telescopes, including NASA's James Webb Space Telescope (JWST), to be launched in 2018, could help resolve such questions by closely analyzing the atmospheric gases of the TRAPPIST-1 planets. The Hubble Space Telescope also will be a key player in characterizing the atmospheres of the TRAPPIST-1 planets and has, in fact, already begun a preliminary survey.

by Pat Brennan
NASA Exoplanet Program



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 vacant	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

Paul Borchardt	262-781-0169
Robert Burgess	920-559-7472
Clark Brizendine	414-305-2605
Steve Volp	414-751-8334
John Hammetter	414-519-1958
Lee Keith	414-425-2331
Frank Kenney	414-510-3507
Jeff Kraehnke	414-333-4656
Agnes Keszler	414-581-7031
Tamas Kriska	414-581-3623
Sue Timlin	414-460-4886

March/April Keyholders

3/4	Lee Keith	414-425-2331
3/11	Frank Kenney	414-510-3507
3/18	Jeff Kraehnke	414-333-4656
3/25	Tamas Kriska	414-581-3623
4/1	Jill Roberts	414-587-9422
4/8	Tom Smidtkunz	414-352-1674