NOVA

THE OFFICIAL PUBLICATION OF THE SALT LAKE ASTRONOMICAL SOCIETY

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

VOL. 55 NO.1
JAN/FEB 2025

SLAS
SALT LAKE ASTRONOMICAL SOCIETY

ASTRONOMICAL LEAGUE

SLASBROCHURE.pdf

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Utah

JANUARY 2025

FEBRUARY 2025

SLAS President Message

Trevor Hebditch

President and Board Member Message

First and foremost, I want to extend my heartfelt gratitude to the outgoing board, our dedicated appointees, and all the volunteers who have worked tirelessly to keep this club thriving. Your commitment and passion have not only sustained but elevated this organization to what it is today. You've set an admirable standard for myself and the incoming board to strive toward.

To all our members, thank you for your continued support and enthusiasm. Whether by attending meetings, volunteering at public events, or simply sharing your love for astronomy, you have made this a truly dynamic and vibrant community.

This year, we, the board, aim to build on that momentum. One of our key goals is to enhance our outreach efforts, particularly to attract new members, including the next generation of astronomers. Engaging with younger enthusiasts is vital to ensuring the long-term growth and vitality of our club. We'll be exploring new ideas and initiatives to make this happen, and we warmly invite your input.

If you have suggestions or ideas, we'd love to hear them. Feel free to share your thoughts with any board member or send an email. Your contributions are invaluable, and we are committed to considering every suggestion that helps us grow and improve.

On a personal note, I joined this club just two years ago as a relative newcomer. From the very beginning, I was struck by how welcoming and generous everyone was—with advice, guidance, and friendship. It is truly humbling to now have the privilege of serving as your president.

As we embark on this journey together, I'm excited about what lies ahead —a year filled with exploration, discovery, and, of course, plenty of stargazing. Let's make it a great year for astronomy and for our club.

Thank you, and Happy New Year!

URGENT

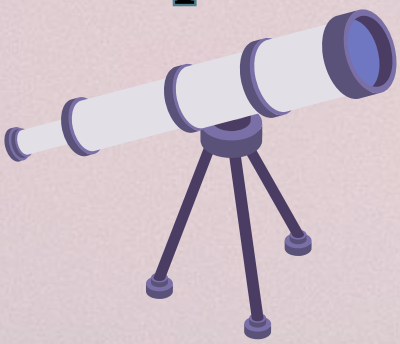
The board would like to ask if anyone would be willing to volunteer and take on the appointed position of Library Star Party Party Coordinator. We need this position to be filled urgently as we have to publish the schedule shortly.

This role was done by Joan Carman for the last few years and she did a fantastic job expanding the program, which we need to continue.

The role will entail contacting and coordinating with the various libraries to work out the schedule and then helping ensure the star parties run smoothly. Joan Carman can provide additional information.

Thanks
Trevor Hebditch

Loan Telescope and Equipment Recall for Audit Purposes



We are requiring the return of all telescopes and accessories that has been borrowed / checked out by the end of January. We intend to run an audit and cleanup of the records, plus ensure all is in working order and properly associated.

As soon as the audit and cleanup is done we will announce that the program will be reopened for loans. I estimate this will be by the end of February

Please coordinate the returns through the email address slasloanequipment@gmail.com

Thanks Trevor

SLAS OFFICERS

SLAS Board of Directors

President: Trevor Hebditch

Vice President: Jenette Scott

Secretary/Treasurer: Rachel Henderson

Board Members at Large: Hayden Wilde *and Max Byerly*

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

NASA Night Sky Co-Ambassador: Jenette Scott

Nova Newsletter Editor: *Jenette Scott*

Observatory Director: *Jim Keane*

Private Star Party Coordinator: *Don Colton*

Solar Party Coordinator: *Louis Maez*

Webmaster: *Ken Warner*

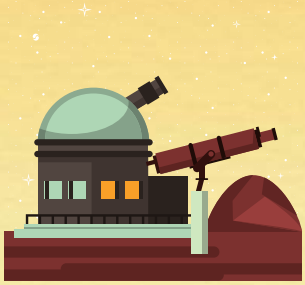
ZAP Grant Writer: *Jim Keane*

SPOC Advisory Committee

Chair: *Jim Keane*

Members: Trevor Hebditch, *Bob Moore, Patrick Wiggins, Jim Keane, John Drabik, Leslie Fowler, Bill Kennedy.*

Members As Obser. Dir. Emeritus: 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**

2025 SLAS Budget PROPOSED

	ITEM DESCRIPTION	BUDGET	NOTES
GENERAL	Liability Insurance	$1,501.00	
	Insurance Directors Coverage	$795.00	
	Guest speakers General Mtg.	$250.00	
	Astronomical League (self funding- pass thru)	$250.00	Funded via AL dues, not from SLAS funds
	Office Supplies	$25.00	
	Copying/Printing	$200.00	Star Party schedules, handouts, etc
	Entertainment	$750.00	$500-Solstice, $250-SPOC
	Event Materials (Lights, display boards, etc)	$100.00	
	Advertising	$50.00	
	Zoom License	$200.00	
	Club Corporate Renewal Fees		
	Solicitation Permit	$75.00	
	Annual 990N form (gov't)	$40.00	
	Non-Profit License	$18.00	
	Website		
	Website Fee (hosting by Ken- $20/mo.)	$240.00	
	HTTP Cert	$95.00	
	Clear Skies Clock	$50.00	
	Library Loaner Scopes (for maintenance)	$300.00	
	Miscellaneous (requires board approval for use)	$250.00	
	SUBTOTAL - GENERAL	**$5,189.00**	
SPOC	Miscellaneous expenses, to be used at Director's discretion	$750.00	
	Telescopes		
	Grim	$100	
	Refractor	$100	
	Ealing	$100	
	Clements	$100	
	Bldg Maintenance		
	Miscellaneous	$300	
	Grim	$100	
	Refractor	$100	
	Ealing	$100	
	Clements	$200	
	SUBTOTAL - SPOC	**$1,950.00**	
SPECIAL PROJECTS	Jachmann Memorial Telescope	$2,109.64	$3,390.36 of $7,000 expensed in 2024
	Club Loaner Scope Supplies/Repairs	$250.00	
	SLAS Astronomical Education Fund	$500.00	
	Website Redesign	$3,000.00	$4.000 of $7,000 expensed thru 2024
	SUBTOTAL - SPECIAL PROJECTS	**$5,859.64**	
	SUBTOTAL BUDGET	**$12,998.64**	
	TOTAL APPROVED BUDGET:	**$12,998.64**	

NOTE 1: Goal is for total annual GENERAL & SPOC expenses be covered by the years club & SPOC dues

SLAS EVENTS PAGE

SPOC IS IN winter HIBERNATION

THE OBSERVATORY WILL BE UP AND RUNNING AGAIN IN APRIL 2025
THE SCHEDULE WILL BE PRINTED IN THE MAR/APR 2025 ISSUE. CALENDAR ON SLAS.US IS UPDATED NOW.

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 7:00 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.

- **Jan 08**- Board Meeting
- **Jan 15**- General Meeting
- **Feb 12**- Board Meeting
- **Feb 19**- General Meeting

Please refer to the information above for the place and time of meetings and the webpage slas.us.

In Memory

Credit: Goff Mortuary

It is with great sorrow that SLAS has lost one of its members.

Ronald Wayne Duggar passed away on December 6, 2024

The obituary can be read by clicking HERE

Ronald will greatly be missed.

EXPLORE THE MENTAL HEALTH BENEFITS OF DARK SKIES: JOIN OUR RESEARCH STUDY

Utah State University Extension is conducting an exciting new research study to explore how experiencing dark skies can impact mental health and well-being. We are seeking participants who have an interest in nature or stargazing and are open to sharing their experiences with our research team.

ABOUT THE STUDY:
Participants will attend four dark sky viewing events in certified dark sky locations and take part in individual interviews to explore their experiences. Optional journaling and group discussions are available for those interested in reflecting more deeply on the experience. Four study locations will be Bryce Canyon NP, Capital Reef NP, Goblin Valley SP, and Freemont Indian SP. It will be one location a month. They are currently locking in dates. The dates will be centered around the new moon. They will start in late January. They hope to have the dates and locations locked in ASAP. Participants will not be paid to participate in this study, but they would have a fun group to go do some stargazing with, and help generate some preliminary data that could lead to bigger and better opportunities later on.

WHO CAN PARTICIPATE:
Adults aged 18 and older with an interest in stargazing or the natural environment, Individuals available to attend scheduled dark sky events, & Participants willing to share their insights through interviews and reflections.

WHY PARTICIPATE:
This is a unique opportunity to engage with the beauty of dark skies while contributing to research that may benefit mental health initiatives in rural communities. Participants will gain a deeper understanding of how awe and nature impact well-being and will help inform future mental health programs.

INTERESTED?
Please contact Dr. Troy Allan at troy.allan@usu.edu to learn more about the study or express your interest in participating.
Join us under the stars and be part of this important study on nature and mental health!

Extension

UtahStateUniversity

VOLUNTEERS NEEDED

Exploring the Impact of Dark Sky Viewing on Mental Health in Rural Communities: A Phenomenological Study

Join Our Study!

Our research study explores how viewing dark skies may positively impact mental health and well-being by fostering awe and emotional connection. We are seeking adults aged 18 and older who have an interest in stargazing or nature and are willing to share their experiences. Participants will attend four dark sky viewing events and take part in interviews, with the option to share reflections through journals or group discussions. This study runs from January 2025 through April 2025. Join us in exploring the mental health benefits of awe-inspiring natural environments!

GET STARTED →

Troy D. Allan, Ed.D.
Email: troy.allan@usu.edu
Phone: 512-763-9502

This study has been approved by the Utah State University Institutional Review Board (IRB Protocol # 14756)

Astronomy Cruise

Everen Expeditions is offering a rare chance to see the Aurora Australis – the Southern Lights! A unique cruise that ventures below the Antarctic Circle - to see a once every 11 years display of this incredible phenomenon. This 15-day trip departs March 21, 2025, and we have a few spaces left at 25% discount – just mention Astrocon for lower pricing. Antarctica, Penguins, Whales, and the Southern Lights – a true adventure!
Check it out at: Everen Expeditions
Time is running out on this special departure – so call us at 801-364-2642 to book this once-in-a-lifetime cruise! www.everenexpeditions.com

EVEREN EXPEDITIONS

Say Hello to Our New Members!

Marcus Annable
Brad DeDea
Aubrey Fronberg
Becky Hord
Michael Jueschke
Danielle LeCourt
Oscar Lopez
John Lovato
Robert Morreall
Jack Noble
Woodson Parker
Adam Tibbitts

At SLAS, we are observational astronomers who:

Promote astronomy

Encourage public education and interest

Coordinate activities with professional research

SLAS General Meeting Guest Speakers

January 15, 2025

Jumana Alshaikh, MD

Jumana Alshaikh, MD is a clinical neurologist and an assistant professor of neurology at University of Utah. She is from Saudi Arabia and moved to the U.S. 10 years ago. She started her career in the U.S. as a neurology researcher in Washington DC, then did her neurology residency training at University of Chicago followed by her subspecialty training in movement disorders at Johns Hopkins University. She moved to Utah in 2021 for her current position as a neurologist and assistant professor at University of Utah and is the co-director of their Parkinson Disease center of excellence and has won the department of neurology's teacher of the year award twice in 2022 and in 2024. After moving to Utah, she looked up at the sky and saw the milky way galaxy for the 1st time and fell in love with the cosmos, then found her way to SLAS where she has learned a lot about astronomy. She is very appreciative to all the knowledge taught to her by SLAS members and is excited to speak to us about a topic that combines her profession in neurology with her hobby in astronomy which is "The Neurology of Space Travel".

February 19, 2025

Martin Ratcliffe

We are pleased to announce Martin Ratcliffe as our February general meeting guest speaker. Martin will present some basic aspects of astronomical photography to help beginners get started and develop ideas to show how amazing photographs can be taken with relatively simple equipment. Some equipment will be on stage to show some options.

Martin Ratcliffe has written the monthly night sky column for “Astronomy” magazine for 28 years. After a couple of gigs as a planetarium director, he joined the vendor side and trained planetarium professionals around the world for 15 years. Now he works for Evans & Sutherland/COSM.

He’s passionate about photographing the sky with cameras and telescopes and sharing his work with others. A veteran of nine total eclipses of the Sun, he filmed them for a couple of TV projects and since has dwelled on perfecting photographing them. He enjoys astronomical photography from his own home-built observatory in Stansbury Park, UT, using a wide range of cameras, and telescopes ranging from 80 mm to 355 mm.

He’s a former President of the International Planetarium Society. He teaches astronomy at Wichita State University, and at Bethel College, both in Kansas. Martin was one of the founder members of the Newbury Astronomical Society in the UK, and a past council member of the British Astronomical Association.

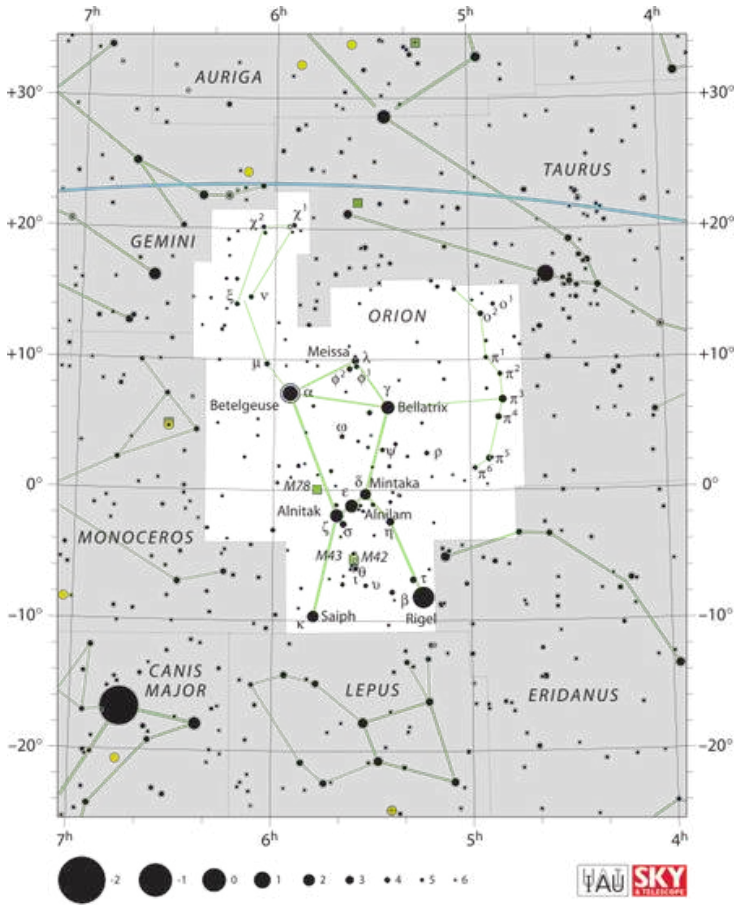
Constellation CORNER

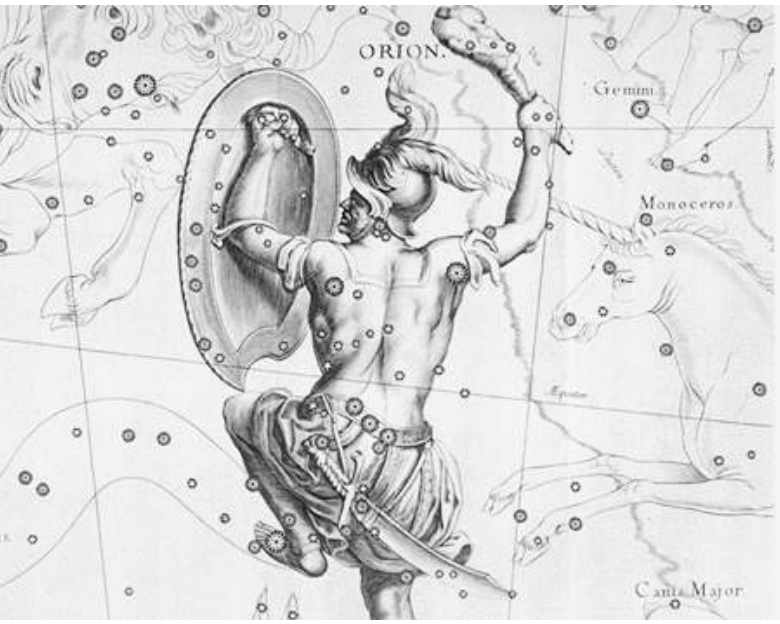
BY: KRISTA LEMOINE

Orion

THE HUNTER
JANUARY 2025

Most myths about Orion's end involve a scorpion, but the stories differ from one mythographer to another. In one tale, Orion boasted to the goddess Artemis and her mother Leto that he could defeat any beast on earth. The Earth Goddess heard him and sent a scorpion, which stung the giant. In another story, he tried to force himself on Artemis and she was the one who sent the scorpion. In yet another account, Orion was stung while trying to save Leto from the scorpion. All myths of Orion's passing share the same outcome: Orion and the scorpion were placed on opposite sides of the sky, so that when the constellation Scorpius rises in the sky, Orion sets below the horizon in the west, fleeing from the scorpion.





ASTRONOMICAL LEAGUE OBSERVING TARGETS

Messier	Herschel 400	Double Star	Urban
M42	NGC 1788	Beta Orionis	NGC 1976
M43	NGC 1980	Delta Orionis	NGC 1981
M78	NGC 1999	Struve 747	NGC 2169
	NGC 2022	Lamda Orionis	
	NGC 2024	Trapezium	
	NGC 2169	Theta 1 Orionis	
	NGC 2186	Iota Orionis	
	NGC 2194	Theta 2 Orionis	
		Sigma Orionis:	
		Zeta Orionis	

Click here for the list of
Astronomical League Observing Programs.

MESSIER 42
GREAT ORION NEBULA

Magnitude: 4.0
Approximate distance from Earth: 1,344 light-years
Location: 05h 35m 17.3s(right ascension), −05° 23′ 28″ (declination)


Messier 42
PHOTO: MAX BYERLY


Barnard 33
PHOTO: MAX BYERLY

BARNARD 33
THE HORSEHEAD NEBULA

Magnitude: 6.8
Approximate distance from Earth: 1,375 light-years
Location: 05h 40m 59.0s (right ascension), −02° 27′ 30.0" (declination)

WHERE IS THE ORION CONSTELLATION?

Orion is one of the most recognizable constellations in the sky. Its seven brightest stars form a large crooked hourglass figure that dominates the evening sky from November to early March. Betelgeuse marks his left shoulder, Bellatrix the right, Rigel his right knee and Saiph, the left knee. Alnitak, Alnilam and Mintaka form the Belt of Orion, one of the best-known asterisms in the night sky.

NEXT MONTH:

Gemini

THE TWINS
FEBRUARY 2025

10 BRIGHTEST STARS IN ORION

β Orionis - Rigel - 0.12
α Orionis - Betelgeuse - 0.5
γ Orionis - Bellatrix - 1.64
ε Orionis - Alnilam - 1.7
ζ Orionis - Alnitak - 2.05
κ Orionis - Saiph - 2.06
δ Orionis - Mintaka - 2.23
ιOrionis - Hatysa - 2.77
π3 Orionis - Tabit - 3.19
η Orionis - 3.36

OTHER DEEP SKY OBJECTS IN ORION

NGC 1662 - Open Cluster
NGC 1973 - Nebula
NGC 1975 - Nebula
NGC 2175 -Nebula
IC 434 - Emission Nebula

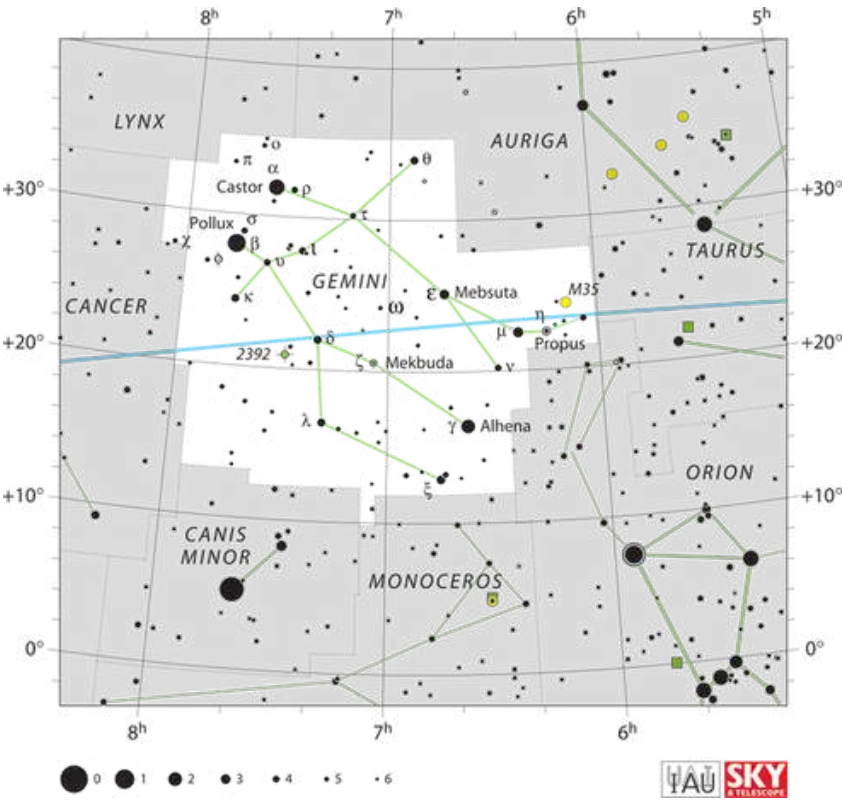
Constellation CORNER

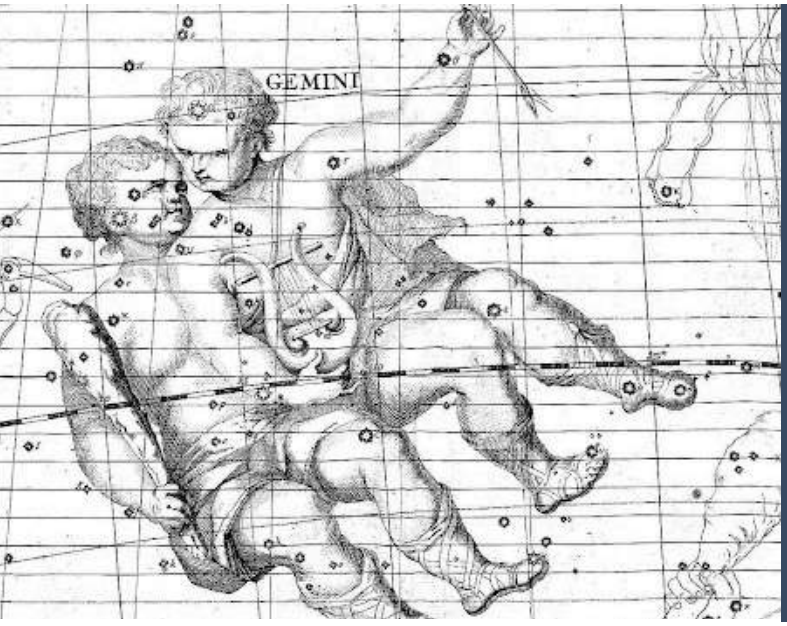
BY: KRISTA LEMOINE

Gemini

THE TWINS
FEBRUARY 2025

Gemini represents the twins Castor and Polydeuces (Pollux is the Latin form of his name); they were known to the Greeks as Dioscuri, literally meaning “sons of Zeus”. Castor and Pollux grew up the closest of friends, never quarrelling or acting without consulting each other. Castor and Pollux clashed with another pair of twins, Iolas and Lynceus, over two beautiful women. Castor was run through with a sword and died. Pollux grieved for his fallen brother and asked Zeus that the two should share immortality. Zeus placed them both in the sky as the constellation Gemini, where they are seen in close embrace, inseparable to the last.





ASTRONOMICAL LEAGUE OBSERVING TARGETS

Messier	Herschel 400	Double Star	Urban
M35	NGC 2129	Delta Geminorum	NGC 2168
	NGC 2158	Alpha Geminorum	NGC 2392
	NGC 2266		
	NGC 2304		
	NGC 2355		
	NGC 2371		
	NGC 2372		
	NGC 2392		
	NGC 2395		
	NCG 2420		

Click here for the list of
Astronomical League Observing Programs.

MESSIER 35
OPEN CLUSTER

Magnitude: 5.3
Approximate distance from Earth: 2,970 light-years
Location: 06h 08m 54.0s(right ascension), +24° 20′ 00″ (declination)


Messier 35
PHOTO: MARIO WEIGAND


IC 443
PHOTO: SCOTT CADWALLADER

IC 443 (GEM A)
THE JELLYFISH NEBULA

Magnitude: 12.0
Approximate distance from Earth: 5,000 light-years
Location: 06h 17m 13s (right ascension), +22° 31′ 05″ (declination)

WHERE IS THE GEMINI CONSTELLATION?

Gemini is the 30th largest constellation in the sky, occupying an area of 514 square degrees. It lies in the second quadrant of the northern hemisphere (NQ2) and can be seen at latitudes between +90° and -60°. The neighboring constellations are Auriga, Cancer, Canis Minor, Lynx, Monoceros, Orion and Taurus.

NEXT MONTH:

Boötes
THE HERDSMAN
MARCH 2025

10 BRIGHTEST STARS IN GEMINI

β Geminorum - Pollux - 1.14
γ Geminorum - Alhena - 1.93
α Geminorum - Castor - 1.98
μ Geminorum - Tejat - 2.88
ε Geminorum - Mebsuta - 2.98
η Geminorum - Propus - 3.28
ξ Geminorum - Alzirr - 3.36
δ Geminorum - Wasat - 3.53
κ Geminorum - 3.57
λ Geminorum - 3.58

OTHER DEEP SKY OBJECTS IN GEMINI

IC 144 - Reflection Nebula
NGC 2331 - Open Cluster
IC 443 (Gem A) - Supernova Remnant
NGC 2342 - Galaxy
NGC 2487 - Galaxy

Astronomical Events
January and February 2025

Source: Sea and Sky

03-04: Quadrantids Meteor Shower

10: Venus at Greatest Eastern Elongation

13: Full Moon

16: Mars at Opposition

29: New Moon

31: Slim Crescent Moon Cradles Saturn

Parade of Planets Starts this Month

01: Crescent Moon to the Left of Venus

05: Crescent Moon Near Uranus

06: Crescent Moon Near Jupiter

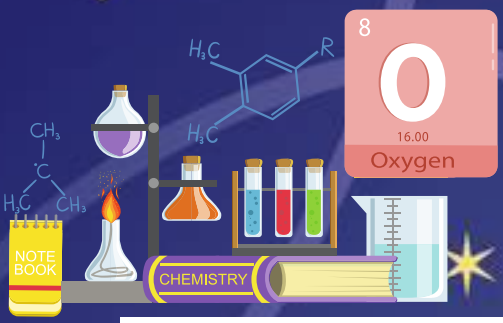
09: Moon, Mars, and Gemini near each other

12: Full Moon

28: New Moon

Parade of Planets comes to an End this Month

The Astronomer's Periodic Table of Elements

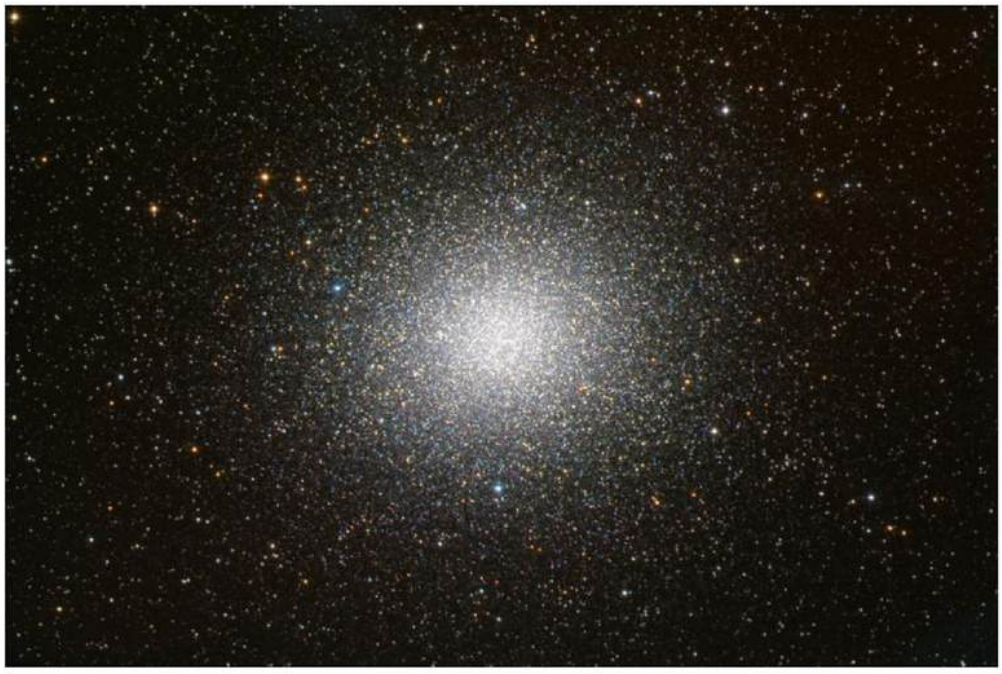


Oxygen

PHYS.ORG

Oxygen in stars

May 2 2016



An optical image of the brightest globular cluster, Omega Centauri, a group of over ten million stars older than the Sun. Astronomers have developed a new computational method to determine the abundance of oxygen in these and similar stars, and in particular in giant stars. The code finds values that are more self-consistent than previous estimates. Credit: Joaquin Polleri & Ezequiel Etcheverry, Observatorio Panameño en San Pedro de Atacama

Oxygen is the third most abundant element in the universe, after hydrogen and helium. It is an important constituent of the clouds of gas and dust in space, especially when combined in molecules with other atoms like carbon, and it is from this interstellar material that new stars and planets develop. Oxygen is, of course, also essential for life as we know it, and all known life forms require liquid water and its oxygen content. Oxygen in molecular form, especially as water, was supposed to be relatively abundant, but over the past decade considerable attention has been paid to observations suggesting that at least in molecular form oxygen is scarcer than expected, a deficit that has not yet been entirely resolved.

Atomic oxygen by contrast, seen most prominently in the light of stars, was thought to be in good agreement with expectations. The neutral oxygen atom produces strong lines that are frequently used to calculate its abundance. Models fit the line strengths by taking into account the radiation field, the star's hot gas motions, and the internal structure of the star (for example, the way the temperature and pressure change with radius). It turns out, however, that varying assumptions in these calculations can result in oxygen abundance predictions that differ significantly, and in the case of giant stars, which are larger and cooler and often have hot outer chromospheres, those abundance results can disagree with one another by as much as a factor of 15. This discrepancy has often been discounted by scientists arguing that some of the proposed stellar models are themselves unrealistic.

CfA astronomers Andrea Dupree, Eugene Avrett, and Bob Kurucz have tacked this fundamental problem with Avrett's PANDORA code for stellar atmospheres. In particular, they include the effects of a hot outer atmosphere in giant stars, something that was typically ignored. Moreover, they do not tie the excitation of oxygen atoms (and the corresponding line strengths) to the local temperature. That constraint, imposed by most previous methods in order to simplify the calculations,

does not take more complex situations (like the hot atmosphere) adequately into account. The astronomers find that their new computations can resolve several outstanding issues. The lines themselves are actually as much as three times stronger than previously thought, reducing the implied oxygen abundances, and thereby also affecting details of the stellar interior models, especially for giants seen in globular clusters of stars. Similar improvements are seen in the results for stars known to be lacking other heavier elements, and even some normal, Sun-like stars. The possible implications extend to estimating more accurately the amount of oxygen present in a solar nebula when exoplanets form.

More information: "Chromospheric Models and the Oxygen Abundance in Giant Stars," A. K. Dupree, E. H. Avrett, and R. L. Kurucz, ApJ 821, L7, 2016.

Provided by Harvard-Smithsonian Center for Astrophysics

Citation: Oxygen in stars (2016, May 2) retrieved 30 December 2024 from https://phys.org/news/2016-05-oxygen-stars.html

Rooms Going Fast!!

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

Please visit our website at https://astrocon2025.org/ or Scan the QR code below to register for ASTROCON 2025!

ATTENTION PLEASE!

Volunteers Still Needed!

We are still in need of people who can provide the following services to please volunteer.

*IT Specialist/AV Coordinator *Food Service Coordinator
*Coordinator of the Workshops * MC to Introduce Guest Speakers

Please contact Lowell Lyon (Information above) to volunteer!

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.

K-12 Astronomy Lab

Pocket Solar System

Building scale models of the solar system is a challenge because of the vast distances and huge size differences involved. This is a simple little model to give you an overview of the distances between the orbits of the planets and other objects in our solar system. (It is also a good tool for reviewing fractions.)

Materials needed:

- At least 1 meter of paper tape per person, such as adding machine paper
- Pen or pencil each

Just to review, the order of the planets and large objects going out from the Sun and their average distances are:

Object	Distance in kilometers	Distance in AU①
Mercury	58 million	0.39
Venus	108 million	0.72
Earth	150 million	1
Mars	228 million	1.52
Asteroid Belt (including Ceres ②)	416 million	2.77
Jupiter	778 million	5.2
Saturn	1,427 million	9.54
Uranus	2,870 million	19.2
Neptune	4,497 million	30.1
Pluto ② and the inner edge of the Kuiper belt	5,850 million	39.5
Eris②	10,200 million	67.8

①AU stands for Astronomical Unit and is defined as the average distance between the Sun and the Earth (about 93 million miles or 150 million kilometers).
②The International Astronomical Union (IAU), the organization in charge of naming celestial objects, classified these objects as "dwarf planets" in 2006.

Making Your Pocket Solar System

Make sure everyone has a strip of register tape at least a meter long and at most, the length of the person's body. Cut or fold over the ends so they are straight. Label one end "Sun" and the other end "Pluto/Kuiper Belt".

Next, fold the tape in half, crease it, open it up again and place a mark at the half-way point. Many will be surprised that this is Uranus.

Now fold the tape back in half, then in half again. Unfold and lay it flat. Now you have the tape divided into quarters with the Sun at one end, Pluto on the other and Uranus in the middle. Place a mark at the quarter mark and 3/4 mark and label as Saturn (closer to the Sun) and Neptune (closer to Pluto), respectively.

Stop and admire your work. Which part of the solar system has filled 3/4 of your tape? That's right, you've only been mapping out the places for the 3 most distant planets and Pluto. That means that you've still got 5 plus the asteroid belt to fit into the quarter between the Sun and Saturn! Let's keep going to see how this will work.

Fold the Sun up to Saturn and crease it. Unfold and lay flat again. Place a mark for Jupiter at the 1/8 mark (between the Sun and Saturn), and label it.

If you take a look, you've got the 4 gas giants and Pluto all on there. For the remaining bodies in the Solar System, you'll only need 1/2 of the first 1/8th! That's the inner 1/16th of your tape length! Fold the Sun out to meet Jupiter to mark the 1/16th spot. A planet does not go here, but the Asteroid Belt does. (See picture below)

At this point, things start getting a little crowded and folding is tough to get precise distances. Fold the Sun to the Asteroid Belt mark and crease it. Place a mark for Mars on this fold (between the Sun and Asteroid Belt) and label it.

How many more planets do we need to place? Three. Fold the Sun up to meet the line for Mars. Leave it folded and fold that section in half. Unfold the tape and you should have three creases. Mark Earth on the crease nearest Mars, Venus on the middle crease and Mercury on the crease closest to the Sun.

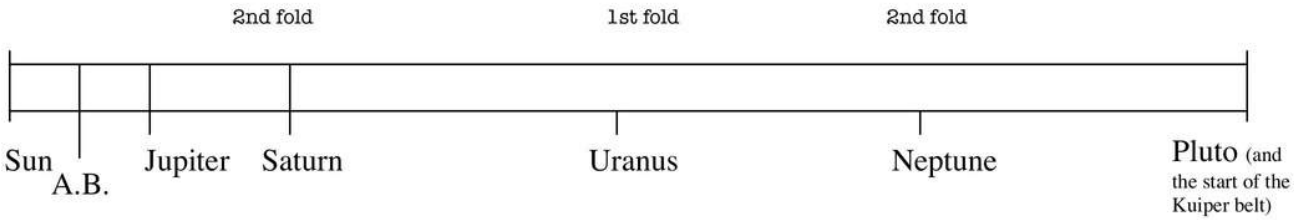
Smooth out your model and admire your work. Are there any surprises when you look at the distances between the planets this way? Many people are unaware of how empty the outer solar system is (there is a reason they call it space!) and how crowded the inner solar system is (relatively speaking).

Here are some questions to consider while admiring your work:

1. Can you estimate where Eris, will be at the same scale as your model? It travels in a very eccentric orbit, from 38 AU at its closet approach all the way out to 97 AU from the sun at its farthest.
2. If your model were 1 meter, where would the nearest star be? (1m = 40 AUs, Proxima Centauri is 4. 3 light years from the Sun, and 1 light year = 65,000 AUs)
3. How big would the Sun and planets be if your model were one meter long?

Answers:

1. At 97 AUs it would more than double the size of the model, you'd need to add another one and a half meters to the model. This is within the region called the Kuiper belt, a thick disk of comets, dwarf planets and icy objects.
2. The nearest star would be about 7 kilometers or 4.2 miles away.
3. The Sun would be smaller than a grain of sand. You couldn't see any of the planets without a magnifying glass on this scale!



Fold Sun to Asteroid Belt, mark "Mars" on fold.
Fold Sun to Mars and then fold in half again. You should have 3 marks for the three planets closest to the Sun.
The Sun is smaller than a grain of sand – 100 Suns must fit between Sun and Earth.
It's easy to remember Uranus is in the middle: If you make the strip as long as you are tall, "Uranus" is right over (your behind), right in the middle of your body.

SLAS Board Meeting Minutes

November 13, 2024

7:00PM

Denny's – Redwood Rd & North Temple

Board Members in Attendance: Don Abernathy, Aleta Cox, Krista Lemoine, Marlene Egger, Trevor Hebditch
Other Members in Attendance: Alpine Stringham, Patrick Wiggins, Ken Warner, Lowell Lyon, Jenette Scott, Haden Wilde, Joan Carman, Rachel Henderson, Jeremy Scott.
President, Don Abernathy, calls the meeting to order at 7:05PM.

Don welcomes everyone, and thanks the board members-elect for attending.

Don noted which members are taking board positions for next year. Don also noted that there are two prospective board members. They are as follows: Rachel Henderson has volunteered to be Secretary/Treasurer and Hayden Wilde has volunteered to be Board Member-at-Large.

Don researched the protocol for filling vacancies in the board. He cited the SLAS Constitution saying that any gaps in the next year's Board shall be filled by the current Board within 30 days of the election. He also presented the precedent that was established in December 2022. [Our historian, Patrick Wiggins, clarified after the Board meeting that our constitution says that when a Board has an actual vacancy, they are to fill it within 30 days.]

Don also presented the precedent that was established in December 2022.

It reads as follows:

a. November/December issue of NOVA: results of the 2023 SLAS Officer Election

b. November/December issue of NOVA: (December 3, 2022) SLAS Solstice Party

"Success! ...We look forward to 2023 with Don Abernathy as president, Marlene Egger as a new board member at large, and Krista Lemoine as secretary/treasurer."

c. Salt Lake Astronomical Society Board Meeting Minutes, December 14, 2022:

"Needed to appoint a secretary-treasurer for the 2023 year. Krista Lemoine was nominated at the meeting by Aleta Cox and seconded by Tony Sarra. All board members agreed. Let the records show that Krista Lemoine is Secretary/Treasurer for 2023."

Don explained that there are valid reasons to have a full Board-elect in place prior to the end of the year:

1. A few SLAS Constitution requirements need to be ready for the new Board and in place by the beginning of the year, such as (but not limited to) next year's calendar, next year's budget and financials.

2. Not having such aforesaid items already in place creates an undue burden upon the incoming Board.

3. The incoming Board members have the opportunity to be properly informed by the outgoing Board members as to operational procedures and protocols.

4. Having a secure, complete Board in place provides for a smooth transition.

Marlene Egger, Board Member-at-Large, made a motion to support the prospective board member appointees, Hayden Wilde and Rachel Henderson.
The motion was seconded by Vice President, Aleta Cox.

All board members approved.

Trevor Hebditch, Board Member-at-Large, consulted a lawyer on *Robert's Rules of Order* and he was informed that precedent will overrule *Robert's Rules of Order.*

Trevor made a motion to approve the prospective board members.

Krista Lemoine, Secretary/Treasurer, seconded the motion.

4 board members approved the motion, and 1 board member abstained.

Jenette Scott, Vice President-Elect and *NOVA* Editor, will update the *NOVA* with the full board elect.

ALCor, Aleta Cox, noted the next ASTROCON 2025 meeting will be in mid-January. Lowell Lyon, ASTROCON 2025 Chair, was present and gave a quick update on conference planning. He said our primary corporate sponsor will hopefully be ZWO. There will be 6 workshops and 6 guest speakers.

Joan Carman, LTTC, brought awareness to the demise of Orion and Meade and how this has affected the Library Telescope Program. High Point Scientific has agreed to start producing a similar telescope that will come fully modified for library circulation. Don Fricken has created a non-profit 501-C-3 company which will go between High Point Scientific and the purchaser. The telescopes should be available in February or March. A website will be created to educate the libraries on maintenance and will make the program accessible to all libraries without needing an astronomical society sponsor. SLAS has an agreement with UVAC to repair the telescopes in Utah County. Salt Lake City and County library systems are already doing their own repairs. SLAS remains responsible for repairs for the telescopes in Davis, Summit, and Tooele Counties. SLAS exposure is low. Astronomical societies will still be involved with LLTP, but not responsible for future repairs. Exactly how that is all going to work out is unclear. Don asked about the extra telescope that she has. He will reach out to her privately.

Krista reimbursed Patrick Wiggins for his payment to renew the club's sponsorship of SPOC's online Clear Sky Clock.

Jim Keane, SPOC Director, was absent and excused, but sent his thanks for the help with SPOC cleanup. He will get the financials together for the Big Sieg in time for the December board meeting. The topic of charging a fee for star parties and asking for donations was discussed. Ken Warner, Webmaster, said in the past the board never asked for payments for star parties but welcomed donations. It was agreed by most that adding tip jars at SPOC star parties was a good idea.

Aleta handed out a preliminary calendar for SPOC star parties next year. Jim requested that there not be any back-to-back star parties. She noted that Stansbury Days may cause an extra weekend in August. She also noted that May 31st was chosen in lieu of June 7th due to the moon phase. Joan said that she's no longer interested in organizing the library star parties next year. Trevor will take up the task of finding a new coordinator for those.

Information on Certificates of Deposit (CD) was passed out. Krista gave an updated bank balance. Don gave a quick overview of what types of CDs are available. At the last meeting it was discussed what terms and amount would work best. It was questioned whether we would have access to the CD or not if funds needed to be withdrawn early, but Don noted a penalty would be on the interest accrued and not the principal. Marlene and Joan commented that the document Don passed out says that a penalty would be deducted from the amount of an early withdrawal, not from the interest. Joan amplified that if you invested $100,000 and withdrew $2,500 early, what you would receive is less than $2,500. A motion was made by Trevor to leave this decision to the 2025 board. Krista seconded the motion. The motion was explained a second time so all could hear it. The motion passed.

Don commended Marlene for her star party efforts this year. There is one upcoming school star party left on the calendar. She said it's possible it could be cancelled due to the weather. She said she has materials and insight to pass on to the next board member taking the position.

Trevor Hebditch organized the Educational Fund earlier this year and passed out a summary of the purpose of it. There will be a committee of 3 people to help vet prospective recipients. A submission should come from a member in good standing nominating a person that couldn't afford SLAS membership. Trevor will donate $500 every 6 months. Once there are sufficient funds the money could be used for other things like scholarships, field trips, etc. Don thanked Trevor for putting this together.

Don would like to see more younger people step up next year.

Don called on Ken Warner to give an update on the website. Ken's team has been working for a couple weeks now and progress is being made. Jenette will still be able to add the *NOVA* to the website as she currently does. Patrick asked if the SLAS Gallery will be added to the new website. Ken said that is not part of the current plan. A SLAS Blast will be sent asking for those pictures to be downloaded by the members that uploaded them. Trevor suggested those photos be uploaded to Astrobin, a popular astrophotography website.

binoculars in the box. Don said he was also trying to reach out to Heather at Uptown Embroidery for a quote on tote bags.

The transitional board meeting will be on December 11, 2024. He asked all involved to attend. The 2025 budget and calendar need to be addressed during that meeting. Krista will put that together.
Lowell will ask the Astronomical League about getting donations from them for the Solstice Party. He also mentioned there are online savings accounts that could be used in place of a CD for building SLAS funds. These accounts have fewer restrictions. Patrick wondered if anyone would like to take over the weekly 'News' SLAS Blasts.

The meeting adjourned at 8:08 PM

Minutes submitted by:

Krista Lemoine, SLAS Secretary/Treasurer

SLAS General Meeting Minutes

November 20, 2024

7:30PM

Salt Lake Community College – Redwood Road Campus

35 members in attendance.

President, Don Abernathy, calls the meeting to order at 7:30 PM.

Don welcomed everyone and asked if there were any new members in attendance.

John Lovato stood up and introduced himself. A student also stood up and introduced themself.

Don reminded everyone there is no general meeting in December. Instead, we will have our annual Solstice Party on December 7th at Golden Corral in Midvale. There will be a raffle for door prizes.

He acknowledged our appreciation to Professor Jonathan Barnes and Dr. Samuel Jones, for hosting the meeting at Salt Lake Community College.
The Guest Speaker this evening is Louis Maez, newly appointed SLAS Solar Party Coordinator. Louis is a dome technician and science communicator at the Clark Planetarium. He is also a telescope operator at Dark Ranger Telescope Tours. Don gave the floor to Louis.

Louis' presentation is on Double Star Astrometry. He recently went to SETI Radio Observatory. He got his start in astronomy in 2019 working with Dark Ranger Telescope Tours in Bryce Canyon, UT. He now works at Clark Planetarium. He shared the October calendar from Clark to show what outreach the Planetarium does. Clark is interested in dual membership with SLAS.
He moved on to his presentation. He covered double and binary stars talking about notable doubles such as Mizar and ALCor, TCrB, and Alberio. He showed everyone the Washington Double Star Catalog's website and how to use it. He also showed everyone how to use the Gaia Archive to search for double-star data. He explained his workflow process.

Following his presentation, he took questions from the audience.

Don moved on to the business portion of the meeting.

The minutes from the board meeting are online for review. The two vacancies on next year's Board have been filled by prospective appointees as follows:
Hayden Wilde as a Board Member-at-large and Rachel Henderson as Secretary/Treasurer.

A vote was taken, and all Board members approved the appointments.

There is one school star party left this year on November 22nd. He asked everyone to please see the

website for details and to dress warm.

He reminded everyone again that this was the last meeting of the year. The next general meeting is on January 15th and the speaker will be Jumana Alshaikh, a clinical Neurologist and an assistant professor at the University of Utah. She is one of our newer members and will be presenting on “Neurology of Space Travel.”

Don thanked the outgoing board members for their service and invited everyone to Dee’s Restaurant for “Advanced Training” following the meeting.

The meeting adjourned at 8:37 PM.

Minutes submitted by:

Krista Lemoine, SLAS Secretary/Treasurer

SLAS Board Meeting Minutes

December 11, 2024

7:00PM

Denny's – Redwood Rd & North Temple

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

Other Members in Attendance: Patrick Wiggins, Max Byerly, Hayden Wilde, Joan Carman, Tony Sarra

President, Don Abernathy, calls the meeting to order at 7:00pm**.**

Aleta Cox, ALCor, will be updating the roster for AL in a few weeks. Don asked Krista Lemoine to show everyone the ad in Reflector for ASTROCON 2025.

Joan Carman, LTTC, would like to keep her current position, but not the role of library star party coordinator. She also mentioned that the Orion Star Blast made the list of *Top 10 Amateur Telescopes That Changed Astronomy FOREVER* by Ed Ting. She reiterated that High Point Scientific is taking over the manufacturing of library telescopes. They have bought and modified the 92 remaining Zhumell models. New telescopes should be available in March. Patrick Wiggins, Historian, recently found some old floppy disks that are labeled SLAS. He asked if anyone has a 5.25 disk reader to assist in being able to open them. Patrick's recent post in SLAS Talk about taking down the current website's image gallery received push back from some members. Patrick will download those images, and hopefully add them to the new website if that option is available.

Jim Keane, SPOC Director, said the final financials for the Big Sieg aren't available yet. He said the project is under budget and there are some expenses for next year. Don commented how wonderful and clean the Kolob building is now. Don thanked everyone for their help with the cleanup day. Jim said he has fixed everything he can at this time. He would like to do some rewiring for the Ealing, and he also needs to change some firmware for the Grim. He is hoping to get that done this winter. Aleta Cox, Vice President, has drafted the 2025 star party calendar. She passed out copies to everyone.

Library star parties are still TBD, and she mentioned whoever takes the role of coordinating them needs to get on that soon. There is one potentially scheduled for July 4th. Everyone agreed to remove that date. October 31st and November 1st will also be removed. October 25th will be added as the last date SPOC is open for 2025. Joan encouraged everyone to set up a telescope in their driveway on Halloween during trick or treat. She said she's had a lot of success doing this in the past. Max Byerly asked about having an event for the total lunar eclipse on March 13th. Don and Jim agreed that it could be done without opening SPOC for the season. Members could set up telescopes on the grassy area. After further discussion it was discovered that the partial eclipse will not start until about 10:00PM and totality will be around midnight. It was decided this will not be added to the calendar, and a decision will be made by next year's board if an event takes place. Aleta also drew attention to the Bryce Canyon Astronomy Festival and ASTROCON 2025 being on the same weekend in June. She also pointed out Stansbury Days in August as well as Capitol Reef and Great Basin National Park's star parties in September. The board

approved the proposed 2025 calendar. Aleta will make the changes and send it out for approval by the membership at January's general meeting. Aleta has no incomplete goals for the VP next year at this time.

Krista Lemoine, Secretary/Treasurer, presented the proposed budget for 2025. Trevor Hebditch, President-Elect, would like funds added for another Zoom License. $200 was allocated for a Zoom License. The board unanimously voted to remove the emergency funds line as the SLAS Constitution requires all funds not in the General Budget be approved by the membership. Jim requested $250 to be allocated towards AL dues to help balance the books since these funds come in as members join the AL. Dues for AL are paid once a year in June. The fiscal year for AL runs 7-1-24 through 6-30-25.

Krista made a motion to pass the proposed 2025 budget. Marlene Egger, Board Member-at-Large, seconded the motion and it passed unanimously.

Marlene said the last school star party had a great turnout and 3 SLAS members participated despite the cold weather. It was cloudy at the beginning, but the skies cleared enough for patrons to get some observing done. Trevor, as President-Elect, will define the duties of the SLAS board. Board Members-at-Large-Elect, Max Byerly and Hayden Wilde will discuss which roles they prefer taking. Trevor will reach out to those with appointed positions about keeping their role. Marlene pointed out that some of those roles are appointed by the SPOC Director. Trevor and Jim will work on this together.

Jim gave an update on the new SLAS website. He and Ken Warner have been having meetings with the team in India weekly. They are hoping the page will go live early in January. Patrick asked who he could talk to about the SLAS image galley. Jim said he will need to reach out to Ken. Trevor will set up a meeting in January with the Bank of Utah to transfer signers for the SLAS bank account.

Marlene passed out a Refractor Instruction Coordinator report. She noted we got 1 more trainee in 2024 vs 2023.

Don asked that the incoming board please reach out to the old board members for protocol on their positions or if they have any questions.

Trevor will also be working with Ken on setting up SLAS emails for board members.

Don asked for more help from SLAS members with ASTROCON 2025.

Don would like to see greater involvement with Stansbury. Jim will be working on that.

Don asked Trevor to please nominate Jenette Scott for the AL Mabel Sterns Award for outstanding editing of a League-society newsletter.

Patrick asked about next year's Board and General Meeting schedule given that data needs to be included in the January issue of the club's newsletter. It was agreed to remain with the current schedule of board meetings on the 2nd Wednesday of the month starting at 7:00PM and general meetings on the 3rd Wednesday, January through November starting at 7:30PM. No general meeting in December, instead the annual solstice party on the first Saturday of December starting at 7:00PM.

Don listed all the accomplishments for 2024:

A. Introduction of the new Sieg telescope at SPOC

B. Outstanding turnouts at SPOC Star parties

C. Impressive turnout for telescope operator training

D. School and Special Star Parties increased w/large turnouts

E. Greatly increased the turnout at Library Star Parties

F. Involvement with ASTROCON 2025

G. SPOC cleanup and organization; SPOC upgrades

H. Increased activity/turnout w/Sun Party schedule

I. SLAS Telescope Loan Program: storage area organized, donations accepted, program

expanded

J. Expansion of LLTP to Tooele City

K. The creation of the SLAS Astronomical Education Fund

L. Successful Messier Marathon

M. Rocky Mountain Power Grant to Library Program

Krista thanked Don for his service as President the last two years. He received a round of applause from everyone present.
Meeting adjourned at 8:29PM.

Minutes submitted by:

Krista Lemoine, SLAS Secretary/Treasurer