



February, 2019

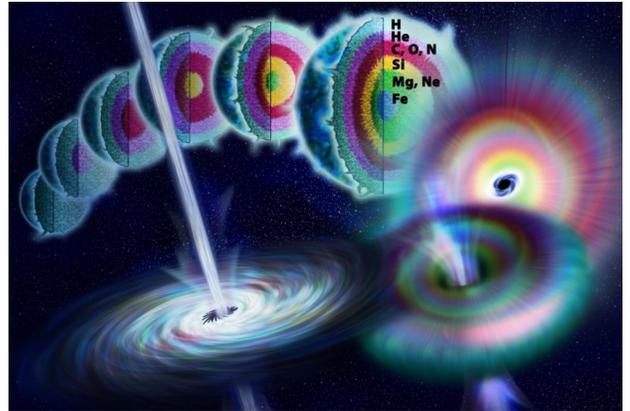
March Meeting

The Milwaukee Astronomical Society will hold its next Membership Meeting on Friday, **March 15th at 8 PM** at the Observatory.

We are going to experiment with a new format. Watching some thought-provoking, astronomy related videos followed by a discussion.

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.

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



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G-scope is Operational



Cone nebula
Arun Hegde

We are excited to announce that after many months of troubleshooting, and finally replacing the AP 900 mount, now the G-scope is fully operational.

The new AP 1600 mount works flawlessly, synchronized with the automated slit movement.

The whole imaging system is operated through the SkyX software from the control room below the dome.

The image of the Cone nebula (to the left) has been taken on February 8th. This is a composite of 7 x 1200 seconds of H-alpha and 5 x 60 seconds of each RGB filter subframes processed with PixInsight and Adobe Lightroom.

If you are interested in learning to use this equipment, please contact Jeff Kraehnke or Tamas Kriska for training.

Observatory Report

A recently donated Meade ETX 125 telescope and tripod were sold to non-MAS member for \$150, which will be added to the new equipment fund. Also sold this last month was the focusing motor from the old F-Scope for \$175 and an astro-modified Canon T3i for \$300, this money was also added to the new equipment fund. Plans are to sell one of the unmodified cameras too. This will leave the club with one unmodified T3i, one modified T3i, and a modified Canon T5. All three cameras will be setup in their own box which will include an A/C power supply, 10-foot USB cable, and a 2" nosepiece on a T-ring for prime focus imaging.

G-scope is operational and in use, at least one image from that scope has been posted on the Google Group.

The replacement scope for F-scope has been purchased, outfitted for astrophotography, and ready to be installed in the roll off roof shed that F-scope was in. This project has been paid for with a very generous \$4000 donation from Gene Hanson and the sale of the old F-scope, so no money was needed from the Club's treasury. I know I speak for all the Club's members by saying Thank You Very Much Gene! We all appreciate immensely.

Respectfully Submitted,

Treasurer's Report

| | |
|-------------------|--|
| \$6,863.93 | Starting Balance as of 01/16/2019 |
| | Expenditures |
| \$96.26 | PayPal fees |
| \$12.48 | Annual expenses |
| \$7.36 | Periodic expenses |
| \$11.72 | Observatory expenses |
| \$5,924.22 | F-scope replacement |
| \$120.98 | WE Energies |
| \$6,173.02 | TOTAL Expenditures |
| | Revenue |
| \$4,096.75 | Private donations |
| \$380.00 | Calendar sale |
| \$314.00 | Membership dues |
| \$15.00 | Public donations |
| \$1200.00 | Equipment sale |
| \$6,005.75 | TOTAL Revenue |
| \$6,696.66 | Ending Balance as of 02/13/2019 |

Respectfully Submitted,
Sue Timlin, Treasurer

Meeting Minutes

The meeting was held on February 18th at the MAS Observatory, New Berlin and was called to order at 7:00PM 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 submitted by Jeff Kraehnke Committee Chair ahead the meeting. Applications of Frank Stainton & family, Diane Halloran & family, Matthew Pagel, James Martinez & family, and Manjunath KB & family were approved.

Old Business – *Equipment shuffle*: The shuffle has been accomplished, everything is in place. *2019 Public Nights schedule*: The Board discussed the Open House Committee's proposal along with suggested modifications. There was an agreement on picking the 1st or 3rd quarter moon nights, keep the very successful map system, and dedicate scopes to specific objects while the majority of the guests stays around. The Open House Committee will review the dates according to the feedback.

New Business – *Small flat screens*: Jim Bakic, Jason Doyle, and Paul Borchardt volunteered to buy flat screens \$25/piece to replace the surveillance TV sets in the control room.

Announcement – Jason Doyle's company, Wago Corp. generously donated a desktop computer.

Program – Tamas Kriska gave a presentation entitled The Asteroid belt.



Respectfully Submitted
Agnes Keszler, Secretary

Membership Report

Since the last Report we received 2 new membership applications and would like to welcome Pamela Strunk, David Donohue, and Mary DeGroot. The total number of active members is 141.

Respectfully Submitted,
Jeff Kraehnke, Committee Chair

Members' Project

The Crater of the Week

Russ Blankenburg launched his project on March 1st of last year with a simple statement: Let's learn stuff together. He realized the bright Moon hinders deep sky observing for two weeks out of each month. But this is also an opportunity to show our friends, family and work-mates some very clear photos or eyepiece views that almost always make them say "Wow!". What started as a cute name he attached to his Moon photo he wanted to share on the Google Group has led to a yearlong internet and library research project. And 52 weeks later, to avoid selenophobia and crater fatigue, we learned about the 52nd and final crater of the week, Merse-rius, that is coincidentally 52 miles in diameter. Let us pay homage by this very subjective Best of compilation:

"Sabine was an Irish astronomer from the early 1800's. He traveled the world making accurate magnetic readings. He found that the Earth's magnetic field varied in 11 year cycles and coincided with the sunspot cycles. He also noticed a lunar influence on magnetic fields - later found to be gravitation tides in the ionosphere from the Moon. He had a bunch of craters named after him.

Apollo 11 was the first landing of a human on the Moon. Just before leaving the Moon, the astronauts chucked all of their full urine bags out the door and blasted off. The blast knocked over the flag they had set up. If we ever go there as tourists, it probably won't be the most attractive memorial site. Armstrong was pretty reclusive afterward and almost never gave an interview.

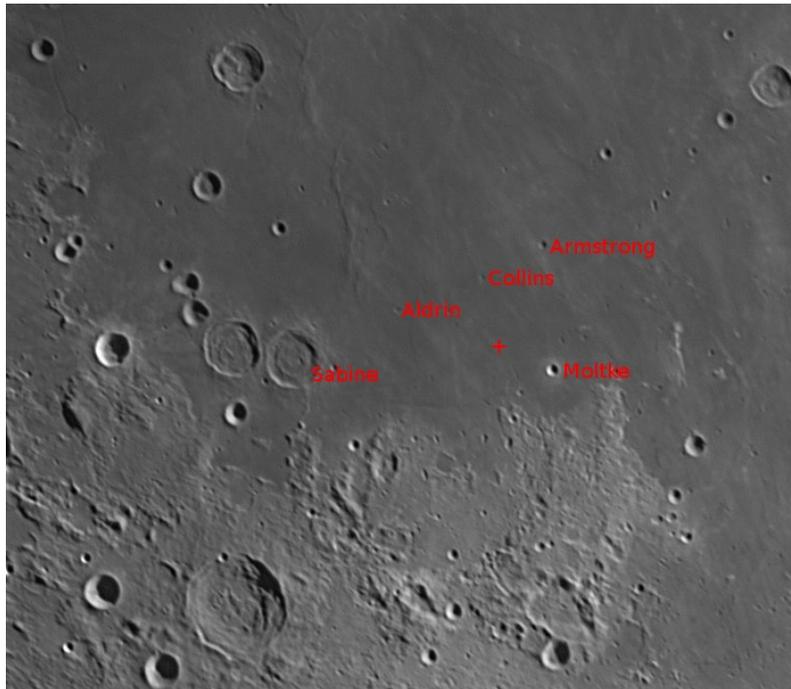
Crater Sabine B was renamed Aldrin, Sabine D became Collins, and Sabine E was changed to

Armstrong after the 3 Apollo 11 astronauts. I've got to give Armstrong crater of the week for being the first to step on the Moon.

Those 4 craters in a chain ending in Sabine are easy to spot through a telescope. The astronaut-named craters have not been visible to me until after stacking multiple images like above.

Only a few recent people have had craters named (really re-named) after them. Jules

Verne is on the far side, we won't see that. But Walter Cronkite was a well known newsman for 20 years on CBS. He reported on the Mercury through to the Apollo missions and even the space shuttle. When he died in 2009, the IAU renamed crater Sabine C as Crater Cronkite - our crater of the week (located between Aldrin's



letters n and i). I would suggest going after Sabine, they seem to have something against that guy.

Michel Florent van Langren was a Dutch cartographer in the 1600's. He wanted to help the problem of determining longitude at sea by using accurate maps of the Moon at various phases. His idea did not work. He named many lunar features, but only one is still recognized today- Crater Langrenus. Perhaps we should try that: re-name the entire Moon. Then they can throw out all of our work and leave us with 1 little crater MASinus. I'll bring it up at the next Board meeting.

Theaetetus was a Greek mathematician from about 400 BC who did a lot with irrational numbers that can't be written as fractions and need square roots to be expressed. He died of dysentery, so we'll honor him with crater of the week.

Joseph Gay-Lussac was a French chemist and physicist who went up in a balloon in 1804 to 23,000 ft. He found that the composition of the atmosphere does not change with altitude and thus pressure. He found the formula for water- H_2O . He helped discover iodine and boron. Possibly most importantly, he worked with alcohol/water contents and developed the "degrees Gay-Lussac"

used in some countries instead of our ABV to measure alcoholic content of drinks. So in honor of all of the functioning alcoholics that made this country great, Gay-Lussac gets crater of the week.

Although this image is not that great quality, it was taken at 3:00 in the afternoon on a summer day. The original

photo did not have much contrast and the seeing was not very good, but this young Moon was very high in the sky. Usually this far right portion of the Moon is seen only when low in the sky right after sunset (and thus bad seeing anyway). Maybe this daytime astronomy will take off. We can have a picnic, take a bunch of Moon and planet photos, and get home for supper.

Maximilian Hell was a Hungarian astronomer. That makes two that I know of now. This one was president of the Vienna Observatory. I assume Max spent every weekend painting his observatory buildings. He published data on the 1769 transit of Venus up in Norway. His crater is just a little north of Tycho on the southern heavily cratered part of the Moon.

Apollo 14 was the last of the 2-day stay H missions. It was quite successful with many "firsts". Alan Shepard created a make-shift golf club and hit a few balls a few hundred yards. Ed Mitchell used the solar wind collector as a javelin. They also brought along a grenade launcher that shot 20 small charges to simulate small particle impacts on the surface. Stuart Roosa stayed in lunar orbit and took 500 seeds along and brought them back to Earth for planting. They have been called "Moon trees". They are still around today - one at the White House, but the closest to us looks like Indiana. There has been no difference compared to control trees grown next to them.



Lippershey in 1608 in the Netherlands put 2 lenses together to magnify. This is the first known telescope, though it is entirely possible someone else did this over the 2,000 years prior. Hans Lippershey was a German-Dutch spectacle maker. The multiple stories of how he put two lenses together to make a magnified view are unreliable. But he did apply for a patent for his device in 1608.

Yes the European guy gets the credit. But it once again reminds us that if you want to be famous . . . write stuff down.

Urbain Le Verrier was born in France in 1811. He did extreme calculations with the planetary perturbations in their orbits. He used equations with 469 mathematical terms and predicted a planet

further out affecting the orbit of Uranus on a rhythmic basis. He sent his predicted planet to Berlin observatory on Sep 23, 1846 where they found Neptune that very night- just one degree away from Le Verrier's calculation. We should do stuff like that.

Joseph-Nicolas Delisle was a French astronomer(1688-1768). In 1725 he left his 10 brothers when Czar Peter of Russia called him to be court astronomer. He became very wealthy and then returned to Paris and built the observatory at Cluny Palace. This is where Messier later spent a lot of his studies. He traveled all the way to Siberia in 1740 to observe the transit of Mercury across the Sun. But being February in the northern hemisphere, it was cloudy and the astronomical part of the trip was a bust. I'll try to remember that when I make the 16 minute drive to MAS as the clouds start to roll in."

Russ explains, "Many have written and said they appreciated the crater of the week, especially the stories behind them. So have I. I've loved this project and I've learned a ton. Hopefully our members have a little more love for our nearest astronomical neighbor. Thank you all for reading."

Thank you Russ!

In the Astronomical News

Missing-Link in Planet Evolution Found

For the first time ever, astronomers have detected a 1.3 km radius body at the edge of the Solar System. Kilometer sized bodies like the one discovered have been predicted to exist for more than 70 years. These objects acted as an important step in the planet formation process between small initial amalgamations of dust and ice and the planets we see today.

The Edgeworth-Kuiper Belt is a collection of small celestial bodies located beyond Neptune's orbit. The most famous Edgeworth-Kuiper Belt Object is Pluto. Edgeworth-Kuiper Belt Objects are believed to be remnants left over from the formation of the Solar System. While small bodies like asteroids in the inner Solar System have been altered by solar radiation, collisions, and the gravity of the planets over time; objects in the cold, dark, lonely Edgeworth-Kuiper Belt preserve the pristine conditions of the early Solar System. Thus astronomers study them to learn about the beginning of the planet formation process.

Edgeworth-Kuiper Belt Objects with radii from 1 kilometer to several kilometers have been predicted to exist, but they are too distant, small, and dim for even world-leading telescopes, like the Subaru Telescope, to observe directly. So a research team led by Ko Arimatsu at the National Astronomical Observatory of Japan used a technique known as occultation: monitoring a large number of stars and watching for the shadow of an object

passing in front of one of the stars. The OASES (Organized Autotelescopes for Serendipitous Event Survey) team placed two small (28 cm) telescopes on the roof of the Miyako open-air school on Miyako Island, Miyakojima-shi, Okinawa Prefecture, Japan, and monitored approximately 2000 stars for a total of 60 hours.

Analyzing the data, the team found an event consistent with a star appearing to dim as it is occulted by a 1.3 km radius Edgeworth

-Kuiper Belt Object. This detection indicates that kilometer sized Edgeworth-Kuiper Belt Objects are more numerous than previously thought. This supports models where planetesimals first grow slowly into kilometer sized objects before runaway growth causes them to merge into planets. Arimatsu explains,

"This is a real victory for little projects. Our team had less than 0.3% of the budget of large international projects. We didn't even have enough money to build a second dome to protect our second telescope! Yet we still managed to make a discovery that is impossible for the big projects. Now that we know our system works, we will investigate the Edgeworth-Kuiper Belt in more detail. We also have our sights set on the still undiscovered Oort Cloud out beyond that."

This research was made possible by the support of the Miyako open-air school and the local community in Miyakojima-shi.

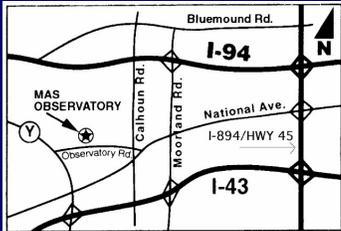
from Sciencedaily.com



An artist's impression of the discovered object. Credit: Ko Arimatsu

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

18850 Observatory Rd
New Berlin, WI 53146

www.milwaukeeastro.org

At Your Service

Officers / Staff

| | | |
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| 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 |

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| | |
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| Clark Brizendine | 414-305-2605 |
| Jason Doyle | 414-678-9110 |
| John Hammetter | 414-519-1958 |
| Lee Keith | 414-425-2331 |
| Jeff Kraehnke | 414-333-4656 |
| Jim Schroeter | 414-333-3679 |
| Sue Timlin | 414-460-4886 |
| Steve Volp | 414-751-8334 |

March Keyholders

| | | |
|-------|-----------------|--------------|
| 03/02 | Lee Keith | 414-425-2331 |
| 03/09 | Jeff Kraehnke | 414-333-4656 |
| 03/16 | Tamas Kriska | 414-581-3623 |
| 03/23 | Steve Volp | 414-751-8334 |
| 03/30 | Tom Schmidtkunz | 414-352-1674 |