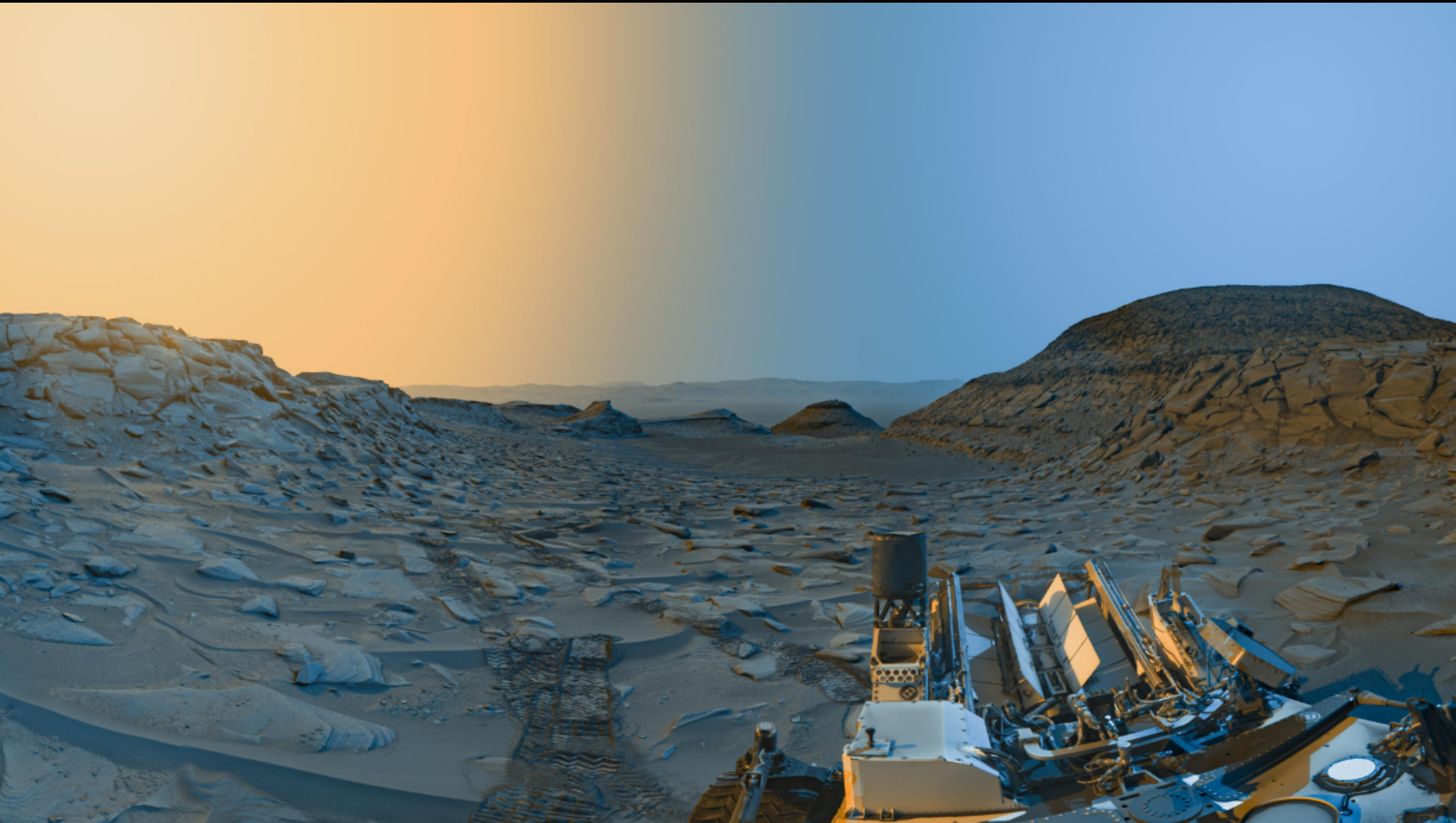


# *The Prairie Astronomer*

June 2023 Volume 64, Issue #6



## Curiosity's Postcard from Mars

**IN THIS ISSUE:** [Lazy Horse Brewery Star Party](#)  
[Cassini Data Reveals Building Block for Life in Enceladus' Ocean](#)  
[Find a Ball of Stars \(M55\)](#)



**Night Sky Network**



The Newsletter of the Prairie Astronomy Club

# *The Prairie Astronomer*



The next meeting is June 27th at 6pm at Hyde Observatory

## NEXT MEETING AND PROGRAM

Solar Star Party at Hyde Observatory.

Our June meeting is going to be at 6:00 PM, outside at Hyde, and is our annual solar observing meeting. Dave Churilla will give a short talk about solar observing if it is cloudy. If you have equipment for solar observing please feel free to bring it and share the view with others. PAC would also like to get a new club photo taken so we would like to encourage any members that can make it to please show up so that we can get a group photo outside Hyde. We will try and take the photo early so that those that may not be able to stay can still get in the photo.

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## UPCOMING PROGRAMS

July: Review and photos of the Nebraska Star Party

Cover: NASA's Curiosity Mars rover used its black-and-white navigation cameras to capture panoramas of "Marker Band Valley" at two times of day on April 8. Color was added to a combination of both panoramas for an artistic interpretation of the scene. Credit: NASA/JPL-Caltech



# CALENDAR

The PAC Calendar is now available as a [Google Calendar](#).

PAC Meeting  
 Tuesday, June 27<sup>th</sup> 6pm at Hyde Observatory  
 Solar Star Party  
 New club photo will be taken - bring your telescope!

Nebraska Star Party  
 July 16-22 at Merritt Reservoir, Valentine, Nebraska

PAC Meeting  
 Tuesday, July 25<sup>th</sup>, 6pm at Hyde Observatory  
 Review of the Nebraska Star Party

PAC Meeting  
 Tuesday, August 29<sup>th</sup> 7:30pm at Hyde Observatory

<https://www.prairieastronomyclub.org/event-calendar/>

## 2023 STAR PARTY DATES

	Date	Date
January	13	<b>20</b>
February	10	<b>17</b>
March	17	<b>24</b>
April	14	<b>21</b>
May	12	<b>19</b>
June	9	<b>16</b>
July	7	<b>14</b>
NSP	7/16	7/22
August	11	<b>18</b>
September	8	<b>15</b>
October	6	<b>13</b>
November	3	<b>10</b>
December	8	<b>15</b>

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

## CLUB OFFICERS

President	Jason O’Flaherty jflaher@gmail.com
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Secretary	Jim White jrwhite2188@gmail.com
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Outreach Coordinator	Christine Parkyn cpparkyn@gmail.com
Website and Newsletter Editor	Mark Dahmke mark@dahmke.com

Night Sky Network



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

# 30th Annual Nebraska Star Party

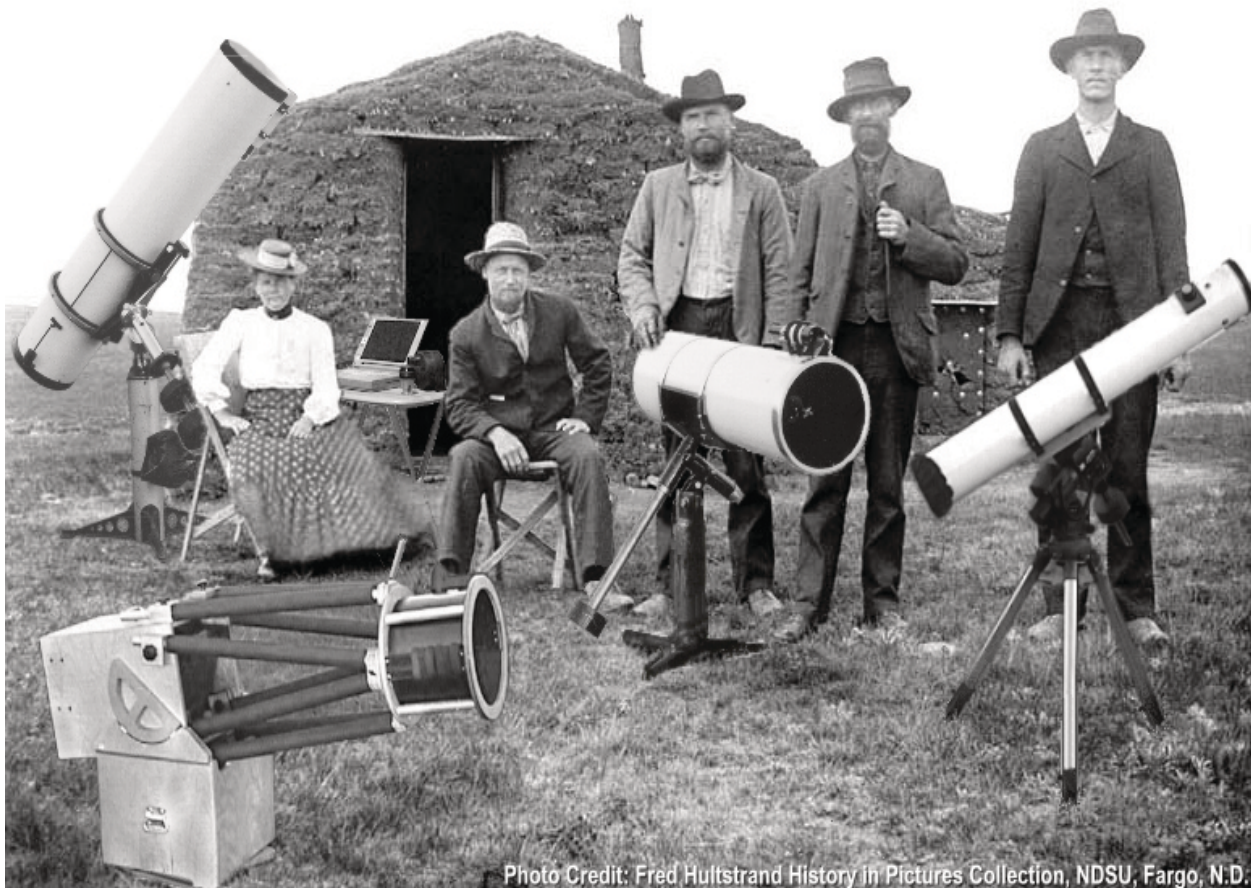


Photo Credit: Fred Hultstrand History in Pictures Collection, NDSU, Fargo, N.D.

Join us this summer as families from all over the US and around the world gather in the sparsely populated sand hills of North Central Nebraska to spend a good week under a galaxy of stars.

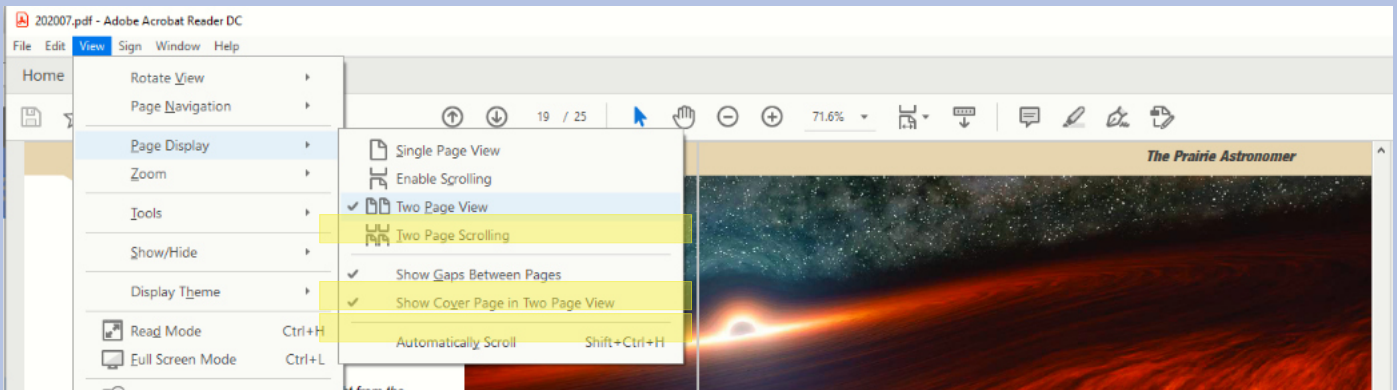
**July 16-22 at Merritt Reservoir, Valentine,  
Nebraska**

[Online Registration is now open](#)

# Notices

## New Newsletter Format

### How to Adjust Adobe Acrobat Settings for Two Page View



To view this newsletter in magazine spread format in Acrobat, select View ->Page Display->Two Page View. Acrobat will then show two pages side by side. Also make sure the checkboxes “Show Cover Page in Two Page View” and “Show Gaps Between Pages” are checked. If you have it setup correctly, the cover page will be displayed by itself and subsequent pages will be side by side with the odd numbered pages on the left.

## PAC Newsletter Archive

Back issues of the *Prairie Astronomer* from 1962 to present are available online:  
<https://newsletters.prairieastronomyclub.org/>

## Pay Dues Online

<https://www.prairieastronomyclub.org/pay-dues-online/>

*If you're already a member and are renewing within 30 days of your anniversary date, select the early renewal option for a discount.*

## PAC-LIST

*Subscribe through [GoogleGroups](#) or contact Mark Dahmke to be added to the list. You'll need a Google/gmail account, but if you want to use a different email address, just associate that address with your google account to access Google Groups. Once subscribed, you can view message history through the GoogleGroups website.*

*To post messages to the list, send to this address: [pac-list@googlegroups.com](mailto:pac-list@googlegroups.com)*

## The President's Message

Jason O'Flaherty

Dear fellow stargazers and astronomy enthusiasts,

I hope this letter finds you all in good health and high spirits. I want to express my sincere gratitude to everyone who attended our last meeting. The hotdog feed was a great success, and seeing such a good turnout was terrific. Your presence and enthusiasm made the event truly enjoyable.

A special thank you goes out to Bob Kacvinsky for his informative

demonstration of NASA's Eyes on the Solar System website. Those who missed it can explore this fascinating resource at <https://eyes.nasa.gov/apps/solar-system/#/> home. It's a treasure trove of information about our solar system, and I highly recommend checking it out.

Now, let's move on to our next meeting, which will take place at 6 p.m. on Tuesday the 27th. At the risk of redundancy, I want to mention again that we will take a new



club photo at this meeting. I encourage everyone to bring their telescopes or binoculars for this special occasion. Once the photo session is complete, we'll gather on the lawn for some solar observation. And speaking of special events, I'll also celebrate my upcoming birthday by bringing some birthday cake.

Please note that this meeting will be informal and not have a



Zoom component. Regardless of the weather, we will proceed with the meeting. In the event of rain, we'll relocate indoors for a small presentation on solar observation.

Looking ahead, mark your calendars for our July meeting, which will return to its regular time slot at 7:30 on July 25th. This meeting will be dedicated to sharing photos and videos from the Nebraska Star Party (NSP) and any other captivating captures you have made over the

summer. If you have astronomy-related photos, videos, or drawings you'd like to showcase, please send them to me at [jason@oflaherty.com](mailto:jason@oflaherty.com). Include a list of any people featured in the pictures and a brief description, so we can fully appreciate each submission.

Lastly, I encourage you all to share any ideas for future presenters. If there's a topic or a guest speaker you'd like to see at our club meetings, please get in touch with

Bill Lohrberg at [wmlohrberg89@gmail.com](mailto:wmlohrberg89@gmail.com) or me.

Thank you once again for your continued support and participation. Together, we are making our astronomy club a vibrant and enriching community. I look forward to seeing you at the upcoming meeting.

Clear skies and warm regards,

Jason O'Flaherty



# ARP 56

## *The Mantrap Skies Image Catalog*

Arp 56 is in Arp's class: Spiral Galaxies with Companions on Arms: Small, high surface brightness companions. It is considered an M51 type system by some. Also, known as UGC 1432, it is located in western Aries. From its very small size, you might think it very distant but it is "only" 350 million light years distant by redshift measurement. I measure the system as being about 90,000 light-years across thanks to the drawn-out arm. Ignoring the arm it is still a respectable 70,000 light-years across. Some papers refer to the bright spot on the end of the arm as a knot. Its color is different from the galaxy so I suspect it is a separate object. While likely it is the cause of the arm I can't find any redshift data for it nor any catalog entry for it.

NED has only one other galaxy's redshift noted in the field. It looks more like a star. Go west (right) from the knot and very slightly down. It is the first object you come to. Quite dim with an even dimmer object just to its left. A smaller, fainter version of a brighter pair a bit further west. It is the IR galaxy 2MASSi





## **Rick Johnson**

*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](http://www.mantrapskies.com).*



# ARP56, continued.

J0157210+171248. While very faint in visible light it is 13th magnitude in the infrared K filter. Visible light runs from 4000um (very violet) to about 7000um (deep red). K filters are centered at

22000um or about 3 magnitudes redder than our eyes can see. In my image, it is about 21st magnitude! It is a Seyfert 1 galaxy about 2.6 billion light-years distant. The handful of galaxies NED identifies

in the image are all IR galaxies like this one. None have distance or magnitude estimates. Arp made no comment about his one.

**BIENVENUE EN LOUISIANE! (WELCOME TO LOUISIANA!)**

Join us for this unique and exciting amateur astronomy gathering!



**July 26–29, 2023**

Hilton Baton Rouge  
Capitol Center Hotel  
201 Lafayette Street  
Baton Rouge, LA 70801

## ALCON 2023



### KEYNOTE SPEAKERS

- ★ David Eicher—writer, editor-in-chief of *Astronomy Magazine*
- ★ Fred Espenak—co-author of *Totality: The Great American Eclipses of 2017 and 2024*
- ★ David Levy—author, comet hunter

### FIELD TRIPS

- ★ Irene Pennington Planetarium
  - ★ LIGO (Laser Interferometer Gravitational-Wave Observatory) Livingston\*
  - ★ Louisiana State University Physics & Astronomy
  - ★ Highland Road Park Observatory
- \*Spaces are limited for this trip!

**SPEAKERS** ★ Pranvera Hyseni ★ Guy Consolmagno ★ Dan Davis ★ And many more!

Brought to Baton Rouge by the **Baton Rouge Astronomical Society**

★★ Registration is now open! Check [alcon2023.org](http://alcon2023.org) ★★



## Welcome New Members!

Mike Kofski, Dale and Louise Billings, Alex Michalak

## Observing Awards

Congratulations to Bob Kacvinsky for completing the Herschel II Observing Program. Bob is the first PAC member to complete the Herschel II Observing Program, and this is the eleventh observing program Bob has completed. Bob also received the Master Observer Award in 2018.

## Outreach Opportunities

*Christine Parkyn*

Thanks to all who supported our recent outreach events in April! Below are upcoming outreach events. To volunteer to support an event, let Christine Parkyn know at [cpparky@gmail.com](mailto:cpparky@gmail.com).

Constellation Talk/Stargazing: July 25, 2023 at Camp Carol Joy Holling from 10:30 to 11:30 p.m., Have 1 volunteer; would like 2-3 more.

Stargazing for Camp Erin Johnson: September 22, 2023 at Carol Joy Holling from 9:00 to 10:00 p.m. Need 4 volunteers

## Refreshed Websites for PAC Newsletters and Mantrap Skies Catalog

Mark Dahmke has completed a rewrite of the code for both the PAC newsletter archive and Rick Johnson's Mantrap Skies Object Catalog. They can be found at:

<https://images.mantrapskies.com/>

<https://newsletters.prairieastronomyclub.org/>

# Focus on Observing Programs

*Jim Kvasnicka*

## Globular Cluster Observing Program

The Globular Cluster Observing Program is designed to introduce you to some of the finest globular clusters in the sky. You can use any telescope but an 8 inch scope is recommended. This program is meant to allow you to enjoy comparing different globular clusters to each other, not to test your equipment.

To perform the Globular Cluster Observing Program you will need to purchase the Guide to the Globular Cluster Observing Program from the AL Bookstore on line. The guide was specifically written to support this observing program. The cost for the guide is \$14.00 dollars.

The observing guide explains in detail the Regular and Challenge Observing Lists. There are 190 galactic and extra-galactic globular clusters included in the guide.

This program is more than just observing globular clusters. You need to apply a concentration classification to each globular cluster you observe. The concentration classification is called the Shapley-Sawyer Concentration Class. The guide provides reference pictures of globular clusters and their concentration class.

For the Globular Cluster Observing Program the observer is required to observe 50 globular clusters with at least one globular cluster from the challenge list. You can choose any 50 globular clusters that you want to

observe. The majority of the globular clusters in the Milky Way are located near the galactic center, which means the summer is the best time to do the program. In just the three constellations Scorpius, Ophiuchus, and Sagittarius there are 56 globular clusters with a magnitude of 12.5 or brighter. If you wanted you can complete this program fairly quickly.

The usual data is required by the Astronomical League for your observing logs along with your estimate for the concentration class for each globular cluster observed. Since you will be comparing globular clusters all observations should be made with the same telescope and magnification. You can use any method to find the objects including GO-TO and PUSH-TO.

When you complete the Globular Cluster 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 Globular Cluster Observing Program chair for approval. The chair will mail to me your Globular Cluster certificate and pin which I will present to you at our monthly PAC meeting.

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

# July Observing

*Jim Kvasnicka*

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

## Planets

Mercury: Evening planet, poorly positioned to see.

Venus: Evening at magnitude -4.7, thin crescent. Sets before the Sun by month's end.

Mars: Low in the West in the evening. In Leo at magnitude +1.8.

Jupiter: Morning planet in Aries at magnitude -2.4.

Saturn: Morning planet in Aquarius at magnitude +0.6.

Uranus and Neptune: Morning planets in Aries and Pisces.

## Messier List

M3: Class VI globular cluster in Canes Venatici.

M4: Class IX globular cluster in Scorpius.

M5: Class V globular cluster in Serpens Caput.

M53: Class V globular cluster in Coma Berenices.

M68: Class X globular cluster in Hydra.

M80: Class II globular cluster in Scorpius.

M83: Galaxy in Hydra.

Last Month: M58, M59, M60, M84, M86, M87, M88, M89, M90, M91, M98, M99, M100

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



NGC and other Deep Sky Objects

NGC 6210: Blue colored planetary nebula in Hercules.

NGC 6229: Class IV globular cluster in Hercules.

NGC 6302: The Bug Nebula in Scorpius.

NGC 6309: Planetary nebula in Ophiuchus.

NGC 6369: The Little Ghost Nebula in Ophiuchus.

NGC 6543: The Cat's Eye Nebula in Draco.

IC 4703: The Eagle Nebula in Serpens, M16 is the open cluster embedded in the nebula.

## Double Star Program List

Nu Draconis: Equal pair of white stars.

Psi Draconis: Pair of light-yellow stars.

40/41 Draconis: Equal pair of light-yellow stars.

Xi Scorpii: Yellow primary with a light blue secondary.

Struve 1999: Two yellow-orange stars.

Beta Scorpii: Bluish white primary with a light blue secondary.

Nu Scorpii: Yellow and light blue pair.

Delta Serpentis: Light yellow stars.

Theta Serpentis: Two blue-white stars.

## Challenge Object

NGC 6144: Faint Class XI globular cluster just 40' NW of Antares.

# Lazy Horse Brewery Star Party

*Dave Knisely*

What goes well with Pizza and Beer? TELESCOPES OF COURSE!! Yup, on Friday evening, May 26th (after indulging in some good food and drink), several members of the Prairie Astronomy Club provided views of the moon, Venus, double

stars, and a few deep-sky objects to patrons at the "Lazy Horse Brewery & Vineyard", located about two and a half miles south of Ohiowa, Nebraska (45 miles west-northwest of Beatrice). We had about six telescopes that club members brought and

maybe between 100 and 200 visitors who got to look through our scopes. It was a rewarding evening (and the venue was yet another reason to think about doing outreach activities once in a while).



# Lazy Horse Brewery Star Party Photos



## Cassini Data Reveals Building Block for Life in Enceladus' Ocean

Phosphorus, a key chemical element for many biological processes, has been found in icy grains emitted by the small moon and is likely abundant in its subsurface ocean.

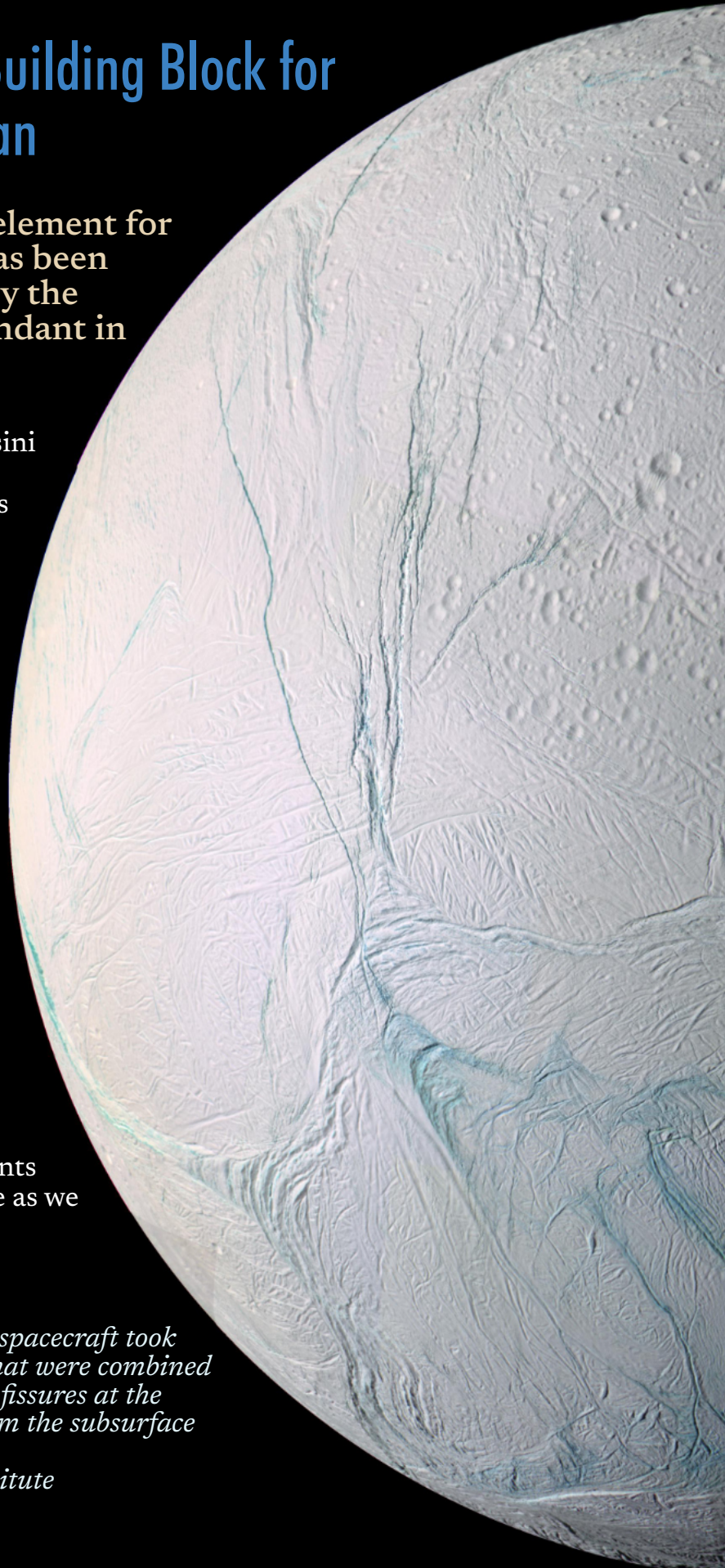
Using data collected by NASA's Cassini mission, an international team of scientists has discovered phosphorus – an essential chemical element for life – locked inside salt-rich ice grains ejected into space from Enceladus.

The small moon is known to possess a subsurface ocean, and water from that ocean erupts through cracks in Enceladus' icy crust as geysers at its south pole, creating a plume. The plume then feeds Saturn's E ring (a faint ring outside of the brighter main rings) with icy particles.

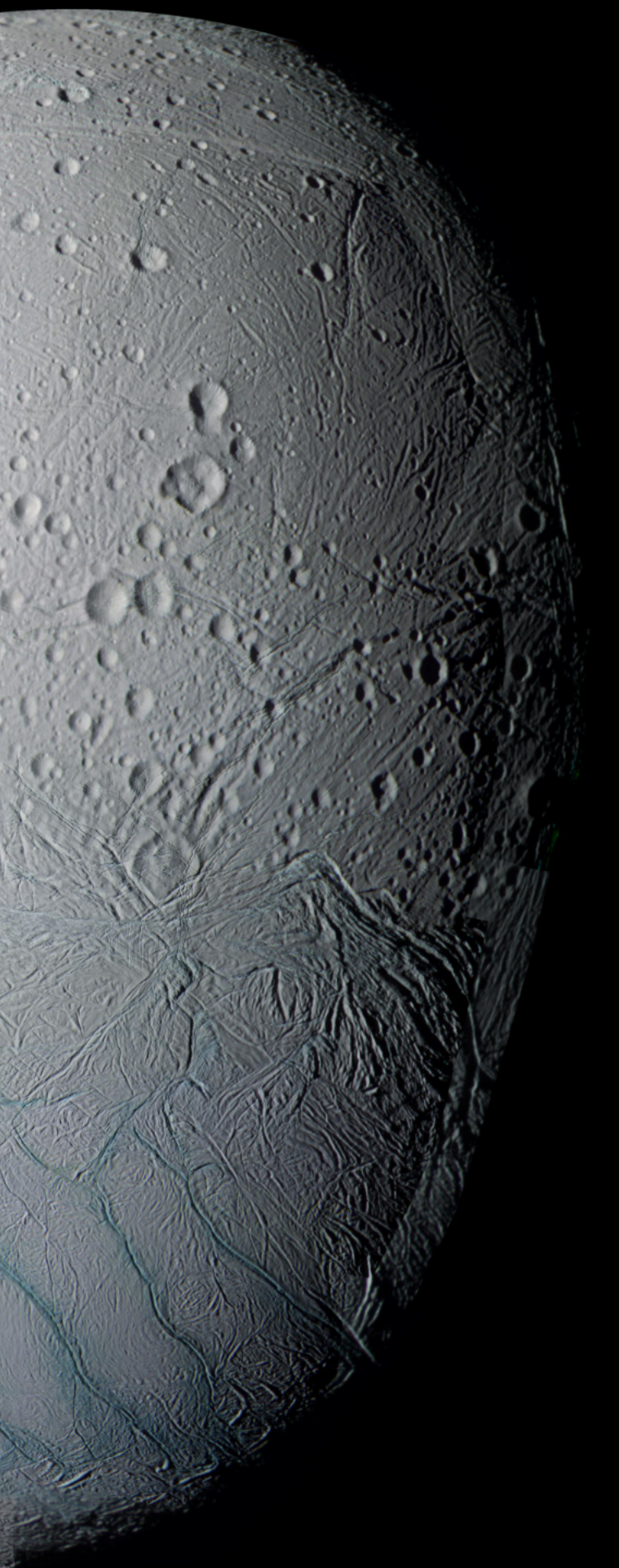
During its mission at the gas giant from 2004 to 2017, Cassini flew through the plume and E ring numerous times. Scientists found that Enceladus' ice grains contain a rich array of minerals and organic compounds – including the ingredients for amino acids – associated with life as we know it.

*During a 2005 flyby, NASA's Cassini spacecraft took high-resolution images of Enceladus that were combined into this mosaic, which shows the long fissures at the moon's south pole that allow water from the subsurface ocean to escape into space.*

*Credit: NASA/JPL/Space Science Institute*







## Cassini, continued.

Phosphorus, the least abundant of the essential elements necessary for biological processes, hadn't been detected until now. The element is a building block for DNA, which forms chromosomes and carries genetic information, and is present in the bones of mammals, cell membranes, and ocean-dwelling plankton. Phosphorus is also a fundamental part of energy-carrying molecules present in all life on Earth. Life wouldn't be possible without it.

“We previously found that Enceladus’ ocean is rich in a variety of organic compounds,” said Frank Postberg, a planetary scientist at Freie Universität Berlin, Germany, who led the new study, published on Wednesday, June 14, in the journal *Nature*. “But now, this new result reveals the clear chemical signature of substantial amounts of phosphorus salts inside icy particles ejected into space by the small moon’s plume. It’s the first time this essential element has been discovered in an ocean beyond Earth.”

Previous analysis of Enceladus’ ice grains revealed concentrations of sodium, potassium, chlorine, and carbonate-containing compounds, and computer modeling suggested the subsurface ocean is of moderate alkalinity – all factors that favor habitable conditions.

### Enceladus and Beyond

For this latest study, the authors accessed the data through NASA’s Planetary Data System, a long-term archive of digital data products returned

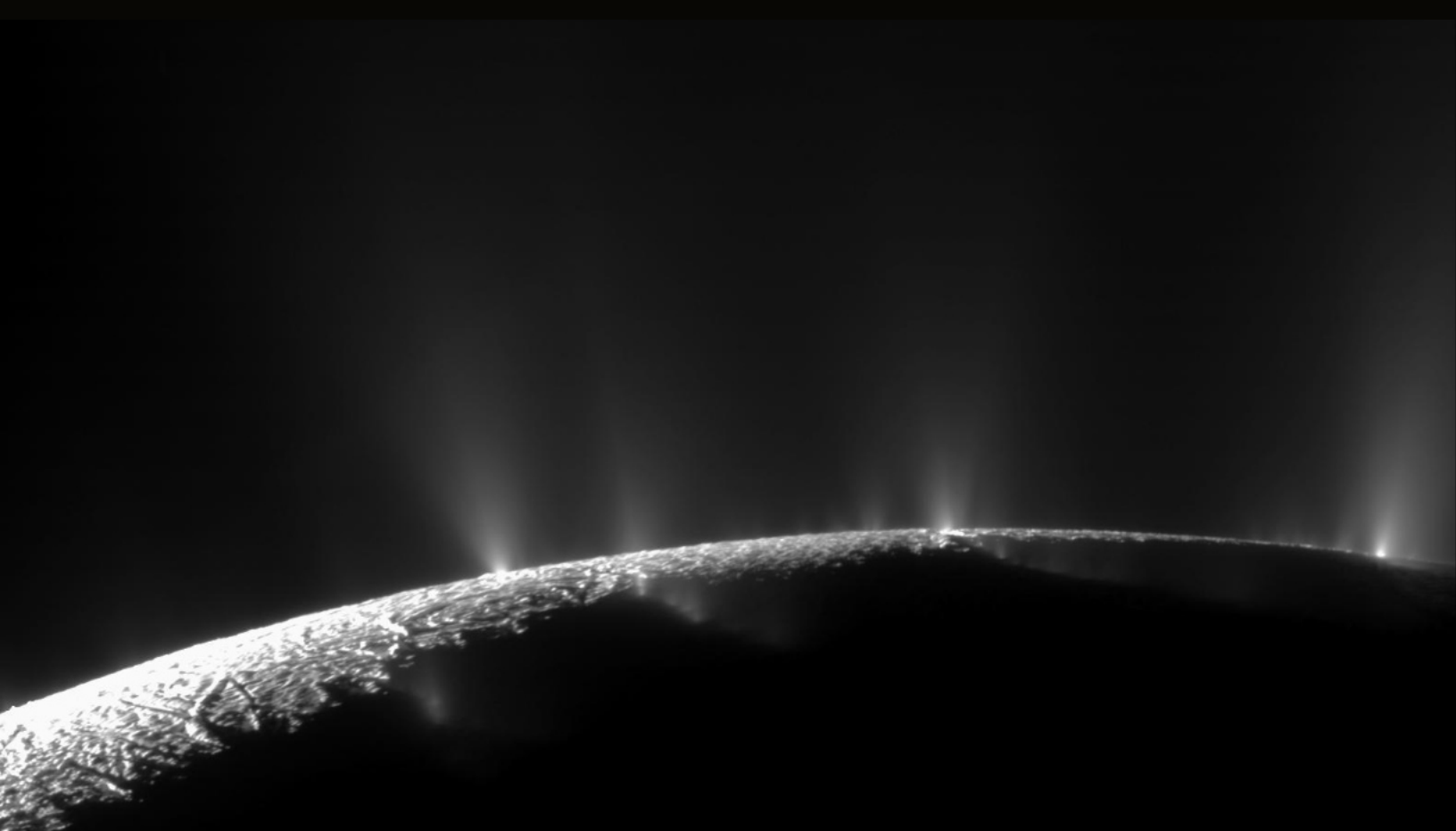
## Cassini, continued.

from the agency's planetary missions. The archive is actively managed by planetary scientists to help ensure its usefulness and usability by the worldwide planetary science community.

The authors focused on data collected by

Cassini's Cosmic Dust Analyzer instrument when it sampled icy particles from Enceladus in Saturn's E ring. Many more ice particles were analyzed when Cassini flew through the E ring than when it went through just the plume, so the scientists were able to

examine a much larger number of compositional signals there. By doing this, they discovered high concentrations of sodium phosphates – molecules of chemically bound sodium, oxygen, hydrogen, and phosphorus – inside some of those grains.



*The icy crust at the south pole of Enceladus exhibits large fissures that allow water from the subsurface ocean to spray into space as geysers, forming a plume of icy particles. NASA's Cassini spacecraft, which captured this imagery in 2009, sampled those particles to reveal the chemicals contained in the ocean. Credit: NASA/JPL-Caltech/Space Science Institute.*

## Cassini, continued.

Co-authors in Europe and Japan then carried out laboratory experiments to show that Enceladus' ocean has phosphorus, bound inside different water-soluble forms of phosphate, in concentrations of at least 100 times that of our planet's oceans. Further geochemical modeling by the team demonstrated that an abundance of phosphate may also be possible in other icy ocean worlds in the outer solar system, particularly those that formed from primordial ice containing carbon dioxide, and where liquid water has easy access to rocks.

“High phosphate concentrations are a result of interactions between carbonate-rich liquid water and rocky minerals on Enceladus' ocean floor and may also occur on a number of other ocean worlds,” said co-investigator Christopher Glein, a planetary scientist and geochemist at Southwest Research Institute in San Antonio, Texas. “This

key ingredient could be abundant enough to potentially support life in Enceladus' ocean; this is a stunning discovery for astrobiology.”

Although the science team is excited that Enceladus has the building blocks for life, Glein stressed that life has not been found on the moon – or anywhere else in the solar system beyond Earth: “Having the ingredients is necessary, but they may not be sufficient for an extraterrestrial

environment to host life. Whether life could have originated in Enceladus' ocean remains an open question.”

Cassini's mission came to an end in 2017, with the spacecraft burning up in Saturn's atmosphere, but the trove of data it collected will continue to be a rich resource for decades to come. When it was launched, Cassini's mission was to explore Saturn, its rings, and moons. The flagship mission's array of



*Seen as a bright arc in this 2006 observation by Cassini, Saturn's E ring is fed with icy particles from Enceladus' plume, creating wispy fingers of bright material that is backlit by the Sun. The shadowed hemisphere of the moon can be seen as a dark ... Credit: NASA/JPL/Space Science Institute*

## Cassini, continued.

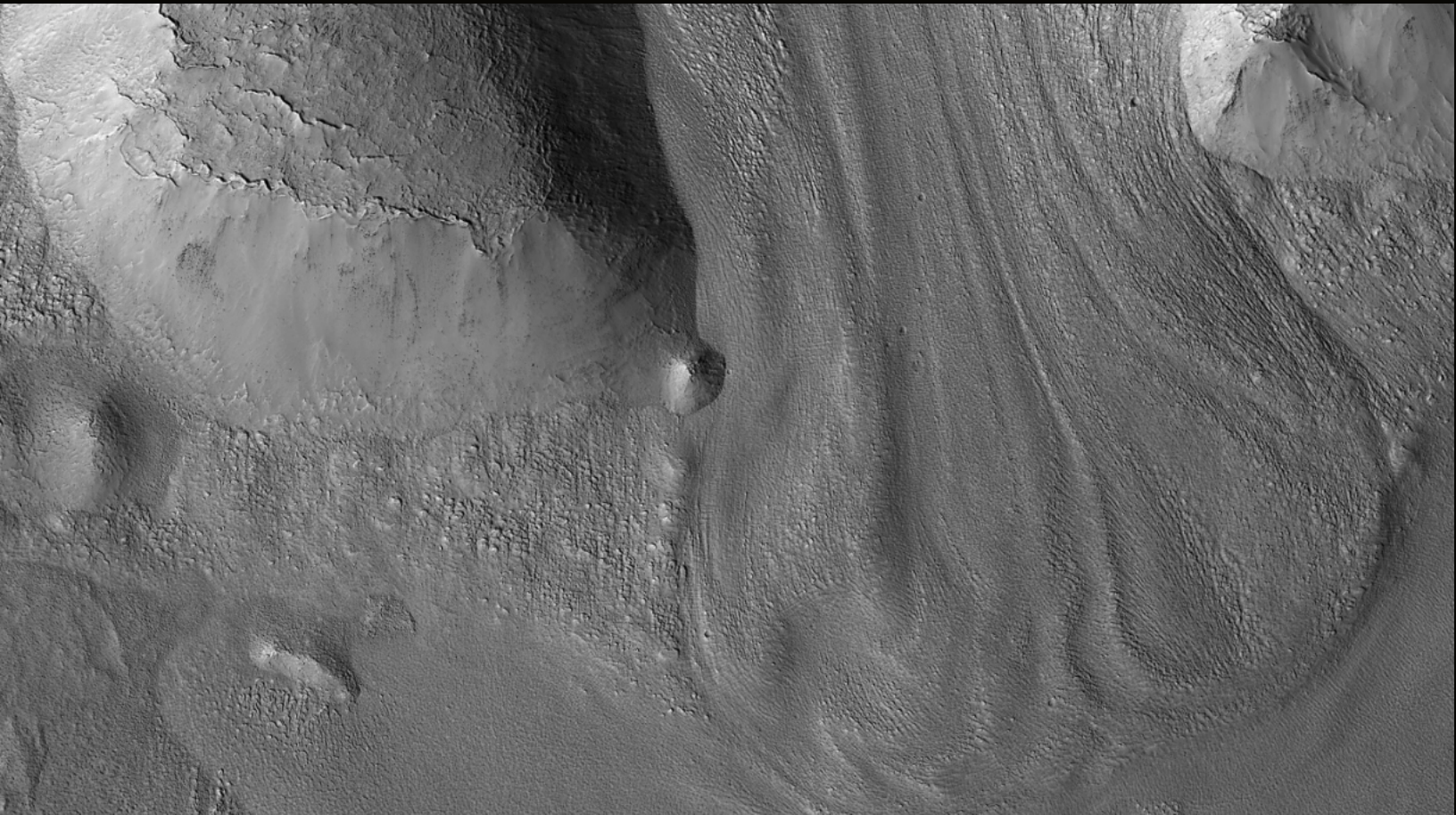
instruments ended up making discoveries that continue to impact far more than planetary science.

“This latest discovery of phosphorus in Enceladus’ subsurface ocean has set the stage for what the habitability potential might be for

the other icy ocean worlds throughout the solar system,” said Linda Spilker, Cassini’s project scientist at NASA’s Jet Propulsion Laboratory in Southern California, who was not involved in the study. “Now that we know so many of the ingredients

for life are out there, the question becomes: Is there life beyond Earth, perhaps in our own solar system? I feel that Cassini’s enduring legacy will inspire future missions that might, eventually, answer that very question.”

## Glacier-like Features on Mars



*There are many locations in the mid-latitudes of Mars that look like material has flowed. This image shows an example flowing downhill between two ridges. Comparing these to what we see on the Earth and to other information we have about Mars leads sc... Credit: NASA/JPL-Caltech/University of Arizona*

# Astrophotography *Jim White*



*Jim White 2023*

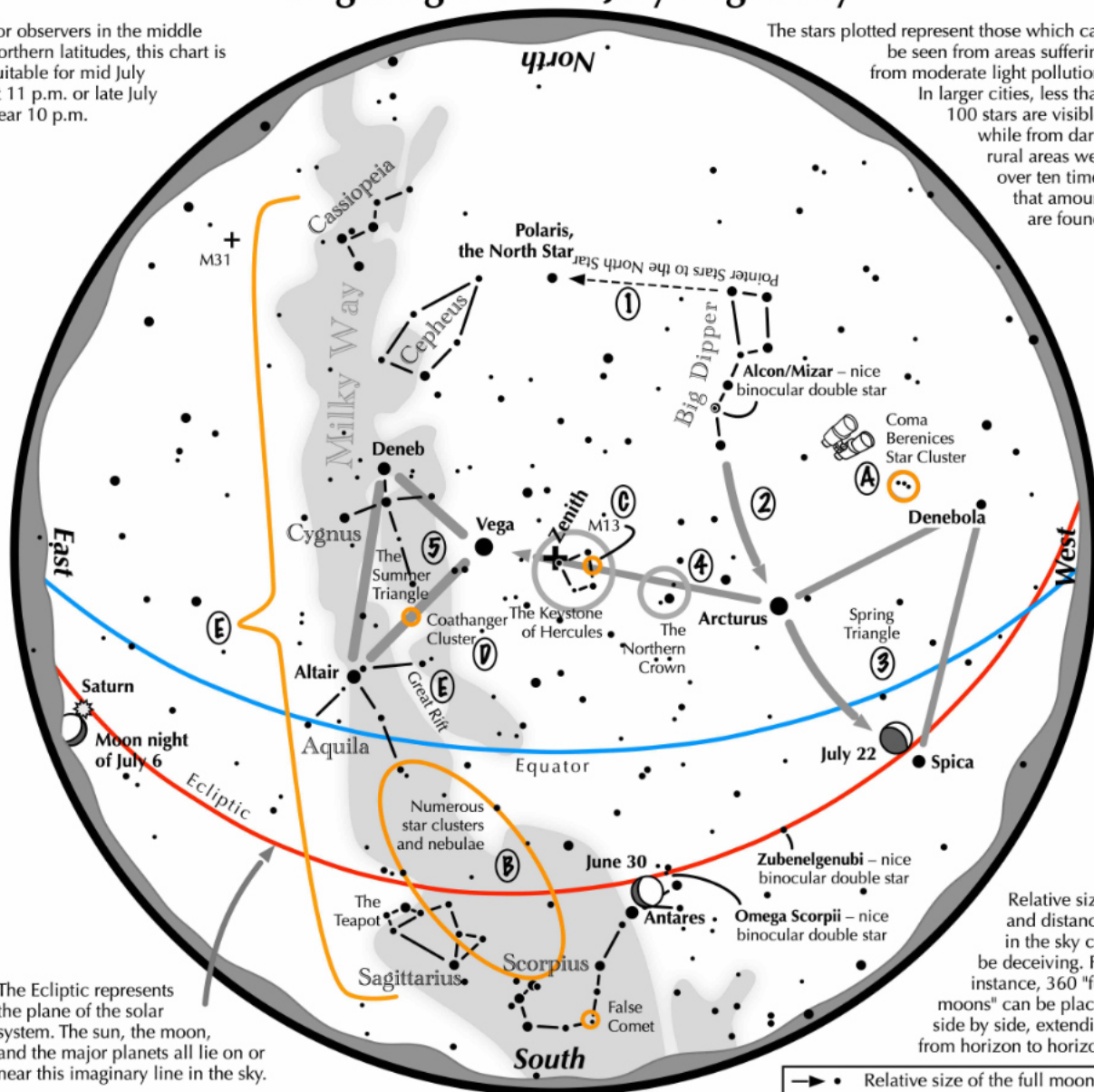
*The Needle Galaxy, NGC 4565, May 20, 2023*

*Telescope: Celestron 925 EdgeHD, Mount Celestron CGX, Celestron OAG, ZWO ASI174MM Mini guide camera, ASI2400MC Pro imaging camera. Software included CPWI, PHD2, N.I.N.A. and Stellarium for mount and camera control and PixInsight and Lightroom for processing the picture. The picture is the result of 25 3 minute exposures and approximately 20 dark frames, 20 flat frames, 20 bias frames and 20 dark flat frames.*

## Navigating the mid July Night Sky

For observers in the middle northern latitudes, this chart is suitable for mid July at 11 p.m. or late July near 10 p.m.

The stars plotted represent those which can be seen from areas suffering from moderate light pollution. In larger cities, less than 100 stars are visible, while from dark, rural areas well over ten times that amount are found.



The ecliptic represents the plane of the solar system. The sun, the moon, and the major planets all lie on or near this imaginary line in the sky.

Relative sizes and distances in the sky can be deceiving. For instance, 360 "full moons" can be placed side by side, extending from horizon to horizon.

→ • Relative size of the full moon.

### Navigating the mid July night sky: Simply start with what you know or with what you can easily find.

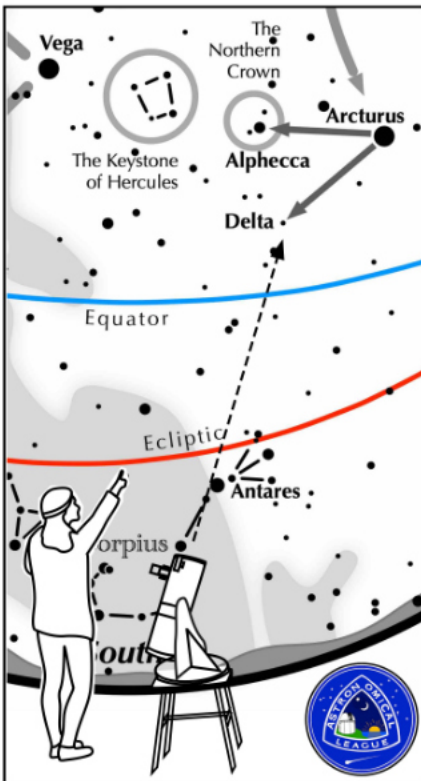
- 1 Extend a line north from the two stars at the tip of the Big Dipper's bowl. It passes by Polaris, the North Star.
- 2 Follow the arc of the Dipper's handle. It first intersects Arcturus, the brightest star in the July evening sky, then continues to Spica. Arcturus, Spica, and Denebola form the Spring Triangle, a large equilateral triangle.
- 3 To the northeast of Arcturus shines another star of similar brightness, Vega. Draw a line from Arcturus to Vega. It first meets "The Northern Crown," then the "Keystone of Hercules." A dark sky is needed to see these two dim stellar configurations.
- 4
- 5 High in the East lies the Summer Triangle stars of Vega, Altair, and Deneb.

#### Binocular Highlights

- A: Between Denebola and the tip of the Big Dipper's handle, lie the stars of the Coma Berenices Star Cluster.
- B: Between the bright stars Antares and Altair, hides an area containing many star clusters and nebulae.
- C: On the western side of the Keystone glows the Great Hercules Cluster, containing nearly 1 million stars.
- D: 40% of the way between Altair and Vega, twinkles the "Coathanger," a group of stars outlining a coathanger.
- E: Sweep along the Milky Way for an astounding number of faint glows and dark bays, including the Great Rift.



## ASTRONOMICAL LEAGUE Double Star Challenge



### Other Suns: Delta Serpentis

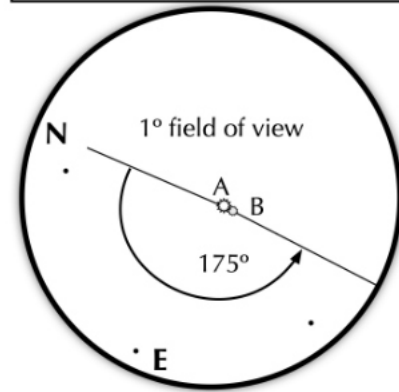
#### How to find Delta Serpentis on a July evening

Find bright Arcturus, nearly overhead. To its northeast is a similarly bright star, Vega. One-third the distance between the two is Alpha Centauri. Delta Serpentis lies the same distance from Arcturus as Alpha Centauri, but to the southeast.

#### Delta Serpentis

A-B separation: 4 sec  
 A magnitude: 4.2  
 B magnitude: 5.2  
 Position Angle: 175°  
 A & B colors: white

Suggested magnification: >60x  
 Suggested aperture: >3 inches



### Otros Soles: Delta Serpentis

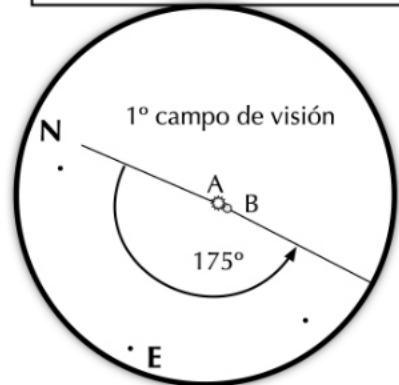
#### Cómo encontrar Delta Serpentis en una tarde de julio

Encuentra Arturo brillante, casi arriba. Al noreste hay una estrella igualmente brillante, Vega. Un tercio de la distancia entre los dos es Alpha Centauri. Delta Serpentis se encuentra a la misma distancia de Arturo que Alpha Centauri, pero al sureste.

#### Delta Serpentis

A-B separación: 4 sec  
 A magnitud: 4.2  
 B magnitud: 5.2  
 PA: 175°  
 A & B color: blanca

Ampliación sugerida: >60x  
 Apertura sugerida: >75 mm



# Find a Ball of Stars

Linda Shore, Ed.D



*This article is distributed by NASA's Night Sky Network (NSN). The NSN program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit [nightsky.jpl.nasa.gov](http://nightsky.jpl.nasa.gov) to find local clubs, events, and more!*

French astronomer Charles Messier cataloged over 100 fuzzy spots in the night sky in the 18th century while searching for comets – smudges that didn't move past the background stars so couldn't be comets. Too faint to be clearly seen using telescopes of the era, these objects were later identified as nebulas, distant galaxies, and star clusters as optics improved. Messier traveled the world to make his observations, assembling the descriptions and locations of all the objects he found in his Catalog of Nebulae and Star Clusters. Messier's work was critical to astronomers who came after him who relied on his catalog to study these little mysteries in the night sky, and not mistake them for comets.

Most easily spotted from the Southern Hemisphere, this “faint

fuzzy” was first cataloged by another French astronomer, Nicholas Louis de Lacaille in 1752 from Southern Africa. After searching many years in vain through the atmospheric haze and light pollution of Paris, Charles Messier finally added it to his catalog in July of 1778. Identified as Messier 55 (M55), this large, diffuse object can be hard to distinguish unless it's well above the horizon and viewed far from city lights.

But July is great month for getting your own glimpse of M55 – especially if you live in the southern half of the US (or south of 39°N latitude). Also known as the “Summer Rose Star,” M55 will reach its highest point in northern hemisphere skies in mid-July. Looking towards the south with a pair of binoculars well after sunset, search for a dim (mag 6.3) cluster of

stars below the handle of the “teapot” of the constellation Sagittarius. This loose collection of stars appears about 2/3 as large as the full Moon. A small telescope may resolve the individual stars, but M55 lacks the dense core of stars found in most globular clusters. With binoculars, let your eyes wander the “steam” coming from the teapot-shaped Sagittarius (actually the plane of the Milky Way Galaxy) to find many more nebulas and clusters.

As optics improved, this fuzzy patch was discovered to be a globular cluster of over 100,000 stars that formed more than 12 billion years ago, early in the history of the Universe. Located 20,000 light years from Earth, this ball of ancient stars has a diameter of 100 light years. Recently, NASA released a magnificent

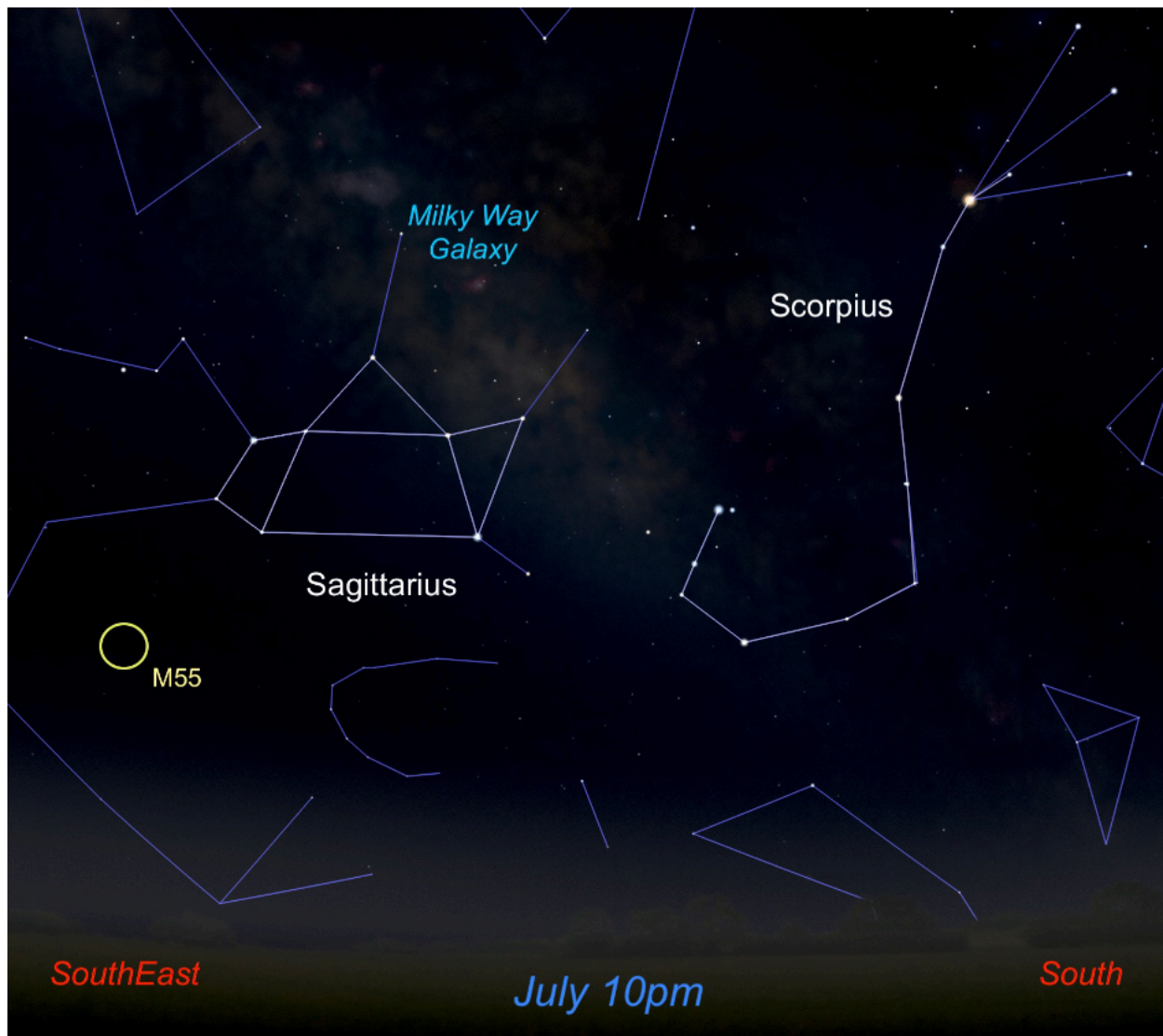


## Find a Ball of Stars, continued.

image of M55 from the Hubble Space Telescope, revealing just a small portion of the larger cluster. This is an image that Charles Messier could only dream of and would have marveled at! By

observing high above the Earth's atmosphere, Hubble reveals stars inside the cluster impossible to resolve from ground-based telescopes. The spectacular colors in this image correspond

to the surface temperatures of the stars; red stars being cooler than the white ones; white stars being cooler than the blue ones. These stars help us learn more about the early Universe.



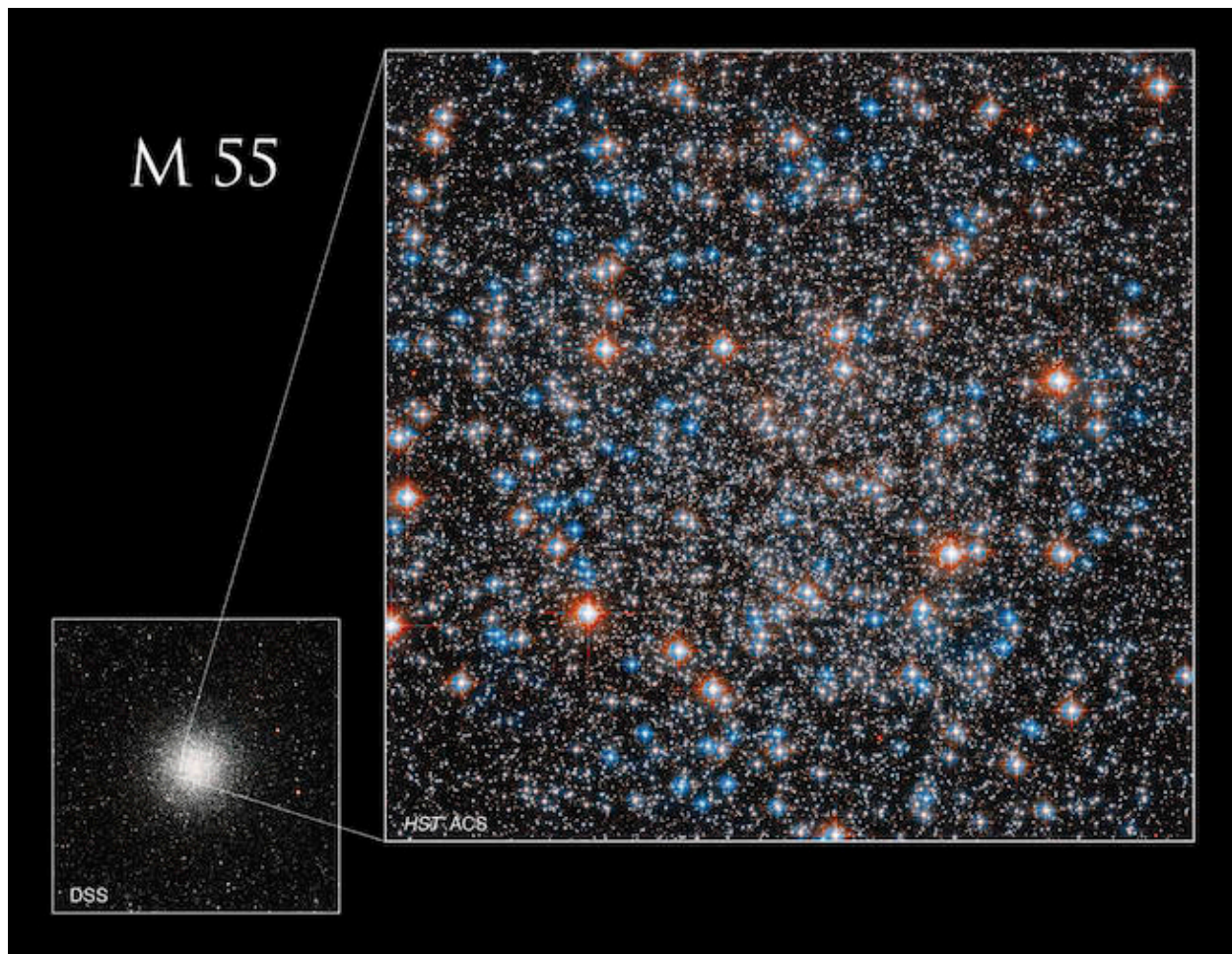
*Look to the south in July and August to see the teapot asterism of Sagittarius. Below the handle you'll see a faint smudge of M55 through binoculars. More "faint fuzzies" can be found in the steam of the Milky Way, appearing to rise up from the kettle*  
 Image created with assistance from Stellarium: [stellarium.org](http://stellarium.org)

## Find a Ball of Stars, continued.

Discover even more:  
<https://www.nasa.gov/feature/goddard/2023/hubble-messier-55>

The Hubble Space Telescope has captured magnificent images of most of Messier's objects. Explore them all:

<https://www.nasa.gov/content/goddard/hubble-s-messier-catalog/>



*The large image shows just the central portion of M55 taken by the Hubble Space Telescope. Above Earth's atmosphere, this magnificent view resolves many individual stars in this cluster. How many can you count through binoculars or a backyard telescope?*

*Original Image and Credits: NASA, ESA, A. Sarajedini (Florida Atlantic University), and M. Libralato (STScI, ESA, JWST); Smaller image: Digital Sky Survey; Image Processing: Gladys Kober*

# From the Archives

June, 1981

## *And What a Fine Convention It Was!*

Over 150 people from as far away as St. Louis, Missouri, attended the Mid-States Regional Astronomical League Convention in Lincoln June 5-6-7.

Registration began at Noon on Friday, with delegates milling through the convention displays at Olin Hall, a great many of which were contributed by the Prairie Astronomy Club.

Friday night, the crowd moved to Hyde Observatory where guided tours, slide shows, and a general star party with telescopes set up on the lawn was accompanied by the usual murky Nebraska summer skies. All day Saturday, the paper sessions were held, topped off by an especially effervescent talk by the irrepressible Bob Cox. Saturday night's dinner was followed by an awards ceremony, and brief reports from each of the clubs present on their

respective activities. (It became clear from these reports that the Prairie Astronomy Club is more than holding its own in the depth and breadth of the activities offered to its members.)

Saturday night, the throng headed for Behlen Observatory at Mead where billows of dust were raised to deposit on the mirror of the 30-inch telescope. (Ed Schmidt says he isn't worried—it's always like that!)

Dr. Donald Taylor, who had delivered a fascinating Keynote Address recounting some of his personal experiences as both

amateur and professional astronomer, devised an observing contest in which telescopes were aimed at a mysterious object, the winner being that person who most accurately described what he saw through the eyepiece. George Allen of Omaha won First Place, and our own Ron Veys and Marc Cherry tied for Second Place. Some hangers-on were reportedly still peering through the gathering clouds at 4:00 a.m. Sunday morning.



## 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

Buy the book! The Prairie Astronomy Club: Fifty Years of Amateur Astronomy. Order online from Amazon or [lulu.com](http://lulu.com).

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