MILWAUKEE ASTRONOMICAL SOCIETY

FOCAL POINT

June, 2016

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Summer Schedule

From June through August we do not have General Membership Meetings. However, the Board meets on the second Mondays of these months at 7:00 PM at the Observatory. The meetings are open to any member who is interested. The regular Membership Meetings will resume in September. Date and program 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. Stay tuned.

MAS Picnic

The Annual Picnic for MAS Members and their relatives and guests is scheduled for **Saturday, July 23rd at 4:00 PM** at the Observatory. As usual, we are going to have a potluck, so bring a dish to pass. Beverages and charcoal grills will be provided.

Observation of the Sun through the new Lunt solar telescope will be part of the program.

Please join us and bring along your family and friends for a fun filled evening.

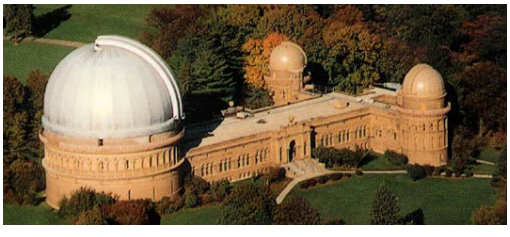
Star Party at Yerkes

As always around mid summer the MAS is organizing a private star party for the participants of the Kavli Summer Institute at the Yerkes Observatory. The participants are African American high school students from inner city Chicago with an interest in science, Technology, Engineering, and Mathematics.

This year the star party will be on Sunday, July 31st. Our job is to provide telescopes for viewing, and to answer student's questions regarding our equipment and astronomy. We start setting up after 7:00 PM at the back lawn.

This event is always fun, even if it is cloudy, since the students are super enthusiastic. As a bonus, at the end we often get a chance to see the historic 40" refractor.

The Yerkes Observatory is located in Williams Bay, WI. Take Highway 43 all the way to the Highway 67 Elkhorn/Williams Bay exit. Turn south onto Highway 67 towards Williams Bay.



Observatory Report

We finally got decent enough weather to begin construction of the Solar Observatory. The forms were set and the concrete poured and was reported in detail in the May Focal Point. Big thanks go to Tamas and Jeff for all their work and leadership, and the MAS members who helped: Clark, Agnes, Steve, Frank, Lee, Paul, and Scott J. We are now ready for the SkyShed POD to be set, but it will not arrive for probably several more weeks. In the meantime there is plenty of time to get the electrical done.

But the Lunt 80mm scope did arrive! Paul Borchardt has done the bead blasting of all of the aluminum parts to remove all machine marks and put a nice satin finish on all of the surfaces. Next it will be off to be anodized. Here is a picture of what the scopes look like on the pier:

(to be continued on page 3)

Treasurer's Report

$9,725.57	***Starting Balance as of 4/14/2016***
	Expenditures
$67.91	WE Energies
$5.85	PayPal Fees
$5,597.66	Solar Scope project
$113.70	F scope dew heater
$60.00	Public Night change
$100.00	Speaker Fee
$200.00	Retzer NC Donation
-$6,145.12	TOTAL Expenditures
	Revenue
$533.00	Donations
$2,694.00	Book/Equipment Sale
$292.00	Membership Dues
$115.00	April Public Night
$99.00	May Public Night
$3,733.45	TOTAL Revenue
$7,313.45	***Ending Balance as of 5/18/2016***

Respectfully Submitted,
Sue Timlin, Treasurer

Meeting Minutes

Held on May 20th at the Observatory. The meeting was called to order at 7:01 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: the concrete pouring and drainage installation were finished. The Lunt scope arrived and has been tried with 1 etalon at Mercury transit. It was decided to purchase a Baader Herschel wedge for the white light scope to achieve high quality imaging. With additional cost ($730) we would probably slightly exceed the budget. Gene generously offered to make up the rest. The POD is expected to be delivered by end of June.

Z-building office remodeling is ready. The next step will be painting walls and floor of the entryway. Adopt-a-scope program: Now every scope has an adopter. Two new members indicated intention to join as a co-adopter. Quonset hut remodeling: $2,432 have been collected so far not including the pledged flooring donation.

New Business - MAS participation in the New Berlin July 4th festival was discussed. Key holder application of Steve Volp was approved. Sue volunteered to help Gene on October 1st at the Discovery World's Sci-Fi Day.

Election results: Board Directors Lee Keith and Sue Timlin were elected for second term. Steve Volp was elected to the Board of Directors. Paul Borchardt was elected as Observatory Director for a 3 year term.

The Program - Gene Hanson gave a presentation about the Solar System. His talk was entitled "What happened to Pluto?"

The meeting was adjourned at 9:20 PM.

Respectfully Submitted,
Agnes Keszler, Secretary

Membership Report

Since the May Report we received 4 new membership applications and would like to welcome Gowri Vijayakumar, Sue Robinson, Jack Roper, and William Dames. We now have 107 active members.

Respectfully Submitted,
Jeff Kraehnke, Committee Chair

Observatory Director's Report (continued from page 2)

Retrospective: This is my last Observatory Director's report. My term is up as of this election and because I will be spending half the year in Arizona, will not be here enough to continue in that capacity. But I will remain as active as possible. I will continue to update the website, put the board reports together, and will be able to help out during the warmer months when I am back here in Wisconsin.

I have compiled a list of items that have occurred over these past 3 years. I cannot stress enough that these are not *my* accomplishments. The credit goes to the entire MAS for the support (especially the Board), the money spent, the donations, and members who gave much of their time.

Observatory / Equipment

- Purchase of the SBIG STT-8300 CCD camera.
- Conversion of the Zemlock Telescope to an f/3.4 imaging scope.
- Disassembly of the Ray Zit Telescope.
- Purchase of a Celestron Advanced VX-8 Schmidt-Cassegrain.
- Donation of a straight-thru, erect image finder for the Wiesen Telescope.
- Donation of a Celestron C14 telescope, Astrophysics GTO900 mount, and pedestal.
- "Raising" the roof the Zit Observatory for additional clearance.
- Trenching for a pair of communication cables from Zit to the Z-dome control room.
- Purchase / Donation of the Celestron EdgeHD 14" telescope for better imaging and autoguiding with STT-8300. We also purchased a CGE PRO computerized equatorial mount for use on the C14.
- Removal of the Z Scope from its fork mount.
- Mounting the Celestron EdgeHD 14" and Astrophysics GTO900 on the Z Scope fork.
- Purchase of a HyperStar for the C14 for f/1.9 imaging. The scope now renamed F-Scope, aptly named because of its FAST focal length.
- Demolished the old Toeller Observatory and built a new roll-off roof observatory to house the F Scope.
- Swapped out the 10" reflector in the Albrecht Observatory for a second 18" f/4.5 Obsession reflector.
- Donated two Skyris planetary cameras (one monochrome, one color).
- Swapped out the old spider and diagonal in the A-Scope with a smaller one for better planetary imaging.
- Purchase of a Lunt 80mm H-Alpha Solar Telescope, along with a donations for an equatorial mount and camera.
- Purchase of a SkyShed POD for the solar observatory.
- Changed the Yard-Key lock at the left post to a combination lock.

Website

- Redesigned the home page by adding the Public Night schedule, a What's in the Sky section, and a photo/article spot, primarily used for showcasing recent MAS images.
- Further redesigned the home page by turning its focus almost entirely for visitors who are presumably looking for information about the club. The Membership meeting info is at the top left.
- Created a Member's Page that focuses on information most of interest to the club including meeting info, events, and news.
- Instituted online application / renewal forms and added PayPal so applicants and renewals can be paid with a credit card if desired.
- Created a Contact Us page with forms rather than an easily spammed email.
- Resurrection and expansion of the Showcase to show the imaging talents of the membership.
- Expanded the History section to include more photographs and a detailed history of the club from its inception until 1977.
- Scanned all the old newsletters.
- Establishment of a Gift Membership form.
- Submission of board reports in advance and distribution before the meeting.
- Created a Member's Guide aimed primarily for our new members.
- Created an Observatory Guide which has been nearly impossible to keep updated because of all the changes at the observatory.

Maintenance Issues

- Well pump replacement
- Z Dome rotation and slit chain repair
- Z Dome and Tool Shed Garage reroofing
- Z Dome office remodel
- B Dome slit motor repair
- Tree removal

But I have saved what I think is the biggest accomplishment for last. Three years ago our membership stood at 50. As of this report our membership stands at 105 so it has more than doubled!

Finally, I thank the Board for naming of the G-Scope and electing me a Founder Member.

Respectfully Submitted,
Gene Hanson, Observatory Director

Father Milton Lange Passed Away

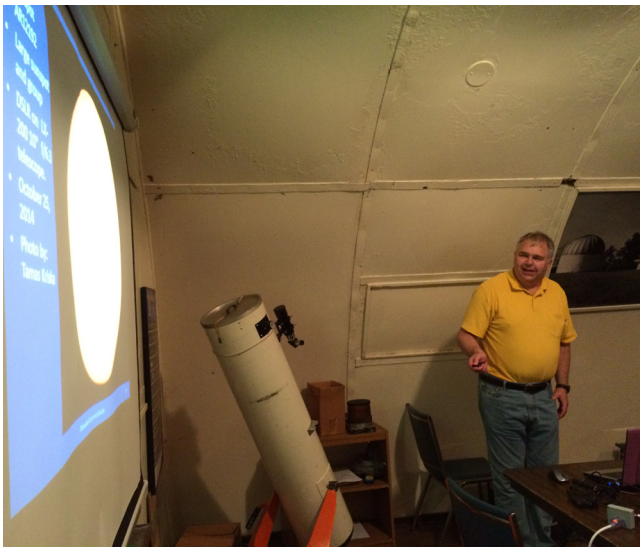
Long time MAS member Father Milton Lange passed away on May 13th in Fayetteville, AR. Father Lange was born on July 1st 1919 in Milwaukee. He graduated from UWM in 1943 with a chemical engineering degree. He joined the MAS in 1940 and left Milwaukee in 1952 when he was accepted at St. John Seminar in Little Rock, AR.

Over the years Father Lange made many generous contributions to the MAS. In recognition of that he was honored with a Founder Member status in 1988. We celebrated his 75 year long membership in the May of 2015 issue of the Focal Point Newsletter.

The photo is courtesy of St. Paul Catholic Church, AR

Public Nights

During the Spring/Summer of 2016 the MAS has already hosted three public nights with great turnout. Unlike last year, we were lucky with the weather and on each of these events we were able to enjoy clear skies so our guests had the opportunity to look through a variety of telescopes to observe the three visible planets (Jupiter, Mars, and Saturn), as well as several deep sky objects. The stargazing was always preceded by a presentation on a selected topic (Constellation Orion in April 29th by Herman Restrepo, Planet Jupiter in May 6th by Lee Keith, The Sun in June 11th by Scott Berg).

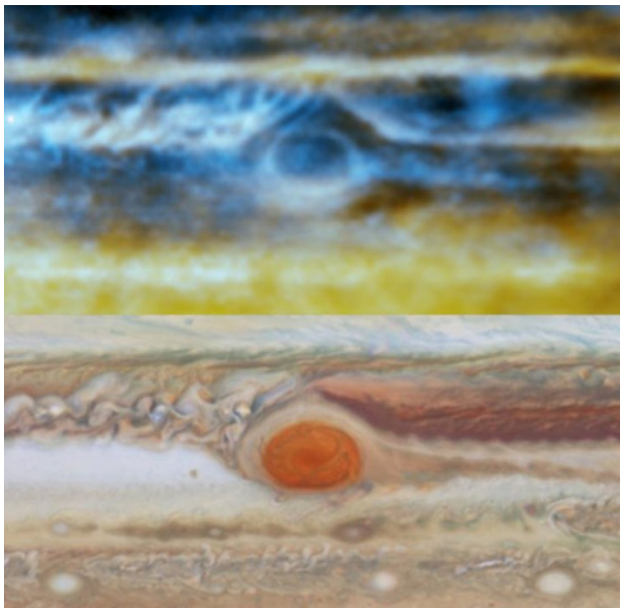


In the Astronomical News

New Radio Map of Jupiter Reveals What is Beneath Colorful Clouds

The University of California, Berkeley researchers measured radio emissions from Jupiter's atmosphere in wavelength bands where clouds are transparent. The observers were able to see as deep as 100 kilometers (60 miles) below the cloud tops, a largely unexplored region where clouds form.

The planet's thermal radio emissions are partially absorbed by ammonia gas. Based on the amount of absorption, the researchers could determine how much ammonia is present and at what depth. By studying these regions of the planet's atmosphere, astronomers hope to learn how global circulation and cloud formation are driven by Jupiter's powerful internal heat source.



Credit: Radio: Michael H. Wong, Imke de Pater (UC Berkeley), Robert J. Sault (Univ. Melbourne). Optical: NASA, ESA, A.A. Simon (GSFC), M.H. Wong (UC Berkeley), and G.S. Orton (JPL-Caltech)

In essence they created a three-dimensional picture of ammonia gas in Jupiter's atmosphere, which reveals upward and downward motions within the turbulent atmosphere. The map bears a striking resemblance to visible-light images taken by amateur astronomers and the Hubble Space Telescope. It shows ammonia-rich gases rising into and forming the upper cloud layers: an ammonium hydrosulfide cloud at a temperature near 200 Kelvin and an ammonia-ice cloud in the approximately 160 Kelvin cold air. These clouds are easily seen from Earth by optical telescopes. Conversely, the radio maps show ammonia-poor air sinking into the planet, similar to how dry air descends from above the cloud layers on Earth.

The map also shows that hotspots that appear bright in radio and thermal infrared images are ammonia-poor regions that encircle the planet like a belt just north of the equator. Between these hotspots are ammonia-rich upwellings that bring ammonia from deeper in the planet.

With radio, we can peer through the clouds and see that those hotspots are interleaved with plumes of ammonia rising from deep in the planet, tracing the vertical undulations of an equatorial wave system. The final maps have the best spatial resolution ever achieved in a radio map: 1,300 kilometers. We now see high ammonia levels like those detected by Galileo from over 100 kilometers deep, where the pressure is about eight times Earth's atmospheric pressure, all the way up to the cloud condensation levels.

The observations are being reported just one month before the July 4, 2016 arrival at Jupiter of NASA's Juno spacecraft, which plans, in part, to measure the amount of water in the deep atmosphere where the Very Large Array looked for ammonia. Key to the new observations was an upgrade to the VLA that improved sensitivity by a factor of 10, these Jupiter maps really show the power of the upgrades to the VLA..

The team observed over the entire frequency range between 4 and 18 gigahertz (1.7 - 7 centimeter wavelength), which enabled them to carefully model the atmosphere and see fine structure, much like we see in the visible, especially near the Great Red Spot, with a lot of little curly features that trace really complex upwelling and downwelling motions there.

The observations also resolve a puzzling discrepancy between the ammonia concentration detected by the Galileo probe when it plunged through the atmosphere in 1995 and VLA measurements from before 2004, which showed much less ammonia gas than measured by the probe.

Jupiter's rotation once every 10 hours usually blurs radio maps, because these maps take many hours to observe. But we have developed a technique to prevent this and so avoid confusing together the upwelling and downwelling ammonia flows, which had led to the earlier underestimate.

by University of California, Berkeley

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

At Your Service

Officers / Staff

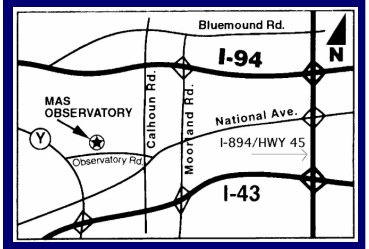
President	Tamas Kriska	414-581-3623
Vice President	Sue Timlin	414-460-4886
Treasurer	Sue Timlin	414-460-4886
Secretary	Agnes Keszler	414-581-7031
Observatory Director	Paul Borchardt	262-781-0169
Asst. Observatory Director	Jeff Kraehnke	414-333-4656
Newsletter Editor	Tamas Kriska	414-581-3623
Webmaster	Gene Hanson	262-269-9576

Board of Directors

Paul Borchardt	262-781-0169
Robert Burgess	920-559-7472
Steve Volp	414-751-8334
John Hammetter	414-519-1958
Lee Keith	414-425-2331
Frank Kenney	414-510-3507
Jeff Kraehnke	414-333-4656
Agnes Keszler	414-581-7031
Tamas Kriska	414-581-3623
Sue Timlin	414-460-4886
Vacant	

July/August Keyholders

7/2	Mike Smiley	262-825-3981
7/9	Tom Schmidtkunz	414-352-1674
7/16	Dan Yanko	262-255-3482
7/23	Russell Chabot	414-881-3822
7/30	Brian Ganiere	414-961-8745
8/6	Scott Berg	262-893-7268
8/13	Gene Hanson	262-269-9576



MAS Observatory

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www.milwaukeeastro.org