FOCAL POINT

April, 2017

# May 19th: Membership Meeting at the Observatory

Inside this



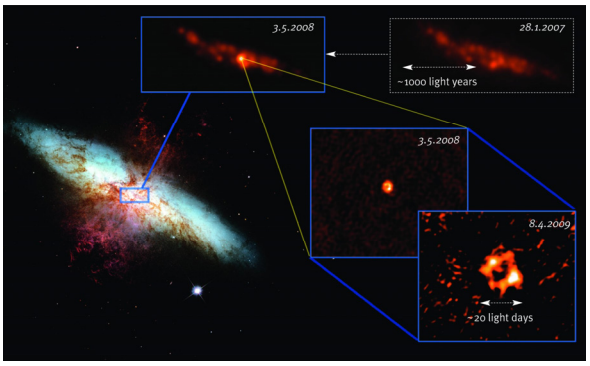
The upcoming General Membership Meeting of the MAS is going to be held on May 19th, at 8:00 PM at the Observatory, in the newly rebuilt Quonset Hut.

The Membership meeting will be preceded by the Board of Director meeting (from 7 PM) that is open for any members.

Please join us in celebrating the opening of our new meeting place.

The speaker of the night will be Dr. **Christopher Stockdale** Associate Professor and Assistant Department Chair at Marquette University, who will give a talk about the Extragalactic Supernovae observations.

Extragalactic supernovae (SNe) are linked to many of the phenomena of importance to modern astrophysics, e.g. formation of black holes and neutron stars, at least some types of gamma-ray bursters, star-burst galaxies, element formation, the chemical evolution of the host galaxy, cosmological probes, cosmic ray production, creation of interstellar dust, and distribution of heavy elements and energy in the interstellar medium. About 40 radio




SNe have now been detected, and multi-wavelength radio light curves have been determined for about 25. Radio light curves provide unique information about the evolution of the progenitor star, including the pre-explosion mass-loss history that allows us to better understand the evolution of stars from birth to death.

The short-lived, high mass progenitor stars comprise an exceptionally small subset of a galaxy's stellar population, but they play extremely important roles in heavy element enrichment and in the triggering of star formation within their host galaxies. In particular, the X-ray and radio emission from SNe provide an unparalleled opportunity to study the nature of SNe, supernova remnants, and their circumstellar material and surrounding interstellar medium.

## The MAS Election

During the first half of the membership meeting we will have our annual election.

The second term of two Board members, first term of one Board member, and a partial term of one Board member will expire. If you are interested in serving a three year term on the Board or as an Officer and would like to receive more information about that position please contact any Board member or Officer.

## Observatory Report

Quonset remodel is about to wrap up. When the weather warms up to the 70s Miller Brothers Heating and Cooling will be installing the air conditioner. Several members attended the Sheboygan Astronomical Society's Swap and Sell last month to continue the selling of telescope items no longer needed by the Club. Do to the increased interest in astrophotography a used Canon T3i DLSR was purchased, which has been professionally modified so it is more sensitive to the red end of the spectrum. A 2" adaptor was purchased for it so now members can do prime focus imaging on B-scope. The Club members have all of the equipment needed to do astrophotography on the B-scope. Spring cleaning has started at the Observatory, B-dome and its telescope have been cleaned, and all of the yard debris cut out last fall has been burned. An apple tree that had fallen over due to high winds along with two other dead apple trees were cut down. There are several places in the lawn that need repair do to vehicles tearing up the grass over the winter. Cleaning up will continue this month.

Respectfully Submitted,
Paul Borchardt, Observatory Director

## Treasurer's Report

| | |
|---|---|
| **$11,477.85** | ***Starting Balance as of 3/13/2017*** |
| | **Expenditures** |
| $77.76 | Public Nights cards |
| $4.77 | PayPal fees |
| $50.37 | Bathroom supplies |
| $8.00 | Burning permit |
| $361.00 | Canon T3i DSLR |
| $151.44 | WE Energy |
| $85.00 | Light pollution filter |
| -$30.75 | Purchase return |
| $36.00 | Water/sewer |
| $3,768.38 | Quonset project |
| $4,534.63 | TOTAL Expenditures |
| | **Revenue** |
| $50.00 | Equipment sales |
| $185.00 | Membership dues |
| $235.00 | TOTAL Revenue |
| **$7,175.22** | ***Ending Balance as of 4/10/2017*** |

Respectfully Submitted,
Sue Timlin, Treasurer

## Meeting Minutes

The meeting was held on April 12th at the New Berlin Public Library and was called to order at 7:00PM by Tamas Kriska President.

**Minutes** of the March Board Meeting electronically submitted by Agnes Keszler Secretary ahead the meeting were approved.

**Treasurer's Report electronically** submitted by Sue Timlin Treasurer was approved.

**Observatory Director's Report** electronically submitted by Paul Borchardt Observatory Director ahead the meeting was approved.

**Membership Committee Report** was electronically submitted by Jeff Kraehnke Committee Chair ahead the meeting.
Membership application of Daniel Herrman, Livia Romanov (student), Alan Wagner & family, and Dan Bunzel & family were approved.

**Old Business –** *Solar Eclipse*: There are open camp sites in the St Francis State Park, MO (along the center line of the totality). Some members have already made reservations there, and a star party will be during the night before the eclipse. *Quonset Hut remodeling*: The electric work is ready for inspection. The panel installation has been finished, and a staircase was mounted in the A building. Now the dome is safely accessible. *Public Night schedule*: More speakers needed. We have three volunteers so far. *G-scope:* The first test with the new interface (CP4) was successful, however, during the second one a single guiding problem event was experienced. The testing is continuing. The AP very likely will not do the declination check. *Canon DSLR:* Paul purchased a professionally modified used Canon T3i in good condition, and a light pollution filter.

**New Business** – A Club Campout is scheduled for July 21-23 on Thomas Maxwell's land by the eagle River.

**Program** – Tamas Kriska gave a presentation about the element formation in stars. Before the talk Lee showed an image of the Sun he captured with his solar scope and camera.

Respectfully Submitted,
Agnes Keszler, Secretary

## Membership Report

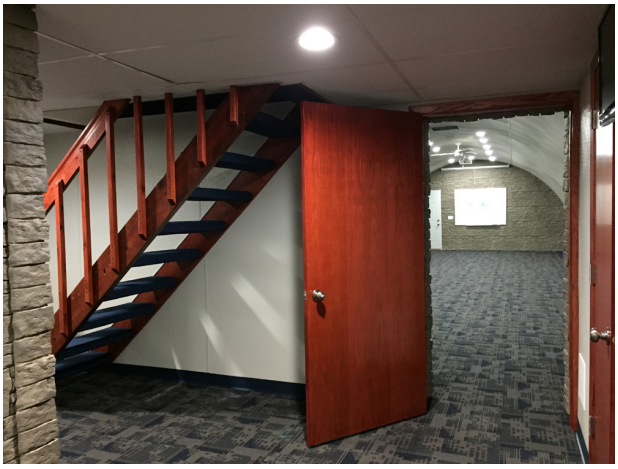
Since the last Report we received four new membership applications and would like to welcome Alan Wagner & Family, Dan Bunzel & Family, Matthew J. Kramer & Family, and Joseph Ryan & Family. We now have 134 active members.

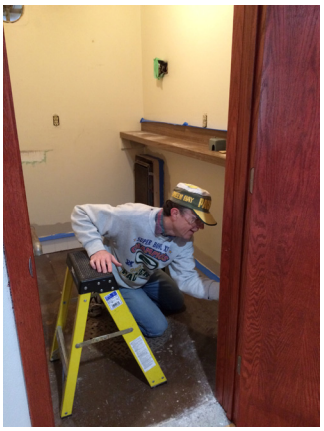
Respectfully Submitted,
Jeff Kraehnke, Membership Committee Chair

# Observatory News

## The Quonset Hut Remodeling

By the end of April the Quonset remodeling work has been effectively completed. The electric work was approved by the city inspector. A TV screen was mounted in the A building. A storm door and siding were installed to the north wall of the Quonset. The stair leading to the A-dome were supplemented with a handrail, all woodwork were stained, the carpet was installed by Janice Edwards and the Best Carpet, and the new chairs were put in place along with other furniture pieces.





# In the Astronomical News

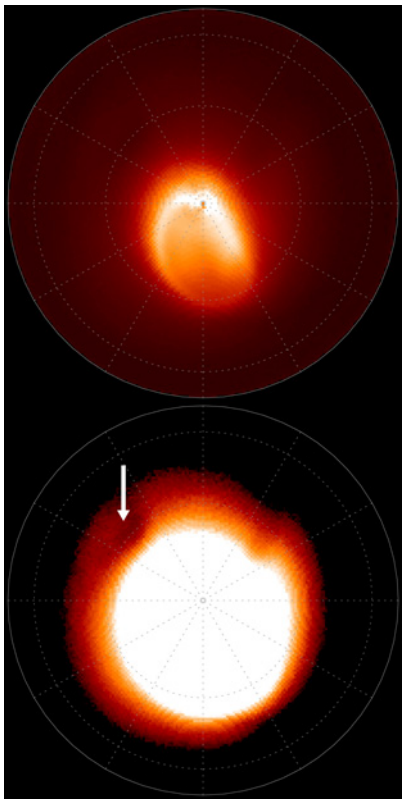
## 'Cold' Great Spot Discovered on Jupiter

A second Great Spot has been discovered on Jupiter, rivalling the scale of the planet's famous Great Red Spot (GRS) and created by the powerful energies exerted by the great planet's polar aurorae.

Dubbed the 'Great Cold Spot', it has been observed as a localized dark spot, up to 24,000 km in longitude and 12,000 km in latitude, in the gas giant's thin high -altitude thermosphere, that is around 200K cooler than the surrounding atmosphere, which can range in temperature between 700K (426°C) and 1000K (726°C).

Dr Tom Stallard, Associate Professor in Planetary Astronomy of University of Leicester and lead author of the study, said: "This is the first time any weather feature in Jupiter's upper atmosphere has been observed away from the planet's bright aurorae.

"The Great Cold Spot is much more volatile than the slowly changing Great Red Spot, changing dramatically in shape and size over only a few days and weeks, but it has re-appeared for as long as we have data to search for it, for over 15 years. That suggests that it continually reforms itself, and it might be as old as the aurorae that form it - perhaps many thousands of years old."



*The north hemisphere of Jupiter ionosphere, added up over 13,000 images, and more than 40 nights. Top : the aurora is clearly seen, but only once it is saturated can the non -auroral emission be removed.*
*Credit: IRTF/NASA*

The Great Cold Spot is thought to be caused by the effects of the magnetic field of the planet, with the massive planet's spectacular polar aurorae driving energy into the atmosphere in the form of heat flowing around the planet. This creates a region of cooling in the thermosphere, the boundary layer between the underlying atmosphere and the vacuum of space. Although we can't be sure what drives this weather feature, a sustained cooling is likely to drive a vortex similar to the GRS.

The astronomers used the CRIRES instrument on the Very Large Telescope (VLT) to observe spectral emissions of H3+, an ion of hydrogen present in large amounts in Jupiter's atmosphere, which allowed the scientists to map the mean temperature and density of the planet's atmosphere. They then used images of H3+ emission from Jupiter's ionosphere taken by NASA's InfraRed Telescope Facility between 1995-2000 to compare.

Through combining images taken over a period of time, including over 13,000 images taken over more than 40 nights by the InfraRed Telescope Facility, the astronomers revealed the presence of the Great Cold Spot as an area of darkness amongst the hot environment of Jupiter's upper atmosphere.

Dr Stallard added: "What is surprising at Jupiter is that, unlike weather systems on Earth, the Great Cold Spot has been observed at the same place across 15 years. That makes it more comparable to weather systems in Jupiter's lower atmosphere, like the GRS.

"Observations and modeling of Earth's upper atmosphere have shown that, on the short term, there may be changes in the temperature and density of the upper atmosphere. The two main differences are firstly that Earth's aurora sees dramatic changes caused by activity from the Sun, whereas Jupiter's aurora are dominated by gases from the volcanic moon Io, which are relatively slow and steady, and secondly that the atmospheric flows generated by Earth's aurora can drive heat quickly across the whole planet, making the upper atmosphere ring like a bell, while Jupiter's fast spin traps this energy nearer the poles."

Dr Stallard added: "The detection of the Great Cold Spot was a real surprise to us, but there are indications that other features might also exist in Jupiter's upper atmosphere. Our next step will be to look for other features in the upper atmosphere, as well as investigating the Great Cold Spot itself in more detail.

"The Juno spacecraft is currently in orbit around Jupiter and the observations of Jupiter's aurora and upper atmosphere by the JIRAM instrument that have been released so far already provide a wealth of new information about the planet. When combined with our ongoing campaign of observations using telescopes on Earth, we hope to gain a much better understanding of this weather system."

by Phys.org

## 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 | Russ Blankenburg | 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

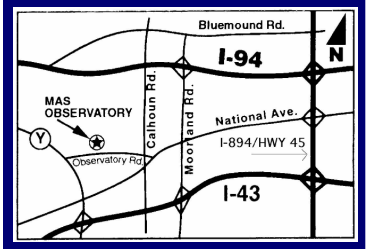
| | | |
|---|---|---|
| President | Tamas Kriska | 414-581-3623 |
| Vice President | Sue Timlin | 414-460-4886 |
| Treasurer | Sue Timlin | 414-460-4886 |
| Secretary | Agnes Keszler | 414-581-7031 |
| Observatory Director | Paul Borchardt | 262-781-0169 |
| Asst. Observatory Director | Jeff Kraehnke | 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 |
| Clark Brizendine | 414-305-2605 |
| 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 |

### February/March Keyholders

| | | |
|---|---|---|
| 4/29 | Susan Timlin | 414-460-4886 |
| 5/6 | Steve Volp | 414-751-8334 |
| 5/13 | Paul Borchardt | 262-781-0169 |
| 5/20 | Lee Keith | 414-425-2331 |
| 5/27 | Brian Ganiere | 414-961-8745 |
| 6/3 | Henry Gerner | 414-774-9194 |




**MAS Observatory**

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