

# SPECTRUM

Northern Cross Science Foundation Newsletter

July 2021



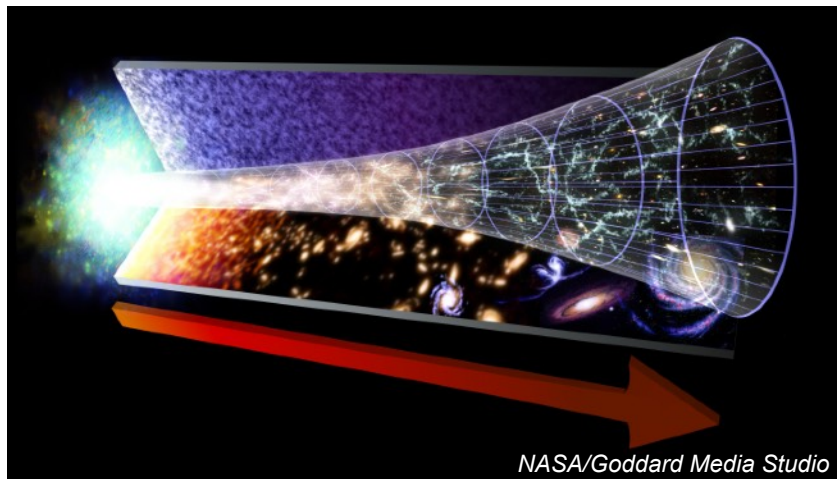
## Partial eclipse, fully spectacular

The sun rises at about 5:15 am on June 10, as seen from a Lake Michigan bluff in Whitefish Bay. This was the tail end of an annular (ring of fire) eclipse, but the ring was visible only in sparsely-inhabited parts of Siberia, northern Greenland and Canada. - *Ernie Mastroianni photo*

## July program by John Fontana: Did the the Big Bang Really Happen?

The Big Bang has been the prevailing theory about the beginning of our Universe. That theory, however, has been questioned by such luminaries as Roger Penrose and Stephen Hawking. Join us on July 1 at 7:30 pm CDT to discuss what banged (if anything), why did it bang, and what was there before the bang. We will also cover other theories that have been postulated for how we got everything from seemingly nothing, whether multiple universes exist, and what the future holds for the universe we inhabit. - *John Fontana, Solar System Ambassador*

*This image represents the evolution of the universe, starting with the Big Bang. The red arrow marks the flow of time.*



## Public viewing returns to state park venues

We just got word from state park officials that public events can resume at Harrington Beach, as well as Pike Lake and other Wisconsin Department of Natural Resources properties! The [NCSF Public Schedule Google calendar](#) has been updated, which means the website is updated as well.

Additionally, Facebook Events have been created on the [NCSF Facebook page](#) to include the July 16 and 17 events at Harrington Beach, and July 17 also at Pike Lake. We could use some volunteers!

See the schedule on page 3 for more events. - *Jeff Setzer*



## Observing Report: Harrington Beach State Park, Panarusky Telescope, June 5-6 2021

By Jim Macak

I was keenly anticipating my observing session of early June: first time out telescoping in warm weather this year, first time using the club's 20-inch Panarusky telescope in more a year and a half, and another chance to see some favorite galaxies currently in the western sky. I also ended up with another first: wearing just a T-shirt for a top through a whole night's observing session!

I arrived on Saturday night to find our observatory in excellent condition. Many thanks to the club's cleaning crew.

Setting up the Panarusky went smoothly: I used Spica for the initial alignment star and then did a synch on Vega. Save for a couple of fine-tunes, the alignment remained true for the rest of the night.

Concentrating on the south to west sky, I viewed several deep sky objects including several globular clusters and galaxies from the Messier list.

My surprise favorites of the session were NGC 5371, an 11.3-magnitude galaxy on the Astronomical League's Herschel II list in Canes Venatici, and the Hickson 68 galaxy group, which I found in the same eyepiece field about half a degree from NGC 5371.

I recorded a brief description of what I saw in my 31mm Nagler eyepiece's field-of-view:

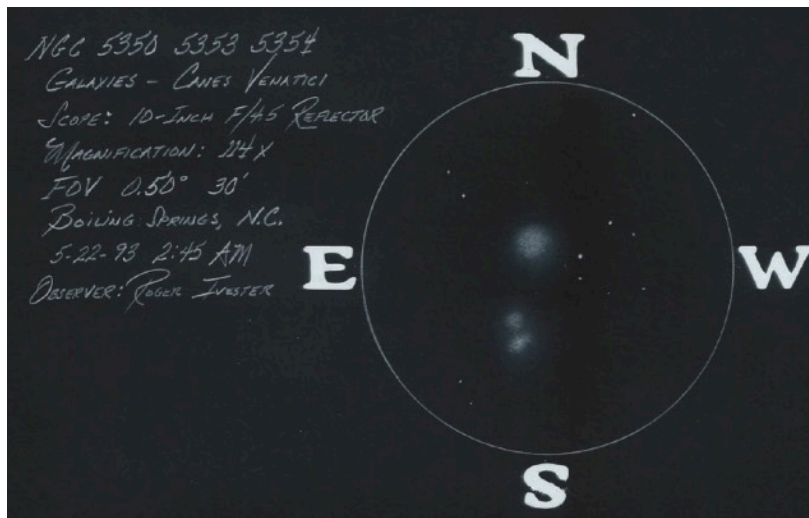
*6/6/2021 @12:32 AM - NGC5371 is medium size and brightness, fairly round, diffuse with a slightly brighter core; in the same field are NGC5350 which is dim, small to medium size, fairly round, diffuse and also the very close pair NGC5354 and NGC5353; the latter is slightly brighter due to a brighter core; both are smaller than NC5350.*

A couple of days later, when reviewing my logs at home, I found that I had viewed this Hickson 68 grouping back in July 2013 while observing in the supremely dark skies of Michigan's Upper Peninsula. I recorded from that observation:

*07/11/2013 @11:22 PM*

*Three galaxies in one field, all quite dim. NGC 5350 is the dimmest and is to the left and is small and diffuse and quite dim, almost needs averted vision. NGC 5354 and NGC 5353 almost overlap and are right next to each other. They are to the right of NGC 5350. NGC 5354 is perhaps slightly more diffuse. They are both small and dim. NGC 5353 has a slightly brighter core.*

A sketch that I found online, from Roger Ivester's observing blog (<https://rogerivester.com/2010/06/>) pretty well matches what I saw. Ivester's comprehensive blog is [here](#).



Sketch by Roger Ivester ([rogerivester.com](http://rogerivester.com)), used with permission

An informative online article about the Hickson 68 group that I observed is available here:

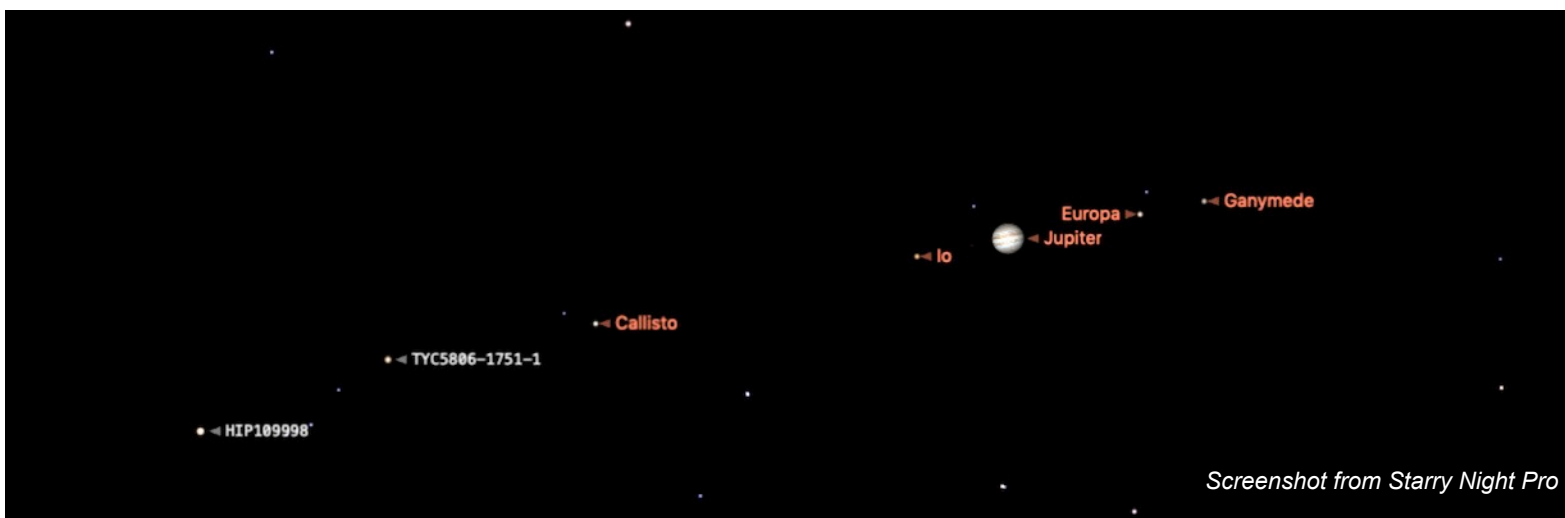
<https://www.webbdeepsky.com/galaxies/object/Hickson+68>

I'm very happy to have been reminded of the Hickson catalog and its 100 compact groups of galaxies. Several of these Hickson groups should prove to be challenging but worthwhile targets for my future observing sessions. A useful online source about Hickson groups is here: [http://www.reinervogel.net/index\\_e.html?/Hickson/hickson\\_e.html](http://www.reinervogel.net/index_e.html?/Hickson/hickson_e.html)

A list of 32 interesting Hickson groups is available online here: <https://astronomy-mall.com/Adventures.In.Deep.Space/hicklist.htm>

Near the end of my session I took a peek at Jupiter, which had finally risen to about a 20° altitude in the southeast. To my surprise, I saw what appeared to be total of six Galilean moons: two on one side and four to the other. All were aligned along a straight-line path! A quick check of my Starry Night Pro application revealed that there were a couple of stars that by happenstance were lined up outside of Io and Callisto. They were just bright enough (at magnitudes 9.12 and 7.25) to convincingly appear to be a couple of the Jovian moons.

Mystery solved!



## The UW Space Place, a Madison astronomy destination, resumes some public programs

Editors note:

Just days before the pandemic broke in early 2020, NCSF member Mark Weber submitted this article about the UW Space Place, a Madison astronomy education destination run by the University of Wisconsin Astronomy Department. But like many other in-person activities around the country, the doors closed due to the pandemic, but online activities continued.

Starting this June, some in-person activities resumed, said Kay Kriewald, Senior Outreach Specialist. "We are planning on starting public programs again at Space Place on a limited basis," she said via email. The first Saturday workshop was held on June 12th. "We will probably have one once a month over the summer, she said. The Party with the Stars program began again on June 18th and will continue on the third Friday of each month.

"It would be best for people to check our web site or sign up for our email list to find out the dates for future Saturday workshops," she added. The guest presentations are slated to resume on September 14th. See the [website](#) for up-to-date information.

Photos and story by Mark Weber

If you can't seem to get enough astronomy in to your blood, especially in the slower months of winter, there is an outreach center in Madison called *The Space Place*, with activities year round geared toward different ages, and skill levels. Although the pandemic curtailed much of the in-person activities since last year

*The Space Place* is an extension of the UW Astronomy Department, and happily you don't have to go to the heart of the UW campus and battle with parking, pedestrians, and traffic! It's located just off the Highway 18 belt line, South of Madison, in the Villager Mall. (Specifically, 2300 South Park Street.)

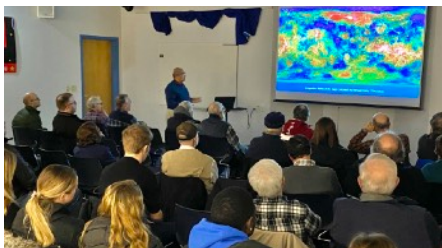
Inside there is a lecture hall, classroom, and museum style exhibits, many of which are current/past UW Madison projects. Often times, if the weather is cooperating attendees will go up on the roof top deck to look at the stars after one of the events.

Free 1-hour astronomy lectures are given to the public the second Tuesday of the month, so a friend and I attended the February 11, 2020 lecture, "How Do You Solve a Problem Like Venus", given by a UW planetary scientist that specializes on the second planet from the sun.

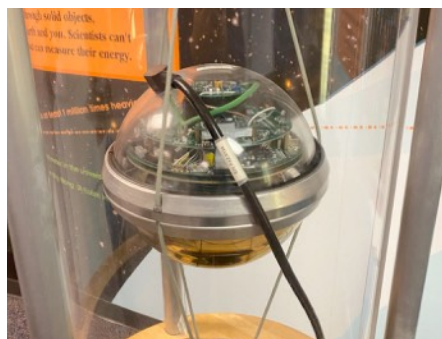
It was quite informative, and somewhat technical, but not too much. Pretty much just right for any NCSF member. Some of the topics covered that night were past Venus missions, current ones, and what's on the horizon. Quite a few specific topics were covered: What happened to the water on Venus, (assuming the liquid was actually water)? Why are the winds so high? Why is it spinning backwards? (Spoiler alert, the more we explore Venus, the less we seem to know.) Past guest lectures at *The Space Place* are stored online.

Not everything is for amateur astronomers. Saturdays during the school year, there are workshops and hands-on activities geared towards families with children ages 6-10. <http://www.spaceplace.wisc.edu>

*The Space Place* is also on Facebook and Twitter



**From top:** A test model of the [Orbiting Astronomical Observatory](#) is on display. It was the first true space-based telescope, developed by NASA and UW in the 1960s. Sanjay Limaye, planetary scientist. **Below:** An example of the neutrino detectors used in the South Pole-based IceCube Observatory.



## Looking ahead

**July 1, Thursday**  
**General Meeting**  
7:30 pm, online via Zoom

**Pike River Starfest**  
July 7-11, Amberg, Wis.  
Contact Gerry Kocken  
[gerryk@kockenwi.com](mailto:gerryk@kockenwi.com)

**Public viewing**  
July 16 - 17, 9 pm Harrington Beach  
July 17, 9 pm Pike Lake  
Volunteers needed for July 17

**Nebraska Star Party**  
August 1 - 6, 2021  
Merritt Reservoir Snake Campground  
<https://www.nebraskastarparty.org/>

**Port Washington Recreation Family Campout,**  
August 6, 8 pm, volunteers needed

**Public viewing**  
August 13, 8 pm Harrington Beach  
August 14, 8 pm Harrington Beach and Pike Lake, volunteers needed

**Northwoods Starfest**  
August 6-8 (pending COVID conditions)  
Hobbs Observatory, Fall Creek, Wis.  
<https://www.cvastro.org/northwoods-starfest/nwsf-information/>

**ALCON Astronomical League Convention:**  
August 19-21  
Virtual, online only  
Register:  
<https://www.astroleague.org/content/register-alcon-21-virtual>

**Small Scope star party**  
August 28, Saturday, 8 pm  
Harrington Beach (member event)

**Binocular star party**  
Sept. 29, Wednesday, 8 pm  
Harrington Beach (member event)

**Sheboygan Swap-n-Sell**  
October 23, 2021  
Aviation Heritage Center,  
Sheboygan Airport

**NCRAL convention**  
May 13-14, 2022  
Port Washington  
Hosted by the Northern Cross Science Foundation

## Astronomy and spaceflight links

Any comprehensive list of online astronomy links could fill dozens of pages, and as such, this list is selective and is subject to change. Many are well known to members, others might be new. Please email me with any more suggestions that you feel would be useful to NCSF members, and let me know if any links are no longer working. - *Ernie Mastroianni, editor*

### Astronomy clubs, newsletters and websites

NCSF: <https://ncsf.info>  
 Astronomical League: <https://www.astroleague.org/>  
*The Reflector* magazine: <https://www.astroleague.org/reflector>  
 Milwaukee Astronomical Society:  
<http://milwaukeeastro.org/index.asp>  
 North Central region of the AL: <https://ncral.wordpress.com/>  
 NCRAL newsletter archive:  
<https://ncral.wordpress.com/newsletter-archive/>  
 US list of astronomy clubs:  
<https://www.astroleague.org/astronomy-clubs-usa-state>

### Astronomy gear, vendors and online sellers

<https://www.bhphotovideo.com/>  
<https://www.highpointscientific.com/>  
<https://optcorp.com>  
<https://www.telescope.com/>

### Astrophotographers

Astrobin (a paid site for astrophotography uploads):  
<https://welcome.astrobin.com/>  
 Rogelio Bernal Andreo <http://www.deepskycolors.com>  
 Chad Andrist <https://www.astrobin.com/users/SparkyHT/>  
 Bob Franke <http://bf-astro.com/>  
 Harrington Beach Imagers Group (Ernie Mastroianni and Tom Schmidtkunz)  
[https://www.astrobin.com/users/Harrington\\_Beach\\_Imagers\\_Group/](https://www.astrobin.com/users/Harrington_Beach_Imagers_Group/)  
 Trevor Jones <https://astrobackyard.com/>  
 Rick Kazmierski <http://skyhawkobservatory.com>  
 Jerry Lodriguss <http://www.astropix.com/index.html>  
 Gabe Shaughnessy: <https://www.astrobin.com/users/AstroGabe/>  
 Babak Tafreshi <https://babaktafreshi.com/>

### Classifieds

<https://astromart.com/>  
<https://www.cloudynights.com/>

### Clear sky forecasts

Astrospheric <https://www.astrospheric.com/>  
 Clear Dark Sky <https://www.cleardarksky.com/csk/>  
 Clear Outside <https://clearoutside.com/forecast/50.7/-3.52>

### Digital star atlases

Cartes du Ciel <https://www.ap-i.net/skychart/en/start>  
 Stellarium <https://stellarium.org/>  
 Sky Safari <https://skysafariastrometry.com/>

### Magazines and online astronomy news

*Sky & Telescope* <https://skyandtelescope.org/>  
*Astronomy* <https://astronomy.com/>  
*Astronomy Now* <https://astronomynow.com/>  
 Skynews <https://skynews.ca/>  
*The Reflector* <https://www.astroleague.org/reflector>  
*Sky at Night* <https://www.skyatnightmagazine.com/>  
 Astronomy Picture of the Day  
<https://apod.nasa.gov/apod/astropix.html>



Swirling clouds in Jupiter's dynamic North North Temperate Belt are captured in this image from NASA's *Juno* spacecraft. This image can be seen at a JPL Juno web page: [https://www.nasa.gov/mission\\_pages/juno/images/index.html](https://www.nasa.gov/mission_pages/juno/images/index.html). Credit: Gerald Eichstädt and Sean Doran (CC BY-NC-SA)/NASA/JPL-Caltech/SwRI/MSSS

### NASA images and missions

Hubble telescope <https://hubblesite.org/>  
 NASA JPL Curiosity <https://www.jpl.nasa.gov/missions/mars-science-laboratory-curiosity-rover-msl>  
 NASA JPL Juno at Jupiter <https://www.jpl.nasa.gov/missions/juno>  
 NASA JPL Mars 2020 <https://www.jpl.nasa.gov/missions/mars-2020-perseverance-rover>  
 NASA Johnson Space Center on Flickr  
<https://www.flickr.com/photos/nasa2explore/>  
 NASA Images  
<https://www.nasa.gov/multimedia/imagegallery/index.html>  
<https://images.nasa.gov/>  
 NASA International Space Station  
[https://www.nasa.gov/mission\\_pages/station/main/index.html](https://www.nasa.gov/mission_pages/station/main/index.html)  
 NASA Kennedy on Flickr  
<https://www.flickr.com/photos/nasakennedy/>  
 NASA Project Apollo Hasselblad scans:  
<https://www.flickr.com/photos/projectapolloarchive/albums>

### NASA Research Centers

Ames Research Center <https://www.nasa.gov/ames>  
 Armstrong Flight Research Center  
<https://www.nasa.gov/centers/armstrong/home/index.html>  
 Jet Propulsion Laboratory  
<https://www.nasa.gov/centers/jpl/home/index.html>  
 White Sands [https://www.nasa.gov/centers/wstf/index\\_new.html](https://www.nasa.gov/centers/wstf/index_new.html)  
 Johnson Space Center  
<https://www.nasa.gov/centers/johnson/home/index.html>  
 Marshall Space Flight Center  
<https://www.nasa.gov/centers/marshall/home/index.html>  
 Michoud Assembly Facility  
<https://www.nasa.gov/centers/marshall/michoud/index.html>

## Astronomy and spaceflight links



Antennas of the Atacama Large Millimeter/submillimeter Array (ALMA) in the Chilean Andes. The Large and Small Magellanic Clouds can be seen as bright smudges in the night sky in the upper center of the photograph. ESO/C. Malin

### NASA Research Centers (continued)

Stennis Space Center  
<https://www.nasa.gov/centers/stennis/home/index.html>  
 Glenn Research Center  
<https://www.nasa.gov/centers/glenn/home/index.html>  
 Plum Brook Station <https://www.nasa.gov/centers/glenn/about/testfacilities/index.html>  
 Katherine Johnson IV&V facility  
<https://www.nasa.gov/centers/ivv/home/index.html>  
 Goddard Space Flight Center <https://www.nasa.gov/goddard>  
 Mary W. Jackson NASA headquarters  
<https://www.nasa.gov/centers/hq/home/index.html>  
 Wallops Flight Facility  
<https://www.nasa.gov/centers/wallops/home>  
 Langley Research Center <https://www.nasa.gov/langley>  
 Kennedy Space Center  
<https://www.nasa.gov/centers/kennedy/home/index.html>

### Observatories

UW Astronomy <http://www.astro.wisc.edu/>  
 Gemini <http://www.gemini.edu/>  
 WM Keck <http://www.keckobservatory.org/>  
 European Southern Observatory <https://www.eso.org/public/>  
 ESO images <https://www.eso.org/public/images/>  
 National Optical Astronomy Observatory  
[https://www.noao.edu/image\\_gallery/](https://www.noao.edu/image_gallery/)  
 National Radio Astronomy Observatory <https://public.nrao.edu/>  
 Lowell Observatory: <https://lowell.edu/>

### Observing

Clear Skies Observing Guides <https://clearskies.eu/csog/>  
 Current comets: <http://www.aerith.net/comet/weekly/current.html>  
 Fred Espanek's eclipse guide <http://mreclipse.com>  
 Upcoming and seasonal events <https://in-the-sky.org/>  
 ISS transits [transit-finder.com](https://transit-finder.com)

### Outreach organizations

Planetary Society <https://www.planetary.org/>  
 Night Sky Network from JPL/NASA <https://nightsky.jpl.nasa.gov>  
 Citizen science participation <https://cosmoquest.org>  
 NASA Solar System Ambassadors <https://solarsystem.nasa.gov/solar-system-ambassadors/events/>

### Sky calendars

<https://skyandtelescope.org/observing/sky-at-a-glance/>  
<https://astronomy.com/observing>  
 Upcoming and seasonal events <https://in-the-sky.org/>

### Spaceflight news, blogs, commercial and foreign space agencies

Earth and Sky: <https://earthsky.org/>  
 NASA blogs: <https://blogs.nasa.gov>  
 NASA Spaceflight <https://www.nasaspaceflight.com/>  
 NASA Watch <http://www.nasawatch.com>  
 Spaceflight Now <https://spaceflightnow.com/>  
 Spaceflight Insider: <https://www.spaceflightinsider.com/>  
 Space News: <https://spacenews.com/>  
 Space Weather <https://spaceweather.com/>  
 Space Journal of Asgardia (a borderless nation of space enthusiasts) <https://room.eu.com/>  
 Universe Today <https://www.universetoday.com/>

### Spaceflight: commercial and foreign space agencies

Blue Origin <https://www.blueorigin.com/>  
 Boeing <https://www.boeing.com/space/>  
 China National Space Agency : <http://www.cnsa.gov.cn/english/>  
 European Space Agency <http://www.esa.int/>  
 India space agency: <https://www.isro.gov.in/>  
 Lockheed Martin Space  
<https://www.lockheedmartin.com/en-us/capabilities/space.html>  
 Roscosmos (Russian space agency): <http://en.roscosmos.ru/>  
 Sierra Nevada Corp. <https://www.sncorp.com/space-systems/>  
 SpaceQ Canada <https://spaceq.ca/>  
 SpaceX: <https://www.spacex.com/>  
 United Launch Alliance <https://www.ulalaunch.com/>

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1418 Trillium CT  
West Bend, WI 53095  
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336 N Main Street, Apt.3  
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[joycejentges@hotmail.com](mailto:joycejentges@hotmail.com)

**Secretary - Kevin Bert**

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262-674-0610  
[kevin.bert@hotmail.com](mailto:kevin.bert@hotmail.com)

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6219 Jay St.  
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262-675-0941  
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**Observatory Director -  
Dan Bert**

1517 Green Valley Rd.  
Grafton, WI 53024  
262-357-1973  
[dbert64@gmail.com](mailto:dbert64@gmail.com)

**Mike Borchert**

3656 Willow Creek Rd.  
Colgate, WI 53017  
262-628-4098  
[gmborchert@gmail.com](mailto:gmborchert@gmail.com)

**Rick Kazmierski**

5327 Cascade Dr.  
West Bend, WI 53095  
262-305-1895  
[rickerkaz@charter.net](mailto:rickerkaz@charter.net)



NCSF is a member of the [North-Central Region of the Astronomical League](#).



NCSF supports the [International Dark Sky Association](#)

**Imaging Report: M13 and background galaxies**

In late May, I took this photo of the Hercules cluster M13 and several companions. It was taken with an 8 inch f/8 TPO RC telescope and a QHY168C camera. A total of 25 one-minute exposures were combined. M13 stands out dramatically upper right, while galaxy NGC6207 glows in the lower left and galaxy PGC2085077 is small and dim left of center. I found the distance between these three objects mind boggling.

- 50,000 light years distant: globular cluster M13
- 50,000,000 light years: spiral galaxy NGC6207
- 500,000,000 light years: spiral galaxy PGC2085077

NGC6207 is only 29 arc-minutes away from M13 and at 11<sup>th</sup> magnitude is easily visible in amateur scopes. Anyone viewing M13 should also have it on their viewing list. PGC2085077 is 16<sup>th</sup> magnitude and only visible in large scopes. I find their close proximity in the sky and disparity in distance fascinating.

Also of note are the three dark lanes in M13. I tried to find their origin on the internet but was unsuccessful. I've heard observers comment on seeing the dark lanes but have yet to see them myself. - *Rick Kazmierski*

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Editor: Ernie Mastroianni  
5821 N. Santa Monica  
Whitefish Bay, Wis 53217  
[ernie.mastroianni@gmail.com](mailto:ernie.mastroianni@gmail.com)

