

The Prairie Astronomer

August 2019 Volume 60, Issue #8

The Nebraska Star Party



Photo by Brett Boller



Night Sky Network



The Newsletter of the Prairie Astronomy Club

The Prairie Astronomer

**NEXT PAC MEETING: August 27 at 7:30pm
at Hyde Observatory**

PROGRAM

A review of the Nebraska Star Party

FUTURE PROGRAMS (Tentative)

September: "Bro do you even Telescope?" - Brian Sivill

October: Club Viewing Night

November: How to Buy a Telescope

December: Club Holiday Gathering

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The Prairie Astronomy Club:
Fifty Years of Amateur Astronomy



COMPILED AND EDITED BY MARK DAHMKE

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Astronomy Club: Fifty Years
of Amateur Astronomy.**

Order online from [Amazon](https://www.amazon.com) or
[lulu.com](https://www.lulu.com).

EVENTS

PAC Meeting

Tuesday August 27, 2019, 7:30pm

Program: NSP Review

Wildwood Star Party in NE City Sept 7th

Camp Carol Joy Howling near Ashland, Sept 20th

PAC Meeting

Tuesday September 24, 2019, 7:30pm

Lead Up Night at Hyde Observatory, October 5

Howling Halloween at Homestead Memorial in Beatrice, October 26th.

PAC Meeting

Tuesday October 29, 2019, 7:30pm

2019 STAR PARTY DATES



Photo by Brian Sivill

| | Star Party Date | Star Party Date |
|-----------|------------------------|-----------------|
| January | Dec 28 | Jan 4 |
| February | Jan 25 | Feb 1 |
| March | Mar 1 | Mar 8 |
| April | Mar 29 | Apr 5 |
| May | Apr 26 | May 31 |
| June | Jun 21 | Jun 28 |
| July | Jul 26 | Aug 2 |
| NSP | July 28 - Aug 2 | |
| August | Aug 23 | Aug 30 |
| September | Sep 20 | Sep 27 |
| October | Oct 18 | Oct 25 |
| November | Nov 22 | Nov 29 |
| December | Dec 20 | Dec 27 |

Dates in **BOLD** are closest to the New Moon.



PAC E-MAIL:

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PAC-LIST:

Subscribe through [GoogleGroups](#).
To post messages to the list, send to the address:

pac-list@googlegroups.com

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WEBSITES

- www.prairieastronomyclub.org
- <https://nightsky.jpl.nasa.gov>
- www.hydeobservatory.info
- www.nebraskastarparty.org
- www.OmahaAstro.com
- Panhandleastronomyclub.com
- www.universetoday.com/
- www.planetary.org/home/
- <http://www.darksky.org/>



Night Sky Network

The President's Message

Bob Kacvinsky

First of all THANK YOU to all who helped with the 50th Moon Landing Anniversary celebrations that PAC was involved in. The amount of enthusiasm and effort from your club throughout SE Nebraska was amazing and well appreciated.

It started with the Mahoney Star party that James Quach represented PAC along with OAS. There were 6 events running on Saturday July 20th that PAC or OAS were active in supporting. Lee Thomas, James Quach, and I attended the Astronomy Program at Morrill Hall coordinated by Zach. We set up out 3 different types of scopes and talked to many of the 385 visitors. Meanwhile Dave Churilla and Jim Kvasnicka set up their solar scopes at the NE Historical Museum to observe in conjunction with the Lead Up Program we are partnering with during this year. Honestly the museum was much more comfortable than the cement sidewalk of Centennial Mall. Thanks for everyone's help and perseverance.

On the evening of the 20th there were 3 major events. OAS participated in a star party at the SAC Museum until clouds came in. Several of us traveled to Beatrice to cover the Homestead Memorial Star party with about 75-100 people attending. We got lucky to be in a "cherry hole"

between 3 major storms that gave us over 2 hours of very good seeing and viewing of over 15 objects. It did not look good at first but about dark the skies opened up beautifully for us. We also were able to get their 3 refractor scopes set up for the museum.

Unfortunately, the storms did cancel and washout the large event at Indian Caves State Park. Thanks to the many members of PAC that volunteered to work the event. Overall in spite of the weather, travel, and logistics the face of PAC was very well represented in our communities over the weekend of celebration. This was a great weekend to help share the excitement of our hobby with the public.

We all owe a thank you and appreciation for the hard work Dave, Brian, and Brett put in as members of the NSP Board this year. NSP had over 300 attendees this year which even surpassed last year's 25th celebration. From a social and networking event, it was first class all of the way.

Unfortunately from a clear sky standpoint it proved to be a bit more of a challenge. Sunday night for about 5 hours we had some of the best skies I can remember in over 20 NSPs. Unfortunately, those 5 hours were the extent of open skies that many of us experienced.

Early Tuesday morning several were able to add a couple more hours but otherwise

it was a "pie night" type of star party. On a personal note, this was one of the most enjoyable and relational NSPs that I have attended.

This month at the August 27th club meeting please bring your NSP photos and we will share the sights of this year's NSP.

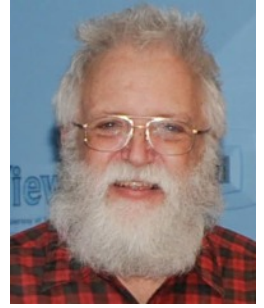
We have a number of great Outreach Events coming up in September and October including the Wildwood Star Party in NE City Sept 7th, the Camp Erin for Grieving Children at Camp Carol Joy Howling near Ashland on Sept 20th, our partnering Lead Up Night at Hyde on Oct 5th, and the Howling Halloween at Homestead Memorial in Beatrice on Oct 26th. Please join us at the next upcoming PAC meetings to learn more or sign up for any of these events.

Dark Clear Skies to you.

Bob Kacvinsky



Rick Johnson, a founding member of the Prairie Astronomy Club, passed away in January, 2019. His legacy lives on through his comprehensive catalog of over 1600 images at www.mantrapskies.com.



Arp 8/NGC 497, in the lower left corner in my image, is a spiral Arp put in his "split arm" category. It is a bit over 350 million light-years distant. His comment reads: "Bifurcated arm does not start at end of bar." That would indicate he is talking about the southeastern arm that sticks out. It is a long spur of a rather normal arm. A note at NED reads: "Peculiar broken arm on north-preceding side."

This seems to refer to the odd star clouds arranged in a rather straight line on the other side of the galaxy. The middle one is listed in some catalogs as a separate galaxy (see annotated image). NED, however, says it is part of NGC 497. One source even lists it as a quasar candidate which I find really strange. The galaxy was discovered by Edouard Stephan on November 6, 1882.

Arp 67

Arp 67/UGC 892 is located along the top right edge of the image. It is in his category for Spirals with high surface brightness companions on their arms. As I've mentioned before the majority of the galaxies he considered spirals made the atlas for companions of some sort on their arms. In most



cases, it was unknown if the two were related. Apparently, that didn't matter. The result is that some turned out to be related, some unrelated and some are still unknown like Arp 88 posted mid-September. In this case, there are two possible companions. Which was the companion Arp refers to? Apparently, both as his comment reads: "Comps. lie on inner and outer spiral arms." Redshift puts Arp 67 at about 225 million light-years. The inner arm spiral has a redshift that puts it about 3 times further at 720 million light years. The one he refers to be on the outer arm has no redshift data but appears to be an unrelated background galaxy as well. Arp 67 is odd in that the "inner arm" seems to be a very odd spur. The main arms form an oval ring. At the northeastern end of the bar an odd linear arm goes across the ring then curves around toward the distant reddish companion. The other lies more on the outer edge of the galaxy's disk rather than an arm. This arm, as well as the faint arms or plumes going out of my image at the top, may be the result of a merger with a small galaxy. This seems more reasonable than two apparently unrelated galaxies being the cause. The inner arm galaxy is SDSS J012117.42-003311.7. For some reason, the outer arm galaxy never made it into any catalog at NED but the United Kingdom automatic plate survey.

How everyone else missed it I can't fathom. It is listed in that catalog as APMUKS(BJ) B011845.66-004851.5. In both cases, the name is just the J2000 position.

There are several galaxy clusters in the image. One at about 710 million light-years that covers a major portion of my image. Another is mostly in the northwestern quadrant at 1.2 million light-years. Another is centered on an orange galaxy in the southeastern corner at a bit over 2 million light years. The anchor elliptical galaxy is located at the same position as the cluster though the two have two different listed redshifts.

More interesting are the large number of quasars and Ultraviolet Excess Sources which are likely quasars as well. Some are listed both ways, often in the Sloan survey listing. Several are over 10 billion light-years distance. One is listed as a quasar and galaxy and is only 2.5 billion light-years away. Some pure galaxies are more distant. The most distant galaxy is nearly 5 billion light-years distant. It is above center near the right edge.

4 bright asteroids are also in the image and noted on the annotated image. All are bright enough to have left colored trails as often seen in my image. So why aren't any seen? Seems this image is the product of three nights. The luminance was taken the first night. Clouds

moved in ending imaging. Over two later nights, I collected the color data, fighting clouds all the way. But by then the asteroids had moved on. New asteroids had moved into the field and sometimes did leave color trails but without a luminance trail I played God and edited them out. After 3 nights I still only had 2 red frames with the third unusable. But then the moon was in the way. I never did get a third red but one each of the green and blue was poor. With the ending signal to noise ratio about the same in all three colors, I quit trying for a third red.

Arp's image of Arp 8

http://ned.ipac.caltech.edu/level5/Arp/Figures/big_arp8.jpeg

Arp's image of Arp 67

http://ned.ipac.caltech.edu/level5/Arp/Figures/big_arp67.jpeg

September Observing: What to View

Jim Kvasnicka

This is a partial list of objects visible for the upcoming month.

Planets

Venus: Comes into view the second half of September at dusk.

Mercury: Is at superior conjunction September 3-4.

Jupiter: Dims to magnitude -2.0 with a disk 36" wide.

Saturn: At magnitude +0.5 with a disk 17" wide.

Neptune: Is at opposition on September 10th in Aquarius.

Uranus: Magnitude +5.7 in Aries.

Mars: Won't be visible until October.

Messier List

M13: The Great Hercules Cluster, Class V globular cluster.

M14: Class VIII globular cluster in Ophiuchus.

M22: Class VII globular cluster in Sagittarius.

M28: Class IV globular cluster in Sagittarius.

M54: Class III globular cluster in Sagittarius.

M69: Class III globular cluster in Sagittarius.

M70: Class IV globular cluster in Sagittarius.

M92: Class IV globular cluster in Hercules.

Last Month: M6, M7, M8, M9, M10, M12, M19, M20, M21, M23, M62, M107

Next Month: M11, M16, M17, M18, M24, M25, M26, M55, M75

NGC and other Deep Sky Objects

NGC 6826: The Blinking Planetary in Cygnus.

NGC 6905: The Blue Flash Nebula in Delphinus.

NGC 6960: Veil Nebula, Western Segment in Cygnus, use OIII filter.

NGC 6974/6979: Veil Nebula, Central Segment in Cygnus, use OIII filter.

NGC 6992/6995: Veil Nebula, Eastern Segment in Cygnus, use OIII filter.

NGC 7006: Class I globular cluster in Delphinus.

Double Star Program List

Otto Struve 525: Yellow and blue stars.

Gamma Delphinus: Yellow primary with a yellow-green secondary.

Zeta Aquarii: Yellow and white pair.

94 Aquarii: Yellow primary with a pale blue secondary.

Alpha Capricornus: Two yellow stars.

Beta Capricornus: Yellow and blue stars.

36 Ophiuchi: Yellow orange stars.

Omicron Ophiuchi: Yellow primary with a light yellow secondary.

70 Ophiuchi: Yellow and orange stars.

Challenge Object

Palomar 10: Faint globular cluster in Sagitta.



The Urban Observing Program is designed to bring amateur astronomy back to the cities and suburbs, those areas impacted by heavy light pollution. Amateur astronomy used to be called "backyard astronomy". This was before light pollution became such a problem. It's not uncommon today for a person to travel 100 miles to enjoy the hobby of astronomy.

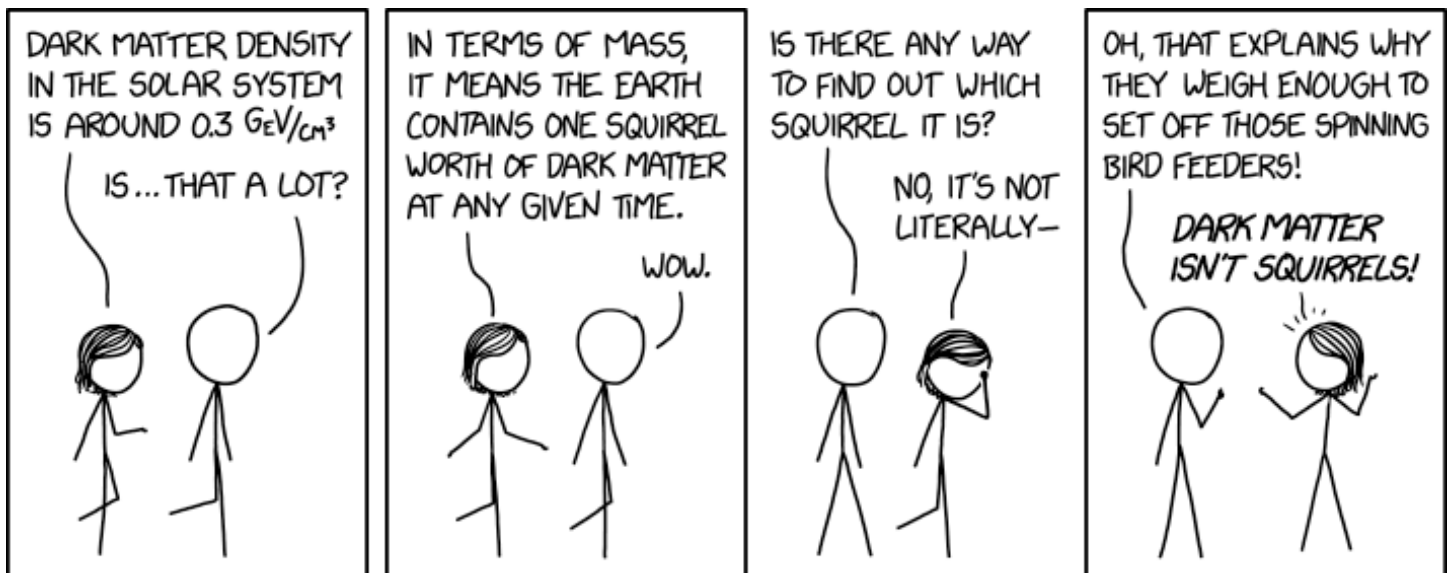
For the Urban Observing Program the observer is required to observe the 100 objects on the Urban Program list from light polluted skies. Light polluted skies are defined as any area where you cannot see the Milky Way with the naked eye. You can use any telescope to observe the objects on the list, but a 6 inch aperture is recommended. Previous observations of any of the 100 objects from dark sky locations will not count. You can use any method to find the objects including GO-TO and PUSH-TO.

To record your observations any log sheets can be used. Your logs must include the object, date, time, magnification, seeing conditions, telescope type, and observing notes.

The list of 100 objects is divided into categories, one for deep sky objects and one for double and variable stars.

When you complete the Urban Observing Program you will need to submit a copy of your observing logs to me for review. If your logs are accurate and complete I will submit your name to the Urban Observing Program chair for approval. The chair will mail to me your Urban certificate and pin which I will present to you at the next monthly PAC meeting.

If you have any questions regarding the Urban Observing Program or any other observing program, or need help getting started please contact me and I will be glad to help.



xkcd.com

The Nebraska Star Party 2019



Photos by Bob Runyan



Above: "Tumbleweed", one of John Dobson's favorite telescopes made it to the Nebraska Star Party this year.

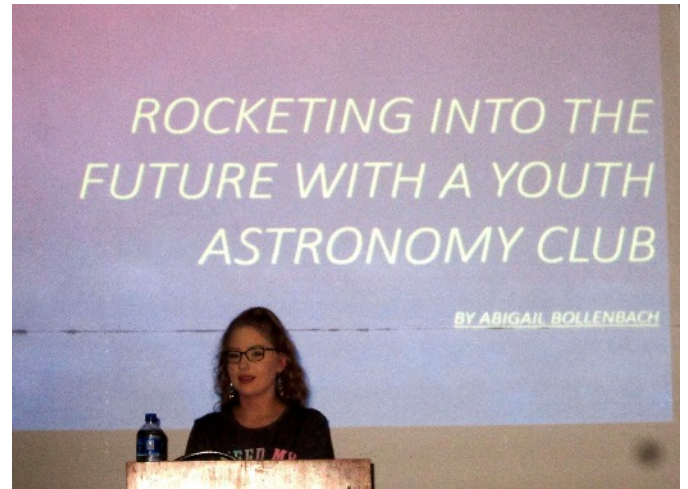


Photo by Brett Boller



Photo by Jack Dunn



Pranvera Hyseni, Jack Dunn, Martin Gaskell, Abigail Bollenbach

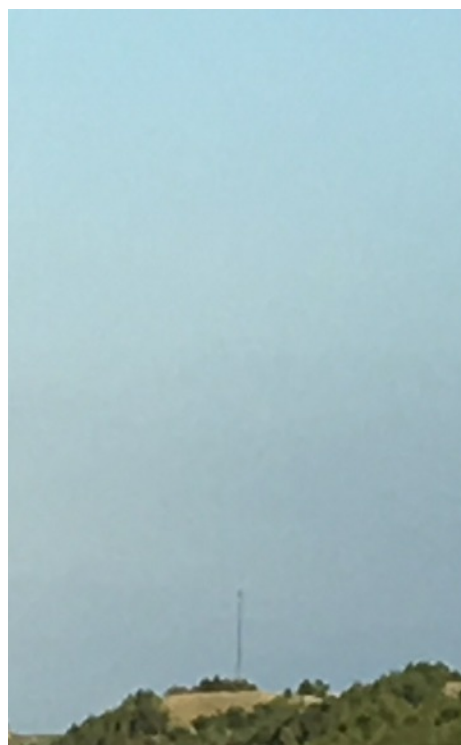


Photos by Mark Dahmke





NSP Photos by John Reinert



Photos by Dave Knisely





Waning 2.8% illuminated Moon, July 30, 5am, Chadron, NE. Mark Dahmke

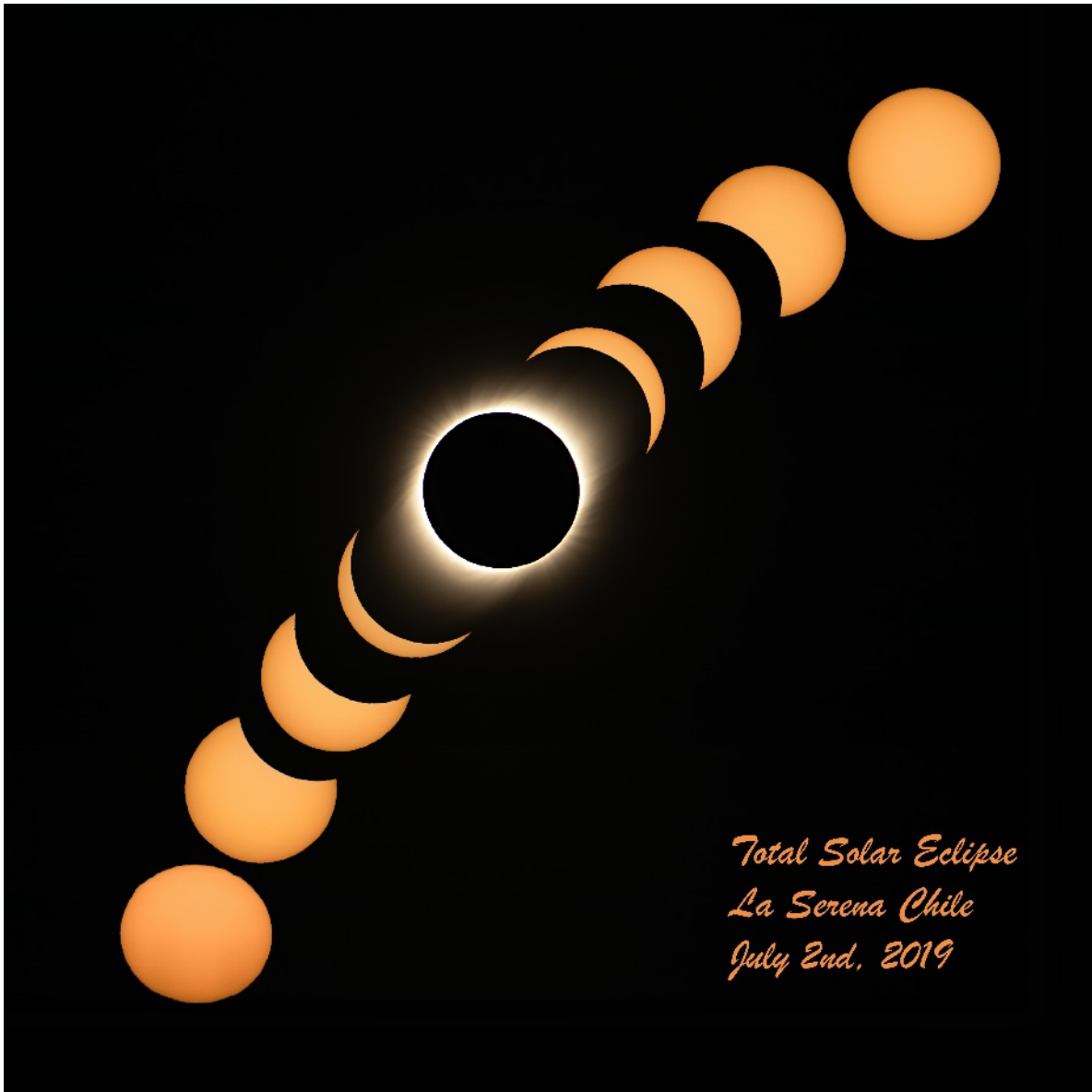
Stacked Milkyway from 6 hours of time lapse. Brett Boller





Photos by John Reinert





Photos by Brett Boller



NASA's Spitzer Spies a Perfectly Sideways Galaxy

This image from NASA's Spitzer Space Telescope might look like a lightsaber floating in space, but it's actually an entire galaxy viewed on its side.

The long red beam in the center of the image is a galaxy called NGC 5866. It lies 44 million light-years from Earth and has a diameter of roughly 60,000 light-years - a little more than half the diameter of our own Milky Way galaxy. When we think of galaxies, we often imagine massive spiral arms or thick disks of dust. But not all galaxies are oriented face-on as viewed from Earth. From our viewpoint, we see only the edge of NGC 5866, so most of its structural features are invisible.

Spitzer detects infrared light, and the red color here corresponds to an infrared wavelength typically emitted by dust. With a consistency similar to soot or thick smoke, the dust absorbs light from stars, then reemits light at longer wavelengths, including in infrared. (Materials used to make blacklight posters work via this same mechanism, by absorbing ultraviolet light and reemitting visible light.) The clean edges of the dust emission from NGC 5866 indicate that there is a very flat ring or disk of dust circling the outer region of the galaxy. Dust rings and disks sometimes form in the wake of

galaxies merging, but this galaxy lacks any sign of twists or distortions in the ring that often appear as the result of a merger.

Trying to learn about the history and shape of NGC 5866 is challenging due to its orientation. Our view of this galaxy is somewhat like our view of the Milky Way galaxy: Because Earth lies inside the Milky Way, we can see it only edge-on rather than face-on. But our proximity to the rest of the Milky Way has allowed astronomers to reconstruct what our galaxy would look like viewed face-on. Even the Sombrero galaxy, which is nearly edge-on as viewed from Earth, is tilted just enough to reveal a symmetric ring of dust around the galaxy's center. If seen perfectly edge-on, the Sombrero might look a lot like NGC 5866.

Spitzer took this image during its "cold" mission, which ended in 2009. The colors represent three infrared wavelengths captured by the Infrared Array Camera instrument. Blue light corresponds to Spitzer's observations at a wavelength of 3.6 microns, produced mainly by stars; green corresponds to 4.5 microns; and red corresponds to 8 microns. In this image, the blue haze is produced by stars that make up most of the mass of the galaxy.

More information about Spitzer is available at the following site:

https://www.nasa.gov/mission_pages/spitzer/main/index.html

A visible light image of NGC 5866 from NASA's Hubble Space Telescope at the following site:

<https://hubblesite.org/image/1933/gallery>



Galaxy NGC 5866 lies 44 million light-years from Earth and has a diameter of roughly 60,000 light-years - a little more than half the diameter of our own Milky Way galaxy. From our viewpoint, NGC 5866 is oriented almost exactly edge-on, yielding most of its structural features invisible. Credit: NASA/JPL-Caltech

At the Last Meeting

The July 28th meeting started at 7:35 p.m. with 24 members and 3 visitors present. Lee began the meeting by showing the membership the actual title to the new land. It had been about 22 months since the entire plan had gotten off the ground.

Ron Veys reported that the shaft would be covered over with dirt and that we would cement it over in September sometime. What about restrooms at the site? An out-house would probably work the best.

Keys to the site gate are \$15 per year.

Those that attended the Midstates Convention reported that the Powell Observatory is quite impressive, but that our new site was better as far as dark skies and the hard surfaced access road. We have a goldmine to work with, let's take full advantage of it!

The Annual Star Party and Picnic will be held on Saturday, August 22nd. The picnic itself will begin about 5 p.m. at Hyde Observatory, and then about 8 p.m. the group will move out to the Atlas Site for a night of observing. The picnic is pot-luck with beverages provided by the club.

Steve Myatt was in town and showed the members some pictures of the big scope in Tuscon. The evening's program was presented by Jack Dunn and concerned the recent visit by the "Star Hustler" himself!

CLUB MEMBERSHIP INFO

REGULAR MEMBER - \$30.00 per year. Includes club newsletter, and 1 vote at club meetings, plus all other standard club privileges.

FAMILY MEMBER - \$35.00 per year. Same as regular member except gets 2 votes at club meetings.

STUDENT MEMBER - \$10.00 per year with volunteer requirement.

If you renew your membership prior to your annual renewal date, you will receive a 10% discount.

Club members are also eligible for special subscription discounts on Sky & Telescope Magazine.

CLUB TELESCOPES

To check out one of the club telescopes, please contact a club officer. Scopes can be checked out at a regular club meeting and kept for one month. Checkout can be extended for another month if there are no other requests for the telescope, but you must notify a club officer in advance.

100mm Orion refractor: Available
10 inch Meade Starfinder Dobsonian: Available
13 inch Truss Dobsonian: Needs repair
10 inch Zhumell: Needs mount

CLUB APPAREL



Order club apparel from cafepress.com:



Shop through Amazon Smile to automatically donate to PAC:



CLUB OFFICERS

| | |
|-------------------------------|--|
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