



December / January, 2023

## 2022 Membership Count Sets Records

Following up on an Open House Season with approximately 1,400 visitors, the Milwaukee Astronomical Society received **101 new membership applications** for the year, with 18 December applications to be approved by the Board in January.

This exceeded predictions for the year, and surpassed our previous high of 85 new applications, bringing total active memberships in the month of December to **288**, the highest active memberships in a single month we've had at the club in recent memory.

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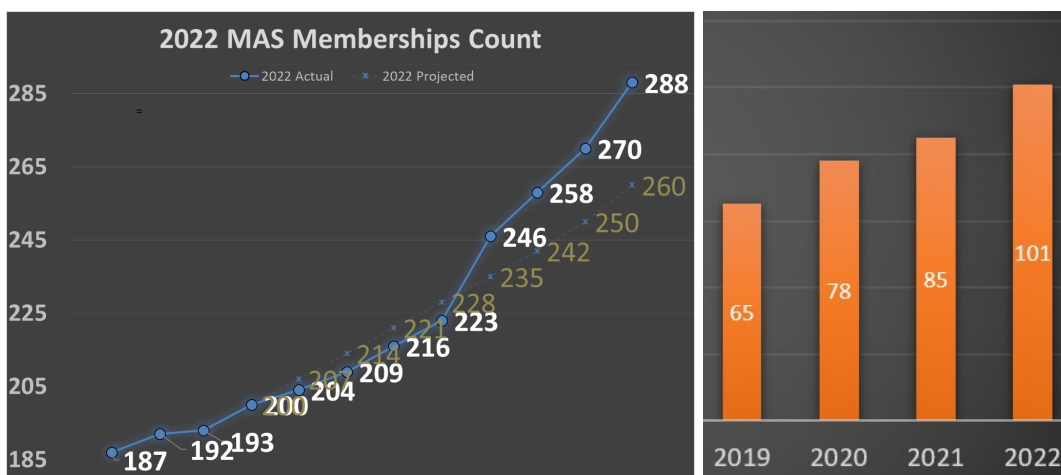
### Inside this issue:

Upcoming Meetings	1
Minutes	2
Giving Thanks	3
MAS News	4
New MAS Login	4
MAS News	6
Holiday Stargazing	7
Membership Stats	10
Editor Note	11
Keyholders	12

### Renewal Time!

MAS Membership is now due for the 2023 Season.

[RENEW NOW >](#)



## Happy Holidays MAS

Milwaukee Astronomical Society members celebrated its **Annual Members Christmas Party** on **Saturday, December 3**, with a catered meal and potluck together in a return of regular meetings this year, thanking members for their contributions.

Pictures and More on Page 4.

## Upcoming Meetings

An in person **Membership Meeting** will be held on **Monday, January 16**, at **8 pm** at the **Quonset Meeting Hall** and the agenda is **2023 Horwitz-DeRemer Planetarium News**, from MAS member and planetarium director Lisa Swaney. The **Board Meeting** starts prior, at **7pm**, all are welcome!

The **First Wednesday** meetings will be held in person at the Observatory grounds on **Wednesday, January 4th** at **7:00 PM**. New members are especially encouraged to attend this meeting. It is a chance to gain hands-on experience, receive tips on how to get started and/or get more involved in the Club's activities.

The **Imagers Interest Group** continues in an all virtual format, on **Wednesday, January 11th** at **7pm**. You may email [Kevin Shea](#) for an invitation.

## Treasurer's Report

<b>\$9,904.62</b>	<b><i>Starting Balance as of 11/19/22</i></b>
	<b><u>Expenditures</u></b>
\$41.38	PayPal / Stripe fees
\$478.77	Annual Expenses
\$142.00	Observatory Expenses
\$76.87	WE Energies
\$779.07	Periodic Expenses
<b>\$1,518.09</b>	<b>TOTAL Expenditures</b>
	<b><u>Revenue</u></b>
\$1,780.00	Membership dues
\$522.44	Private Donations
\$2,250.00	Other Revenue
<b>\$4,552.44</b>	<b>TOTAL Revenue</b>
<b>\$12,938.91</b>	<b><i>Ending Balance as of 12/19/2022</i></b>

Sue Timlin, Treasurer

## Membership Report

The total active membership from **Oct 17 to Nov 21, 2022** was 270, with 14 membership applications. We welcomed: Joe Fowler & Family; Mike Dworak & Family; Geoffrey Blankenmeyer; Naresh Adhikari & Family; Kendall Waschow (student); Andrew Nelson (student); Terry Litts; David Leiphart; Michael Banach; Kristi and Scott Castello & Family; Sara Perkins; Richard Woods; John Stubbs; Joey Wehrley.

18 new Membership Applications were received from **Nov 21 to Dec 31, 2022**, and total active memberships was 288. Welcome information was sent to all applicants, including processing of gift applications over the holiday season for gift delivery. The following new applications will be approved by the board this January: Joe Fowler & Family; Mike Dworak & Family; Geoffrey Blankenmeyer; Naresh Adhikari & Family; Kendall Waschow (student); Andrew Nelson (student); Terry Litts; David Leiphart; Michael Banach; Kristi and Scott Castello & Family; Sara Perkins; Richard Woods; John Stubbs; Joey Wehrley. We invite all new member applicants to begin enjoying the benefits of membership, including our first Wednesday meeting on January 4th, 2023.

Matthew Ryno, Membership Chair

## Minutes

An in-person board meeting was started at the Quonset Meeting Hall, on 7:05pm on Monday November 21, by MAS President, Jill Roberts. In attendance were Jill Roberts, Matthew Ryno, Sue Timlin, Lee Keith, Mike Bauer, Paul Borchardt, Dennis Roscoe, Jim Schroeter, Mike Wagner, Jim Bakic, Tim Burrus, Brian Ganiere (FM). **Minutes** of the prior board meeting, and **Reports** were submitted by officers for review prior to the meeting and approved; including memberships.

**Observatory Updates** — Paul Borchardt mentioned a busy personal schedule, noting expected availability to begin working on the Mach1 installation on F-Scope, when weather is warmer. Lee Keith has installed brighter floor lighting in B-dome. The door frame in B-dome is rotted, and repairs allow the door to latch close pending a fix to follow in spring.

**Internet** — Dennis Roscoe noted a new router has been installed, tested with 240mb download speeds in the Quonset Hut. Outdoor WiFi access points will be installed in spring. A password to the guest WiFi was asked to be made available on a sign near the sign in table.

**AP-900 Mount Sale** — The Board approved the \$2,250 sale of the old F-Scope AP-900 mount.

**Open House Volunteer Thank You** - The Board approved a motion by Matthew Ryno, to set aside \$500 in funds for branded MAS shirts, to thank volunteers for Open House service and help the public locate MAS volunteers. He will gather sign ups and order the approved shirt design, after receiving Board feedback.

**Snow Plowing** - The board approved \$765 for George Maciosek snowplowing services in the 2022-2023 season.

**Holiday Party Thank You** - Dennis Roscoe noted no shortage of people willing to do a tremendous amount of work and the Board approved a proposal to fund a catered Holiday meal for MAS members to thank members for their service. Matthew Ryno will gather meal sign up preferences. Meal total was \$408.78.

A motion to adjourn was made at 8:00 pm.

Matthew Ryno, Secretary

## December Holiday Party



### **Giving Thanks: What has been your favorite MAS event this year?**

"Our clear night Open Houses. We had good attendance and sharing our knowledge of the night sky." — Jill Roberts

"The Fall Open Houses! Seeing & hearing the excitement of the attendees; experiencing the camaraderie of the members." — Mitzi Keadle

"Dark Sky Star party to White Mound County Park with Lee & MAS members." — William Henrickson

"Last minute off nights with Mike, Lee, Matthew, and William, and Jim... all of them truly treat the new members with absolute kindness." — Ryan Thiel

"Lee, Matt and William have been extremely helpful working with us on our scopes and the club's scopes. It makes the whole membership more fun when you can get mentors one on one." — Tom and Holly Kelly

"Thanks to William for showing me how to use G scope on a cold November night!" — John Koors

"Night observation at Ottawa Lake" — Anurag Deshmukh

"Our outreach and open houses have been some of the most exciting events of the year for the MAS and a great time to share in the excitement of learning about the stars, observing and teaching others what we know. I'm looking forward to 2023!" — Matthew Ryno

"The August Open House" — Dennis Roscoe

"Open houses that are clear!" — Lee Keith

"Thanks to Matthew and William for putting so much extra effort into making our open houses a success. We've had record setting attendance because of their efforts." — Jim Bakic

"Solar Open House, it's the only one I could make" — Keith Christ



## New in 2023 at the Horwitz-DeRemer Planetarium

The Milwaukee Astronomical Society and the Horwitz-DeRemer Planetarium are excited to work together in 2023 to offer new benefits for our members, while supporting the growth of our organizations with event support and outreach opportunities. Come join **planetarium director Lisa Swaney** at the MAS on **Monday, January 16 at 8pm**, for a look at what's new at the state-of-the-art Waukesha Planetarium!

Find out why the Horwitz-DeRemer Planetarium has been nominated the best in the burbs from Milwaukee Magazine, and cast your [vote here](#). Book tickets for the next show, [here](#). Curious in taking a trip to Alma, VLT and the new Vera Rubin Observatory? Don't miss Big Astronomy—People, Places and Big Discoveries, running through January 25, 2023. [Learn more](#).

## Building a Telescope MAS Workshop & Makerspace

How would you like to be a part of making a telescope from scratch this winter? Would you be willing to travel to the [Milwaukee Makerspace](#), located in St. Francis, to 3D print, assemble and make a telescope we could try out at the MAS? If you answered yes, contact [Matthew Ryno](#) to sign up to create a telescope!

A really good first target for telescope making is the [Hadley Telescope](#), which has been catching on for the ability to entirely 3D print and obtain common parts necessary, at a low cost. There seems to be a [wide variety of remakes](#) in the Maker community, and we have one of our own MAS members creating one too.

We will start with a first meeting on the weekend at the MAS this February to introduce the project and determine any raw parts buy needed. Then, we will connect again at the Milwaukee Makerspace as welcome guests for 3D printing and telescope assembly.



## MAS Global Meteor Network Participation?

The MAS has a long history of participating in programs that add to scientific knowledge. One program gaining popularity is the Global Meteor Network that records meteors as they streak through the sky to study the numbers and directions from which they come. This is useful not only to protect in orbit satellites but also for spacecraft or spacewalking astronauts. This program has been highlighted in the January issue of Sky & Telescope magazine page 57.

There is a kit available including the camera, hardware (Raspberry Pi) & software so it is a straightforward process to implement another node in the Global Meteor Network. It would not require much time after installation now that we have internet service to automatically upload observations to the GMN.

Would anyone be interested in installing and administering this monitoring camera? Please contact [Lee Keith](#). You would be adding to the safety of near-earth space and knowledge of the near-earth environment. It would be a long term project but with minimal day-to-day effort.

Project information is at <https://globalmeteornetwork.org/>

## New MAS Membership Login System

By Gene Hanson, Webmaster

I am pleased to report that soon every member of the Milwaukee Astronomical Society will have a login to our website. Though this will not be a requirement, we're hoping that the "Members Only" content will be a big incentive.

### Background

Currently, our website actually has two login subsystems. One is for the website administration and only a few members have access. We have another for access to private MAS documents which has been available, but only on a request basis. These are legacy systems that were in place before I took over as webmaster. I have been able to make a few modifications, but it's always been extremely difficult. The new login system will replace both of these subsystems and the login ID will be your email. The ability to maintain this system is a big plus.

### How To Login

Before this change, this is how it appeared in the upper right hand corner of every MAS webpage as seen on a desktop / laptop computer:



But if you're using a mobile device, the top bar looks like this:

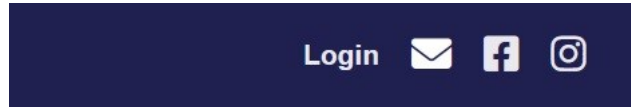


To see the full bar you click on the 3 horizontal bar icon (known as the [Hamburger Menu](#)).



Note: for the remaining examples I will be showing the desktop / laptop view. For mobile devices they just appear at the bottom.

When the new login system is available, you'll see this:



In order to save space on the menu bar, the Contact word has been replaced with the envelope icon. I've decided to use the word "Login" as there's not a good icon for that and the word is short so an icon wouldn't save much space, anyway. If you click/tap on Login it will bring up the login page:

### Milwaukee Astronomical Society - Login

**Sign In**

Email:

Password:

☐ Show Password

[First Time Users](#) - To set your password.

[Change Password](#)

[Forgot Password](#)

Important note: If you use more than one email, you must specify the email you use for communication from the MAS. Obviously, the first time you go to this page you'll need to set your password so click/tap on the "First Time Users" link and a password will be sent to you. You need that password to initially log on. You can keep that password if you wish, or change it to your preference.

Whenever you successfully login, your profile page will display. We will provide an example for a fictitious MAS member, on the next page:

This page shows all the information the MAS has for you. Our information is divided into info you can change yourself and info you cannot. The most important field you can't change is your email address. This is because this is an index field (your logon) and only the Membership Director or Webmaster can change this so you'd have to request the change. The other fields that you can't change are found at the bottom under Other Database Fields.



## Welcome Back, Joe Sample

**Your Email: joesample@email.com**

If you need your email changed, please contact the Membership Director.

If any of the information below needs updating, correct the necessary fields and hit the Save Profile button.

<b>Title:</b>	<b>First Name:</b>	<b>Last Name:</b>	
<input type="text"/>	<input type="text" value="Joe"/>	<input type="text" value="Sample"/>	
<b>Address:</b>			
<input type="text" value="1234 W Any Street"/>			
<b>City:</b>	<b>State:</b>	<b>Zip Code:</b>	<b>Phone:</b>
<input type="text" value="Anytown"/>	<input type="text" value="US"/>	<input type="text" value="99999"/>	<input type="text" value="19999999999"/>
<b>Email2:</b>	<b>Name 2:</b>		
<input type="text" value="jillsample@email.com"/>	<input type="text" value="Jill Sample"/>		
<b>Email3:</b>	<b>Name 3:</b>		
<input type="text"/>	<input type="text"/>		
<b>Email4:</b>	<b>Name 4:</b>		
<input type="text"/>	<input type="text"/>		
<b>Google Group:</b>	<b>Focal Point:</b>	<b>AstroPhotography:</b>	<b>Visual Obs:</b>
<input type="text" value="All Email"/>	<input type="text" value="Yes"/>	<input type="text" value="Yes"/>	<input type="text" value="No"/>

Hit the Save Profile button to write the changes.

[Save Profile](#)

### Other Database Fields

Member Type: R

Family Membership: F

AL Membership: N

Member Since: 2022/12

Board Member: N

Expiration Date: 12/31/2023

[Change Password](#)

[Logoff](#)

Of the fields you can update, hopefully most of them are self explanatory. But here are some notes:

The profile shown is for a family membership. I'm noting this because there are fields for 3 additional names and their email addresses. For any additional name / email, they get their own login to the website. These fields are under the control of the primary household member. The secondary users cannot change any of the account profile info other than their own passwords. These 3 additional names and emails are absent in the profile for an individual membership.

You can change your MAS Google Group delivery, and the dropdown gives the options. However, note that this is really not done in an automated manner. What it does is generate an email notification to the group of administrators of our Google Group who will actually make the change.

The Focal Point Y/N refers to getting email delivery of our club newsletter, the Focal Point.

On the profile we also have two of what we call "interest groups." Changing these to Y means you want to be a part of that group. Changing back to N means you don't wish to be included anymore. Though these are the only two we have currently, in the future we can add new groups as needed.

### Logging Off

Once you're logged on you'll see a new item in the top menu: the profile icon.



Hovering over that icon allows you to call up your profile and also allows you to log off. You do not need to log off as your info is held in a cookie in your browser.

We will not know your password and would never ask for it. In the system the passwords are encrypted. We will be able to reset a password for a member as necessary.

### Private Content

With this new login system, we now have the ability to protect and hide content on the website. We can protect an entire page or any part of a page. I believe that most if not all of the Member's page will be private as that is where you'll find most (if not all) of the private content. The Member's page will still have quite a bit of content that isn't really private, but that can be found elsewhere on the website. This is going to be a fairly big project so it may take months to get it set up.

### Admin Content

I have also placed an administrative flag in the membership database. I can further protect content by an administrative role. We have special rights for the club officers and board members, Focal Point editor, Membership Director, and Webmaster. Those who have an administrative role will see an additional query icon for the special sections.

### Rollout



So when will this be available? I expect that it will be available by **January 16th**. But I plan on making an announcement on the Google Group when it's ready.

The website will be down for hopefully no more than an hour to switch our membership database.

When the system is available, please let me know if you see any problems. [Contact me here](#).



## Holiday Stargazing

By Matthew Ryno, Editor

As the gales of November gave way to cold rains, with a wet cloudy December to follow, it calls to mind appreciation for the crisp clear nights recently, and thanks for the opportunity to appreciate the stillness at the Milwaukee Astronomical Society (MAS). Our 90-year-old observatory is a hidden gem on a hill in New Berlin, where farm fields mix with suburban Wisconsin backyards, and a bit of peace can be felt under the stars amidst the hurried pace of the holidays.

There's something unique to be said about a visit to the observatory, to spend time under the stars in silence, broken only by the calls of an owl or the howl of a coyote off in the distance. So while shoppers considered their backlog of emails about holiday sales in the weekend to come, I started to set up my telescopes in my urban Milwaukee county backyard after dinner, and plan a trek through the stars, culminating in a trip to the observatory.

Earlier in the day, perhaps escaping from Black Friday shopping, another MAS member had stopped by the observatory for a glimpse of a giant prominence of energy jetting off from the corona of the sun with our solar telescope. These prominences are larger than our planet, and are a good present to treat yourself under clear blue skies, with protection of unique solar filters specially attenuated to the angstroms of burning hydrogen. While parking lots continued to remain jam-packed at malls everywhere, members stopped by later in the day for a close up of Jupiter by around 6pm. Despite their appearance in your telescope, Jupiter is a mammoth planet and presents a welcome observation to start with, along with a unique configuration of moon order and distance around the giant planet, as well as gas variation as the planet rotates.

After a Thanksgiving leftovers dinner, I set up my refractor telescopes on a German equatorial mount, and polar aligned them both with the help of a tool that keeps the axis of the telescope mount aligned to true north, which is close to Polaris, our North Star. With alignment done, I took a break to set out my reclining chair and put a pair of binoculars to my eye around 7:30pm. In contrast to springtime, when the big dipper steals the show in night time, Winter months see the rise of Cassiopeia, the big W high in the sky, taking its turn to circle around the North Star early in the night. This constellation never fails to disappoint with binoculars that reveal the many star clusters and night sky objects, including the nearby Double Cluster, which lies in nearby Perseus and reveals a mix of two star clusters with contrasting blue and orange colors. In a low power wide angle eyepiece, these two clusters steal the show when shown together in one view. And from 7,600 light years away, these clusters are bright enough to be seen from most varieties of backyard telescopes.

The night continues later on with a trip to the nearby Andromeda constellation, for the Andromeda Galaxy, or Messier Object 31, to see the light of 1 trillion stars spanning a distance of 152,000 light years in diameter, which appears as a fuzzy patch of sky to our eyes, and can be resolved in a telescope to see the faint dust bands of this giant elliptical galaxy. When you first slew to Andromeda, your eye will see the galaxy core, and after some time, you'll begin to see the faintness around the core. While I was in the area, I also took a moment to enjoy the Triangulum Galaxy, or Messier Object 33,



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which is another “nearby” galaxy in our local cluster of galaxies, at about 2.73 million light years away in the Triangulum constellation. For a view of this galaxy, I utilized my telescope which enables me to utilize an onboard camera to average the light data I collect together and produce an image which reveals the many bands and arms of this fascinating galaxy. This kind of observing is also known as Electronic Assisted Astronomy (EAA), and is one of the many techniques members of the MAS enjoy utilizing, especially as light pollution makes visual observing faint and distant objects hard from the city.

Later in the night, it's time to turn attention to the Pleiades, or the Seven Sisters - a nearby open cluster of young stars, located about 440 light years away in our own Milky Way galaxy. For this sight, I attached an astronomical camera to my refractor telescope to see the blue light of the reflection nebula in this star cluster, which essentially is dust being reflected by the bright blue stars as they pass through it. I take a moment to pause and warm up with a cup of tea, as I let my telescope gather photons for averaging later on to create a “pretty picture” through software tools and techniques designed to bring out the deepest levels of data within my five minute exposures for my latest astrophotography project.

Finally, Orion's belt begins to rise in the east and it's time to turn my attention to the grandest, brightest nebula in our winter sky, the Great Orion Nebula, or Messier Object 42, located just below the belt in a hazy portion of the constellation. My first look through the eyepiece confirms the nebulous details of what was just a hazy spot in the sky, and three bright stars near the center. I waste no time and turn the astronomical camera to the nebula and after just 60 seconds I'm in awe at the pale pink, gray, bright red and whites revealing intricate details in this nebula, where new stars are being born. It is about 1,344 light years away in the Milky Way, and the entire diffuse nebula is about the mass of 2,000 suns, and is undoubtedly one of the most photographed and marveled at nebulas in the sky.

After EAA enjoyment and with my camera clicking away at gathering data from multiple exposures, to capture bright stars and faint nebulosity which later can be blended together for a try at astrophotography, I pack up a few things, grab a warmer coat and take a drive to the Milwaukee Astronomical Society at 12:45am, for a view of Mars through our 12.5" Newtonian reflector telescope as Mars is at a high point in the sky and close to its opposition from Earth this time of the year. By the time I arrived, two other members had just finished imaging Mars, noting that the seeing level, or the measure of atmospheric turbulence, debris, high clouds, was only average. Not deterred, I excitedly opened the dome and slewed our telescope high



overhead to grab a view. It was impressive, bright orange and ripe for a photograph after taking the visual sights. One of the enjoyments of observing planets is seeing the planet come into view after moving your telescope through a star field. It's the appreciation of seeing a planet in the vastness of space, that is such a reminder of our fragility as well as uniqueness. Then, satisfied with the views, I inserted a planetary camera from the club, refocused, and started up my planetary photography software which allows me to take a 1 minute video of the planet, and bring together all of the best in-focus frames for a final picture of Mars. It wasn't my best picture, but it was enough to reveal polar ice and continental details, as well as a few clouds on another planet! Despite average seeing, being able to familiarize yourself with the best, worst and average seeing conditions for viewing a planet helps you prepare for the next time. It's also great to be a part of a club where you can benefit from astrophotography workshops and tips from other members capturing the same sight or using the same equipment.

At last with the view of Mars complete, I closed down the scope and put away my imaging gear,

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and then moved over to use the 16" Dobsonian telescope in darker skies at 2am, with nothing but the stillness around me, and distant calls of wildlife to remind me of my surroundings. The Great Orion Nebula was in an even better position for observing, and with a filter attenuated for emission nebula, put on a show in the eyepiece. Then, removing the filter, I put a 42mm eyepiece in and took in the sights, traveling through the stars with a slight move of the Dobsonian telescope base to bring me to new star systems. One of my favorite activities with a manually moved telescope like this is to scan the sky and take notes of characteristics, then mark the location in the finderscope relative to other bright objects in the sky. Taking this activity even further, I activated a Telrad finder, which allows me to position the concentric circles in the finder exactly on a mapped location in the sky. Sometimes you can be successful doing this, and other times not so much. That night I was unsuccessful at finding the Crab Nebula, or Messier Object 1, located above Betelgeuse, but I took note of the characteristics of the night, the high location in the sky, and my magnification used, for another try at this planetary nebula on another night. Manually push-pointing a telescope is very much a lesson in trial and error, but also in exploration and taking note of the journey along the way.

These were a few night sky sights at the start of winter, offering an alternative to the busy holiday season, outdoors, under the stars in the backyard in Milwaukee, and at the Milwaukee Astronomical Society observatory, just a short drive from the Horwitz-DeRemer Planetarium, which is another nearby gem. As demonstrated in this observation log, there is no shortage of techniques for observing the night sky, from EAA to visual push pointing, to urban astronomy, deep sky astrophotography or planetary photography, and you can learn the techniques and processes for each kind of method by stopping by the MAS to get to know the other night sky observers in your community who never stop finding things to do in the night sky that entertain, amaze and help us study the sky even. For us, late nights and clear skies are an opportunity. We look forward to having you join us.

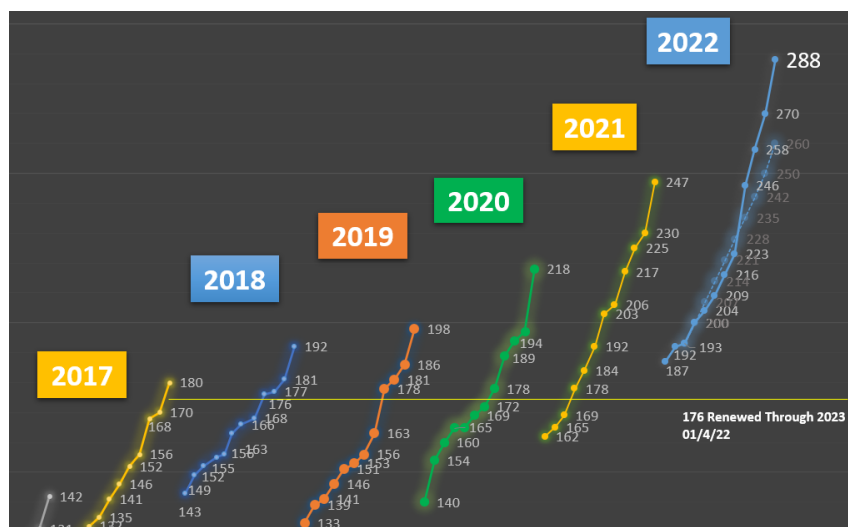
## 2022 MAS Membership Trends, Continued

Membership totals each year at the MAS can best be seen as cyclical, with the highest amount of concurrent active memberships occurring in December, or the highest dot in the line chart on the right, where we see 288 representing December 2022 memberships.

However, as we climb the ladder, we face a floor at the start of each year, as members must remember to renew their membership before the start of the next year. As of Jan 4, 176 are renewed, which puts January on pace to start near the peak of 2017 membership counts, and we require 112 memberships to renew still to keep 288.

As we enter January, please make sure you are checking to see that you are renewed for next year—we'd love to see you another year! You [may go here](#) to check that you are on the list, renew at the same link, or contact [Matthew Ryno](#) for help.

We will keep memberships active through February to allow time to renew.



## MAS Classifieds, Updated Publishing Schedules

By Matthew Ryno, Editor

The *Focal Point* newsletter is a significant undertaking for our club, and my publishing strategy has been to provide quality articles, sometimes at the price of blowing past page counts and hours of editing and writing. As such, I'll be piloting a switch to a bi-monthly publishing cadence and content format to allow content to percolate and truly be a unique experience separate from our MAS Google Group, Facebook, Instagram, Slack, Astrobin or continually growing Website.

Unfortunately, this two month publishing cadence will not support the publishing of timely classified ads, as they will be old by the time they expire. So, for these posts, I recommend all readers sign up for digest and email receipt via our Google Group, to follow more current for sale and classified posts from other members directly.

By changing to a bi-monthly format, the *Focal Point* will also move from carrying detailed information that may already be located in your member login page as our site transitions to a membership login to access documents. This includes line item treasurer reports, or detailed minutes on minor topics, and calendar information already linked somewhere else on our website.

If you would like to write for the *Focal Point*, this allows member authors more time to submit content and have it be carefully laid out and edited. Your article submissions and pictures are important, and I urge all members to share projects, observations, discoveries, questions, editorials and ideas in the long format of a newsletter by emailing [focalpoint@milwaukeeastro.org](mailto:focalpoint@milwaukeeastro.org).

Have some topics or ideas you'd love to see in the MAS newsletter? Want to help edit or write? Email me to get in touch. As our organization grows, so does the content in this newsletter.

## Have an Interest in MAS Organizational Administration?

As our organization reaches the most members it has ever had, let us know if you'd like to help play a role in helping us grow and evolve in 2023! Although we try to be out under the stars as often as possible, there's a lot of admin work to be done and we could use your help. If you have interest in promotions, program planning, organization administration, being a keyholder, creating membership surveys and feedback, contact [Jill Roberts](#) or [Matthew Ryno](#) for more information.

## Adopt a Telescope Program - Signup Sheet

	Adopter	Scope	Location
<u>1</u>	Sue Timlin/John Hammetter	18" F/4.5 Obsession	Wiesen Observatory
<u>2</u>	Steve Volp	12.5" F/7.4 Buckstaff	B Dome
<u>3</u>	Robert Burgess	12.5" F/9 Halbach	A Dome (Armfield)
<u>4</u>	Russ Blankenburg	9-1/4" F/10 Celestron	Albrecht Observatory
<u>5</u>	Jeff Kraehnke	14" F/7.4 G-scope	Z Dome
<u>6</u>	Lee Keith/Tom Kraus	12" F/10 LX200 EMC	Tangney Observatory
<u>7</u>	Colin Boynton	10" F/6.3 LX200	Ray Zit Observatory
<u>8</u>	Tamas Kriska	Stellarvue SVQ 100 F/5.8	Jim Toeller Observatory
<u>9</u>	Paul Borchardt	Solar scope	SkyShed POD

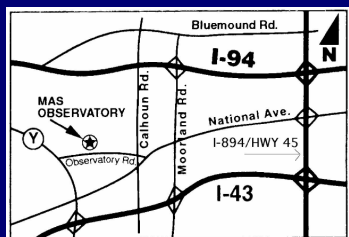
## Renew Your MAS Membership!

**Renew your membership at [www.milwaukeeastro.org/renew](http://www.milwaukeeastro.org/renew)! Annual Membership for 2023 Season is now due.**

With 288 active members in 2022, we have connected with more members than ever, but need your continued support! Our Milwaukee Astronomical Society Observatory is funded entirely by you, our members, and we would love to see you around in our meetings, our email group, and at the observatory any Saturday next year. We have [Stripe and Paypal digital payment options](#) this year to easily renew, or a check may be sent by [PDF renewal form](#) in the mail to our Treasurer.

Rates remain the same as last year, at \$23/yr. student, \$46/yr individual, \$52/yr. family, \$28/yr non-resident memberships. Optional donation amounts are accepted also by form.

If you're considering giving the gift of MAS Membership to friends, neighbors and co-workers, please visit our [Gift Application Form](#), which also accepts Stripe/Paypal.



### MAS Observatory

18850 Observatory Rd  
New Berlin, WI 53146

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### At Your Service

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Asst. Observatory Director	Lee Keith	262-875-9103
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Webmaster	Gene Hanson	262-269-9576
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Lee Keith	262-875-9103
Jim Schroeter	414-333-3679
Mike Bauer	262-894-1253
Mike Wagner	262-547-3321
William	262-442-3686
Gottemoller	

#### 2023 Keyholder Schedule

The keyholder schedule is currently under development.

Please contact Paul Borchardt with questions, scheduling preferences, or to inquire about becoming a keyholder.

Check our [Members page](#) for the latest calendar dates when available. Scroll to the *Calendars for 2023* for keyholders.