



Capitol Skies

The Newsletter of the
Madison Astronomical Society

Spring Equinox Issue, March 2026

Image of NGC 2264 (The Christmas Tree Cluster and Cone Nebula) by Arun Hegde

Thank You Laurence Mohr!

At the March Board meeting, Laurence Mohr announced that he would not seek another term as President of MAS due to pressing family issues. He will step down from the Board after the May election having served for 13 years, including three as our Vice President and eight years as our President.

The MAS community wants to take a moment to recognize Laurence for his extraordinary leadership during some of the most critical moments in MAS history. During his tenure he presided over:

- The largest expenditure in MAS history with the upgrades and expansion of YRS
- Our reconnection with the Astronomical League
- Record membership growth and a new and fairer dues structure
- The difficult task of meeting and observing safely through the pandemic

- The renewal of our website, the development of YouTube broadcasts of our meetings, and support of our Facebook page
- The creation of committee structures, greater emphasis on outreach and community presence, the celebration of our 90th anniversary, and some of our most successful Moon Over Monona events

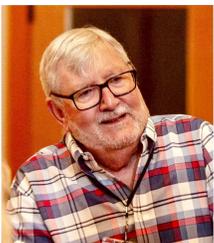


Laurence addresses the crowd at our 90th anniversary gala in April of 2025.

Through it all Laurence patiently “herded the cats” on our Board with a calm demeanor that served as our anchor. His eidetic memory of our bylaws reminded us of the proper way to make changes and ensured that we “colored within the lines.” Thank you Laurence for your extraordinary contributions to Madison Astronomical Society!

Editor’s Note

By Jack Fitzmier, *Capitol Skies* Editor



In this issue of *Capitol Skies*, you will find three “graphic invitations.” No, not *graphic* graphics. Rather, the

kind that are artful and clever. First, find the cover art for “Stirring the Cosmos.” Our own Jamie Orlando continues to accept your favorite recipes – astro-

themed or otherwise – for inclusion in the first-ever MAS Cookbook. Interested in contributing? Get in touch with Jamie. Second, a couple Astronomical League opportunities. By virtue of our membership in the AL, MAS is also a member of our local region – the North Central Region of the Astronomical League – which holds an annual meeting each year. This year’s event

will take place in Cedar Rapids, Iowa on May 15 through 17. Good program, and just a couple of hours from Madison. Link to additional info is beneath the graphic. Finally, the AL has announced its annual gathering, too. ALCon 2026 will be held in Cincinnati, Ohio on August 12 through 15. Some great speakers about 7 hours from Madison. Link below the graphic. Check it out!

DarkSky Wisconsin: Wisconsin's Dark Sky Renaissance

By John Rummel, Vice President of DSW

“Thirty years ago we thought of pollution as smoking factories, burning rivers, and dying fish and birds. Today, the causes of environmental degradation are more closely linked to our individual behaviors. Light pollution caused by poor exterior lighting is a good example of how something that we take for granted can affect our environment.”

—David Liebl, UW Madison Extension, 2000

Wisconsin's dark sky community has been reinvigorated over the past two years. Perhaps more than ever before, we're working to reverse the trend of light pollution state wide.

As noted in the Dave Liebl quote above, concerns over light pollution are not new. This struggle for awareness and action has been going on for decades, predating even Liebl's July 2000 paper. For years, isolated pockets of activism have emerged whenever a new ordinance is passed or commercial buildings add significant light trespass to a formerly dark stretch of county road.

Wisconsin previously hosted a state chapter of the International DarkSky Association (now rebranded as *DarkSky International*). Based in Lake Geneva, that chapter was active for several years before going dormant as interests shifted or members moved away. However, over the last three years, a new group has taken shape. Drawing members from all corners of the state, this group is not focused on any one geographic area. We benefited greatly from the mentorship of the Minnesota group, *Starry Skies North*, which supported us for over a year as we grew our capacity to form a dedicated Wisconsin affiliate.

The current incarnation is now an official state affiliate of *DarkSky International* and was incorporated as a 501(c)(3) nonprofit last year. With our own website and board of directors, we are actively raising funds

and growing our membership across the state. Samantha Saeger of Sheboygan serves as our president.

What's different this time? While it's hard to say for sure, the discussion around light pollution is attracting wider attention than ever before. In the past twenty years or so, there has been a proliferation of bad lighting (e.g., LED auto headlights) that produces much more glare than older fixtures. And the mainstream media has been covering the research on human and non-human impacts of artificial light. Add to this the rise of private industry satellite fleets. Over ten thousand satellites (and counting) are in low earth orbit right now to enhance global internet access, and upstart companies are promising to orbit mirror satellites to intentionally reflect sunlight down to nighttime locations—providing “sunlight on demand” for energy generation and unknown other purposes.

DarkSky Wisconsin's current efforts have raised the bar. A prime example is Scott Lind, a licensed electrical engineer and electrician from Southwest Wisconsin. Scott was energized by his experience with the Kickapoo Valley Dark Sky Initiative (KVDSI), which he now leads as president. In 2021 and 2022, the KVDSI saw their application to become Wisconsin's second dark sky park put on hold because ambient light levels throughout the



Driftless Area had increased—even as the initiative successfully persuaded local municipalities to update their outdoor lighting. The problem turned out to be the newest generation of LED lights. Their high blue content creates much more scatter than we previously understood.

The Kickapoo's disappointment became DarkSky Wisconsin's gain. Scott turned his professional knowledge toward educating manufacturers, vendors, municipalities, and trade organizations. People are listening. Scott has been invited to consult with numerous cities, such as La Crosse and Eau Claire, to draft impressive new ordinances. He has installed model streetlight fixtures in communities like La Farge and Ontario, and is bringing leaders from a three-state area to see what is possible with lower Kelvin lights and timer controls. Though streetlights contribute only about 25% of the average city's over-lighting, fixture costs and incentives overlap to make them an ideal testbed to show what smarter LED lighting looks like. Scott notes that, in the communities where he has installed these models, NOBODY has asked that higher Kelvin lights be brought back, even though

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Four 2200K streetlights as installed in La Farge, WI, by Scott Lind. Scott has used these fixtures to illustrate to contractors and leaders in other municipalities what lower Kelvin lights look like in the real world (most LED streetlights are 4000 or even 5000K). KVDSI and DarkSky Wisconsin plan to install more testbeds like this and gather safety and visibility data too.

this alternative was made clear to the end users.

Scott is also integrating these principles into continuing education for electricians, teaching the basics of light pollution mitigation to those who need CE credits to maintain their licenses. This level of professional influence makes a tangible difference; Scott notes that he has had success in moving some electrical contractors to lower color temperature products. Figuratively

speaking, he's helped these movers and shakers to "see the light." Education works.

There is much more happening within DarkSky Wisconsin. We meet monthly online, raise funds for real-world initiatives, and are steadily growing our ranks. There are no membership dues—all you need is an interest in getting involved. If you aren't sure where to start, join us at DSW.

For more info, visit us at: darkskywi.org/



Dark sky trail blazers from three states at a gathering in La Farge WI, last month. Front row left is DarkSky Wisconsin president Samantha Saeger. Middle front row with the blue jacket and glasses is Scott Lind. Back row: third from left is the author, and second from the right is MAS member Dick Wieboldt.

Whatever happened to Madison's efforts to gain recognition as a "Dark Sky Community?"

In 2022, the Madison City Council approved a resolution for the city to apply for official "Dark Sky Community" status through DarkSky International. The application process often takes years and would require Madison to significantly update its ordinances for both commercial and residential outdoor lighting, while launching a public campaign to reduce its nighttime light footprint.

Following the resolution, an ad hoc working group made up of City officials began talks with DarkSky International. However, the scale of the challenge soon became clear. Currently, the largest municipality to hold this distinction is Flagstaff, Arizona—the first city ever so recognized. Flagstaff (Coconino County) has a population of roughly 142,000, and is itself an outlier. After Flagstaff, no other city with this

status has more than 25,000 people and most have less than 5,000. The Madison metropolitan area (Dane County) exceeds 600,000 in the most recent census.

Discussions between the two briefly shifted toward creating a new category for larger metropolitan areas, but those talks eventually stalled. A combination of personnel turnover at DarkSky International and the demands placed on an already stretched city administration brought the initiative to a standstill.

Is there still hope for Madison to blaze a trail in urban light pollution mitigation? Absolutely—but it will require a concerted, organized effort from the community.

Help us lead the way: Consider joining DarkSky Wisconsin.

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Outreach Coordinator

Rick Wayne

Webmaster

David Leiphart

YRS Grounds Manager

Chris Zeltner

Program Coordinator and

Society Historian

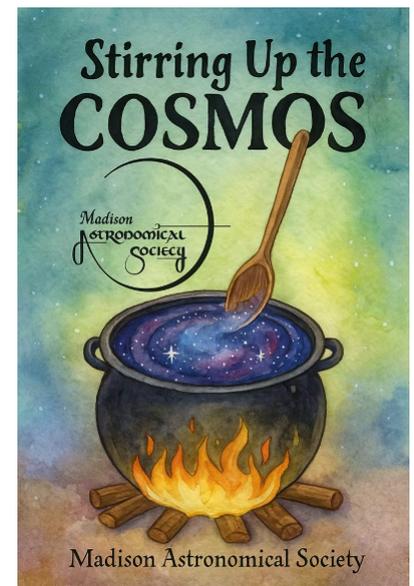
John Rummel

Astronomical League Liaison

and Capitol Skies Editor

Jack Fitzmier

To contact any of the above individuals, send an email to: madisonastro.info@gmail.com



Have a recipe to contribute? Contact Jamie Orlando: graffias79@gmail.com



A DIY Radio Telescope

By Bob Hamers

This month is the 75th anniversary of one of the most important discoveries in astronomy—the observation of radio emission from hydrogen atoms in the Milky Way, made by a graduate student (Harold Ewen) and his Ph.D. adviser (Edward Purcell) on March 25, 1951. Their work ushered in the field of radio astronomy. Since that time, radio astronomy has revolutionized the field, providing a way to directly reveal the structure of the Milky Way, providing crucial measurements regarding “dark matter,” and peering into the depths of the universe where optical telescopes can’t see.

Intrigued by Ewell and Purcell’s work, I recently made my own radio telescope. Hydrogen atoms emit radio waves at a frequency of 1420 Megahertz, or 1.42 GHz. This radio emission comes from the interaction between the nuclear spin of the hydrogen nucleus and the electron spin of hydrogen’s one electron. This interaction, known as a hyperfine interaction, creates two energy levels separated by a small energy gap; as the electron spin flips from one direction to the other and changes its energy, it emits radio waves at 1.42 GHz. This emission line is extremely narrow (it occurs at a very precise frequency), and therefore one can measure very small changes in frequency due to the Doppler shift. Hydrogen atoms moving toward us are detected at a slightly higher frequency,

and those moving away are detected at lower frequency. By measuring the Doppler shift, it’s possible to determine the absolute direction and velocity (speed) of the hydrogen atoms moving along our line of sight.

Unlike optical telescopes, radio telescopes don’t directly produce an image. Instead, they use an antenna to

detect the radio signals in one region of the sky, and then scan the direction of the antenna to build up an image over time. The spatial resolution is controlled by the size of the scope.

As a starting point, I made a rectangular horn antenna much like Ewen and Purcell’s, only slightly smaller: 36” x 30” at the open end and about 5 feet long, just large enough that I could fit it through a doorway. In order to make the horn as large as possible and still very light, I made a tapered frame from pieces of thin aluminum angle that I riveted together and then linked them with lightweight, twin-wall polycarbonate sheet. The inside of the horn needs to be conductive but the conductive parts can be very thin (a few thousandths of an inch), so I glued aluminum foil to the inside of the polycarbonate sheets. The horn funnels the radio waves down to a rectangular waveguide that I made by bending a piece of aluminum sheet into a box. Finally, the radio waves are detected by having a pickup wire inserted into the side of the waveguide about 6 cm (a little over 1/4 of the

wavelength) from the end. To amplify the signals, I used an inexpensive Nooelec “Sawbird” amplifier (Amazon) coupled to an Airspy R2 software-defined radio, with a Raspberry Pi5 (or optionally, a Windows laptop) collecting the radio signals using free, open-source software. The electronics measure the radio signals at a very high rate and then about once per second the software performs a Fourier Transform, which converts the incoming data into a spectrum of intensity vs. frequency. I mounted the horn on a small frame made from extruded aluminum that can be tilted up and down. All together, the cost of all parts and electronics was a few hundred dollars.

This setup I built is sensitive enough that one can see the Milky Way’s radio signals in real time, updated once per second, even during the day. Since radio signals are virtually unaffected by visible light or clouds, it’s also possible to do radio astronomy during the day (although the sun contributes some noise) and even when it’s cloudy. To test my scope, I used it to collect a series of spectra from my backyard as the Milky Way drifted through the south meridian. The Milky Way cuts through the meridian twice per day, so that spectra taken a few minutes apart in the evening and then in the morning allow one to probe two different regions of the Milky way. On the next page I show some of my first radio spectra. The set on the left were measured in the afternoon and on the right, morning. Each spectrum is a 2-minute average, and the spectra were measured about 10 minutes apart in time, with the scope tilted to a new elevation each time.



Bob’s radio telescope with the author for size reference.

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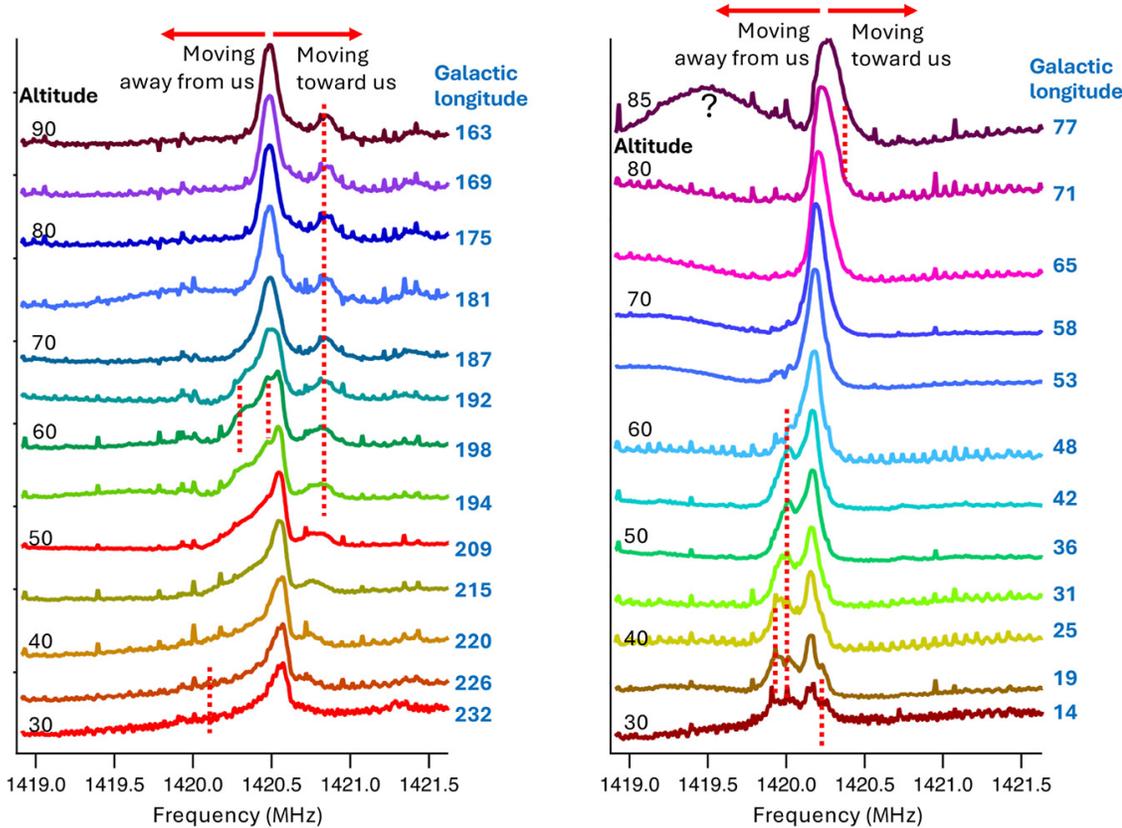
Along the south meridian, in the afternoon we're looking more toward the outer regions of the Milky Way, and in the morning looking more toward the center. I've indicated the galactic longitude (the direction we're looking within the Milky Way) on each one. By comparing the spectra you can see clear changes in the shape and structure of the peaks when looking at different regions. The small, very narrow spikes and periodic noise are due to pickup

from nearby radio transmitters— but the broader peaks are all from galactic hydrogen and vanish when the horn is pointed away from the Milky Way. In these first measurements I was surprised to learn that while in general the universe is expanding and moving away from us (and so radio signals are usually shifted to lower frequency, or "red-shifted"), one can also detect H atoms that are moving toward us (blue-shifted), due to the rotation of the

Milky Way and the differing speeds of rotation moving outward from the galactic center.

A 1-meter radio horn like mine only has about 15 degrees angular resolution and so isn't great for making detailed images, but a more detailed analysis (which I've yet to do) and more data can be combined to make a map of the Milky Way – in fact, radio astronomy measurements are how we know about

the different arms of the Milky Way and where we are located within it! In addition to hydrogen atoms in the Milky Way, there are many astronomical objects that emit radio waves, including Saturn, Jupiter, Andromeda and other nearby galaxies, OH (Hydroxyl) masers, and pulsars. Some of these require a somewhat larger antenna, but all have been detected by amateur astronomers. Ultimately, amateur radio astronomy doesn't compare to visual astronomy for making pretty pictures, but it does provide insight into an entirely different aspect of astronomy and what one can learn about our amazing universe.



My first radio spectra of the Milky Way, measured at different altitudes above the horizon and then converted to the galactic longitude.



Want MAS branded merch? Visit our store at Madison Top Company. Men's and women's apparel, a mug and a ball cap currently available. Each purchase puts a tiny donation back in MAS's general fund to help us in our nonprofit mission to educate the public about astronomy.

<https://madison-top-company.printavo.com/merch/madison-astronomical-society/> or just click [here](#).

MAS Merch!



MAS Board Report: Round Table Discussion with Members

Prior to our March meeting, representatives from the MAS Board conducted our first 30-minute Round Table discussion to discuss future plans and priorities for MAS and to solicit ideas from members on their ideas for the administration of MAS. We had great participation and shared many fantastic ideas on how to better communicate.

In the past, members have shown more interest in the science of astronomy, our presenters, and outreach events, and not as much interest in the actual administration of MAS as an organization. With our growth in numbers and more active membership we believe that is no longer the case for many of our members. We're pleased that members want to share their feedback, and we want to share our priorities and plans and find out what ideas you have for the continued growth of our club.

If you are interested in how we can grow MAS, bring more value to MAS membership, and make positive changes in how our organization operates, please feel free to join us from 6:45 to 7:15 PM in a stand-up meeting at the front of our meeting room before President's announcements at Space Place. This will take place instead of the Newcomers Meeting that was run by Chris Zeltner. Based on the interest we received from members to this type of discussion, we anticipate this will continue to be something offered each month to facilitate better communication for members.

Our first Round Table hit many topics. We discussed how to best share information regarding Board actions, agendas, minutes, expenditures, and plans with members that want to know more without inundating less interested members with emails. We believe a future secure sign-in section of our

website may provide solutions by offering such information to all members in an area secure from the general public without pushing unwanted communications. We also discussed vulnerabilities in how vital institutional knowledge needed for continued organizational operation is stored and plans to solve these problems.

The Board is proud of what we've accomplished recently, but we all want to see continual improvement in MAS. This is an excellent opportunity to touch base if you'd like to serve in any of the volunteer or leadership positions, too. We discussed the need to have understudies for certain critical board and committee functions.

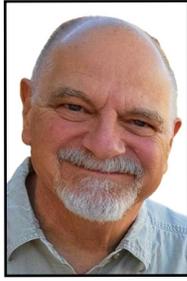
Thanks to all the members that stepped up in the March meeting to help make this a success and we look forward to seeing even more participation in upcoming meetings.



For more information go to www.alcon2026.org



For more information go to www.ncral2026.org



Spring is More Than Just Galaxies!

By Alex Langoussis FRAS

Yes, spring is known as galaxy season, and for good reason. A large portion of the spring sky is filled with them! But after a while, perhaps you are getting tired of faint fuzzy things. To the rescue... Globulars!

Globular clusters are some of the most impressive targets in the night sky, even in small aperture telescopes. Unlike galactic (open) clusters, with stars numbering in the dozens up to a few thousand and lying near the disk of the Milky Way, globulars are relatively dense clusters numbering in the hundreds of thousands of stars, and are located rather spherically around the galactic center as a sort of halo. These stars are the oldest stars in the galaxy, 10 to even 13 billion years old. As an earlier generation of stars, they consist mostly of hydrogen and helium, with very few other elements, which formed later.

In appearance, globular clusters appear as very dense and compact spheres of stars which, in fact, they are. As you get near a cluster center, the stars can be as close as light days to each other. You will notice differences though, as some are very tightly compact in the center, while others look a little bit more loose and open. It turns out that some of the best globulars are visible in our spring sky. Look at them, compare them, and note the differences. And if you are showing friends or family the night sky through your telescope, be sure to include these in your sky tour. You will hear the "Wow!"s. Here are a few of my favorites, all beautiful to look at...

M13 in Hercules. Considered the best by many northern observers. It's big. It's bright. It's easy to find, even naked eye, on the western edge of the Keystone. The core is very condensed, but starts to resolve with larger scopes. You might notice a "Y" shape dark area in the cluster, called The Propeller, if using higher magnification.

M92 in Hercules. Often overshadowed by its big brother, M13, probably because it is a little more difficult to find, it appears just a bit smaller and less bright. It deserves to be observed much more often than it is.

M3 in Canes Venatici. Easily located along a line between Cor Caroli and Arcturus, a moderate sized telescope will resolve this nicely. And while you are there, take a look at **Cor Caroli**. It is

one of the most beautiful double stars in the night sky.

M5 in Serpens. This is my personal favorite of the northern globulars. It seems to have a perfect balance between tight core and resolvable outer regions. It can be a bit tricky to find, but there are a few ways to hop to it if you don't have a goto scope. It is definitely worth the effort to track it down.

M53 in Coma Berenices. Appearing a little less condensed than others, but still a lovely sight. And, it's a twofor! Only a degree to the SW is **NGC 5053**. It is very unlike M53, being smaller, more sparse, much dimmer. Very ghost-like; a challenge, actually! Give it a try!

Finally, for the travelers among us, if you get yourself below about 37 degrees latitude (say Nashville), do not miss viewing **Omega Centauri (NGC 5139)**. The best of the best. Absolutely huge, bright, looking distinctly reddish. It is filled with countless star chains, giving it a 3D appearance. I consider it one of the finest views in the entire nighttime sky. You can locate it about 35 degrees straight below Spica. The further south you go, the better.

So, when you would like to see something more dramatic after looking at a bunch of faint galaxies, take in a few globular clusters. Globulars are perhaps the one type of celestial object that can look better visually than in an image. They're good even in smaller telescopes, but as always, the more aperture you can throw at them, the better!



M5 in Serpens. 30 minute Seestar S50 integration by Alex Langoussis. Processed with PixInsight by John Rummel.

MAS Member Spotlight: Walter Piorkowski

Interview by Alex Samuel

Tell us about yourself.

I was raised on the South side of Chicago. I worked for M.H. Detrick, a company that imported devices to pour molten steel out of ladles. I traveled all over the world and became national service manager for the company. I then joined Astro-Physics and was with them for 28 years. I was in charge of mount assembly.

How did you become interested in astronomy?

I am a child of the space program. I watched Mercury, Gemini, and Apollo. I was also interested in observing the Echo I satellite.

How long have you been a member of MAS?

My wife Kathy and I joined in January, 2019.

What is your favorite astronomical object or phenomenon?

The Sun and observing dark nebulae.

Back in the film days, I was doing high resolution photography of solar sunspot systems. I was one of the best solar imagers on the planet. My images were so good that *Sky and Telescope* published a gallery page of my images.

What equipment do you currently use for observations?

I have a 5" apochromatic refractor that I built at Astro-Physics that I use to study the Sun, primarily looking at the solar prominences on the limb. I also use an early Coronado telescope for H-alpha observing. I use an Astro-Physics 1200 mount.



Walter next to his 1970's Zetoplan microscope.

Have you had any memorable observing experiences or "wow" moments when stargazing?

I observed Comet Halley outside the orbit of Jupiter coming in to the Sun. We watched it all night long. Another memorable moment was when I observed a grazing occultation of Ganymede.

Are there any specific projects or goals you have in the world of astronomy that you're currently working on or that you would like to achieve?

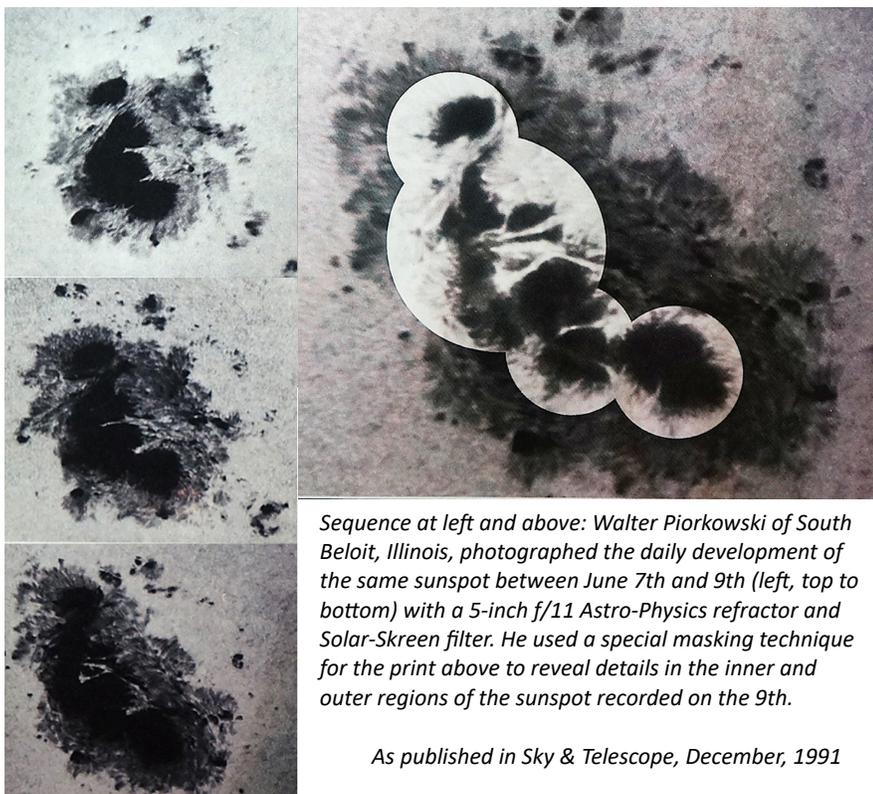
I'm working at finding interplanetary dust. I am happy to say that I have discovered one micrometeorite. I've refined all my techniques and I've gone through the materials I've been collecting through downspouts from big buildings. That's what I am working on now.

Outside of astronomy, what are your interests?

Photomicroscopy, model trains, hydroponic gardening, and I am an audiophile.

Do you have any advice for new members of MAS?

Astronomy is such a broad field, I would recommend members explore all the different facets of the hobby.



Sequence at left and above: Walter Piorkowski of South Beloit, Illinois, photographed the daily development of the same sunspot between June 7th and 9th (left, top to bottom) with a 5-inch f/11 Astro-Physics refractor and Solar-Skreen filter. He used a special masking technique for the print above to reveal details in the inner and outer regions of the sunspot recorded on the 9th.

As published in Sky & Telescope, December, 1991

A Workshop From The Ground Up

Spontaneous conversation spawns the first in a series of photo editing classes

Most MAS events are planned and scheduled – monthly meetings, star parties, picnics, and Moon Over Monona.

But others happen spontaneously, from the ground up. Someone asks a question or makes a comment that gets someone else thinking, and there is a concurrence: “Hey, let’s do something about that!” Just that happened last fall. Some of our members were chatting about astrophotography and someone observed, “I wish I could learn more about how you do all that processing after the photos are taken.”

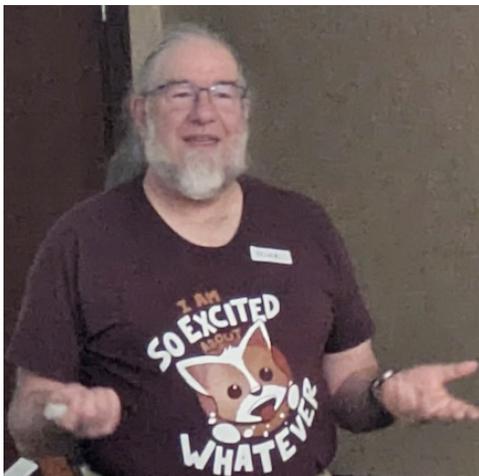
That wish was noted, took root, and grew into MAS’s first Astrophotography Workshop. It was held at the Alicia Ashman Library on Saturday, March 14. Featured speakers

were our own Bob Hamers and Rick Wayne, both of whom are accomplished astrophotographers and wonderful speakers. The plan that emerged called for two sessions. The first was an overview in two parts: Bob spoke about how individual photos are calibrated, and Rick spoke about the often-confusing concept of image stretching. A second session is planned, based on particular software programs.

The program was a hit. Participants left written feedback messages that were uniformly positive, as was the buzz on our Observers email list. Stay tuned for announcements of the second session, and if you see them, give a shout out to Bob and Rick. Kudos to both!

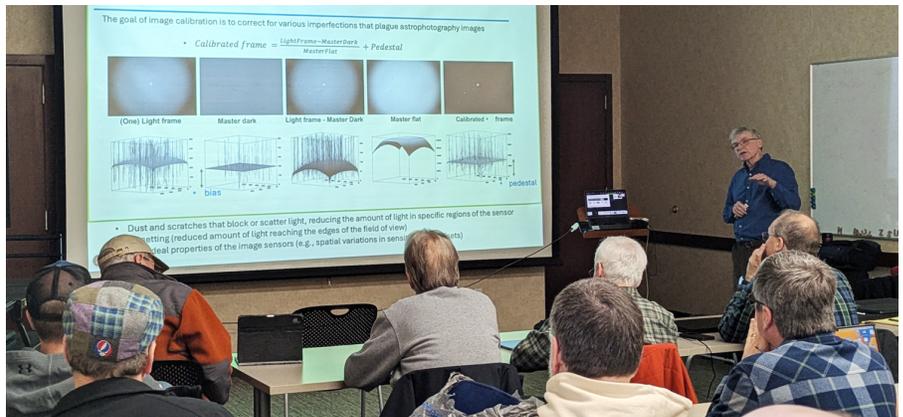
“Outstanding presentations!
I’m just beginning my
journey but really appreciate
learning processing tools.”

—Participant Feedback



Rick Wayne walked attendees through the process of post-processing astronomical photos, including software options for stretching the dark areas of a photo in order to bring out additional details from the shadows. He also shared with attendees many practical how-to’s and gotcha’s of stretching dark astronomical photos, various options and limitations of post-processing software packages, and how and when to temporarily remove stars from a photo for processing. Here, Rick is answering a question and interacting with the group.

The organizers were very happy with the response to this initial image processing workshop. They plan to do another. If you’d like to weigh in on what you’d like to see, reach out to John Rummel at darksky2500@gmail.com



Bob Hamers presented information to help attendees better understand the need for image calibration and how to use calibration techniques and tools to improve their astrophotography results. Here, Bob is illustrating how calibrating with “light” and “dark” frames helps correct optical imperfections in photography equipment. He also explained how noise reduction processing works by separating and reducing noise in the data, resulting in cleaner and more detailed astrophotography images.



The MAS astrophotography seminar was well attended. Twenty-three MAS members came to learn more about the processing steps of astrophotography with a focus on the image calibration and curve stretching steps.

A Senior's Way to Better Seeing, Part II: Outreach

By Jordan Konisky



Perhaps some of you recall my piece in the Capitol Skies Spring Equinox 2025 MAS Newsletter in which I described transitioning my observing and imaging rigs to match my own physical transition to a now 85 year old. In my early years as a member of MAS I was often at YRS and also participated in MAS outreach events, such as the annual Donald Park Perseid Meteor Shower Display and Moon over Monona. Unfortunately, these kinds of outreach activities are no longer possible for me.

A little over two years ago, my wife, Judy, and I joined the Attic Angel Senior Living Community in Madison/Middleton where we occupy a single level home in a neighborhood, designated Attic Angel Prairie Point. Among other amenities, our back and front yards provide an excellent observing and imaging venue and might well provide a space for a neighborly

outreach session, at least for my neighbors living in independent living units such as ours.

But what about others in the Attic Angel Community who are less capable of independent living and so live in the Community's apartments or assisted living facilities where the average age is well above 85. Many of these folks are wheelchair or walker bound. Poor eyesight and hearing impairment are rampant. This segment of our retirement community is simply not capable of attending an outreach activity of the MAS or even neighborly kind.

So rather than even contemplating bringing the residents of the Attic Angel apartment and assisted-living Community to the night sky, I have brought the night sky to them. The venue is the Attic Angel Art Gallery which displays the art and photographic

work of Attic Angel residents and is conveniently located in the same building in which these folks reside with convenient access to the Gallery. There, in a February-long exhibit, I displayed eighteen of my own astro-images including galaxies, nebulas, star clusters, lunar craters, solar prominences, and Saturn's rings.

While I had expected the oohs, aahs and wows, what impressed me the most was that, as physically impaired as some of these folks are, as a whole, they were incredibly inquisitive, eager to chat and learn, and posed amazingly insightful questions. Explaining to a wheelchair bound 90's year old that the image of Triangulum in front of her depicts the galaxy as it was roughly 3 million years ago and hearing back with a twinkle in her eye, "I wonder what it looks like today," is among the many memories that will stay with me.



Jordan, with his back to the camera in the first two shots, answers questions about his astrophotography.

Upcoming Meeting Programs

April 10	How do we actually know about exoplanets?	Max Kroft, UW PhD student
May 8	Didn't this used to be hard?	Rick Wayne, MAS outreach coordinator
June 12	Earth's first billion years: was it that different from today?	John Valley: UW Geosciences professor emeritus
July 10	Life in the universe	Zoe Todd, UW professor of astronomy and chemistry