NOVA

THE OFFICIAL PUBLICATION OF THE SALT LAKE ASTRONOMICAL SOCIETY

HOME OF SALT LAKE CITY, UTAH'S OBSERVATIONAL ASTRONOMERS AND ASTROPHOTOGRAPHERS

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JUL/AUG 2024

SLAS

SALT LAKE ASTRONOMICAL SOCIETY

ASTRONOMICAL LEAGUE

SLASBROCHURE.pdf

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https://www.facebook.com/groups/SLAS.Talk/

https://www.facebook.com/UtahStarParty

https://www.facebook.com/UtahSPOC

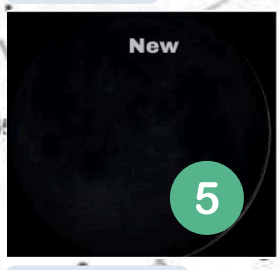
SLAS.US

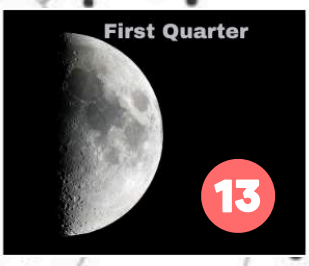
MOON PHASES

SOURCE: MOONPHASES.ORG

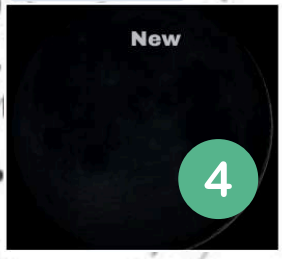
Utah, (Calculated Time Zone: America/Denver (MST), GMT-07:00)

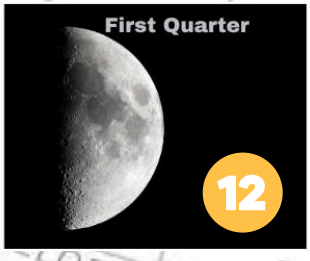
JULY 2024

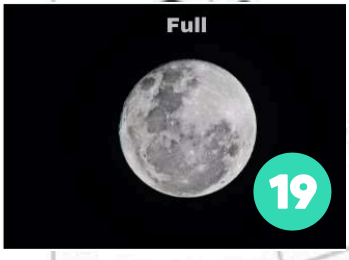




AUGUST 2024

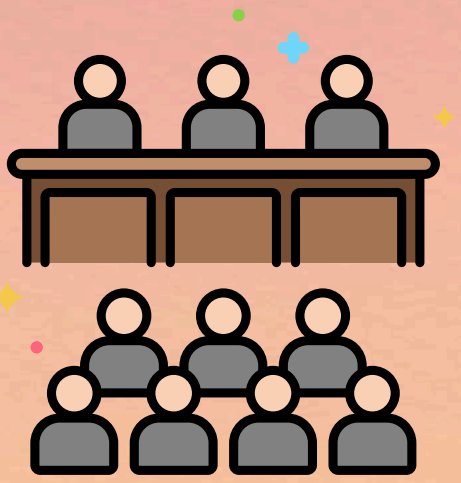






SLAS OFFICERS

SLAS Board of Directors



President: Don Abernathy

Vice President: Aleta Cox

Secretary/Treasurer: Krista Lemoine

Board Members at Large: Trevor Hebditch *and Marlene Egger*

Appointed Positions

Astronomical League Contact: *Aleta Cox*

Equipment Manager: Trevor Hebditch and Aleta Cox

Library Loaner Telescope Coordinator: Joan Carman

Historian: *Patrick Wiggins*

NASA Night Sky Ambassador: Krista Lemoine

Nova Newsletter Editor: *Jenette Scott*

Observatory Director: *Jim Keane*

Private Star Party Coordinator: *Don Colton*

Solar Party Coordinator: *Louis Maez*

Webmaster: *Ken Warner*

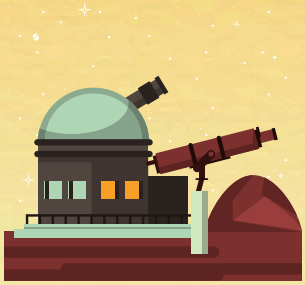
ZAP Grant Writer: *Jim Keane*

SPOC Advisory Committee

Chair: *Jim Keane*

Members: Don Abernathy, *Bob Moore, Patrick Wiggins, Luke Moses, Jim Keane, John Drabik, Leslie Fowler, Bill Kennedy.*

Members As Obser. Dir. Emeritus: Bruce Grim, Rodger Fry.



SPOC Telescope Instruction Coordinators

Bogdan Refractor: *Marlene Egger* **Ealing**: *Jim Keane* **Grim**: *Rodger Fry* **Clements**: *Leslie Fowler*

Contact board: board@slas.us **contact editor: astrobug3027@gmail.com**

SLAS EVENTS PAGE

Come to a
Star Party!!
www.slas.us

SLAS
SALT LAKE ASTRONOMICAL SOCIETY

The Salt Lake Astronomical Society invites you to join us at a FREE public Star Party or Sun Party! Enjoy views of the Sun, Moon, Planets, Stars, Nebulae, and Galaxies through some of Utah's largest telescopes.

2024 Star & Sun Party Schedule & Locations

APR 20th SPOC*
APR 27th Sun Party- Winchester Park (6400 S. 1100 West)
MAY 11th SPOC*
MAY 17th SL Co. Library **Taylorsville Branch**
4870 S. 2700 West, Taylorsville, UT
MAY 18th SPOC*
MAY 25th Sun Party- Winchester Park (6400 S. 1100 West)
JUN 1st SPOC*
JUN 5-8th Bryce Canyon Astronomy Festival
JUN 14th SL Co. Library **South Jordan Branch**
10673 S. Redwood Rd., South Jordan, UT
JUN 15th SPOC*
JUN 22nd Sun Party- Winchester Park (6400 S. 1100 West)
JUN 29th SPOC*
JUL 12th SL Co. Library **Granite Branch**
3331 So. 500 East, South Salt Lake, UT
JUL 13th SPOC*
JUL17-20th Astronomical League Convention- Kansas City
JUL 20th Sun Party- Winchester Park (6400 S. 1100 West)
JUL 27th SPOC*
AUG 9th SL Co. Library **Riverton Branch**
12877 So. 1830 W., Riverton, UT
(accessible from Redwood Road is easier to find)
AUG 10th SPOC* Stansbury Days
AUG 17th Sun Party- Winchester Park (6400 S. 1100 West)
AUG 24th SPOC*
SEP 7th SPOC*
SEP 13th SL Co. Library **Herriman Branch**
5380 W. Herriman Main St., Herriman, UT
SEP 14th SPOC*
SEP 21st Sun Party- Winchester Park (6400 S. 1100 West)
OCT 11th SL Co. Library **Holladay Branch**
2150 E. Murray-Holladay Rd., Holladay, UT
OCT 12th SPOC*
OCT 19th Sun Party- Winchester Park (6400 S. 1100 West)
OCT 26th SPOC* (final star party of the year)

*Stansbury Park Observatory Complex

Star Parties run from Dusk until:
10 PM in Apr, May, Sept, Oct
11 PM in Jun, Jul, Aug,
Sun Parties are from 9AM – Noon.

All Sun & Star Parties are Weather Permitting.
See you under a clear Sky

General Meeting Information

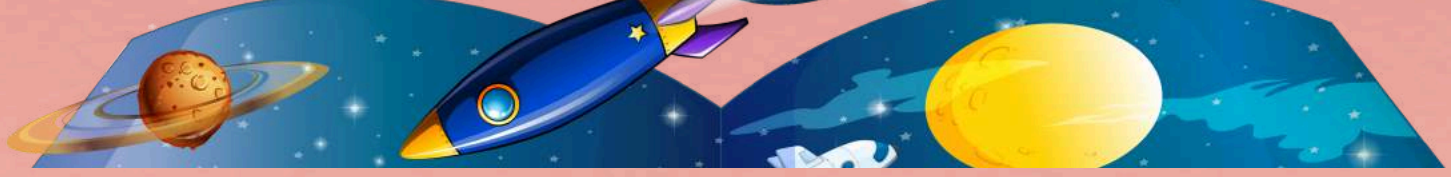
BOARD MEETINGS ARE FOR SLAS BOARD MEMBERS AND ARE OPEN TO ANY MEMBER OF SLAS TO ATTEND. PLEASE NOTE THAT ONLY BOARD MEMBERS MAY VOTE AT BOARD MEETINGS. BOARD MEETINGS TAKE PLACE ON THE 2ND WEDNESDAY OF EACH MONTH AT 7:30 PM LOCATED AT THE DENNY'S RESTAURANT ON 1701 WEST NORTH TEMPLE STREET
SALT LAKE CITY, UTAH 84116
(WE MEET IN THE BACK MEETING ROOM)

GENERAL MEETINGS FOR SLAS MEMBERS TAKE PLACE ON THE 3RD WEDNESDAY OF EACH MONTH (WITH THE EXCEPTION OF DECEMBER WHEN THE SOLSTICE PARTY AT THE BEGINNING OF DECEMBER TAKES THE PLACE OF THE GENERAL MEETING) AT 7:30 PM LOCATED AT ROOM TB104, RAMPTON TECHNOLOGY BUILDING,
SALT LAKE COMMUNITY COLLEGE
REDWOOD ROAD CAMPUS PARKING IS ACROSS THE STREET TO THE NORTH OF THE BUILDING IN PARKING LOT 'R'. GENERAL MEETINGS ARE OPEN TO THE PUBLIC.

- **July 10**- Board Meeting
- **July 17**- General Meeting
- **Aug 14** -Board Meeting
- **Aug 21**- General Meeting

Please see the info above for the place and time for meetings as well as the webpage: slas.us for more information.

PLEASE NOTE: Zoom is no longer available for these meetings unless the guest speaker is joining us virtually.



SLAS General Meeting Guest Speakers

July 17, 2024

Richard Wolff-Jacobson

Bio:
Richard is a software engineer and hobbyist designer with a passion for astronomy, vintage electronics and unusual form factor computers. He's been observing the night sky for over 30 years with various commercial and home-built scopes, but still often feels like a beginner.

Presentation:
"PiFinder: Improving the Observing Experience through Community and Innovation."

This presentation will explore the journey of the PiFinder over the past two years, highlighting the incredible community engagement and the resulting improvements that have made the PiFinder a valuable tool for me and other amateur astronomers. Starting with a bit of background about the PiFinder and what spawned it, we'll delve into the collaborative efforts that have driven the project's growth, the role of user feedback, and explore how the PiFinder not only enhanced my observing sessions but also connected me to a vibrant, knowledgeable community passionate about astronomy.

August 21, 2024

Dr. Rob Zellem, PhD, MSc

Roman Space Telescope Deputy Project Scientist for Communications
Exoplanet Watch Project Scientist
Exoplanets and Stellar Astrophysics Laboratory (667)

Bio:

Dr. Rob Zellem is an astrophysicist at NASA's Goddard Space Flight Center. Rob is the Deputy Project Scientist for Communications for NASA's Nancy Grace Roman Space Telescope where he is the primary liaison between the Roman Project Science team and Goddard's Office of Communications. He is also a member of the Roman Coronagraph Project Science team where he led the development of the science calibration plan.

Presentation:

"The Nancy Grace Roman Space Telescope: NASA's Next Flagship Mission"

The Nancy Grace Roman Space Telescope, formerly WFIRST, was the top-ranked large space mission in the Astro2010 Decadal Survey. It will obtain a wide-field survey of the sky and observe exoplanets. The survey will cover a region of more than 2,000 square degrees at near-infrared (0.6-2 microns) wavelengths. The Roman Space Telescope will employ three independent techniques to determine the effect of dark energy on the evolution of the universe. The mission will also collect statistics on exoplanets around a large sample of stars and will directly detect exoplanets with a coronograph. In addition, The Roman Space Telescope will survey our galaxy and others nearby to answer key questions about their formation and structure and provide constraints on how galaxies grow.

Proposal for SLAS Annual Star Party to be Voted on at the July 2024 General Meeting

Hello SLAS members!

At the June SLAS general meeting, I presented a proposal for SLAS to host its own amateur astronomer-focused annual star party in one of Utah's dark-sky locations. This email serves as a detailed follow-up to that proposal, explaining what is involved and how we can get this initiative up and running. As this decision requires a membership vote, this information aims to provide SLAS members with all the details needed to make an informed decision.

Purpose and Benefits

The proposal to create an SLAS annual dark-sky star party is an innovative event designed to support SLAS both fiscally and structurally, benefit members, increase membership, and serve the amateur astronomy community at large. This initiative also aims to ensure the society's sustainability for the foreseeable future.

Addressing Light Pollution

SPOC is facing increasing light pollution each year, presenting challenges that SLAS must address to preserve the observatory's night sky. Hosting an annual star party at a different dark-sky site will allow us to focus on our own members and also nonmembers to enjoy an opportunity to enjoy the dark skies that we are known for in Utah.

Event Goals

The primary goal of the annual dark-sky star party is to foster a sense of community under the dark skies we all cherish, while propelling and sustaining the society and its amateur astronomers into the future. While the event will be open to the public for registration, it will remain a private event, with only registered attendees allowed to camp and enjoy the offerings.

Event Details

Attendee Capacity:
We anticipate hosting 300+ attendees, with potential for expansion based on venue capacity. The event will be held at a dark-sky location, such as a state park or BLM recreation area, where attendees can enjoy views of the Milky Way and deep sky objects. The exact venue will be determined once a planning committee is established.

Amenities and Activities:
We plan to offer several amenities, including:

- Food Trucks: Offering a variety of menu options, catering into the night (preferably until midnight or later).
- Guest Speakers: Presentations on topics such as solar astronomy, astrophotography, astrophysics, catering to various levels of expertise.
- Raffle Prizes:

Tickets would be awarded to everyone, with prizes ranging from star atlases to eyepieces, sourced from donations and club supplies. No additional tickets would be allowed to be purchased per Utah laws.

- Youth Programs: Daily activities using Night Sky Network kits to promote educational growth and imagination in children.
- Solar Observing Sessions: Open to all attendees, with potential for a solar astrophotography tutorial based on interest.
- Vendors: Opportunities for attendees to purchase equipment and other items from on-site vendors.

Timing:
Based on a recent survey, July/August emerged as the preferred timeframe for hosting the star party. These months offer longer nights and warmer temperatures, while avoiding conflicts with other star parties. Ideally, the event would be scheduled one new moon cycle ahead of the Great Basin Star Festival.

Registration and Fees:
Registration will be required to attend the star party, with fees helping to offset SLAS's costs. The average ticket price for similar events across the United States ranges from $60-$100, which will cover camping fees, food trucks, clean-up costs, materials, and other expenditures. Registration will open several months before the event via a dedicated website with a PayPal link.

Organizational Structure

Committee Formation:
To launch this annual star party, we will need to form a dedicated committee, separate from the ASTROCON 2025 committee and the SLAS Board. Each committee member will have a specific role, including handling food vendors, merchandise, the raffle, website management, and signage.

Volunteer Participation:
Volunteers will be critical in the star party's success. Preliminary survey results indicate that 77% of respondents are willing to serve on the star party committee. This volunteer base will be crucial in bringing the event together. All volunteers are welcome.

Planning and Execution:
The committee will present logos and names for SLAS members to vote on, apply for event hosting permits with BLM or Utah DNR, and coordinate all necessary logistics, including t-shirt and signage production, event rules, and more. Initial upfront costs are estimated at $6000, subject to change.

Conclusion

For SLAS, this star party represents a significant opportunity. It will provide the means to upgrade our existing facilities, purchase new equipment, and maintain current assets. Our facilities will be able to run smoothly for our local parties and events for years to come.

An annual dark-sky star party often leads attendees to join the hosting astronomy club and volunteer to help with future events, as occurs with the Cherry Springs, PA star party, which I helped to organize in the past. This would increase membership numbers, thereby increasing dues and the budget available for further improvements.

Moreover, the event has the potential to enhance SLAS's footprint in Utah and garner recognition from prominent astronomical organizations. Potential features in Sky & Telescope, articles in KSL, coordination with Clark Planetarium, and partnerships with NASA/JPL are all within reach. This would further SLAS's prominence in the state, nation, and beyond.

Thank you for considering this proposal. I look forward to your feedback and support in making the SLAS annual dark-sky star party a reality.

Max

Say Hello to Our New Members!

Boyd Bellows

Cameron Berg

Craig Bertson

Mason Cook

Talmage Egan

Scott Hadzik

Ron Jones

Lester Keller

At SLAS, we are observational astronomers who:

Promote astronomy

Encourage public education and interest

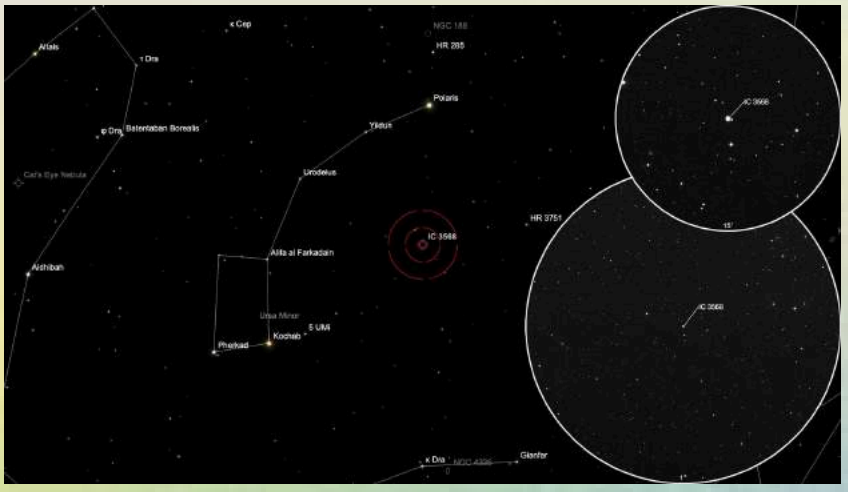
Coordinate activities with professional research

Featured Astronomical Object

Planetary Nebula
IC 3568
Lemon Slice Nebula

IC 3568 is an example of a round planetary nebula with a bright inner shell and fainter, smooth, circular outer envelope. The Lemon slice nebula is one of the most simple nebulae known, with an almost perfectly spherical shape. It appears very similar to a lemon for which it is named. The central star is a very hot and bright Red Giant, and can be seen as a red-orange hue.

IC 3568 lies in the constellation Camelopardalis at a distance of about 9,000 light-years.



"Required equipment:
Large scope Reflector/SCT over 6 inches; refractor over 4 inches
Extend the line from NGC 188 through Polaris for twice the distance again to arrive at the planetary nebula IC 3568 in Camelopardalis. This has a visual magnitude of +10.6. It best suits larger apertures over 300mm in diameter.

IC 3568 appears nicely concentrated through the eyepiece; there's a bright inner core approximately 12 arcseconds across with a an outer halo extending to 20 arcseconds."
(Source: https://www.skyatnightmagazine.com/advice/skills/deep-sky-objects-polaris)

"The Lemon Slice Nebula is a planetary nebula located approximately 4,500 light-years away in the constellation Camelopardalis. It lies in the region of the north celestial pole, only 7.5 degrees from Polaris. It has the designation IC 3568 in the Index Catalogue.

IC 3568 has an apparent magnitude of 12.3 and an apparent size of 0.350 by 0.315 arcminutes. It is a young nebula with a core diameter of only 0.4 light-years. While this is about 800 times the size of the solar system, it indicates that the gaseous layers expelled from the central star have not had much time to expand. The nebula is composed of less than 1 solar mass of material ejected over the past several thousand years.

In images, the inner region of IC 3568 resembles a sliced lemon, which is how the nebula got its popular nickname. The resemblance was reinforced in a false colour Hubble image released in December 1997."
(Source: https://www.constellation-guide.com/lemon-slice-nebula-ic-3568/)

May 10-11, 2024 Aurora!!

Photo Credit: Max Byerly, Knolls, Utah

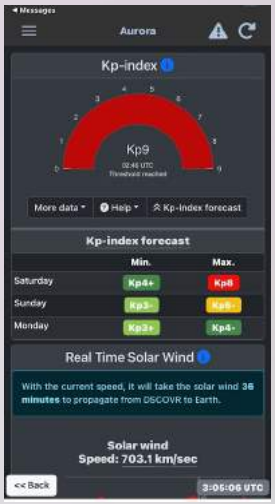


Photo Credit: Jenette Scott
G5/Kp9

Photo Credit: Leslie Fowler, Knolls, Utah

Photo Credit: Brooklyn Skidmore
and Rachael Lindholm
Knolls, Utah

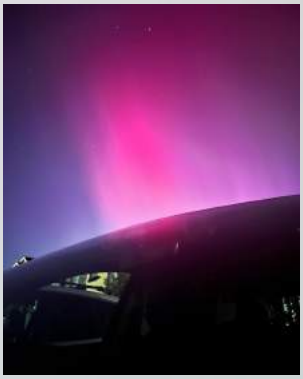


Photo Credit: Krista Lemoine
Bountiful, Utah

Photo Credit: Jenette Scott

In May, the sun sent a coronal mass ejection Earth' s way that put on a spectacular auroral show in lower latitudes that don' t often see the Northern Lights. The aurora started out as a grey, cloud haze to the naked eye, a camera only being able to pick up the color. However, between midnight to 12:30 AM, the sky exploded in color seen by the naked eye all across the night sky.

Usually, sunspots stay on the small side, growing as large as the Earth, but once in a while during active solar cycles, sunspots can grow much larger and increase in magnetic complexity. That is what happened in May with solar region AR3664. This region, grew as large as the sunspot that created the Carrington event in 1859, according to Spaceweather.com. Region AR3664 was so large, it could be seen with the naked eye using solar eclipse glasses and produced a coronal mass ejection that caused a G5 storm and pushed the Kp index to a 9 producing an aurora in Utah!

Sunspots usually decay quickly, even ones as large as AR3664, however, since the May coronal mass ejection, this solar spot has survived two rotations of the sun but hasn' t put on the show it did in May. The sun takes 27 days to rotate on its axis and it is a wait and see if this region survives a third rotation.

Photo Credit: Max Byerly
Knolls, Utah

Photo Credit: Jenette Scott
Knolls, Utah

Photo Credit: Jenette Scott
Knolls, Utah

May 10-11, 2024 Aurora!!

Photo Credit: Krista Lemoine
Bountiful, Utah

Photo Credit: Krista Lemoine
Bountiful, Utah

Photo Credit: Leslie Fowler
Knolls, Utah

Photo Credit: Sciencenotes.org

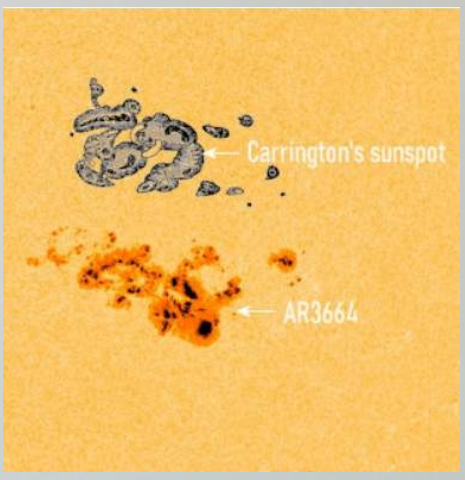


Photo Credit: Spaceweather.com

Photo Credit: Leslie Fowler
Knolls, Utah

Photo Credit: ISS

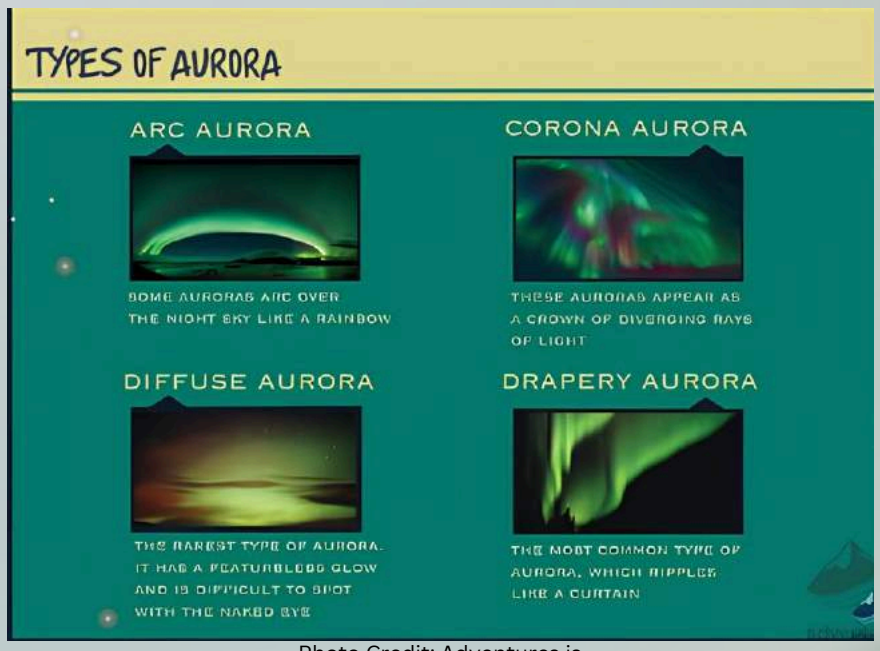


Photo Credit: Adventures.is

May 10-11, 2024 Aurora!!

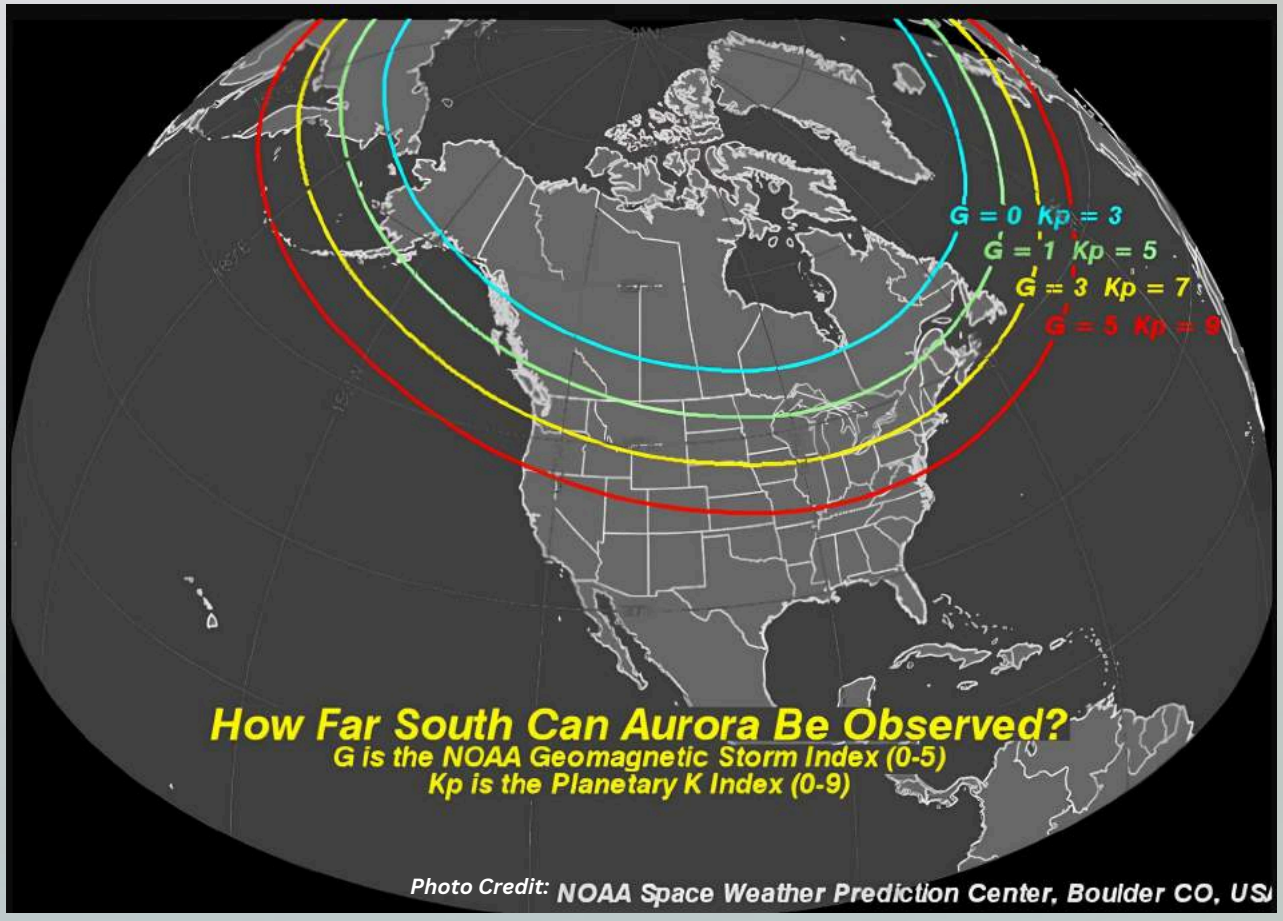
How to read Planetary K-Index chart

Green	Calm or small geomagnetic disturbance	Kp-Index 0–4	No effect on devices or people
Yellow	Weak/minor geomagnetic storm	Kp-Index 5 / G1	Weak fluctuations in the electrical grid, minor effects on the operation of space satellites, as well as on the migration of animals are quite possible
Dark yellow	Moderate geomagnetic storm	Kp-Index 6 / G2	Power systems located at high latitudes can experience emergency situations. Prolonged geomagnetic storms can damage transformers. HF radio signals may weaken
Orange	Strong geomagnetic storm	Kp-Index 7 / G3	False alarms may be triggered on some protective electronic devices. Correction of satellite orientation and navigation in outer space may be required
Red	Severe geomagnetic storm	Kp-Index 8 / G4	There may be widespread problems with power grid voltages. Satellite navigation may worsen for several hours, and LF radio navigation may be disrupted
Dark red	Extreme geomagnetic storm	Kp-Index 9 / G5	Power systems may experience transformer damage and a complete collapse. HF radio communications may not be possible. Satellite navigation may be disrupted

Source: Space Weather Prediction Center (SWPC) of the US National Oceanic and Atmospheric Administration (NOAA)

Kp-Index — The Planetary K-Index

Photo Credit: WINDY.APP



Constellation CORNER

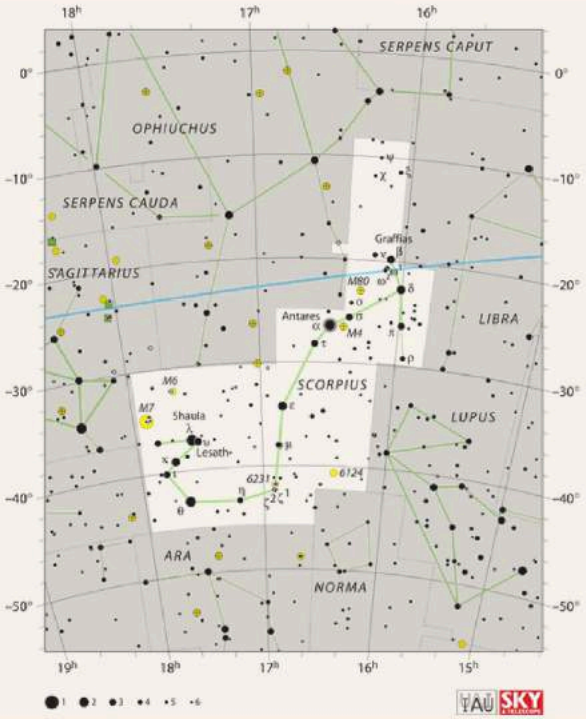
BY: KRISTA LEMOINE

Scorpius

THE SCORPION

JULY 2024

In mythology, this is the scorpion that stung Orion the Hunter to death, although accounts differ as to the exact circumstances. Eratosthenes offers two versions. Under his description of Scorpius, he says that Orion tried to ravish Artemis, the hunting goddess, and that she sent the scorpion to sting him, an account that is supported by Aratus. But in his entry for Orion, Eratosthenes says that the Earth sent the scorpion to sting Orion after he boasted that he could kill any wild beast. In either case, the moral is that Orion suffers retribution for his hubris. This seems to be one of the oldest Greek myths, the origin of which may lie in the sky itself, since the two constellations are placed opposite each other so that Orion sets as his conqueror, the Scorpion, rises.



ASTRONOMICAL LEAGUE OBSERVING TARGETS

Messier	Double Star
M4	Beta Scorpii
M6	Struve 1999
M7	Xi Scorpii
M80	Nu Scorpii

Urban	Herschel 400
NGC 6121/M4	NGC 6144
NGC 6405/M6	NGC 6451
NGC 6475/M7	
Beta Scorpii	

MESSIER 4
GLOBULAR CLUSTER

Magnitude: 5.4
Approximate distance from Earth: 6,300 light-years
Location: 16h 23m 35.40s (right ascension), -26° 31' 31.9" (declination)

MESSIER 6
BUTTERFLY CLUSTER

Magnitude: 4.2
Approximate distance from Earth: 1,590 light-years
Location: 17h 40m 20.7s (right ascension), -32° 15' 15" (declination)

WHERE IS THE SCORPIUS CONSTELLATION?

You can see all or some of Scorpius from most of the mid-Northern Hemisphere between May and August. While it appears high in the sky in the center of the Milky Way in the Southern Hemisphere, it is close to the southern hemisphere in places where it is visible in the Northern Hemisphere. Because of its unusual shape and relative brightness, Scorpius is not difficult to locate. The best time to view the constellation is July and August, and it is at its highest point around 9 pm in mid-July.

NEXT MONTH:

Sagittarius

THE ARCHER

AUGUST 2024

10 BRIGHTEST STARS IN SCORPIUS

α Scorpii - Antares - 0.91
λ Scorpii - Shaula - 1.63
θ Scorpii - Sargas - 1.86
ε Scorpii - Wei- 2.29
δ Scorpii - Dschubba - 2.29
κ Scorpii - Girtab -2.39
β1 Scorpii - Acrab - 2.62
υ Scorpii - Lesath - 2.70
τ Scorpii - Paikauhale - 2.82
π Scorpii - Fang - 2.89

OTHER DEEP SKY OBJECTS IN SCORPIUS

NGC 2361 - Northern Jewel Box
IC 4628 - Prawn Nebula
NGC 6334 - Cat's Paw Nebula
NGC 6357 - War and Peace Nebula
NGC 6144 - Globular Cluster

Constellation CORNER

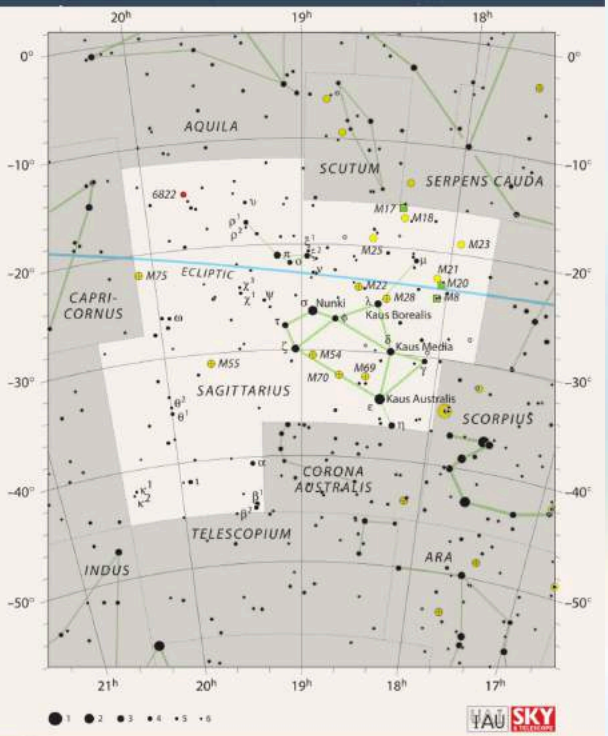
BY: KRISTA LEMOINE

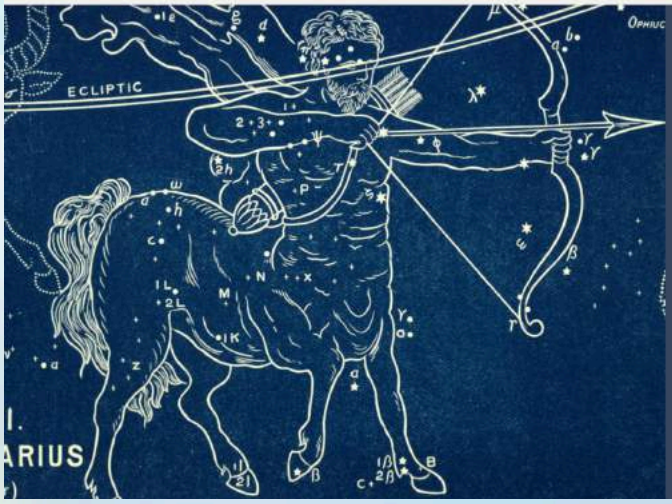
Sagittarius

THE ARCHER

AUGUST 2024

In Greek mythology, Sagittarius depicts a centaur, with the torso of a man and the body and four legs of a horse. The centaur is shown aiming an arrow toward the heart of Scorpius, represented by the red supergiant star Antares. Sometimes Sagittarius is misidentified as Chiron, represented by the constellation Centaurus. Sagittarius has its origin in Sumerian mythology. Eratosthenes associated it with Crotus, a mythical creature with two feet and a satyr's tail, who was the nurse to the Muses, daughters of Zeus. Eratosthenes argued that the constellation represented a satyr and not a centaur. Roman author Hyginus believed Crotus was the son of Pan and the archer the constellation was named after. Crotus invented archery and lived on Mount Helicon. The Muses were the ones who asked Zeus to place him in the sky.





ASTRONOMICAL LEAGUE OBSERVING TARGETS

Herschel 400

NGC 6440	NGC 6568
NGC 6445	NGC 6569
NGC 6514	NGC 6583
NGC 6520	NGC 6624
NGC 6522	NGC 6629
NGC 6528	NGC 6638
NGC 6540	NGC 6642
NGC 6544	NGC 6645
NGC 6553	NGC 6818

Messier

M8	M25
M17	M28
M18	M54
M20	M55
M21	M69
M22	M70
M23	M75
M24	

Urban

NCG 6520
NGC 6523/M8
NGC 6618/M17
NGC 6656/M22
NGC 6818

Note:
There are no stars on the Double Star Program in Sagittarius.

Click here for the list of Astronomical League Observing Programs.

MESSIER 8
LAGOON NEBULA

Magnitude: 4.6
Approximate distance from Earth: 4,100 light-years
Location: 18h 03m 37s (right ascension), −24° 23′ 12″ (declination)

MESSIER 20
TRIFID NEBULA

Magnitude: 6.3
Approximate distance from Earth: 5,200 light-years
Location: 18h 02m 23s (right ascension), −23° 01′ 48″ (declination)

WHERE IS THE SAGITTARIUS CONSTELLATION?

Sagittarius is at the center of the Milky Way Galaxy, and the galaxy is at its densest point as it makes its way through Sagittarius. Sagittarius has such a distinctive shape that it's not too hard to spot in the sky. Simply look for the teapot shape next to the curved body of Scorpius the Scorpion. The best time to view the constellation is July and August, and it is at its highest point around 9 pm in August.

NEXT MONTH:

Andromeda

THE CHAINED MAIDEN
SEPTEMBER 2024

10 BRIGHTEST STARS IN SAGITTARIUS

ε Sagittarii - Kaus Australis - 1.79
σ Sagittarii - Nunki - 2.04
ζ Sagittarii - Ascella - 2.58
δ Sagittarii - Kaus Media - 2.72
λ Sagittarii - Kaus Borealis - 2.81
π Sagittarii - Albaldah - 2.89
γ2 Sagittarii - Alnasl - 2.99
η Sagittarii - Sephdar - 3.10
φ Sagittarii - 3.17
τ Sagittarii - 3.32

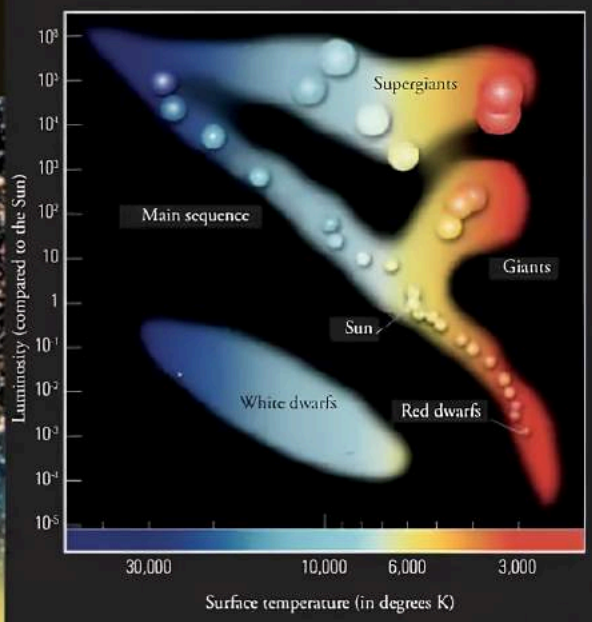
OTHER DEEP SKY OBJECTS IN SAGITTARIUS

NGC 6822 - Barnard's Galaxy
NGC 6590 - Reflection Nebula
IC 4678 - Nebula
IC 4946 - Lenticular Galaxy

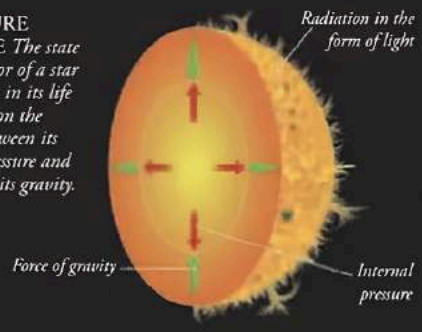
What Are Stars? by DK Space - A Visual Encyclopedia.

What are stars?

The Sun, our nearest star, is only 93 million miles (150 million km) away. In terms of the size of the universe, it's on our doorstep! But the Sun is just one star—there are trillions of others, all with their own amazing features. The Sun is very average in size and brightness, and enjoying a comfortable middle age. But, like all stars, it will change dramatically as it gets older.



▸ PRESSURE BALANCE *The state and behavior of a star at any stage in its life depends upon the balance between its internal pressure and the force of its gravity.*

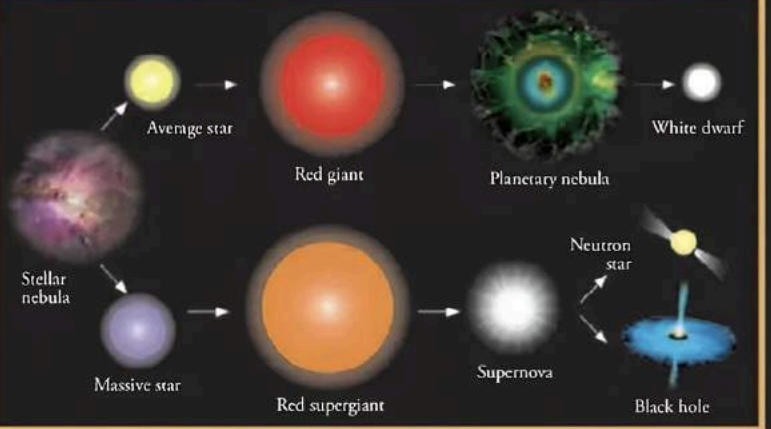


HOT AND BRIGHT

This chart (left), called a Hertzsprung-Russell diagram, shows the temperatures of stars and their brightness, or luminosity. Cool stars are shown in red and hot stars in blue. Most hydrogen-burning stars, including our Sun, lie on the diagonal branch, or "main sequence." Giants that have burned all their fuel leave the main sequence, while faint dwarfs lie near the bottom.

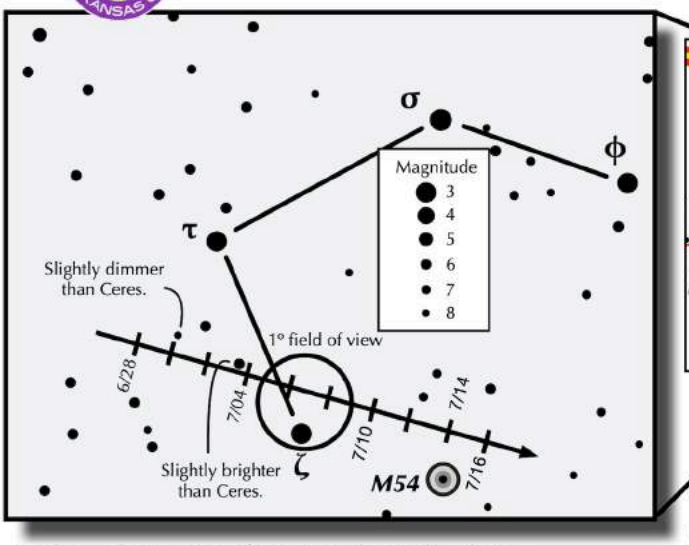
THE LIFE OF A STAR

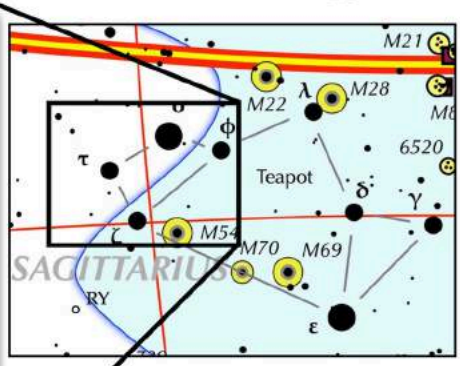
All stars begin life in a cloud of dust and hydrogen gas, called a nebula. Most average stars take billions of years to burn all their hydrogen fuel. When it runs out, the star expands and becomes a red giant, then sheds its outer layers to end its life as a small, dim white dwarf. Bright, massive stars use up their fuel quickly—in a few million years. When there is nothing left to burn, the star expands to become a red supergiant, then explodes in a supernova to form a neutron star or black hole.



Have you ever spotted the dwarf planet Ceres?

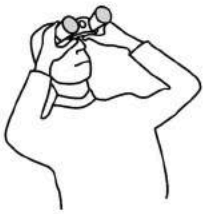
Late June through mid July presents your chance!





Look on the nights of June 28 through July 16.
The map shows the position of Ceres at 11 p.m. EDT.

- Diameter = 588 miles, about 1/4 that of the moon.
- Ceres reaches opposition on July 5 when it is 176 million miles from Earth.
- On July 15, Ceres lies 31' north of M54.



- Find the Teapot asterism of Sagittarius rising low in the southeast.
- **Use binoculars** to identify the stars Zeta and Tau Sagittarii.
- Ceres will be a starlike object at magnitude 7.4. It will not be a bright object!
- Use the chart to identify it. Look again the next night to see if it has moved.
- Moon might be too bright and too close after July 16.

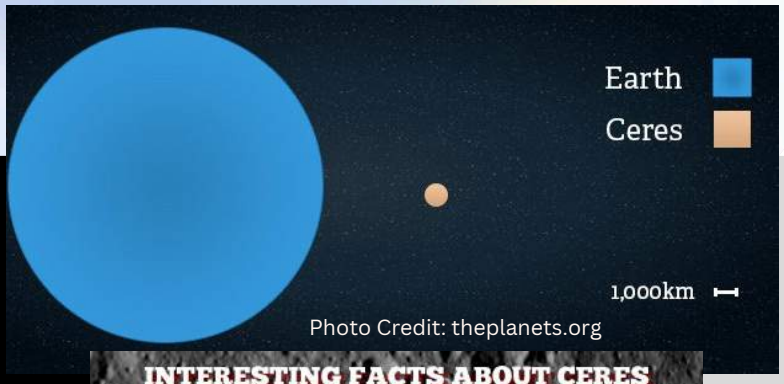


Photo Credit: theplanets.org

WHAT IS CERES?

- Ceres is the largest object in the astroid belt!
- It lies between the orbit of Mars and Jupiter!
- It is a ball of rock and ice 950 km in diameter!
- It contains one third of the mass of the asteroid belt!

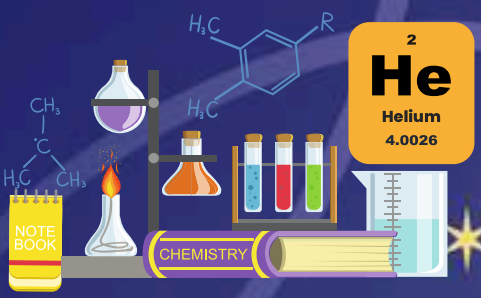
Photo Credit: Madison Wyman

INTERESTING FACTS ABOUT CERES

- Ceres was named after the goddess of growing plants, harvest, and motherly love
- Ceres is the largest object in the asteroid belt
- Ceres was first classified as an asteroid
- Ceres was discovered by Giuseppe Piazzi on January 1, 1801

Photo Credit Caroline Elmer

The Astronomer's Periodic Table of Elements



Helium

Source: rsc.org

From chemist Peter Wothers:

We are all familiar with the lighter-than-air gas helium, but whenever I see a balloon floating on a string, I feel a little sad. It's not because I'm a miserable old so-and-so - it's just because, unlike the happy child on the other end of the string, I am aware of the valuable resource that's about to be lost forever.

Helium is the second most abundant element in the universe, but here on Earth, it's rather rare. Most people guess that we extract helium from the air, but actually, we dig it out of the ground. Helium can be found in certain parts of the world, notably in Texas, as a minor component in some sources of natural gas. The interesting thing is how this gas gets into the ground in the first place. Unlike virtually every other atom around us, each atom of helium has been individually formed after the formation of the earth.

The helium is formed during the natural radioactive decay of elements such as uranium and thorium. These heavy elements were formed before the earth but they are not stable and very slowly, they decay. One mode of decay for uranium is to emit an alpha-particle. This alpha-particle is actually just the heart of a helium atom - its nucleus. Once it has grabbed a couple of electrons, a helium atom has been born.

This decay process for uranium is incredibly slow; the time it takes a given quantity of uranium to halve, its so-called half-life, is comparable to the age of the earth. This means that helium has been continuously generated ever since the earth was formed. Some of the gas might eventually creep through the earth and escape into the atmosphere; fortunately, when conditions are right, some is trapped underground and can be harvested for our use.

The situation is very different in space. The sun is comprised of about 75% by mass of hydrogen and 24% of helium. The remaining one percent is made up of all the heavier elements. In the high temperatures of the sun, the hydrogen nuclei are fused together to eventually form helium. This fusion process, whereby heavier atoms are made from lighter ones, liberates vast amounts of energy. Recreating the process on earth may be the answer to our energy problems in the future.

Since helium makes up about a quarter of the mass of the sun, it is not surprising that its presence was detected there over 100 years ago. What is perhaps surprising, is that helium was discovered in space 26 years before it was found on earth.

It has been known for hundreds of years that certain elements impart characteristic colours to a flame - a fact crucial to the coloured fireworks that we enjoy. Copper, for example, gives a green colour, whereas sodium gives a yellow colour. It is actually possible to identify elements by the careful examination of such coloured flames. The light is split up into a spectrum using a prism or diffraction grating in an instrument called a spectroscope. Rather than seeing a continuous rainbow of colours, a series of sharp coloured lines is formed. This series of lines is characteristic of the particular element and acts as a sort of fingerprint.

In the 19th century, scientists turned their spectroscopes to the sun and began to detect certain metals there, including sodium, magnesium, calcium and iron. In 1868 two astronomers, Janssen and Lockyer, independently noticed some very clear lines in the solar spectrum that did not match up to any known metals. While other astronomers of the time were unsure, Lockyer suggested these unidentified lines belonged to a new metal which he named Helium after the Greek personification of the sun, Helios. For over 20 years, no sign of the metal helium was detected on earth and Lockyer began to be mocked for his mythical element. However, in 1895 the chemist William Ramsay detected helium in the gas given out when a radioactive mineral of uranium was treated with acid. The helium formed from the radioactive decay had been trapped in the rock but liberated when the rock was dissolved away in the acid.

Finally Lockyer's element had been discovered on earth, but it was no metal, rather an extremely unreactive gas. To this day, helium remains the only non-metal whose name ends with the suffix -ium, an ending otherwise exclusively reserved for metals.

Aside from being used to fill balloons, both for our entertainment, and for more serious purposes, such as for weather balloons, helium is used in other applications which depend on its unique properties. Being so light, and yet totally chemically inert, helium can be mixed with oxygen in order to make breathing easier. This mixture, known as heliox, can help save new-born babies with breathing problems, or help underwater divers safely reach the depths of the oceans. At minus 269 degrees centigrade, liquid helium has the lowest boiling point of any substance. Because of this, it is used to provide the low temperatures needed for superconducting magnets, such as those used in most MRI scanners in hospitals.

In many facilities where helium is used, it is captured and reused. If it isn't, it escapes into the air. But it doesn't simply accumulate in the atmosphere. Helium is so light that it can escape the pull of the earth's gravitational field and leave our planet forever. This is the fate of the helium in our balloons. Whereas it may be possible to reclaim and recycle other elements that we have used and discarded, when we waste helium, it is lost for good. In 100 years time, people will look back with disbelief that we wasted this precious, unique element by filling up party balloons.

ALCON 2024

GOING TO KANSAS CITY FOR

STARS AND ALL THAT JAZZ!

SPEAKERS INCLUDE

- Stephon Alexander, theoretical physicist, cosmologist, jazz saxophonist and author of The Jazz of Physics, a book that discusses the link between music and the structure of the universe
- David Levy, comet hunter, amateur astronomer and science writer
- Kelvan Stassun, Professor of Physics and Astronomy, Vanderbilt University
- Tim Russ, actor, musician screenwriter, director and amateur astronomer

EVENING EVENTS

- Gottlieb Planetarium
- Linda Hall Library, Rare Books Room
- StarBQ at Overland Park Arboretum
- Powell Observatory
- Awards Banquet

VENDORS INCLUDE

- DayStar Filters
- Explore Scientific

JULY 17–20, 2024

DOUBLETREE BY HILTON, OVERLAND PARK, KANSAS

Hosted by:

Room reservations are now open for the special ALCon rate at the beautiful **Overland Park DoubleTree Hotel**:
https://group.doubletree.com/hp0506
or scan the QR code to take you to the Double Tree booking site.

Once you are on the site, click "edit stay" on the upper right of the page to adjust your room nights. (The default is 6 nights!)

Why stay at the DoubleTree? Sure, you have other choices, but

You will avail yourself to having chance conversations and unexpected, but very enjoyable encounters with presenters, vendors, exhibitors, and other attendees who share your passion about astronomy.

And, of course, you will have the convenience of being situated where the action is – at "astronomy central." Fully experience the spark, enthusiasm, and excitement that ALCon brings!

See you at ALCon 2024!

ASP2024

A VIRTUAL CONFERENCE

ASTRONOMY ACROSS THE SPECTRUM:

Education & Outreach Everywhere, All at Once

August 22-24, 2024

#ASPMtg #ASPMeeting

For more information, Scan the QR Code.

Registration Ends June 30, 2024

Registration Is Now Open!

The Nightscape Photo Conference is an in-person event devoted to astro-landscape photographers, scientists, artists, and activists who wish to enjoy and preserve the night skies.
This fourth conference brings together some of the most impactful community members to share ideas, work with peers to craft images, and hone techniques for responsibly studying and documenting the quiet beauty of dark skies.

For more information and to register please click the link here:
https://www.nightscaper.com/

2025 ASTROCON BRYCE CANYON•UTAH

DARK SKIES ROCK!!!

ASTROCON 2025 will be held June 25-28, 2025, under the spectacularly dark skies of Bryce Canyon National Park in southern Utah.

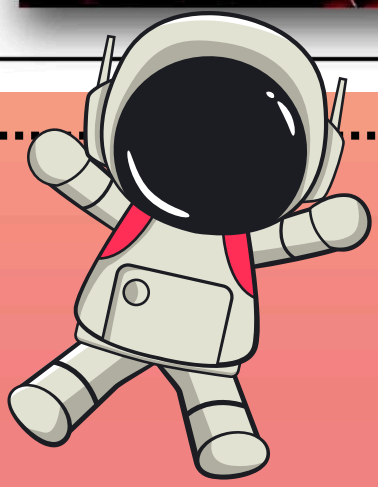
The venue will be at Ruby's Inn and Convention Center a few miles from the park entrance. A special area a few miles east of the convention center will be available for evening viewing plus astrophotography/digital imaging workshops.

The convention's goal is to teach how to enhance one's personal viewing experiences through workshops and evening viewing plus opportunities to learn astrophotographic skills. As we are still in the planning stage, we welcome your input as to how daytime and/or evening presentations and workshops can best achieve these goals. Ideas that our committee is considering include:

- Setting up your own personal observing program (including Astronomical League Observing Programs to consider)
- Observing tips including clothing to wear, how best to use your own eyes, equipment ideas
- Using star charts (digital and paper)
- Creation of observing lists for difference types of objects
- Understanding eyepiece selection
- Using filters for visual and photographic work
- Sketching workshop
- Observing log workshop – starting and keeping your own journal
- Astrophotography/Digital Imaging workshops (novice and advanced)

Please feel free to contact me if you wish to assist with a presentation and/or a workshop. We are starting our planning early, as we learned from ASTROCON 2017 at Casper Wyoming, held during the total solar eclipse, that advance planning is particularly important for this type of event. We look forward to hearing from you.

Lowell Lyon
ASTROCON 2025 Chair
801-699-7283
bolide@sisna.com



Astronomical Events March and April 2024

Source: Sea and Sky

July 05: New Moon

July 21: Full Buck Moon

July 22: Mercury at Greatest Eastern Elongation

July 28-29: Delta Aquarids Meteor Shower

August 04: New Moon

August 12-13: Perseids Meteor Shower

August 19: Full Sturgeon Moon

HELP!

Need Some Help with Your Telescope? Get Friendly, Expert Help with SLAS Member, Max Byerly!

Telescope Repairs and Maintenance:

Do you ever find yourself needing help with your telescope? Maybe something isn't working, right? Maybe you can't figure out how to get it properly collimated or aligned with the sky. Has it broken down and needs a fix? I'm here to help!

I'm Max and I've been helping people get back under the night sky for over a decade. I moved to SLC a few years ago, and have tried to be active when my work schedule lets me come to events and star parties.

I enjoy helping people with the night sky and their equipment. I know a lot from the basics all the way to imaging faint targets with a telescope. I'm quite experienced in particular with Meade, Celestron, iOptron, and Orion/Skywatcher equipment, but that doesn't mean I can't help if you have something outside of that. I've repaired and fixed many mounts cleaned many telescopes and mirrors, and regreased and tuned several Goto systems. Just know that when something happens or if you're not comfortable tackling something, reach out to me and let's see what I can do for you!

Contact: maxbyerly@icloud.com

Pssst! Need a Telescope?

Do you want to use a telescope, but don't have the space for one, or the money for one? There are a couple of options for borrowing a telescope. One is from our Salt Lake County Libraries and the other is if you join SLAS, you can borrow a telescope as part of membership benefits.

To reserve Telescopes, please call Customer Service 801.943.4636 or stop by your local branch and talk with a librarian.

Telescopes THE SALT LAKE COUNTY LIBRARY SYSTEM

The County Library is lending a limited number of Orion StarBlast Telescopes at each branch. The County Library's telescope lending program is made possible through a partnership with the Salt Lake Astronomical Society. Follow the safety rules and don't look at the sun! Enjoy this STEM experience.

- Telescopes are located at all libraries for check out, subject to availability
- Only 1 telescope per library card
- The Telescope and all peripheral materials (fanny pack, eyepiece, rubber eye guard, lens covers, view finder, books, head gear, brush pen, instructions, batteries, and base) must be returned together in the condition in which they were checked out and on the same day in which the Telescope is returned

To see all participating libraries in the telescope loaner program in Utah, click on this link: Utah (librarytelescope.org)

These are the telescopes available to borrow through SLAS. This program is for members only and can be obtained through slasloanequipment@gmail.com

- (4) 8" Dobsonian telescopes
- (2) 6" Dobsonian telescopes
- (4) C-8 telescopes
- (1) 4" Criterion SCT
- H-Alpha Solar Telescope, tripod, mount and misc. accessories.

KIDS CORNER

Astronomy For Kids

Name: _____

Astronomy Word Search

S	G	Q	A	Z	I	M	U	T	H	T	F	C	I	C	P	M
V	T	F	X	D	A	L	T	I	T	U	D	E	R	L	G	E
K	S	T	G	E	O	C	E	N	T	R	I	C	O	I	R	S
X	W	N	C	A	J	A	R	A	E	Z	P	A	T	G	B	A
C	V	R	V	S	E	A	Y	L	E	A	C	D	A	H	M	Z
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T	E	E	G	I	P	Y	U	S	I	F	L	F	M	Z	E	L
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P	I	M	D	P	O	R	B	I	T	H	M	P	B	H	P	E
K	O	O	P	U	U	N	I	V	E	R	S	E	F	E	S	O
T	N	K	N	W	A	J	Z	W	X	W	Y	F	I	M	I	R
V	V	D	Y	N	J	V	K	Z	Y	P	X	H	D	Y	F	K

ORBIT
AZIMUTH
SOLARSYSTEM
LIGHT YEAR
METEOROID

ASTEROID
REVOLUTION
ALTITUDE
UNIVERSE
METEOR

ROTATION
GEOCENTRIC
METEORITE
EQUATOR
ASTRONOMY

Novice

SLAS Board Meeting Minutes

May 8, 2024

7:00PM

Denny's – Redwood Rd & North Temple

Board Members in attendance: Don Abernathy, Marlene Egger, Trevor Hebditch, Aleta Cox, and Krista Lemoine

Other members in attendance: Alpine Stringham, Rochelle Tarin, Jim Keane, and Patrick Wiggins

President, Don Abernathy, calls the meeting to order at 7pm.

Don said nominating the Nova newsletter for the Mabel Sterns award will happen next year. Don went over the qualifications and descriptions of the award. The deadline for nominating has passed for this year's ALCon.

The Lehi Library invoice was sent to Kristy Steely for payment on the 3 telescopes they would like to purchase.

Joan Carman, LTTC, said the library star party flyers in were printed in English and Spanish this year. She also noted that the grant is going well, and if they give $7,200 that will cover costs for Tooele, Davis, and Weber Counties to get telescopes.

SPOC Director Jim Keane asked that we prioritize Tooele County since that is where SPOC is located.

Don thanked Jim for the well-attended first SPOC star party of the year. Jim noted that he has been making several repairs including paint and electrical at SPOC. He also cleaned the main mirror on the Grim. Cleanup of the Clements building is being discussed with Mike. He also discussed some other upcoming projects that need attention.

Jim would like to see people who pay the SPOC Fee get trained on all scopes for public nights and private use.

Don asked for an update on Stansbury Day's. Jim said he will ask them at their next meeting. He would like to see a booth at their event highlighting the Observatory and solar telescopes.

Patrick Wiggins brought up the solar filter for the Bogdan, and that he would like to see more people use it. Don asked Jim and Patrick to speak about this privately.

The website front end person was seriously injured recently. Jim said he is still trying to work on the website. Don asked Jim if there could be a deadline put in place to speed up the process. This will be brought up at the next board meeting. Aleta Cox, VP, asked how much was complete. Jim provided a list of things that are done.

* It should be noted there is a logical reason why progress has slowed. *

Aleta has contacted a person at the Salt Lake Tribune named Sean Means. Aleta provided him with dates of upcoming events through June 1st. Patrick will find out if that's been published. Jim asked if we had reached out to other media contacts. Patrick said he has contacts he can provide to Aleta.

Krista Lemoine, Secretary/Treasurer, provided the board with an update on the financials. Krista got an update on the bank account for the scholarship fund. We can have a separate account for this if the board chooses. Don asked that Krista, Trevor Hebditch, and Marlene Egger discuss this more.

Don recognized Marlene for her monthly reports for school and special star parties. He also thanked her for the nice article in the Nova. There are still no updates on the Lost and Found Women's nonprofit event. Stansbury would like a guest speaker for an event this summer on June 25th. Marlene needs a speaker willing to do a 30 or 40 minute presentation. She will get more information about this event to pass along. Jim will contact the Redwood star party sponsorship. They want to advertise their upcoming book and bring snacks. Jim said he will take over this task.

Trevor Hebditch, Board-Member-at Large, discussed his goal for the SLAS educational fund. Trevor also said he is going to create a proper form for an upcoming donation to the SLAS loaner program. Patrick brought up that a 3rd party should appraise the item before a value can be placed on it for tax credit purposes. UVAC could be a good resource as a 3rd party appraiser. Trevor also plans to get each scope outfitted with everything needed for loan. Jim questioned if the SPOC Director should be involved in the process of the loaner equipment. Don asked if Trevor and Aleta would draft a procedure for how loaner scopes and donation will be handled. They will have this prepared for the next board meeting.

Don has spoken to David George-Kennedy again about becoming the sun party coordinator. David can't commit full time but is willing to help. Louis Maez also expressed interest in being the coordinator. He will give Don a final answer by Friday.

Don reminded everyone that the speaker for this month's general meeting will be Dr. Julia Kamenetzky (Associate Professor of Physics Westminster University) and her presentation will be on molecular gas in galaxies.

Meeting adjourned at 8:06pm.

Minutes submitted by:

Krista Lemoine, SLAS Secretary/Treasurer

SLAS General Meeting

May 15, 2024

7:30PM

Salt Lake Community College

33 members in attendance.

President, Don Abernathy, calls the meeting to order at 7:32pm.

Don greets everyone and introduces himself. He asks if there are any new members present. One person introduced themselves. He acknowledges Professor Jonathan Barnes, Sam Jones, Lindsay Schinner for hosting the meetings at SLCC and their continued IT help.

Don introduces Dr. Julia Kamenetzky, an Associate Professor of Physics at Westminster University. Her doctoral and post-doctoral research focused on molecular gas in star-forming galaxies, primarily using the Herschel SPIRE Fourier Transform Spectrometer, the Atacama Large Millimeter Array (ALMA), and the Arizona Radio Observatory (ARO).

Don gives the floor to Dr. Kamenetzky.

Dr. Kamenetzky introduces herself and gives a presentation on molecular gas in star-forming galaxies and how spectroscopy is used to locate exoplanets.

She answered questions from those in attendance following her presentation.

Don moved on to the business portion of the meeting:

The star party was last Saturday but had cloudy skies. Everyone got a good view of the northern lights.

Upcoming star parties are at the Taylorsville Branch Library on Friday and at SPOC next Saturday.

All observatory scopes at SPOC are functioning. Trevor Hebditch and Aleta Cox are the current equipment managers for loaner scopes. If you are interested in borrowing equipment, please contact one of them.

Luis Maez has accepted the position as Sun Party Coordinator. The next sun party is May 25th at Winchester Park.

Next month's speaker is Ron Wilcox. He will be presenting on the Sun's Ionosphere.

Don thanks everyone for attending and encouraged everyone to go to Advanced Training at Dee's Restaurant.

Meeting adjourned at 8:39PM.

Minutes submitted by:

Krista Lemoine, Secretary/Treasurer of SLAS.

Salt Lake Astronomical Society
Board Meeting Minutes
June 12, 2024
Denny's Restaurant at Redwood Rd. & No. Temple

Don called the meeting to order at 7:01 p.m. in the meeting room of Denny's Restaurant.
In attendance: Don Abernathy, Aleta Cox, Joan Carman, Jenette Scott, Jeremy Scott, Max Byerly, Marlene Eggers, Patrick Wiggins, and Ken Warner. Excused: Trevor Hebditch, is out of town, and Krista Lemoine had a death in her family to deal with.

Don gave all attendees a copy of the Agenda. He began with Office reports.
ALCor, Aleta Cox re: update on Astrocon from Lowell Lyon. Don said he attended the Bryce Canyon Astronomy Festival, but was ill the first two days and missed the Astrocon Meeting. Lowell caught up w/ him later and said that in August the Website for Astrocon will be up and running, and Ruby's Inn will begin accepting reservations for the event.

A discussion followed about the Mabel Sterns Award for League Member Club Newsletters. Jenette Scott would like our newsletter to be nominated and asked about requirements. Aleta answered that the club president must write a letter of nomination, and include a copy of the newsletter. She wasn't sure if there were other requirements. The deadline is March 31 each year, so we missed it for ALCON 2024. Aleta said she would look into the requirements further. The board also agreed to postpone any further action on this until October 2024.

Joan Carman has applied for a grant from Rocky Mountain Power Foundation for the Library Loaner Telescope Program. She continued to check on the progress throughout the process. On May 29, 2024, we received a grant for $2500.00 to go to the Library Loaner Telescope Program. The money will provide for 6 or 7 telescopes to be put into the Weber County Libraries. The check was 'cut' on 2 June, and Joan has been looking for the check to come, since her address is the one listed. It hasn't arrived yet, but she is waiting two weeks and will contact them to find out about it. When it comes, Joan will then purchase the telescopes and the other equipment for a build out modification session, probably at Whitmore Library. The date for that is unknown at this point, but when it happens, we'll need volunteers to help with it. Joan mentioned that Orion is backordered for the StarBlast telescopes, so that will affect when this occurs. Jim asked if the board had approved the Grant application from Rocky Mountain Power Foundation. Don said yes, it was approved for Joan to do this several months ago. Jim also asked if it would be better for Joan to recommend where the telescopes be placed and then have the board approve it. At this point, the program is working well, and Don doesn't want to change things right now.

Our Historian, Patrick Wiggins had no additional information to share. He has not received any more History items to include in the document. If you have something about SLAS to share, please send it to him. He said he has some things for the website, but is waiting for the new website to be up and running before putting it there.

Jim Keane, SPOC Director, says that the Sig Scope clutch still is not working well. He took it apart again. Also the clutch on the mount isn't working well either. He is trouble shooting both. He also has a list of things at SPOC he is working on, including cleaning out the stuff in the Kolob Building where the Clements telescope is housed. He wants to clean the concrete floor under the Clements, and put up some storage areas for the mirror chemicals so they are not stored on the floor. Marlene and Patrick mentioned that the Fire Extinguishers at SPOC need to be checked by the end of June. Jim said he would take care of it. [Follow up: Jim met with the Tooele Fire Marshal, and got them all inspected, so we are good for another year.] Jim also reported on the new website. They were waiting for Ken

Warner to get the servers re-built. That has been done now, and things can proceed. James is waiting for some HTML stuff and some other things before the work can continue.

Aleta Cox contacted Sean Means of the Tribune about upcoming star parties through June. She said she needed to contact him again. Patrick said that Sean had died, but the Tribune was still printing his column. They caught some guff about that, and so someone else is writing the column. He suggested to Aleta to email Sean's email at the Tribune and ask who is now doing that column. Aleta will do that.

The next item was the Scholarship Fund Program. Krista has been looking into how to account for the funding, and thinks a separate spread sheet would work, but is still in organizational stages. Joan mentioned that the General Membership makes all the decisions for the club. The board discusses and presents to the membership and then they either pass or reject it. The membership has not heard about this yet. Don mentioned that this particular program is still in organizational processes and is not ready to present to the membership yet.

Special Star Parties. Marlene spoke about upcoming special star parties.
-*Stansbury Park Library Readers* on June 25 (Tues) Marlene has 2 volunteers who will handle this event.
-*Camp Hope*- for abused children or children who have witnessed abuse. July 8 (Mon.) from 9p.m. to 10:30p.m. at Kamas YMCA camp. Joan volunteered to give a presentation on the moon for these kids. Marlene is going to make an appointment to go up and check out the facilities so we know what we are dealing with.
-*Lost & Found Women's Nonprofit Club*. August 2 (Fri).Marlene would like 6 telescopes present for this group. More details to follow later.

Don asked Max Byerly to share his vision of a 'Cherry Springs' type annual Star Party sponsored by SLAS. Don turned some time over to Max, who outlined briefly his vision of this event. Don mentioned that this year our schedule is pretty full already and next year we are committed to assist with and be involved with AstroCon 2025 in Bryce Canyon with the Astronomical League. Several people there were excited about the idea of a bigger event and said that a committee could be formed to work on it for 2026. Don asked Max to put together a short 5-7 minute succinct proposal to present to the membership next week at the General Meeting.

Our Speaker next week (June 19) is Ron Wilcox, a SLAS member and HAM operator, will present "A Visit to the Sun and the Ionosphere"

July 17 General Meeting will feature Richard Wolff-Jackson, a software engineer, designer & CEO of PiFinder. He will present on "PiFinder: Improving the Observing Experience through Community and Innovation."

It has been suggested for the new Website to include photo head shots of current officers and those holding appointed positions on the Officers page. If you submit your head shot photo to Ken Warner, he will put it on the current website and then on the new one when it becomes available.

Questions asked:
Would Food Trucks at SPOC Star Parties be a good idea? Jim Keane said he would mention it to Stansbury Park's governing board.

Patrick is wondering if anyone is interested in another run of Tee-Shirts. Patrick will check on this.
Having no further business, the meeting was adjourned at 8:45 p.m.

Respectfully submitted by Aleta L. Cox, VP, substitute.

Salt Lake Astronomical Society
General Meeting Minutes
June 19, 2024

Location: Room TB104, Rampton Technology Building, Salt Lake Community College, Redwood Rd. Campus.

President Don Abernathy called the meeting to order at 7:30 p.m. There were approximately 30 members and guests present. Board Members present: Don Abernathy, Aleta Cox, Marlene Egger, Krista Lemoine.

President Don Abernathy welcomed everyone and asked if there new people for the first time and to introduce themselves.
Don acknowledged appreciation to Prof. Jonathan Barnes and Dr. Sam Jones, our hosts at SLCC. He also recognized Prof. Janalee Harrison, Dr. Sam Jones, and IT person, Lindsay Snyder, and expressed appreciation to all for their help.

Don then introduced our speaker for this evening, Mr. Ron Wilcox. Ron is currently an RN Case Manager with Intermountain Healthcare/Select Health. He is active in his church, is a ham radio operator (call sign KF7ZN), active in music and is a member of SLAS. He has also been active as a NASA citizen scientist.
Don then turned the time over to Mr. Wilcox, who made a disclaimer that he was not a scientist, nor does he understand Physics. His presentation was titled, "A Visit to the Sun and the Ionosphere" He then presented his slide presentation with a basic introduction, with some interesting facts about the sun. It is approx. 93 million miles away from earth, and 1,300,000 earths would fit inside it. The core is fusion of hydrogen and helium creating the energy that can take 100 years to come to the surface of the sun. It's core temperature is 29 million degrees, maximum surface temp. is 18,000 deg., then above the surface the temperature goes up again to 2 million degrees. He mentioned the solar wind and how it was a continuous flow of atomic particles that go in all directions.
Ron then spoke about sun spots, and some early theories as to what scientists thought they were. They occur in cycles of minimums and maximums for a complete cycle of 22 years. He spoke about some of the more intense cycles and some of the less intense or smaller cycles. Then he went into magnetic fields and how the fields are longitudinal, but then the begin to bend and twist until they are almost horizontal and they break and come to the surface and create sun spots. They are visibly dark because they are 30% cooler than their surroundings. Increasing the number of sunspots also increases the amount of ultra-violet. Then he talked about the solar flux which is radio energy in the microwave range. It was discovered after WWII, and gives a good indication of communication abilities for radio operators. The he talked about solar flares which are a brief, intense, high energy eruption. It is caused by the tangling of those magnetic fields mentioned earlier, and gives a very powerful blast of energy traveling at light speed, and if directed at earth, takes about 8 minutes to arrive. These are disruptive to communications grids and satellites. Ron then talked about coronal mass ejections which eject plasma and magnetically charged particles. These are what cause the auroras visible in our atmosphere. They are slower and will take 2-3 days to arrive. Ron spoke about some of the more famous storms from sunspots and how dangerous they were and how they destabilized power grids, caused fires worldwide, disrupted government communications

during one storm that the government thought we were under attack and that the world was ending. There was a loss of many NORAD satellites. One storm caused power outages in Quebec, damaged satellites, and caused auroras clear visible in Texas and Florida. Ron then went on and talked about our magnetosphere, what it was and how it works to protect us from some of these storms. Then he spoke about the ionosphere and the various layers of it and how it surrounds the earth and helps refract radio signals. In conclusion, the CME/Solar Flares affect satellites, mess with GPS systems and sometimes have caused airports to shut down and ground the planes until the GPS system works again. It will damage satellites to the point of reprogramming them if possible or crashing them into earth if they aren't repairable.

Ron then answered questions from the audience.

Don thanked Ron Wilcox for his interesting presentation and he received a round of applause from those in the audience.

Don then asked Max Byerly to come up and give a short presentation on the idea of a large SLAS sponsored star party to be held at an IDA certified dark sky site, with speakers, workshops, things for children and of course, star gazing at night. He pitched it with the idea that it could be a fund raiser for SLAS, allowing us to have abilities to maintain and repair things needed. There would be a fee charged for entry. Don asked him to be the contact point and put together a more complete proposal to be presented to the membership.

Don announced our receipt of a grant from Rocky Mountain Power Foundation for the Library Loaner Telescope Program. This will purchase 7 telescopes to go into the library program in Weber County.

Don announced up coming star parties:
Camp Hope Utah for children exposed to domestic violence. Star Party is Monday, July 8, 2024 and is to be held in Kamas. Contact Marlene Egger for more info at marleneegger@ymail.com She needs 3-4 more volunteers to bring their telescope and participate in this event.

Sun Party looks hopeful this coming Saturday, June 22, 2024. If the weather tanks, Louis Maez, our new sun party coordinator will send a SLAS Blast to let everyone know the status.

Our next scheduled Star Party is June 29, 2024 at SPOC. Let's hope for clear skies and steady seeing.

With no further business, Don adjourned the meeting at 8:45 p.m.

Respectfully submitted by Aleta L. Cox, VP, substituting.