

August, 2016

Summer Schedule

From June through August we do not have General Membership Meetings. The regular Membership Meetings will resume in September. The details will be posted on the website and published in

the September issue of the Focal Point Newsletter.

The Observatory will be open on Saturdays (Keyholder Nights), and when it is announced on the Google group.

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Next Public Night on Friday, September 2nd

The next Open House event is scheduled for September 2nd at 7:00 PM at the Observatory and will feature the planets Mars and Saturn. The speaker of the night will be Gene Hanson.

During the August 5th Public Night we assigned each telescope a single object to show. Guests had to visit every scopes and collect stickers for the chance to win a raffle prize.

This new approach was successful since much more visitors stayed until the sky was dark enough to see some deep sky objects. We will use this format on the remaining three fall Public Nights. Any help from members would be appreciated.



Yerkes Star Party

After three consecutive years of bad weather we finally got lucky and enjoyed beautiful clear skies at the Yerkes Observatory on July 31st when we had our annual star party for the students of the Kavli Summer Institute.

Eleven MAS members came to help: Paul Borchardt, Russell Chabot, Frank and Kay Kenney, Agnes Keszler, Jeff Kraehnke, Tamas Kriska, Neil Simmons, Paul Smith, Sue Timlin, and Ron Zoltowski.

As always it was fun to attend this event and share the wonders of the sky with students.

Observatory Report

The Sky shed POD has been shipped according to Sky Sheds but has yet to arrive. The expected delivery is July 11 to July 13. All of the mechanical parts for the scope are ready to be installed.

Work has been performed on the F-scope to replace a broken R.A. motor, the scope is back on line and working now. The cost of the motor was \$159 plus tax.

Just like last month the A-scope has been in use almost every clear night with members imaging the three planets which are all out during the first half of the night, sometimes there is as many as three people lined up to image. There has been training as to using the monochromatic camera will some of the members wanting to take their imaging to the next level.

The R.A. drive train on A-scope has been adjusted to eliminate drifting in that axis. Use of the scope since has shown much improvement in the amount of drift, the error now is well under one arc minute.

Respectfully Submitted,
Paul Borchardt, Observatory Director

Treasurer's Report

\$7,313.45	Starting Balance as of 6/11/2016
	Expenditures
\$60.96	WE Energies
\$85.00	Extension ladder 16'
\$8.99	PayPal Fees
\$167.00	RA motor for F-scope
\$0.44	Power converter
\$10.00	Astronomical League
\$10.27	Well maintenance
\$1,964.06	Library project
-\$2,449.58	TOTAL Expenditures
	Revenue
\$295.00	Donations
\$6,306.00	Book/Equipment Sale
\$402.00	Membership Dues
\$50.00	Public Night 6/11
\$7,058.00	TOTAL Revenue
\$12,149.19	Ending Balance as of 7/09/2016

Respectfully Submitted,
Sue Timlin, Treasurer

Meeting Minutes

Held on July 11th at the Observatory. The meeting was called to order at 7:05 PM by President, Tamas Kriska.

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

Old Business - Solar Observatory update: We are still waiting for the POD to arrive. Adopt-a-Scope program: All adopters received the Check Up sheet. Quonset hut remodeling: The two Clark telescopes and the Queen scope were sold for \$5600 altogether. So far we fundraised \$10,411. Next piece to sell will be the Z-scope mirror (or maybe the entire scope), an ad will be sent to the S&T. New Berlin July 4th Festival: There was a moderate financial success, but we distributed about 2000 MAS business cards with the Public Night schedule. The real impact will be seen on the future Open House turnout and membership boost. Insurance: A new policy was signed with Acuity. The annual premium is \$744 vs. \$2200 we used to pay to Foremost for less coverage. The Board thanked Tamas for finding a new insurance agent and working on the policy with him.

New Business - Since the Club right now does not have Program Chair, the Board will share the task of finding quality speakers to the General Meetings (3 from September thru November, and 5 from January thru May), to generate a good attendance. Potential presenters are Faculty persons from neighboring universities, representatives of astronomical magazines, speakers of sister organizations, or MAS members. The membership will be surveyed for preferred topics via the Google group. The possibility of talks by MAS members was also discussed.

The meeting was adjourned at 9:30PM.

Respectfully Submitted,
Agnes Keszler, Secretary

Membership Report

Since the last Report we received five new membership applications and would like to welcome Jacqueline Jurewicz, Patrick Sutton & Family, Dawn Olson & Family, Richard Nuccio & Family, and Richard Kirsch. Two applications are pending. We now have 120 active members.

Respectfully Submitted,
Jeff Kraehnke, Committee Chair

Adopt a Telescope Program

This is a reminder that we have a program that is a helpful tool for beginners who want to learn more about the MAS equipment. Each scope is adopted by one experienced and one beginner member. The idea is that new members can learn the use and maintenance under supervision of an experienced user.

The following will be the roles and responsibilities of the adopters:

- Perform monthly inspections of the observatory & its equipment (test it; clean it; check if everything is stored properly)
- Be the first point of contact if somebody

notices an issue (communicate the need for repair/calibration or do it if capable)

- Attend annual clean-up
- Perform monthly checkup and log it in
- Be willing to teach other members how to use the equipment
- Maintain MAS membership in good standing
- Surrender adopt-a-scope when unable to commit to the above.

Check the list of available telescopes on the last page of this newsletter. If you are interested in participating please contact any officer or keyholder.

The New Solar Observatory is Ready to Use

We are pleased to introduce the newest asset of the Club, the dedicated Solar Observatory. The SkyWatcher EQ6 equatorial mount is holding a Lunt LS80THa double stacked solar telescope and a refurbished 5" refractor with a Baader Herschel solar wedge. Both scopes can be used for imaging as well as visual observation.

Big thank you goes to everybody who participated in this project (in alphabetical order): Scott Berg, Paul Borchardt, Clark Brizendine, Gene Hanson, Scott Jamieson, Lee Keith, Frank Kenney, Agnes Keszler, Jeff Kraehnke, Tamas Kriska, Sue Timlin, Steve Volp, Ron Zoltowski.



Z-dome Remodeling



After transforming the old library-office space into a modern control room, we continued the remodeling of the Z-dome with the hallway. The ceiling tiles were refurbished, the walls were repaired and painted. The concrete floor was resurfaced with an epoxy paint. An addition of a trim molding made the floor work complete.

In the last phase of the work the walls and floor of the upstairs area will be re-painted as well as the entrance door and window panels.

Astronomic Events

Annual North Woods StarFest

On the August 6th weekend I attended the North Woods StarFest held outside of Eau Claire Wisconsin. The weather was perfect for camping and both nights were really clear with a fairly dark sky.

The event is hosted by the Chippewa Valley Astronomical Society at the

Hobbs Observatory which they run and maintain. There is a large open area to the south of the observatory that the guests can setup on that has unobstructed skies in all directions. There is also 110 voltage power available, you just need a long extension cord to reach the pole the setup at the middle of the observing field. Meals are included which is nice since it brings all of the attendees together several times during the weekend to talk and get to



know each other, there were about 75 people from all over Wisconsin there. Plus not having to cook and clean up the mess means there is more time for other activities and more room in the car for telescope stuff.

Across the road from the observatory there is a nice nature center with a lecture hall which we were treated to featured speakers on both Friday and Saturday evening.

This was my third time going, by the first that I brought along the equipment needed to do some astro imaging. I used a Vixen Great Polaris mount with an Orion 80mm short tube Refractor with an Orion Star Shoot auto guider. The imaging was done with a Canon T3i with a Canon 200mm F2.8 telephoto lens and a Canon T2i was a Pentax 50mm F1.4 lens. The guiding was controlled with PHD and the cameras were controlled with Backyard EOS. Both cameras were used at the same time.

This was the first time using this setup for astro imaging and I did have some problems with tracking so some of the images below do not have perfectly round stars. All images were taken at 1600 ISO with the 200mm lens stopped down to F4 and the 50mm lens stopped down to F2.8. All images are stacks of 20 three minute exposures. The stacking and post processing was done in Nebulosity and Photoshop. There were no filters used on any of these images. The size of the field of view are $21^{\circ} \times 17^{\circ}$ with the 50mm lens and $5.4^{\circ} \times 4.3^{\circ}$ with the 200mm lens.

Hope more MAS members can make next year event, it's a great weekend that's well worth the three and one half hour drive.

by Paul Borchardt



North America and Pelican nebulas shot with a 200 mm f/2.8 telephoto lens.

In the Astronomical News

Something is Erasing the Craters on Ceres

Ceres, the tiny asteroid belt world we've come to know and love through NASA's Dawn mission, seems to delight in mysteries, from flickering bright spots to unexpected ocean minerals. Now, astronomers have discovered yet another puzzle while examining images of Ceres' surface. Something has been erasing its craters. Craters offer a window into a planet's history, which is why they're one of the first things astronomers examine when trying to understand a new object. For instance, one of immediate shocks from the New Horizons Pluto flyby last summer was that Pluto's surface is mostly crater-free, indicating a geologically active interior.

Based on the heavily battered appearance of other asteroid belt objects, astronomers expected that our first close-up glimpse of Ceres would yield numerous large craters. Instead, we didn't find any.

When Simone Marchi of the Southwest Research Institute and his colleagues analyzed global image and topography datasets collected by the Dawn spacecraft over the past year, they discovered that most of Ceres' craters are less than 60 miles (100 kilometers) wide. That's in spite of the fact that neighboring minor planet Vesta, which Dawn visited first, has craters of up to 300 miles (500 kilometers) across. "This was a total surprise," Marchi, who led a crater analysis published today in *Nature Communications*, told Gizmodo. Considering Ceres' size and its 4.5 billion year history, "it is extremely unlikely that Ceres was not hit by large objects," Marchi said. That means something has been eating away at Ceres' big craters over time. Space Cthulhu aside, astronomers have a few hypotheses as to what it could be.

The first is that Ceres' internal structure is responsible. Other recent work, including several detailed analyses of the dwarf planet's bright spots, points to a layer of ice and

salt just beneath the surface. Over geologic time, the flow of this briny mantle could have flattened out the overlying topography, a process known as "viscous relaxation." As study co-author Michael Bland of the US Geological Survey pointed out, viscous relaxation flattens out big craters faster than small craters. An even more intriguing hypothesis is that large craters have been erased by ice volcanoes. "We have these bright spots all over the surface—clearly, that's stuff that came out of the interior," Marchi said. It's possible that Ceres was much wetter in

the distant past, and that an early period of intense cryovolcanism dramatically altered the surface we see today.

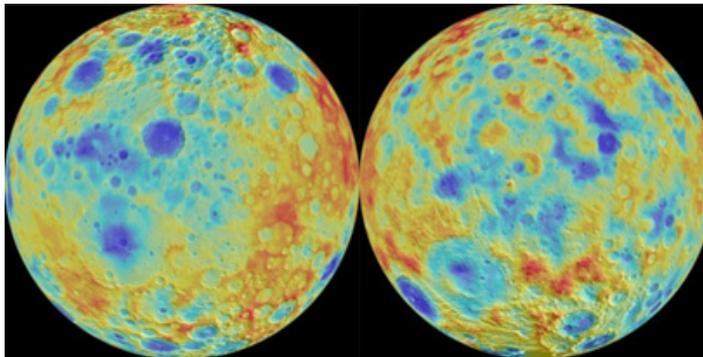
Dawn's most recent datasets could offer answers. The spacecraft is currently in a low-altitude orbit, snapping high resolution surface

photos and taking detailed gravity measurements as it rotates Ceres every 5.4 hours. "With this high-resolution data, we can look more specifically at sites on the surface that may have evidence of large-scale cryolavas," Marchi said. And with the gravity field data, we'll get a clearer picture of Ceres' interior, including its layering structure and any subsurface anomalies.

To Bland, the mystery of Ceres' missing craters underscores the importance of designing missions to visit multiple targets. "Because of Dawn's exploration of Vesta, we have a really good idea how many craters we should see on Ceres," he told Gizmodo. "That is, Vesta provides a critical data set to calibrate our models of crater production on Ceres."

"Ceres is unlike any other [asteroid belt] objects we've been able to sample through meteorites," Marchi said. "I have no doubt there is a big story here."

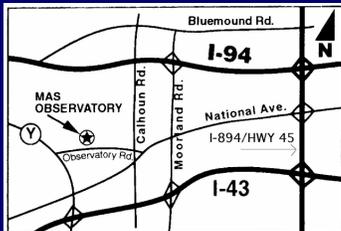
by Maddie Stone, Gizmodo



The topography of Ceres, with numerous deep craters but no particularly big ones. Image: NASA/JPL-Caltech/UCLA/MPS/DLR/IDA

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	Mike Smiley	18" F/4.5 Obsession	Albrecht Observatory
5	Jeff Kraehnke	14" F/7.4 G-scope	Z Dome
6	Lee Keith/Tom Kraus	12" F/10 LX200 EMC	Tangney Observatory
7	Herman Restrepo/Matt Mattioli	8" F/11 Celestron EdgeHD	Ray Zit Observatory
8	Tamas Kriska	14" F/1.9 F-scope	Jim Toeller Observatory
9	Paul Borchardt	Solar scope	SkyShed POD



MAS Observatory

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Vacant	

August/September Keyholders

8/27	Jeff Kraehnke	414-333-4656
9/3	Paul Borchardt	262-781-0169
9/10	Sue Timlin	414-460-4886
9/17	Lee Keith	414-425-2331