

SPECTRUM

Northern Cross Science Foundation Newsletter

November 2016

Looking Up

— (Date Change) —

November 10, Thursday

General Meeting

7:00 p.m. Astronomy 101

7:30 p.m.– Main Program

GSC Technology Center

November 17, Thursday

Board Meeting

7:30 p.m.

Jeff Setzer Home

December 1, Thursday

General Meeting

7:30 p.m. Business Meeting

Board Nominations

Annual Holiday Potluck Party!



And White Elephant Gift Exchange!

Scheduled Public Viewing for Winter, 2017.

January 21, Saturday

Candlelight Snowshoe Hike

6:00p.m. - 9:00 p.m.

Horicon Marsh

February 4, Saturday

Candlelight Ski & Hike

6:00 p.m. - 9:00 p.m.

Harrington Beach

February 11, Saturday

Candlelight Ski & Hike

6:00 p.m. - 9:00 p.m.

Pike Lake State Forest

Pebble Hill Observatory

by Rick Dusenbery



Pebble Hill Observatory

One of the benefits of attending events such as the Northwoods Starfest is meeting other fellow stargazers and comparing notes and sharing views with them. It was at this event that I met Joe Timmerman two years ago. Joe showed me photos of his newly-built observatory he has constructed on 40 acres of rural land where he and his wife Eileen live near Hayward, Wisconsin. Recently, I got a chance to visit Joe and Eileen and see his completed observatory which was built during early summer and fall of 2012. As can be seen by the exterior photo with Joe on the right, it is a sliding-roof style similar to our club's observatory in Harrington Beach State Park, but on a smaller scale being 16' by 12' with a 5' extension on the north end for Eileen's gardening supplies.

When Joe started the project, he immediately ran into a rock four inches down when digging for the pier. After much further digging and sweat, this rock "Pebble" was unearthed and now resides next to the door on the west side of the observatory. Above the door hangs the sign; "Pebble Hill Observatory". The "Hill" part of the name is because the observa-

tory is slightly downhill from their home which is on the high point of their land. Therefore the observatory is built up on concrete piles to allow for proper drainage. The telescope pier extends five feet underground from a 2' by 2' by 1' base on which is a 12" sonotube filled with re-enforced concrete topped with a six-inch well casing. The pier, on which a Losmandy mount is bolted, is independent of the observatory floor. Part of the south and west walls can be folded down for better viewing access. The roll-off roof is small enough to be easily moved by hand.

The interior photo shows Joe and the pier mount in the background. In the foreground is Joe's main observing telescope; an AstroSky 12.5" Dob which can be rolled around or outside on a future concrete pad. However Joe's main pursuit is astrophotography. Then he mounts either a Celestron 11" Edge scope

or a 90mm Stelervue Apo refractor to the pier and has taken many first-rate photos of distant deep-sky objects. Joe's cameras are a Starlight Express cooled CCD with Lode-star X2 Autoguider and 5-position filter wheel, and a modified Canon DSLR.

Unfortunately, the night I was there, it was cloudy (naturally!) and all we could see was M111; the Great Wisconsin Nebula. It is also known as NGC 7841 (Nothing but Gray Clouds)! But I am looking forward to a future trip with clear skies.



Harrington Beach Dark Sky Site? by Dan Bert

Park Lighting

The Park is in the process of changing to 3000K LED dark sky compliant full cutoff fixtures on the accessible cabin, new vault restrooms, and park office. Changes to the parking lot lights and top-down flagpole lights are also in the works.

Long term, the goal for the park is to become a certified Dark Sky Site. A big thanks to park manager Ken for working with us to keep the skies at the park dark.

Other observatory news

A new vault restroom at the Observatory is now installed and open for your business.

Special thanks to Tom Schmidtkunz for helping paint the peeling Observatory door frames. Ore paint and staining will take place next Spring; let me know if you are interested in helping with this project.

October Meeting Minutes

By Kevin Bert

The October Business meeting of the Northern Cross Science Foundation was held at the GSC Technology Center in Germantown. President Jeff Setzer opened the meeting at 8:40pm and welcomed 19 members and guests. Jeff noted that this is the last meeting in the public viewing season. He then asked for standard reports.

Treasurer Gene DuPree reports \$10,447.48 in the checking account. The Observatory account remains at \$1,042.01.

Secretary Kevin Bert welcomes newest member Bob Gershan. Updated nametags were printed out and it was encouraged for members to wear them. The date for the Astronomical League 2017 Regional Convention in Rochester Minnesota is April 21 - 23. Look to ncral.wordpress.com for additional information as it becomes available.

Observatory Director Dan Bert reports that a key is now available in the observatory to turn off the picnic shelter light if it was accidentally left on. The October 22nd Halloween hike public viewing night is in need of a leader.

Jeff then covered upcoming October 2016 events. The 7th and 8th are consecutive

public viewing nights at Harrington Beach State Park. LacLawrann has the luminary walk also on October 8. The 21st is an observatory training night. October 22nd is the Halloween Hike at Harrington Beach. The 29th is the final public viewing night at Pike Lake. Members are invited to bring telescopes to all the events.

With no further business Jeff closed the meeting at 8:55 pm.

Respectfully submitted by Kevin Bert, Secretary.

“Library Loud Days” Charlotte and Gene DuPree!

Hosted by the Wehr
Astronomical Society

The Wehr A.S. was asked to participate in the Milwaukee Library, "Library Loud Days" on October 22. Gene and I had our scopes on top of the downtown library. The event started at 6:00 so we started looking at Venus, then found Mars, then Saturn finally appeared. Small groups of 10 to 15 people were escorted to our location. I gave my group warning, if you touch the scopes they

will move, of course this warning doesn't usually work. Since they were not dressed to be outside, it did not matter that we didn't have the time to look at a different objects.

We were able to look at a few of the brighter open clusters when it got dark enough because of the bright "sky glow" conditions.



Milwaukee Public Library Roof



Imaging Telescope Tested Under Full Laptop Control ...by Ernie Mastroianni

Working under a clear fall Monday evening in late October, Northern Cross members Chad Andrist and Nolan Zadra achieved a milestone at the Plunkett Observatory at Harrington Beach State Park.

The 5-inch refractor's CGE Pro mount and SBIG camera were both connected to and operated by Zadra's laptop, thus bypassing the hand controller altogether. A program



drist were taking a 64-picture sequence of the Andromeda galaxy, using 2-minute sub-frame exposures for a total exposure time of two hours and eight minutes. The pictures were taken through the guide telescope, a 72mm wide field apochromatic refractor mounted above the larger 5-inch scope.

From the Editor:

Images in the Newsletter are best viewed in their digital form. See the online version.



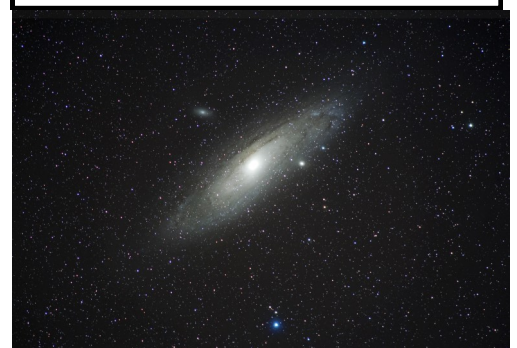
Nolan Zadra (left) and Chad Andrist operate Zadra's telescope software for the first time on Monday, Oct. 24. Only a few minor bugs were encountered during the

called Sequence Generator Pro (SGP) made this possible. It can operate the telescope mount, point it to the target, and confirm that the correct target is in the field of view by examining the star patterns in short exposures taken by the SBIG camera. The SGP software uses a plate-solving program to accomplish this. It allows the telescope to be aimed with arc-second accuracy.

The program also controls exposure time, image sequences, focusing (though the club telescope does not yet have motorized focus), sensor temperature, and image downloading. While the software is Zadra's own, the test is an example of the type of advanced software that is compatible with club's telescope and mount. Though a club laptop with basic software is available at the observatory, those who have so far used the telescope and camera prefer their own computers.

On this particular evening, Zadra and An-

M-31, photographed the same night by Northern Cross member Ernie Mastroianni through a Nikon lens of about the same size and focal length as the 72mm refractor. The images from Zadra's shoot were not yet available for processing at the newsletter deadline.



101 Program ...by Kevin Bert

Eye-piece Basics

There are many options when selecting an eye-piece for a telescope. You often hear that the telescope is only half of the optical performance because the eyepiece is the other half. We will look at the roll of the eyepiece and consider some of the types available.

Constellation of the month is Cetus.

November Main Program... DuPree

Search for Cosmic Clusters

We will show a video from the History channel, season four. *The Search for Cosmic Clusters*. They are some of the largest structures in the universe. Huge gatherings of millions, or even billions, of stars in either globular or open clusters. But how are these clusters born? What keeps them together? And what could tear them apart?

Leaders for Public Viewing

January 21, Saturday

Horicon Marsh

DuPrees

February 4, Saturday

Harrington Beach

DuPrees

February 11, Saturday

Pike Lake State Forest

DuPrees

October Public Viewing Events

Harrington Beach October 7

By Charlotte DuPree

Friday, October 7, Harrington Beach PVN. We had a nice clear night. Gene had the C9 on the back patio, along with his astro scan. We had several, small groups of people, so I was able to look at many different objects. Jim M. helped us in the observatory.

Lac Lawrann Luminary Walk October 8

By Mickey Kazmierski

After popcorn and beverages hikers walked the hundreds of lit luminary lamps which circled all around LLC. The hike culminated with a campfire, spooky stories, and music by guitarist Ken Wheaton. Then we observed the beautiful skies through Northern Cross Science Foundation members telescopes! What a show given by Rick Dusenbery, Jeff Setzer, Al Steinberg, and Rick Kazmierski. LLC said this walk had the largest attendance of any previous Luminary Walk with nearly 700 participants.

Harrington Beach October 8

By Kevin Bert

The October 8th PVN at Harrington Beach had clear skies for most of the evening. A small dedicated group of about 30 viewers worked between the observatory and the parking lot to catch views of fall showpiece objects. Ernie Mastroianni and I kept both observatory scopes up and running and had a great time sharing the views with visitors.

Horicon Marsh October 15

By Charlotte DuPree

October 15, Horicon Marsh, third annual Sand Hill crane watch. Unfortunately it was very cloudy with off and on misting rain. We were hoping to do some solar viewing then stargazing.

Harrington Beach October 22

By Kevin Bert

October 22nd was the final viewing night at Harrington Beach for 2016. Held in conjunction with the Halloween hike, the traffic through the observatory was high. An estimated 250 to 300 were viewing over the evening with many being families with children. The moonless night was clear

with mild temperatures and light wind. The Hercules star cluster and Double cluster were favorites for many. Having six telescopes in the parking lot was a tremendous help in entertaining and serving this large group having long lines behind each all night. I want to thank my assistant Scott Nehring for helping me in the observatory and all the members in the parking lot that brought scopes. The night ends the 2016 public viewing at Harrington Beach on a high note as I look forward to the 2017 season.

Pike Lake October 29

By Charlotte DuPree

The bright sky, during the day, made us hopeful for evening star gazing. Sunset was 5:47, by the time it was dark enough to see any objects the sky was full of small sucker holes. We did spot Mars once, and a few bright stars. The park did not advertise star gazing and we did not have visitors. By 7:00 we decided to head home. Thanks to Al S. for joining us.

Small Scope Star Party Follow-Up

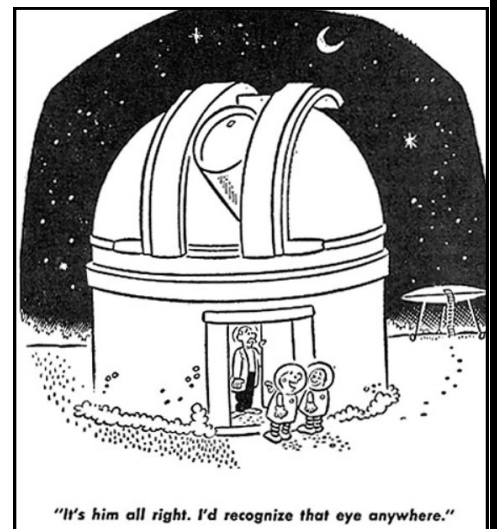
Clear skies ruled the early evening at the July 30th SSSP. After many pleasing views of the planets all of the scopes took advantage of the moonless night and took in amazing views of deep space. Sixteen telescopes were set up in total by a dozen members. Wide field views are easily attainable with the small scopes and gave breathtaking views along the Milky Way in particular. Can you say Coathanger? Easy in a small scope. Double Cluster? No problem-o. Most telescopes in the six inch or smaller range require very little setup time and effort and add to the low stress atmosphere. Then of course the 11:00 snacks were amazing. Clouds and fog later rolled in from the lake and caused all to pack up. Thanks to all who contributed to this event.

"Nomination Notice"

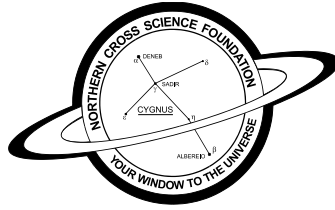
The November General Meeting will include nominations for open Board member positions. Elections will be held at the December meeting.

Calendars

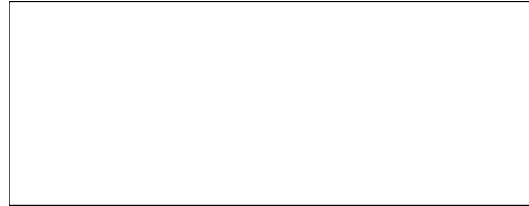
The DuPrees have 2017 Astronomy Magazine calendars for sale for \$8, while the supply lasts. See Gene or Charlotte at the next General Meeting. You can't beat the price!



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Jim & Gwen Plunkett
OBSERVATORY



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Observable Universe Contains Ten Times More Galaxies Than Previously Thought. *by Guy Pirro*

In Arthur C. Clarke's novel "2001: A Space Odyssey," astronaut David Bowman exclaims, "My God, it's full of stars!" before he gets pulled into an alien-built wormhole in space. When the Hubble Space Telescope made its deepest views of the universe, astronomers might have well exclaimed: "My God, it's full of galaxies!" The Hubble Ultra Deep Field, for example, revealed 10,000 galaxies of various shapes, sizes, colors, and ages, all within an area roughly one-tenth the diameter of the full moon. What's mind-blowing is that this myriad of galaxies, though plentiful, may represent merely 10 percent of the universe's total galaxy population. That's according to estimates from a new study of Hubble's deep-field surveys. The study comes to the staggering conclusion that at least 10 times more galaxies exist in the observable universe than astronomers thought.

According to the researchers, the missing 90 percent of the universe's galaxies are too faint and too far away to be detected by the current crop of telescopes, including Hubble. To uncover them, astronomers will have to wait for much larger and more powerful future telescopes. The researchers arrived at their result by painstakingly converting Hubble deep-field images into 3D pictures so they could make accurate measurements of the number of galaxies at different epochs in the universe's history.

SPECTRUM

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NCSF supports the **International Dark Sky Association**

This Issue, along with back Issues of SPECTRUM, can be found on the NCSF Web Site.

Monthly Meeting Information

7:00 p.m. Astronomy 101 Mtg.
7:30 p.m. Main Program
Location at the -
GSC Technology Center
W189 N11161 Kleinmann Dr
Germantown, WI 53022

Spectrum Newsletter
5327 Cascade Drive
West Bend, WI 53095

Please send your Questions, Suggestions, Articles, and photos to:
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