



August, 2015

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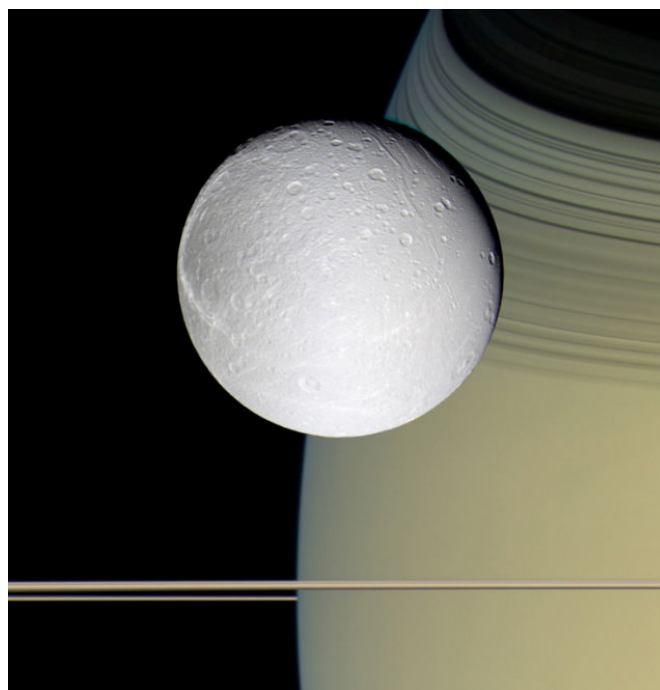
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## MAS Membership Renewal

It is August again, time for the membership renewal. If you prefer to do it online just follow this link: [www.milwaukeeastro.org/renew](http://www.milwaukeeastro.org/renew). The renewal form will also be sent out attached to a Renewal Notice email. Print it out and send it back along with a check made payable to The Milwaukee Astronomical Society. If you joined the Club after January 1<sup>st</sup>, 2015 do not take any action, your membership is active till the next renewal period.

## Next Public Night on August 21<sup>st</sup>

It looks like after a long weather disaster streak, we might have clear skies on our next public night on Friday, August 21<sup>st</sup> that will start at 7:30 PM. Celeste Keith will give a presentation about **Saturn's moons**. The evening will also include a tour of the Observatory and viewing thru telescopes. We will collect a parking donation of \$5/vehicle. The event will be held in rain, shine, and starlight. The kind help of MAS members during the night is encouraged and highly appreciated.



## Summer Schedule

From June through August, we have only Board Meetings. Regular Membership Meetings will restart on Friday, September 18<sup>th</sup>. Dr. Astrid Lamberts of UWM's Center for Gravitation, Cosmology & Astrophysics will be our guest speaker. The details will be announced in September issue of this newsletter.

Saturdays are the designated Member's Nights, but the Observatory might also be open on other nights if announced on the Google group. Stay tuned.

## Observatory Report

After the Z Dome reroofing was completed, the chain that opens the slit failed. It has been fixed and everything seems to be working!

The 14" Celestron Edge telescope and mount arrived and on the night of June 27th it was raised onto the Astrophysics GTO900 mount, the dew cap added (everyone agreed this makes the telescope look a lot more impressive), and our STF-8300 camera was attached.. After a polar alignment was performed, first light was achieved with images of M57, M13, and M51.



Scott Jamieson got into a large patch of poison ivy at the entrance to the observatory and Jill Roberts sprayed herbicide to kill them.

The Hyperstar also arrived. In order to mount the C14 scope in Zit Observatory with the mount we purchased with the 14" Edge, the existing pedestal had to be shortened a few inches. Scott then had to make a fitting so that mount could be attached to the pedestal. The conversion kit was successfully performed and with the Hyperstar mounted, the alignment was checked, but sadly, it looked visually like it was slightly off. For imaging, it was tested during the day at a convenient distant tree with very satisfactory results. We confirmed that that 2.4 degree FOV with an APS sized DSLR camera seemed right.

Because the secondary support assembly supplied with the Hyperstar conversion kit is much more stable than the original, it is now much more practical to switch the scope between f/11 and f/2 operation. The alignment required to

optimize the Hyperstar operation involves moving the corrector until the image is best, and , with the Hyperstar, we can judge when it is best. Then we can switch to the f/11 secondary and align it. This will allow us to use it for f/2 imaging or f/11 visual, adding both capabilities. It likely will not match the Edge scope but will still pull in the faint fuzzies well. The high quality diagonal and eyepiece supplied with the Edge scope should work well on this scope.

On the evening of July 9th, the C14 was mounted and we achieved first light with the Hyperstar with images of M57, M13, and finally M51. As we feared, close examination of the images shows that we do in fact have an alignment issue that will be addressed. But, also, with an aperture of 14" in an f/1.9 configuration, another fear was realized: the level of light pollution at the observatory will severely limit the exposure times. So next we will have to see what can be achieved with narrow band filters.

Respectfully Submitted,  
Gene Hanson, Observatory Director

## Treasurer's Report

<b>\$6,070.81</b>	<b><i>Starting Balance as of 6/8/2015</i></b>
	<b><u>Expenditures</u></b>
\$52.92	WE Energies
\$5.43	PayPal Fees
\$7.50	Water/Sewer
\$2,706.03	Z-dome project
\$1,922.45	Roofing Projects
-\$4,694.33	<b>TOTAL Expenditures</b>
	<b><u>Revenue</u></b>
\$52.00	GE Matching Found
\$202.00	Membership Dues
\$254.00	<b>TOTAL Revenue</b>
<b>\$1,630.48</b>	<b><i>Ending Balance as of 7/10/2015</i></b>

Respectfully Submitted,  
Dennis Roscoe, Treasurer

## Membership Report

Since the June Membership Report James Schroeter, and Ron Londre and Family joined the MAS.

We now have 89 members.

Respectfully Submitted,  
Tamas Kriska, Committee Chair



## Observatory News

As it was already mentioned in the Observatory Director's report, the other 14" Celestron telescope (F-scope) that has been equipped with a Hyperstar lens also became operational.



An image below shows the complete assembly with an attached DSLR camera sitting in front of a corrector plate.



Several test images were taken to assess the quality that can be achieved with this setup. The mount allowed 30 seconds long exposures without visible star trailing. That is equivalent to a 14 minutes long exposure at the original F/10 focal ratio.

But how deep can we go with those 30 s exposures? It was tested on several Messier nebulae (Trifid and Lagoon) shown to the right.



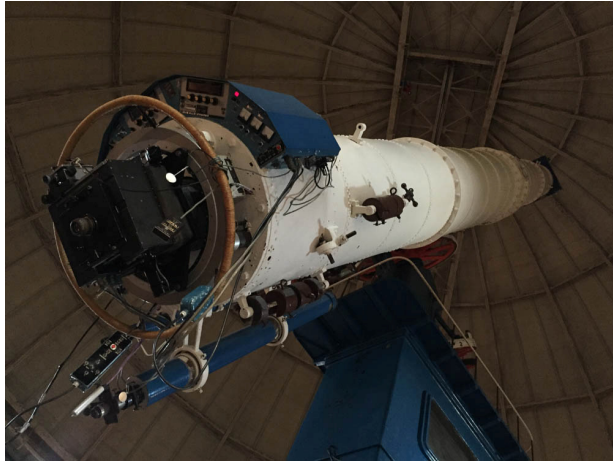
The quality of these images convinced us that we should plan for a more permanent housing for this telescope. The Zit Observatory, where it is located right now, is too crowded with two telescopes in it.

We are exploring the possibility of building a new roll-off observatory dedicated to the F-scope. If decided we are going to ask help from members through the Google Group. Any help would be appreciated.



## Yerkes Star Party

The annual star party organized by MAS members for the Summer Institute students of the Kavli Institute for Cosmological Physics took place on the first Sunday of August.



The MAS was represented by six enthusiastic members who drove down to Williams Bay despite the discouraging weather forecast. Sure enough, the cloudy sky did not give us any chance for observation.



As Paul Smith described the night:

"For the third year in a row there was no chance to show the students anything up in the heavens. Weather was good enough for us to set up, and answer some of the students' questions about telescopes, and give them a few good views through scopes and binoculars of the spectacular clouds and of objects on the building. We had a very impressive lightning storm, and the rain came in slowly enough for us to get packed away safely and then weather the storm (including a momentary power outage) inside the building.

In short, no-one was struck by lightning, and the students learned something. We did get another nice tour of the facility, including the 40 inch refractor dome. Well worth the trip. I hope we get to do some observing next year, but I have had a good time and felt useful every year despite the clouds."





## MAS Events

The MAS organized its annual summer picnic on August 1<sup>st</sup>. The beautiful sunshine lured a record number of participants, nearly 30 people to the hill. Many of them come regularly year by year, rain or shine, others not so frequently; and also lots of new members showed interest to get to know the others better.



The clear sky gave us an opportunity for solar observation. The Club's solar telescope was piggybacked on the B-scope, and two members set up their own scopes, a solar one, and a reflector equipped with a solar filter.

Since we had a potluck, a variety of delicious dishes waited for the hungry picnickers under the canopy. Two grills were started to make brats and burgers. Everybody enjoyed the good food and fellowship.

Originally we were planning some night observation as well, but as the sunset arrived, the sky turned cloudy.



## In the Astronomical News

### What is a Dwarf Planet?

The term dwarf planet has been tossed around a lot in recent years. As part of a three-way categorization of bodies orbiting the Sun, the term was adopted in 2006 due to the discovery of objects beyond the orbit of Neptune that were comparable in size to Pluto. Since then, it has come to be used to describe many objects in our Solar System, upending the old classification system that claimed there were nine planets.

The term has also led to its fair share of confusion and controversy, with many questioning its accuracy and applicability to bodies like Pluto. Nevertheless, the IAU currently recognizes five bodies within our Solar System as dwarf planets, six more could be recognized in the coming years, and as many as 200 or more could exist within the expanse of the Kuiper Belt.

According to the definition adopted by the IAU in 2006, a dwarf planet is: a celestial body orbiting a star that is massive enough to be rounded by its own gravity but has not cleared its neighboring region of planetesimals and is not a satellite. More explicitly, it has to have sufficient mass to overcome its compressive strength and achieve hydrostatic equilibrium.

In essence, the term is meant to designate any planetary-mass object that is neither a planet nor a natural satellite that fits two basic criteria. For one, it must be in direct orbit of the Sun and not be a moon around another body. Second, it must be massive enough for it to have become spherical in shape under its own gravity. And, unlike a planet, it must have not cleared the neighborhood around its orbit.

In order for a body to become rounded, it must be sufficiently massive, to the point that its own gravity is the dominant force effecting it. Here, the internal pressure created by this mass would cause a surface to achieve plasticity, allowing high elevations to sink and hollows to fill

in. This does not occur with smaller bodies that are less than a few km in diameter (such as asteroids), which are dominated forces outside of their own gravity forces and tend to maintain irregular shapes (spheroid or potato shaped).

The bigger the body is, the higher its internal pressure, until the pressure is sufficient to overcome its internal compressive strength and it achieves hydrostatic equilibrium. At this point, a body is as round as it can possibly be, given its rotation and tidal effects. This is the defining limit

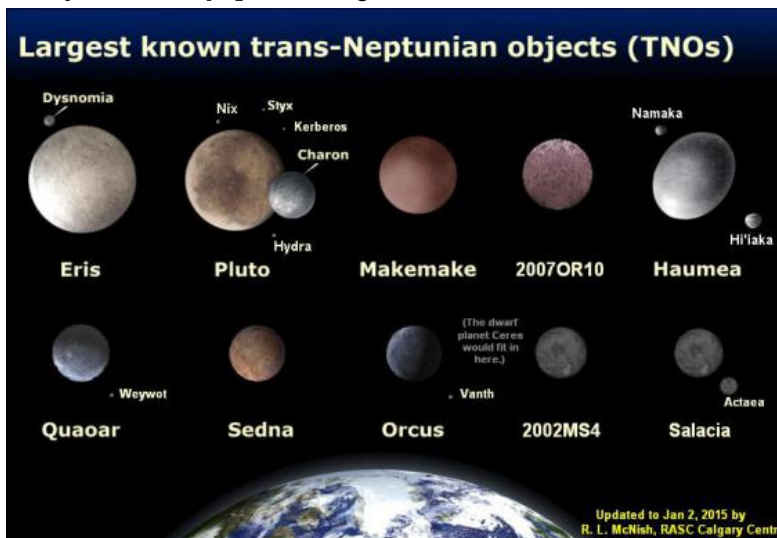
of a dwarf planet. However, rotation can also affect the shape of a dwarf planet. If the body does not rotate, it will be a sphere. But the faster it does rotate, the more oblate or even scalene it becomes. The extreme example of this is Haumea, which is twice as long along its major axis as it is at the poles. Tidal forces also cause a body's rotation to

gradually become tidally locked, such that it always presents the same face to its companion. An extreme example of this is the Pluto-Charon system, where both bodies are tidally locked to each other.

The upper and lower size and mass limits of dwarf planets have not been specified by the IAU. And while the lower limit is defined as the achievement of a hydrostatic equilibrium shape, the size or mass at which an object attains this shape depends on its composition and thermal history.

It is possible that there are another 40 known objects in the solar system that could be rightly classified as dwarf planets. Estimates are that up to 200 dwarf planets may be found when the entire region known as the Kuiper belt is explored, and that the number may exceed 10,000 when objects scattered outside the Kuiper belt are considered.

by Matt Williams, [universetoday.com](http://universetoday.com)



*The largest known trans-Neptunian objects (TNO), shown to scale. Credit: Larry McNish/M. Brown*

## Adopt a Telescope Program - Signup Sheet

	<b>Adoptee</b>	<b>Scope</b>	<b>Location</b>
<b>1</b>	Sue Timlin	18" F/4.5 Obsession	Wiesen Observatory
<b>2</b>	Neil Simmons	12.5" F/7.4 Buckstaff	B Dome
<b>3</b>	Russell Chabot	12.5" F/9 Halbach	A Dome (Armfield)
<b>4</b>	Dan Yanko	18" F/4.5 Obsession (Kyle Baron)	Albrecht Observatory
<b>5</b>	Tamas Kriska	14" F/11 Celestron	Z Dome
<b>6</b>	Henry Gerner	12" LX 200	Tangney Observatory
<b>7</b>	Vacant	8"/14" Celestrons	Ray Zit Observatory
<b>8</b>	Vacant	10" LX 200	Jim Toeller Observatory

### At Your Service

#### Officers / Staff

President	Scott Jamieson	262-592-3049
Vice President	Sue Timlin	414-460-4886
Treasurer	Dennis Roscoe	608-206-0909
Secretary	Agnes Keszler	414-581-7031
Observatory Director	Gene Hanson	262-354-0138
Asst. Observatory Director	Jill Roberts	414-587-9422
Newsletter Editor	Tamas Kriska	414-581-3623
Webmaster	Robert Burgess	920-559-7472

#### Board of Directors

Robert Burgess	920-559-7472
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Gene Hanson	262-354-0138
Lee Keith	414-425-2331
Frank Kenney	414-510-3507
Agnes Keszler	414-581-7031
Jeff Kraehnke	414-333-4656
Tamas Kriska	414-581-3623
Sue Timlin	414-460-4886

#### August/September Keyholders

8/22	Tim Hoff	262-662-2212
8/29	Lee Keith	414-425-2331
9/5	Henry Gerner	414-774-9194
9/12	Tamas Kriska	414-581-3623
9/19	Mike Smiley	262-825-3981
9/26	Tom Schmidtkunz	414-352-1674



#### MAS Observatory

18850 Observatory Rd  
New Berlin, WI

[www.milwaukeeastro.org](http://www.milwaukeeastro.org)