

SPECTRUM

Northern Cross Science Foundation Newsletter

March 2016

Looking Up

March 3, Thursday

NCSF Annual Banquet

Social Hr. 6:00 - Dinner 7:00

Fox & Hounds Restaurant

1298 Friess Lake Road

Hubertus, WI

March 17, Thursday

Board Meeting

7:30 p.m.

House of Jeff Setzer

April 7, Thursday

General Meeting

7:00 p.m.-Astronomy 101

7:30 p.m. - Main Program

Business Meeting to follow

April 21, Thursday

Board Meeting

7:30 p.m.

House of Jeff Setzer

May 29, Sunday

Port Washington

Street Festival

Noon - 5:00 p.m.

Port Washington

May 29, Sunday

Astronomy Day

8:00 p.m. - 11:00 p.m.

Harrington Beach State Park

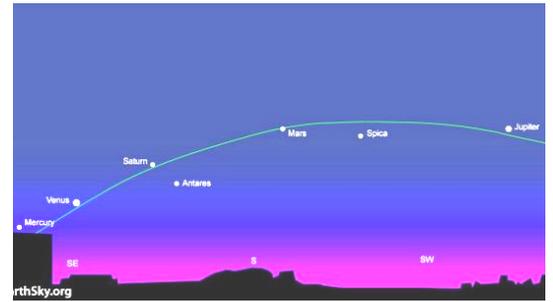
Starts at Dusk

Five Planets...By Rick Kazmierski

All five naked eye planets (Jupiter, Mars, Saturn, Venus, & Mercury) were visible together in the early morning sky through January and the first half of February. By the end of February, Mercury was no longer visible. The last time all five planets were visible in the same sky was 2004/2005!

Mickey and I anxiously awaited clear skies through January to view the alignment, but the weather was less than co-operative. We finally got our chance early February as skies cleared in the early morning hours. We got up at dawn, woke our dog Rigel and piled into car. We proceeded to drive around looking for an unobstructed southern horizon. We found our spot on Wausaukee Rd and Paradise drive and parked off the road. Several passing cars slowed down to see what we were up to, but no one stopped.

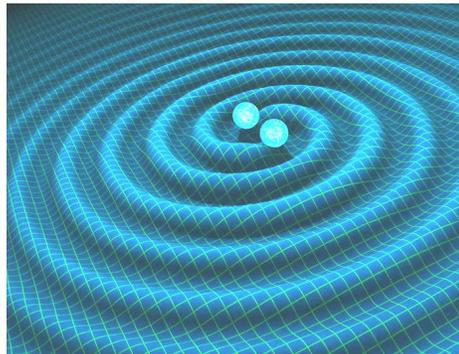
The four brightest planets were readily visible, those being Jupiter, Mars, Saturn, and Venus. I began scanning low to the East with binoculars



for Mercury. After about 10 minutes I spotted it immerge from the top of the tree line. Mickey was the first to see it naked eye. Once seen, it became obvious. A real bonus was the 3rd quarter moon. Spanning over 130 degrees of sky, all six objects beautifully defined the arc of the elliptic like we had never seen before.

It was an inspiring Astronomy experience and we didn't even need a telescope!

NSF's LIGO Has Detected Gravitational Waves by NASA



The National Science Foundation (NSF) has announced the detection of gravitational waves by the Laser Interferometer Gravitational-Wave Observatory (LIGO), a pair of ground-based observatories in Hanford, Washington, and Livingston, Louisiana.

Albert Einstein predicted the existence of gravitational waves in his general theory of relativity a century ago, and scientists have been attempting to detect them for 50 years. Einstein pictured these waves as ripples in the fabric of space-time produced by massive, accelerating bodies, such as black holes orbiting each other. Scientists are interested in observing and characterizing these waves to learn more about the sources producing them and about gravity itself.

The LIGO detections represent a much-awaited first step toward opening a whole new branch of astrophysics. Nearly everything we know about the universe comes from detecting and analyzing light in all its forms across the electromagnetic spectrum – radio, infrared, visible, ultraviolet, X-rays and gamma rays. The study of gravitational waves opens a new window on the universe, one that scientists expect will provide key information that will complement what we can learn through electromagnetic radiation.

Just as in other areas of astronomy, astronomers need both ground-based and space-based observatories to take full advantage of this new window. LIGO is sensitive to gravitational waves within the range of 10 to 1,000 cycles per second (10 to 1,000 Hz). A space-based system would be able to detect waves at much lower frequencies, from 0.0001 to 0.1 Hz, and detect different types of sources. NASA is working closely with the European Space Agency (ESA) to develop a concept for a space-based gravitational wave observatory.

ESA is currently leading the LISA Pathfinder mission, launched last December and now in its commissioning phase, to demonstrate technologies that could be used for a future space-based gravitational wave observatory. *Continued on Pg 3*
Gravitational Waves *Continued from Pg 1*

February Meeting Minutes

By Kevin Bert

The February Business meeting of the Northern Cross Science Foundation was held at Unitarian Church North. Vice President Rick Kazmierski opened the meeting at 7:45pm and welcomed 20 members and guests. He then asked for standard reports.

Treasurer Gene DuPree tells the membership that the regular accounts balance is \$11,400.58 and the observatory account balance remains at \$1,042.01. Membership dues have continued to come in and a form for the March 3rd banquet with selections was included in the last Spectrum. He noted one small change in the menu and reminded members to return the forms to him and that the deadline was February 18th. 2016 Calendars were still available too.

Secretary Kevin Bert reports that there were no changes in the club roster. The 2016 roster should be finalized by the end of March and published in the April Spectrum. The 2016 Astronomical League North Central Regional Convention will be held April 29 and 30 at Bloomington / Normal IL. More details in the next newsletter.

Observatory Director Dan Bert has completed the final report required by the park on member's volunteer hours. Congratulations to Rob Powell for having the most

hours last year. Special thanks for all the time he spent out at the park promoting our club and the hobby we all love. Dan will reschedule a meeting with the new property manager to welcome him in his new position and to talk about our concerns of lighting that developed recently near the Observatory. A conflict developed canceling the previously scheduled meeting.

Imaging committee member Chad Andrist told members that they can view all images submitted by members by going on line to Astrobin and searching for Harrington Beach. Chad gave a demo to show the process. Amazing images! Thanks to all those contributing NCSF imagers.

Rick Kazmierski covered upcoming 2016 events. The February 6th Candlelight Ski & Hike at Harrington Beach State Park has been canceled due to dangerous icy trails. However, the viewing night at the Ice age Center in Campbellsport will continue on the 6th. The 13th is another Candlelight Ski & Hike at Pike Lake State Park. Member's telescopes would be appreciated at any of the events. In place of the March meeting there will be the annual banquet at the Fox & Hounds restaurant in Hubertus. April 9th is the Swap & Sell in Sheboygan.

Charlotte Dupree reminded members not to postpone reserving a 2017 eclipse campsite in Illinois. Be sure to ask for a site with the NCSF members. Look to the February Spectrum for details on the

campsite.

Rick Kazmierski wanted to let the membership know that he will have to go to a new copy process that is not kind to reproducing B&W photos. The wonderful deep sky images in the Spectrum are best seen on-line in all their color glory. The entire newsletter can be viewed on the club's website or it can be sent to you as a digital file in place of the paper Spectrum.

March Comet Watch!

252P/LINEAR is an earth approaching comet and makes a very close approach on March 21 when it passes 0.036 au from our planet. This is the fifth closest cometary approach on record, and it is by virtue of this that this otherwise faint comet might come within visual range for a few weeks. It races north after closest approach, and for northern observers there is an observing window of about a week from March 30 when it might be seen, as the peak magnitude is predicted at 10 and it fades very quickly.

P/2010 V1 could reach 8th magnitude in late February and March, when it will be perfectly positioned for evening viewing in Leo. Perihelion occurs on March 10, 2016

The Closest New Stars to Earth

By Ethan Siegel

Article Provided by
NASA Space Place

spaceplace.nasa.gov



When you think about the new stars forming in the Milky Way, you probably think of the giant star-forming regions like the Orion Nebula, containing thousands of new stars with light so bright it's visible to the naked eye. At over 400 parsecs (1,300 light years) distant, it's one of the most spectacular sights in the night sky, and the vast majority of the light from galaxies originates from nebulae like this one. But its great luminosity and relative proximity makes it easy to overlook the fact that there are a slew of much closer star-forming regions than the Orion Nebula; they're just much, much fainter.

If you get a collapsing molecular cloud many hundreds of thousands (or more) times the mass of our sun, you'll get a nebula like Orion. But if your cloud is only a few thousand times the sun's mass, it's going to be much fainter. In most instances, the clumps of matter within will grow

slowly, the neutral matter will block more light than it reflects or emits, and only a tiny fraction of the stars that form—the most massive, brightest ones—will be visible at all. Between just 400 and 500 light years away are the closest such regions to Earth: the molecular clouds in the constellations of Chamaeleon and Corona Australis. Along with the Lupus molecular clouds (about

600 light years distant), these dark, light-blocking patches are virtually unknown to most sky watchers in the northern hemisphere, as they're all southern hemisphere objects.

In visible light, these clouds appear predominantly as dark patches, obscuring and reddening the light of background stars. In the infrared, though, the gas glows brilliantly as it forms new stars inside. Combined near-infrared and visible light observations, such as those taken by the Hubble Space Telescope, can reveal the structure of the clouds as well as the young stars inside. In the Chamaeleon cloud, for example, there are between 200 and 300 new stars, including over 100 X-ray sources (between the Chamaeleon I and II clouds), approximately 50 T-Tauri stars and just a couple of massive, B-class stars. There's a third dark, molecular cloud (Chamaeleon III) that has not yet formed any stars at all.

While the majority of new stars form in large molecular clouds, the closest new stars form in much smaller, more abundant ones. As we reach out to the most distant quasars and galaxies in the universe, remember that there are still star-forming mysteries to be solved right here in our own backyard.

Image credit: NASA and ESA Hubble Space Telescope. Acknowledgements: Kevin Luhman (Pennsylvania State University), and Judy Schmidt, of the Cha-



maeleon cloud and a newly-forming star within it—HH 909A—emitting narrow streams of gas from its poles.

March General Meeting

“NCSF Annual Banquet”

(In lieu of the March Meeting)

Thursday - March 5, 2015

Social hr 6 p.m. Dinner at 7 p.m.

Fox and Hounds Restaurant

1298 Friess Lake Rd.

Gene DuPree 262 675-0941-Reservations

Continued from Pg 1 - Gravitational Waves

wave observatory. NASA contributed its ST-7 Disturbance Reduction System to the payload as part of that demonstration.

NASA missions are searching the sky for fleeting X-ray and gamma-ray signals from LIGO events. Detecting the light emitted by a gravitational wave source would enable a much deeper understanding of the event than through either technique alone.

For more information, please visit:

www.ligo.caltech.edu/news/ligo20160211

www.nsf.gov/news/news_summ.jsp?cntn_id=137628

February Public Viewing Events

Reuss Ice Age Center, February 6

By Charlotte DuPree

Reuss Ice Age Center, Dundee, February 6. Even though the day was clear we had a partly clear/cloudy sky for the evening, so the stars were in and out of the clouds. Because of the ski and hike, at the Zimmer trail, the overflow traffic was sent up the hill to wait until there was room in the lower lot to park. We had a nice size crowd, around 150, as we dodge the clouds. Thanks to Al S. and Rick D. for their assistance.

Pike Lake Ski & Hike, February 13

By Charlotte DuPree

Pike Lake ski and hike, February 13. We had a clear, cold night this year. A few thin clouds kept getting in our way of the Moon and the usual winter objects. Channel Fox 6 advertised the hike, with lots of telescopes to look through. One lady came down from Green Bay just because she heard there we going to be telescopes. There was a large crowd of hundreds and hundreds. As we took turns, getting warm by the big fire outside, and snacks inside, Gene overheard a marriage proposal, with an answer of yes. (It was the day before Valentines.) Thanks to Rick D. and Al S. for their assistance.

2015 Membership Dues

The Final Dues Notice accompanies this Newsletter. If you have not paid yours 2015 dues, simply follow the instructions on the notice and return to treasurer, Gene DuPree. (If your dues are current, you won't receive a Notice.)

Horicon Marsh January Event

Gene and Charlotte DuPree lead the Horicon Marsh Candlelight Event in January, assisted by Rick Dusenbery. The Friends of the Horicon Marsh sent them a "Thank You" letter which read, in part...

"On behalf of the Friends of the Horicon Marsh, I would like to express our gratitude for your generous support of our Candlelight Hike Event. Thank you for bringing the telescopes and providing us with information about Astronomy. People really like to explore outer space by looking through a telescope. It is even more exciting when it is a clear night, but that is out of our control. We always enjoy the opportunity to invite you to our Candlelight Event. With various counts around the property and bus counts, it is estimated that we had 2000+ people in attendance. Considering the temperatures and the Packer Game the same night, we were pleased with the attendance. We received great positive feedback from the people in attendance. People traveled here from all over the State of Wisconsin and also from Illinois. Everyone enjoyed the evening and it has become a very popular family event."

Surprisingly, this event was in the dead of winter! Nice job guys.

Imagers Report...By Ernie Mastroianni

Northern Cross Member Chad Andrist reports that he is currently building a dew heater controller and making heater bands for the main objective and the guidescope for the club's 5-inch refractor. The system, he says, is completely home-brewed. He gave members a look at the February meeting. With saturated and very humid nights dominating the winter weather, dew problems have complicated imaging efforts by imaging committee members November and December. Andrist hopes to have the dew heaters ready for the spring season.

RELATED INFO

Leaders for Public Viewing

May 29

Port Washington

Kevin Bert

May 29

Astronomy Day

Jeff Setzer

Star Parties!

NCRAL 2016

Bloomington-Normal

April 29 - 30th

Registration is now online at:

<http://www.ncral2016.org>

Check out the entire program with full-description of speakers, off-site activities, astro-photo contest and more!

WOW

June 2nd through 5th

Hartman Creek State Park

www.newstar.org

Registration later February

NORTHWOODS STARFEST 2016

Hobbs Observatory

Beaver Creek Reserve

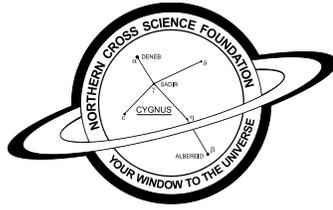
Fall Creek, Wisconsin

August 5-7, 2016

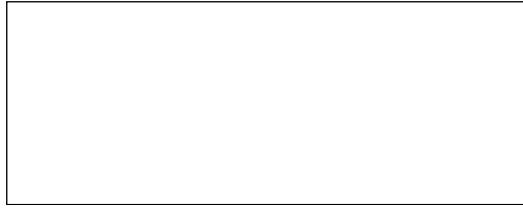
www.cvastro.org

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SSAS

The 9th Annual Swap 'N' Sell

Sponsored by Sheboygan Astronomical Society

Saturday, April 9, 2016
Aviation Heritage Center

Sheboygan Airport
N6191 Resource Drive, Sheboygan Falls, WI
53085

9:00 am to 2:00 pm

SPECTRUM

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<http://www.ncsf.info>

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Please send your Questions, Suggestions, Articles, and photos to:
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Newsletter Editor & Publisher
- Rick & Mickey Kazmierski

Monthly Meeting Information
7:00 p.m. Astronomy 101
7:30 Main Program
Unitarian Church North
13800 N. Port Wash. Rd.
Mequon, WI 53097

