



## Observatory Director Report

Due to the bad weather over the last month, little has happened at the Observatory.

Clear nights have been very rare, and there's been no activity as far as maintenance.

On the good side, nothing has broken either. Hopefully March will be a better month for astronomy and with the warmer weather starting next month maybe there will be more activity on the hilltop. Due to only having the parking lot plowed this winter and not any plowing around the buildings, getting up to the Observatory has been harder. For myself, this has made it harder to get out and install the news solar finders on A- and B-scopes, and the finder for C-scope.

Respectfully Submitted,  
Paul Borchardt, Observatory Director

## Treasurer's Report

<b>\$10,315.86</b>	<b>Starting Balance as of 01/15/2020</b>
	<b>Expenditures</b>
\$15.74	PayPal fees
\$10.00	Annual expenses
\$129.27	WE Energies
\$155.01	TOTAL Expenditures
	<b>Revenue</b>
\$714.00	Membership dues
-\$2.00	Grants
\$712.00	TOTAL Revenue
<b>\$10,872.85</b>	<b>Ending Balance as of 01/15/2020</b>

Respectfully Submitted,  
Sue Timlin, Treasurer

## Membership Report

Since the last Report we received 4 renewals and 7 new applications. We welcome Scott Kneeland & Family, Bob & Genevieve Dickson, Christopher Johnson, Susan Johnson, Jim Armfield & Family, Connie Stenhjem, and David Lawson. The total number of active members is 157.

Respectfully Submitted,  
Jeff Kraehnke, Committee Chair

## Minutes

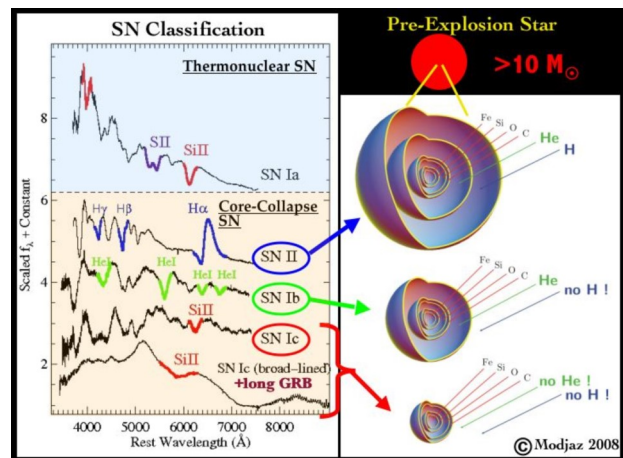
The meeting was held on February 17<sup>th</sup> at the MAS Observatory, New Berlin and was called to order at 7:03 PM by Tamas Kriska President.

**Minutes, Treasurer's Report and Observatory Director's Report** electronically submitted ahead the meeting were approved. **Membership Committee Report** submitted electronically ahead of the meeting was approved. Membership applications of Frank Wedel, Matt Ryno & Family, Clayton Clouse & Family, George Domanos & Family, Daniel J. Wolter, Scott Kneeland & Family, the Bob & Genevieve Dickson, Christopher Johnson, Susan Johnson, Jim Armfield & Family, and Connie Stenhjem were approved.

**Old Business – Venus filter:** A 1.25" Baader U-Venus-filter was ordered. **Snow plowing:** A quote will be asked to plow passes to the Quonset and the main Observatories. **Public Nights:** The Open House Committee submitted a revised suggestion for the Public Night dates and topics. Motion was made and carried to accept the proposal.

**New Business – Entrance gate:** Jeff Kraehnke contacted a local company and will keep looking at possibilities/quotes to install a sliding gate to replace the chain at the Observatory entrance. **Meeting day change:** We may try to move the Meeting nights from Friday to a different weekday from September thru November to explore its effect on the meeting attendance.

**Program –** We watched a video of the 2011 Nobel Prize winner Brian Schmidt's talk entitled "The accelerating Universe" followed by discussion.



The meeting was adjourned at 9:10 PM.

Respectfully Submitted,  
Agnes Keszler, Secretary

## In the Astronomical News

### Mysterious 'Wave' of Star-Forming Gas May Be the Largest Structure in the Galaxy

The newly discovered suburb of baby-booming stars could change our map of the Milky Way, astronomers say.

Orion's belt may be more than just a waist of space.

According to new research the girdled constellation may also be a small piece of the single largest structure ever detected in the Milky Way galaxy — a swooping stream of gas and baby stars that astronomers have dubbed "the Radcliffe Wave."

Spanning about 9,000 light-years (or about 9% of the galaxy's diameter), the unbroken wave of stars begins near Orion in a trough about 500 light-years below the Milky Way's disk. The wave swoops upward through the constellations of Taurus and Perseus, then finally crests near the constellation Cepheus, 500 light-years above the galaxy's middle. The entire undulating structure also stretches about 400 light-years deep, includes some 800 million stars and is dense with active star-forming gas (known in more delightful terms as "stellar nurseries").

When observed in 3D atop the rest of the Milky Way, this swooping suburb of baby-booming stars appears to be more than just the sum of its parts, study co-author João Alves said in a statement.

"What we've observed is the largest coherent gas structure we know of in the galaxy," said Alves, a professor of astrophysics at the University of Vienna. "The sun lies only 500 light-years from the wave at its closest point. It's been right in front of our eyes all the time, but we couldn't see it until now."

Alves and an international team of colleagues detected the Radcliffe Wave (named for Harvard's Radcliffe Institute for Advanced Study, where the bulk of the research was conducted)

while creating a 3D map of the Milky Way with data gathered largely by the European Space Agency's Gaia satellite. They noticed the strange, undulating pattern of gas and stars around Orion when looking at an object known as the Gould Belt, which was first detected more than 100 years ago.

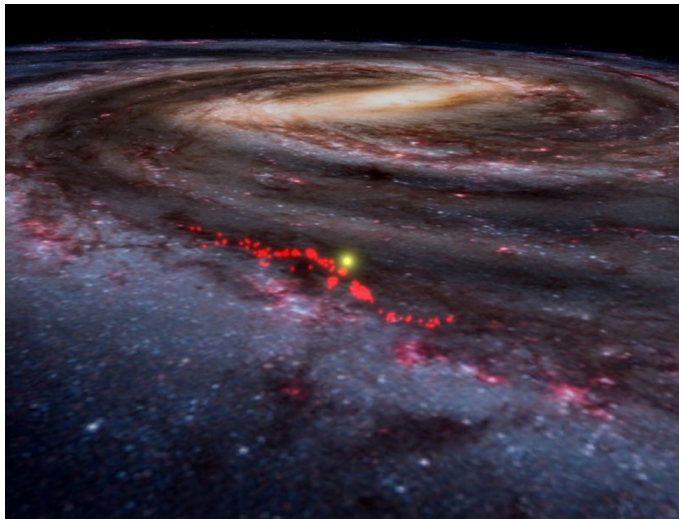
For a century, astronomers have thought the Gould Belt was a ring-shaped circle of star-forming gas, with Earth's sun near its center. However, once the authors of the new study began digging into the Gaia data, they realized this does not seem to be the case. Rather, the

Gould Belt appears to be just a piece of the much larger Radcliffe Wave, which does not form a ring around our solar system but swoops toward and away from it in an enormous waveform. "We don't know what causes this shape, but it could be like a ripple in a pond, as if something extraordinarily massive landed in our galaxy," Alves said.

Prior studies of the Gould Belt have suggested the same. Perhaps a gigantic blob of dark matter crashed into the young gas cloud millions of years ago, warping the galaxy's gravity and scattering the nearest stars into the pattern seen today, one 2009 study in the journal *Monthly Notices of the Royal Astronomical Society* posited. "What we do know is that our sun interacts with this structure," Alves said.

According to the researchers, stellar velocity data suggests that our solar system passed through the Radcliffe Wave some 13 million years ago — and, in about another 13 million years, will cross into it again. "Sort of like we are 'surfing the wave,'" Alves added.

by Brandon Specktor  
space.com



*The yellow dot marks Earth's sun, which may crash into the wave 13 million years from now.*

*Credit: Alyssa Goodman/Harvard University*



## Adopt a Telescope Program - Signup Sheet

	<b>Adopter</b>	<b>Scope</b>	<b>Location</b>
<b>1</b>	Sue Timlin/John Hammetter	18" F/4.5 Obsession	Wiesen Observatory
<b>2</b>	Steve Volp	12.5" F/7.4 Buckstaff	B Dome
<b>3</b>	Robert Burgess	12.5" F/9 Halbach	A Dome (Armfield)
<b>4</b>	Russ Blankenburg	18" F/4.5 Obsession	Albrecht Observatory
<b>5</b>	Jeff Kraehnke	14" F/7.4 G-scope	Z Dome
<b>6</b>	Lee Keith/Tom Kraus	12" F/10 LX200 EMC	Tangney Observatory
<b>7</b>	Herman Restrepo/Colin Boynton	10" F/6.3 LX200	Ray Zit Observatory
<b>8</b>	Tamas Kriska	Stellarvue SVQ 100 F/5.8	Jim Toeller Observatory
<b>9</b>	Paul Borchardt	Solar scope	SkyShed POD

### At Your Service

#### Officers / Staff

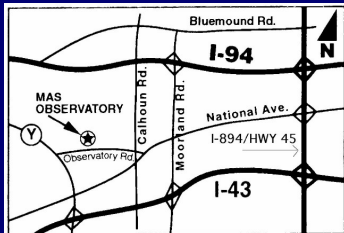
President	Tamas Kriska	414-581-3623
Vice President	Lee Keith	414-425-2331
Treasurer	Sue Timlin	414-460-4886
Secretary	Agnes Keszler	414-581-7031
Observatory Director	Paul Borchardt	262-781-0169
Asst. Observatory Director	Jeff Kraehnke	414-333-4656
Newsletter Editor	Tamas Kriska	414-581-3623
Webmaster	Gene Hanson	262-269-9576

#### Board of Directors

Jim Bakic	414-303-7765
Scott Berg	262-893-7268
Russ Blankenburg	262-938-0752
Clark Brizendine	414-305-2605
Jason Doyle	414-678-9110
John Hammetter	414-519-1958
Jeff Kraehnke	414-333-4656
Jim Schroeter	414-333-3679
Gabe Shaughnessy	262-893-4169
Steve Volp	414-751-8334
Mike Wagner	262-547-3321

#### March Keyholders

03/07	Jim Bakic	414-303-7765
03/14	Steve Volp	414-751-8334
03/21	Brian Ganiere	414-961-8745
03/28	Arun Hegde	414-429-1548



### MAS Observatory

18850 Observatory Rd  
New Berlin, WI 53146

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