

Southern Skies

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The quarterly journal of the Southeastern Planetarium Association

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Cover photo credit: Liz Klimek

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Table of Contents

SEPA Officers	2
Southern Skies Editorial Staff.....	3
President's Message by Liz Klimek.....	4
Editor's Soapbox by Mel Blake.....	7
Financial reports by Patsy Wilson.....	9
Bookends by Robin Byrne.....	11
Archaeoastronomy by Woodrow Grizzle.....	16
News from the SEPA Region.....	19
The Rules of Improv by Callie Boyle.....	36
SEPA 2022.....	39
Dark Skies News by Mel Blake.....	55
Events calendar by Mel Blake.....	57

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President's Message

by Liz Klimek

President's Message

Oct 21, 2022

Hello SEPA Members!

What a whirlwind two years it's been! I first want to thank you all for giving me this amazing opportunity to serve you on Council and I am humbled and appreciative of the trust that you have placed in me. I hope that I have done an adequate job at the very least. I'm also honored to have been what I think is the first Asian American president. I often don't think about it, but as a colleague keeps reminding me, representation is important, and I'm proud to represent.

One of the biggest goals I've had is to ensure better continuity each time a new person is rotated on and off Council, thus enabling everyone to settle into their new roles quickly and comfortably. Another goal has been to continue to revise and update the conference hosting guidelines, which the Conference Committee has been working on. During my remaining two years, as your Past-President I hope to finish up these projects in collaboration with my fellow Council members. I cannot thank our outgoing Council members enough, Past-



President James Albury, Secretary- Treasurer Patsy Wilson, and IPS Representative John Hare for all of their years of hard work, dedication and guidance.

As I mentioned at the Annual Business Meeting in Huntsville this past August, I want to encourage members to become more involved in SEPA leadership and in the organization in general. I know that we all have a ton going on at any one time, but there are many ways to participate. Presenting at conferences, submitting articles to the *Southern Skies*, and running for Council are various ways in which you can help shape the future of the organization. Another thing to consider is committee work. If you are interested in serving on a committee, or if you feel that a committee is needed to address a specific issue or

a task, please reach out to anyone currently on Council to express your thoughts.

Speaking of Huntsville, thank you again to our host David Weigel, his team at the INTUITIVE Planetarium, and his colleagues at the U.S. Space & Rocket Center for organizing a phenomenal conference. It was uplifting to see so many new faces. I sincerely hope that everyone, most especially all the first-time attendees, found the week to be an enjoyable, memorable, and fruitful experience. I myself learned so much from all the presentations and conversations, and I returned home inspired and excited to try out some new things. I think the biggest indicators of success were all of the new connections and bonds I saw being made

and all of the smiles and hugs that abounded throughout our time together.

As we close out the year, I wish you all a wonderful holiday season, with a healthy level of hustle and bustle, and a fantastic start of the new year. I can't wait for the opportunity to catch up with many of you again in person at Bays Mountain this upcoming June.

Liz Klimek,

SEPA President

Planetarium Manager, BlueCross BlueShield of South Carolina Planetarium

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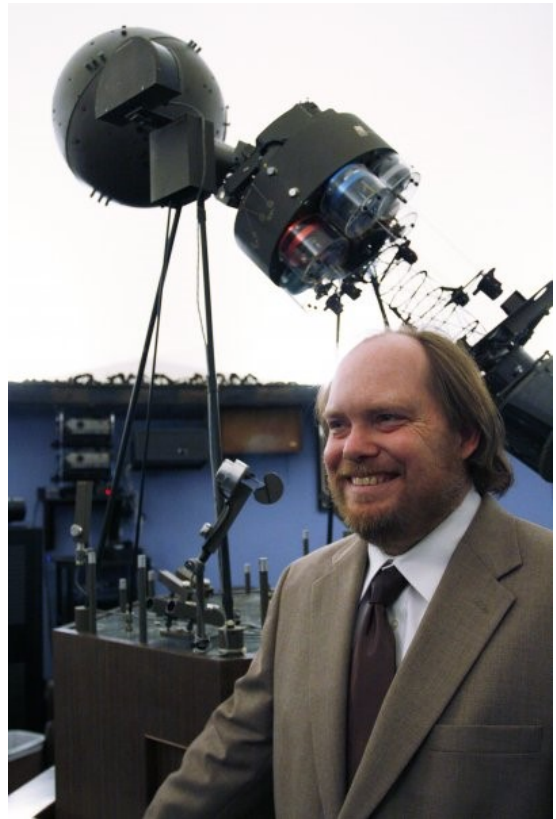
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Geographicsimaging@gmail.com

The advertisement features a dark blue, starry background with nebulae. Two movie posters are prominently displayed: 'The Alien Who Stole Christmas' on the left, featuring a green alien character, and 'FIREFALL' on the right, featuring a fiery celestial event. Several film strips with various astronomical images are arranged around the posters. At the bottom center is a logo for 'GEOGRAPHICSIMAGING.COM' featuring a stylized globe and the word 'GEO'.

Editor's Soap Box

by Mel Blake

The year 2022 has brought a return to some normalcy for a lot of people, and none more than the SEPA community. It was great to have an in-person meeting and to see everyone again after a few years. The conference in Huntsville was very well done and the hard work put in to getting it ready was clear to everyone who attended. You can find the minutes for the business meeting in this issue, as well as photos from the conference done by Dave Maness in his report, and by Jack Dunn in a separate section. I am already looking forward to the conference in Kingsport next year that will bring together planetarium professionals from across the country.



Also in this issue of Southern skies you will find our regular columns, the “Bookends” column by Robin Byrne that reviews the book “Managing Martians” by Donna Shirley, the Archeoastronomy column by Woodrow Grizzle discussing bronze age ruins in Europe, and a special column by Calie Boyle about “The Rules of Improve”. We also have the reports from our SEPA planetariums and information about a new grant opportunity to get a Sky Quality Meter from the International Dark Sky Association for measuring light pollution.

Light pollution is something that I think SEPA could be more active in trying to address. I did not hear too much about it at our discussions; we are telling people what is up in the sky but need to be more vocal in trying to preserve the night sky for everyone to enjoy. Light pollution also makes a great project for science camps and school projects for those who work with local schools. SEPA produced a great light pollution video a number of years ago but it is now a little dated with the increased use of LED lighting. Maybe it is time to update it? The year 2022 is over and 2023 is upon us!

Clear skies everyone!

Submit your Articles!

Do you have a great activity to engage your audiences? Have you devised a cool gadget or do-it-yourself upgrade that you would like to share? We can receive electronic files in most any format. Email us at SouthernSkies@sepadomes.org

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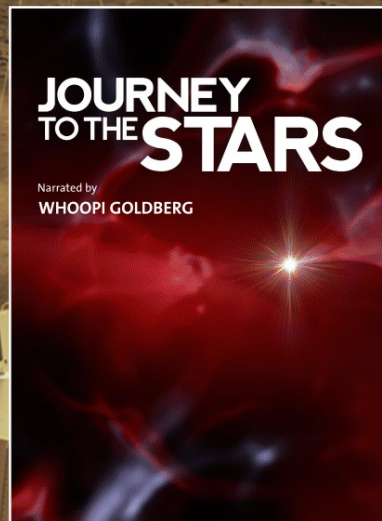
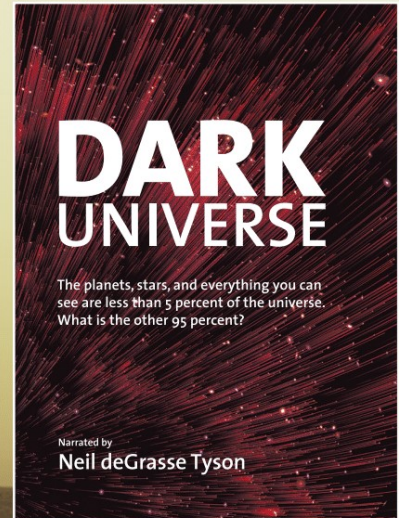
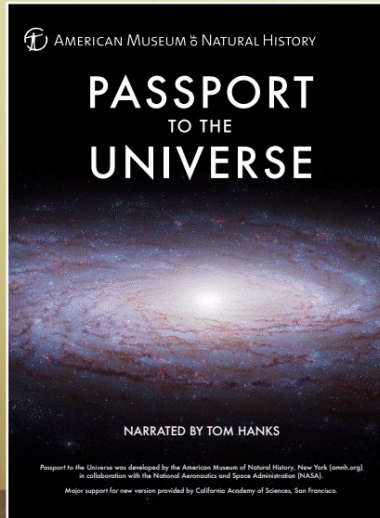
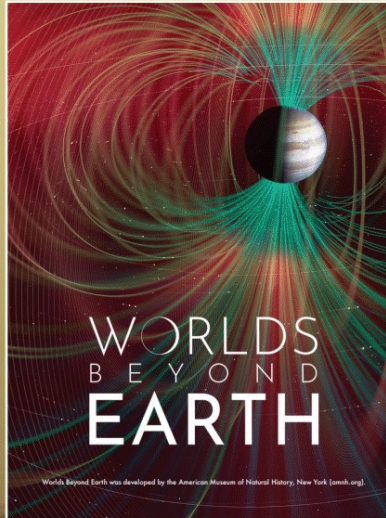
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Financial Reports

by Patsy Wilson

2022 Mid-Year Financial Report – SEPA Submitted by Patsy Wilson, Treasurer –June 30, 2022

All funds are held at Truist Bank

Balances: (as of 6-30-2022)

Operating	29,423.44
Savings	23,906.73
Professional Development Fund	18,180.29
PayPal Account	<u>111.96</u>
Total	71,662.42

Operating Account (as of 1-1-22)	13,221.59
----------------------------------	------------------

Income:

Memberships	130.00
Journal Ads	2,160.00
Transfer from PD Account	705.00
Transfer from PayPal	6,100.00
Conference Registration/Sponsorship	10,270.00
Total Income	<u>19,365.00</u>

Total Credits	32,586.59
---------------	------------------

Disbursements:

Website Maintenance/Hosting	1,000.00
Merchandise	10.68
Service charges/checks	52.47
Mini Grants	2,000.00
Transfer to PayPal	100.00

Total Debits	<u>(3,163.15)</u>
--------------	-------------------

Balance (6-30-22)	29,423.44
-------------------	------------------

Business Checking (Savings) (as of 1-1-22)		23,905.55
Income:		
Interest earned		<u>1.18</u>
Total Credits		23,906.73
Balance (as of 6-30-22)		23,906.73
 Professional Development Fund (as of 1-1-22)		 18,885.29
Disbursements:		
PD Awards-Registration & Banquet for 3		<u>705.00</u>
Balance (as of 6-30-22)		18,180.29
 PayPal Account (as of 1-1-22)		 312.27
Income		
Memberships	1,565.00	
Conference Registration	4,485.00	
Transfer from Truist	100.00	
Total Income:		<u>6,150.00</u>
Total Credits		6,462.27
Disbursement:		
Fees	160.31	
Refunds	90.00	
Transfer to Checking	6,100.00	
Total Debits:		<u>(6,350.31)</u>
Balance (as of 6-30-22)		111.96

Membership Report

Full members	89
Associate members	20
Supporting Members	23
Emeritus members	6
Total membership	136

Silent Auction Report

Thanks to the generous participants at the 2022 Conference Silent Auction, the SEPA Professional Development Fund netted **\$1,213.64**

Bookends

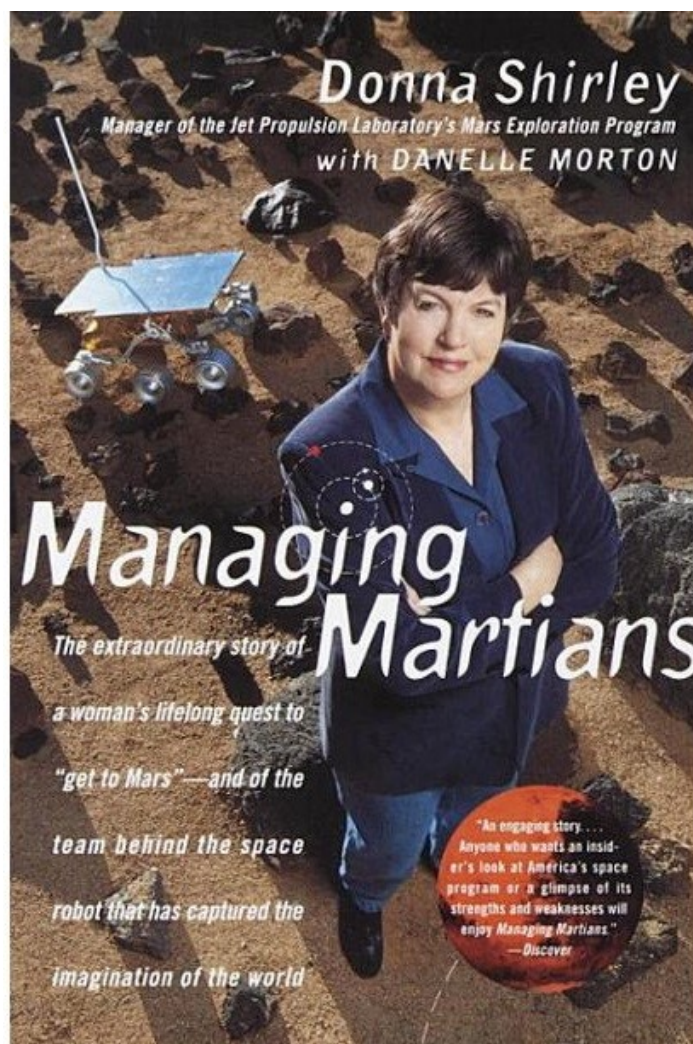
By Robin Byrne

Book Review: Managing Martians reviewed by Robin Byrne

Since this summer marked the 25th anniversary of the landing of the first Mars Rover, it seemed appropriate to read a book about the woman who oversaw that mission. "Managing Martians: The Extraordinary Story of a Woman's Lifelong Quest to 'Get to Mars' - and of the Team Behind the Space Robot That Has Captured the Imagination of the World" by Donna Shirley and Danelle Morton is a personal memoir of Shirley's life up to and including the Mars Sojourner mission.

It begins with Shirley's early life in the 1940's and 50's. She was not a stereotypical little girl. Her fascination with airplanes and fictional stories of Mars set her apart. Despite her mother's attempts to make her fit in, even entering her in a local beauty contest, Shirley had her own ideas about who she was and what she wanted to do, including learning to fly an airplane while still a high school student.

In college, Shirley majored in engineering, while still pursuing her love of flying. Not surprisingly for the late 1950's/early 1960's, Shirley was in an extreme minority as a woman in the engineering program.



Her male professors were quick to dismiss her, which didn't help. When a relationship affected her grades, Shirley decided to change majors to something easier - journalism. After graduation, she looked for work as a technical writer, in the hopes of combining her writing skills with her enduring love of engineering.

Shirley discovered that she was not satisfied writing about other people's creations.

She returned to school, completing her engineering degree, and also studying management. Now, she could finally work as an engineer - or so she thought. Female engineers were still few and far between, and were typically given menial assignments. After several unsatisfying jobs, Shirley was hired by the Jet Propulsion Laboratory (JPL). the Jet Propulsion Laboratory (JPL). Finally, she found a place that had exciting opportunities for her. During the 1970's, Shirley participated in many of the missions that sent spacecraft to various planets in our solar system. However, she had yet to be involved in developing the actual hardware that went to space.

It was a classic Catch-22 situation: to move up the ladder at JPL, you had to have experience with actual hardware that went to space, but to work on actual hardware, you needed to be higher up in the system. As a woman, it was that much more difficult to be given the initial break needed to start the process. Finally, though, Shirley was given the assignment to work on a Mars rover. At this point, it was purely speculative, and may never go to space, but it was a start.

As time went on, Shirley found herself managing the development of a small rover that would fit the budget constraints of the new "better, faster, cheaper" mantra of NASA. One of her first innovations was changing the management structure of the team. She implemented more of a collaborative team of equals, instead of JPL's traditional top-down structure. For those who were

accustomed to being the "boss" over their underlings, this egalitarian approach rankled. But Shirley's management style proved to be very successful.

At this point in the book, we learn all about the various iterations in the development of the rover, and all the designs that were considered, as well as the struggles to afford even seeing the project through to completion. Every aspect is discussed, as well as the people responsible for developing the hardware and software that would ultimately become the Sojourner Rover. We also read about the conflict between Shirley's rover team and the team designing the Pathfinder lander that would carry the rover. What looked to the world like a spacecraft duo that was always meant to be together, they were not quite the "match made in Heaven" that they appeared. Thankfully for everyone, the differences were resolved.

After Pathfinder had successfully launched, with Sojourner safely tucked away inside, and was well on its way to Mars, Shirley found herself offered a new position - Manager of the Mars Exploration Program. Shirley was now in charge of not one, but all missions destined for Mars. Her new job included working with the scientists to establish the research goals of the missions. This process led to the "follow the water" theme of the program. This was the beginning of the push to launch spacecraft to Mars roughly every 1.5 years (when Mars is well-placed for a spacecraft to make the

journey). The orbiting and roving U.S. spacecraft that have since visited Mars were all developed under Shirley's leadership. Since the book was published in 1998, not long after the conclusion of the Pathfinder mission, most of the subsequent flights had not yet occurred when it was being written.

Reading this book almost 25 years after being published, it was interesting to hear about the push for a Mars sample return mission being discussed as early as the 1990's. It is only now, with the samples being collected by Perseverance, that we may actually see that goal finally come to pass.

Shirley retired from JPL in 1998, eventually taking a position as Associate Dean of Engineering at the University of Oklahoma for three years. She then helped found the Science Fiction Museum in Seattle. In 2004, Shirley founded Managing Creativity, which is a platform she developed to share her innovative management techniques.

"Managing Martians" was a very enjoyable and well-written read. Donna Shirley's personal story is inspiring, and the behind-the-scenes look at how a JPL mission is developed is fascinating. This is a book, despite being a quarter century old, that I would highly recommend reading as a "timely" look at Mars exploration.

References:

"Managing Martians: The Extraordinary Story of a Woman's Lifelong Quest to 'Get to Mars' - and of the Team Behind the Space Robot That Has Captured the Imagination of the World" by Donna Shirley and Danelle Morton; Broadway Books; 1998

Donna Shirley - Wikipedia
https://en.wikipedia.org/wiki/Donna_Shirley

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Archaeoastronomy

By Woodrow Grizzle

Sun Cult Over the Baltic:

Astronomy in Bronze Age Europe, Part II

Last time, we discussed the wonders present in a number of fine golden hats found throughout Europe and the wondrous calendars found embossed upon their surfaces. In this, the second part of our exploration of astronomy in Bronze Age Europe, we discover an altogether different calendar fashioned in a way that is, depending on whom you ask, possibly far greater than even a towering golden hat. The place? Kåseberga, on Sweden's southern coast.

The time? The late Bronze Age circa 750 BC. The object? An immense megalithic monument that rivals Great Britain's famous Stonehenge in both scope and utility.

It turns out that the Bronze Age Sun Cult was just as active in Scandinavia as it was across the Baltic. The most enduring relic from their faith is, arguably, a massive stone monument called Ales Stenar or Ale's Stones. Atop a breathtaking seaside cliff, stands a series of 59 megaliths arranged vertically along a spanse of about 67 meters. Bronze Age workers, through much .



Benjamin Lindholm. "Ale's Stones in Kåseberg as seen from the sea." Digital photograph. 03 August 2018. Accessed from Wikipedia, October 2022.

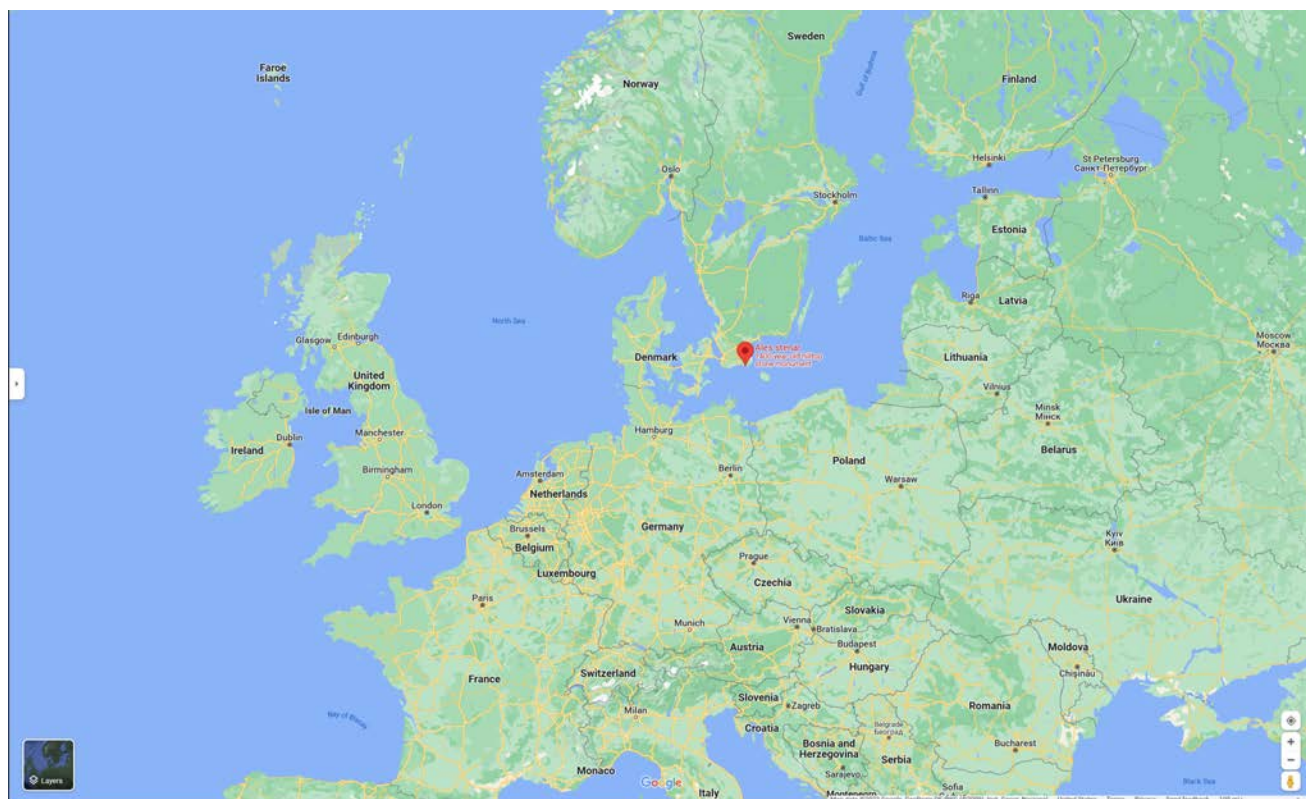
sweat and guts, erected the big rocks in the shape of a boat

What's even more impressive is the astronomical alignments present within the stones as a whole. One of the great things about megalithic observatories is that they are among the easiest artifacts to date. This is especially convenient because the Bronze Age collapse virtually destroyed any records we might otherwise have from the period. How are they so easy to date, you ask? Well, it's as simple as making current observations and then reversing the cosmic clock backward until you arrive at a time when the alignments would have been correct. The time we arrive at for Ale's Stones is about 750 BC, give or take half a century. Further evidence that this dating is more or less correct comes from the stones them-

selves.

Given what we know about Bronze Age technology, as well as other excavations and artifacts in and around Kåseberga, we can deduce that the type of stone used for Ale's Stones was first made available by an earthquake of at least magnitude six that struck the region in about 750 BC. This same quake also damaged carved stones that depict imagery from the same sun cult that erected Ale' Stones.

The alignments are always what matter. Archaeoastronomer Bob G. Lind spent an entire year measuring and recording every sunrise and sunset at Ale's Stones. Lin successfully demonstrated that the Sun's apparent movement relative to the stone blocks counted out 365 days over a period



Map showing the location of Kåseberga in Sweden.

of 30-day months with the mid-year month having 35 days. Lind also found a number of valid sundial alignments among the stones that worked for various parts of the year.

There are also a number of cup-shaped marks and triangular carvings that denote the solstices and equinoxes. Remarkably, the entirety of Ale's Stones shows the same mathematical basis as its much more famous cousin, Stonehenge - the rectangle, the circle, and the summer solstice alignment.

Stonehenge predates Ale's Stones by as much as two and a half millennia, so a cultural connection is unlikely. Still, the fact that such great monuments were made to count the days and glorify the deified sun, at great expense of time and blood, demonstrates not only the fervor of a pre-historic sun cult, but also its staying power – lasting well into the historic period, even to the late Bronze Age. It shows us also just how important counting the days and measuring the seasons were to our forebears.

As I write this, I cannot help but wonder if humanity had maintained such a deep connection to our planet, would we now be staring at our own demise vis-à-vis climate change? Perhaps. Perhaps not. Human nature puts us where we are after all, and it will either resign us to our doom, or provide us the ingenuity to overcome it. Are

you an optimist?

As you ponder those and other deep thoughts, you might want to check out these three other megalithic sites in Sweden. Each has their own fascinating tale to tell.

- Stenhed, another stone ship.
- Heimdall's Stones
- Brantevik Graves, which are oriented with respect to the sun's annual motions.

Next time, we will continue our visit to the Bronze Age. For now, though, the destination will have to remain a secret. Speaking of the future, I'd love to hear your feedback and ideas for future essays. Shared ideas means shared by-lines! Send me an e-mail (woodrow.grizzle@gmail.com) and let me know what you're thinking. Talk soon!

References:

Mörner, N.A. and B.G. Lind, "Astronomy and Sun Cult in the Swedish Bronze Age", (2018) *International Journal of Astronomy and Physics*, 8(2); pp. 143-62.

"Stonehenge builders traveled from far, say researchers", BBC News (2013). <<https://www.bbc.com/news/uk-21724084>> Accessed 10 October 2022.

News from the SEPA Region

Tennessee

*Contact: Adam Thanz
Bays Mountain Planetarium
Kingsport, TN
Email: thanz@kingsporttn.gov*

Bays Mountain Planetarium, Kingsport, TN

by Adam Thanz

Astronomy & Space Sciences Program Coordinator - Planetarium Director

SEPA TN Coordinator

Greetings Fellow Planetarians!

Planetarium Theater

We are currently running "Sunstruck" in our theater as our main feature. It will be shown at 4p Tuesday-Friday and 12p & 4p on the weekends. This will coincide with our free solar viewings on clear weekends, 3p-3:30p. The viewings are called Sun-Watch. To increase accessibility, we have installed a concrete pad for the viewing close to our Park's dam and the access road. We used to hold our viewings at the observatory, but guests just didn't like walking up to the building. So, we moved down to where the public always was, by the dam. The site will also serve as a pick-up/

drop-off point for guests using a wheel chair that want to see the Park. We plan on having a Park bench installed on the leeward side of the pad to further aide in accessibility.

Our alternate show will be offered at 2p on the weekends. It will be "Appalachian Skies." It is our live tour of the night sky. Having it fully modular has really helped make the program even better. It allows each of us in the theater to provide a unique show and keeps it fresh since we're not stuck to a strict script. (Say that five times fast!)

Observatory

SunWatch

As described above, it isn't at the observatory, but at a new pad by the dam. We used to be on the dam with a more portable, but less stable mount. We changed telescope mounts so the new tripod base is too wide for the path along the dam, thus the change to being "by" the dam. This will increase our visibility and access. If it is cloudy, the SunWatch program is canceled.



Laying down the concrete for the new solar observing / accessibility pad between the access road and the dam.

StarWatch

We'll be starting this up with the public this fall. They are our night viewings on the Saturday nights of Oct. & Nov. starting at dusk at the observatories and are free. If the weather is poor, we'll do an alternate live program in the planetarium theater. But, it should be different than our "Appalachian Skies" program. It will be a hybrid to that program, but focus on learning to use and using a star chart. We have permission to use the charts from www.skymaps.com. For our cloudy alternate program, we start with

the lights up, hand out charts to each family and then explain how to read the chart. Then we bring the stars up and ask them to use their cell phones to shine on the chart and find specific, easy-to-see constellations in the planetarium sky. We then go into a little further detail for our guests using the charts so they can increase their sky map reading skills.

Nature Center and Park

Why am I bringing this up? I wanted to share with you a little about what is going to happen this next year at the Park.

We just finished with our 50th anniversary celebration. Part of that was a fund raiser to garner large donations to help with larger projects at the Park. One was for a new amphitheater. Our old one was not in good shape and was not easily accessible. The new one will. It will be built in a different space that is easier to get to and be designed to handle erosion and creep a lot better than the original amphitheater. It should break ground this late fall and be finished in late spring.

The main Nature Center's balcony will be worked on as well. It is a minor project, but still needed to address very old concrete issues.

The fox habitat will be moved to a much nicer space. The fox was housed in the last cage the Park owned. Most of the Park's past cages were removed about 30 years ago, just about when I started here. This last one is a very large cage that was used mostly for raccoons. That cage will be removed this fall and a new, larger habitat will be built.

If that wasn't enough, the main lobby of the Nature Center is also to be remodeled. This will be much trickier as it will affect the upstairs office spaces. Those employees will move downstairs to temporary spaces and the main lobby will be updated and freshened. The lobby will get larger as we'll push the gift shop back. The gift shop has been in

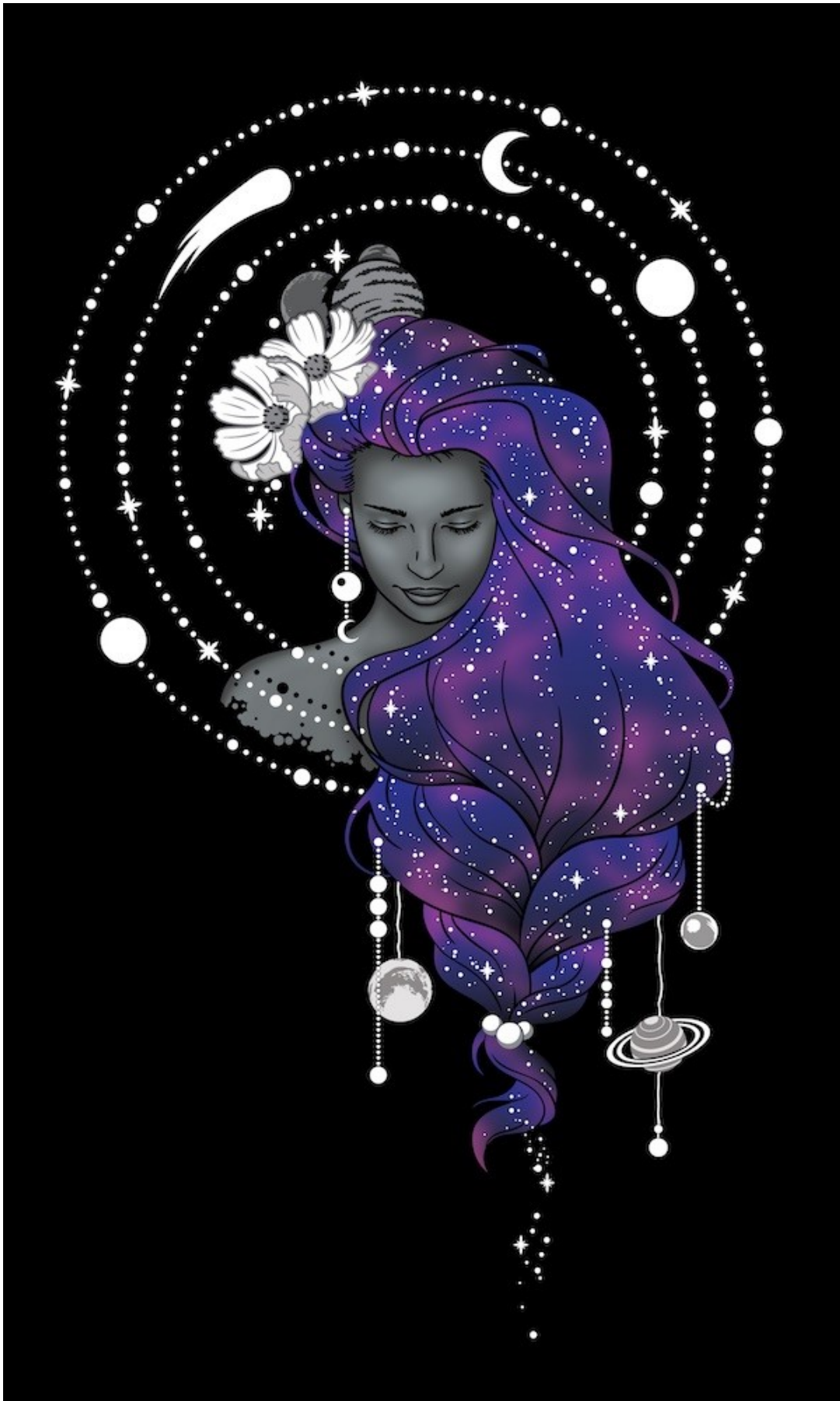
dire need of remodeling anyway and the lobby gets snug when we have a full house waiting to enter the planetarium and there are people visiting the gift shop at the same time. The doorway entrance to the planetarium will be worked on to create an obvious entryway. Some parts of the project may close the planetarium and/or the whole Nature Center this winter, so we'll see what will happen!

Stars for All 2023

If you don't know, Bays Mountain Planetarium will be hosting next year's US Planetarium Conference! It will be held on June 20-24, 2023. The conference is called "Stars for All 2023" as it is designed to put a spotlight on all the diversity of job titles that are under the umbrella of "planetarium" and also to celebrate the diversity of the people that make up this weird and wonderful family.



The official logo for the conference.



The official art for the US planetarium conference in 2023.

Thus, the theme is "It Takes a Universe."

Work started on organizing and planning this event four summers ago. By the conference next year, it will be five years in the making. The conference is a collaboration of all seven planetarium regionals, so it is for all of us in the planetarium community. Highlights will remain from each of the regions, but new takes on other parts will occur. A major focus will be education. There will be special workshops planned, fun activities, great food and more! Bays Mountain is in the heart of the Appalachian Mountains, so the weather will be nice and the scenery much nicer. I've already heard from a number of my planetarium friends that they plan on extending their stay to enjoy the natural beauty of the region and its cultural heritage.

All the tiny details will be released when registration opens in February 2023.

The Autozone Dome at
The Sharpe Planetarium
Museum of Science and History
Memphis, Tennessee

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<http://www.memphismuseums.org/>

Dave Maness reports: It was great seeing so many of you at the conference in Huntsville. Congratulations to Dave Weigle and

his team. What a great conference! "Domeoke" (karaoke in the dome) was a lot of fun. I want to do that in my dome sometime.

Last time I mentioned some new program evaluation procedures. To that we have added a postmortem requirement that makes us weigh the revenue of any event or program against all expenses including time worked on every program by any and every individual. That effort is proving time consuming, and I wonder when someone in power will realize that this particular activity produces no revenue at all! In addition, we have been introduced to a new and complicated self-evaluation software called Trakstar.

In local news, we were shocked by the abduction and murder of a young wife and mother who lived in the museum neighborhood and was out for a routine morning jog. The crime took place about 4:00 a.m., just a few hundred paces to the left of our 2018 SEPA WAC conference hotel. It turns out that the alleged perpetrator was about to be indicted for a previous abduction and rape. He would have been off the streets except for the slow pace of the state's DNA identification procedure. Now there appears to be some deflecting of the blame, saying that the Memphis officials failed to put a "rush" on the request (as if one instance is any more important than another).

The museum has featured a new LGBTQ exhibit all summer called Rise Up/Memphis Proud. It was partly created by the Newseum, with the Memphis Proud part created in-house with a lot of local input. We have a drag show planned for this weekend as a celebration to wrap up the exhibit's run. Recent events and threatening phone calls have caused us to beef up security.

In the planetarium we have opened an updated version of SEPA's production of **The Planets**, narrated by Kate Mulgrew. We will be presenting **Mexica** at some time during Hispanic month. All our programs include a live night sky segment. We also offer the mostly-live **Our Sky Tonight** program. For our Steamfest celebration in Oc-

tober and to commemorate the 50th anniversary of Apollo 17, we will bring back a showing of **Back to the Moon**. For the Holidays, beginning the weekend before Thanksgiving will see the return of **Season of Light**.

Summer and fall began our entertainment laser show runs. **Laser Bruno Mars** was a big success in August. September featured **Laser Queen** and **Grateful Dead**. In October we will bring back **Frightlight** for matinees. I am also excited to bring in a newly added show **Laser Stranger Things** featuring 1980's hits from the hit Netflix series. This will be closely followed by the ever-popular **Laser Holidays** in late November through the end of the year.









North Carolina

Contact: Neil Pifer

Margaret C Woodson Planetarium

at Horizons Unlimited

Salisbury, NC

Email: Neil.Pifer@rss.k12.nc.us

Cape Fear Museum

Wilmington, NC

Barbi Baker Reports: The Cape Fear museum is hosting an International Observe the Moon Night. Here is a link to info about the event: <https://www.capefearmuseum.com/programs/international-observe-the-moon-night-2/>

28401, www.capefearmuseum.com, 910-798-4370

Western North Carolina News for *Southern Skies* (for Autumn 2022)

Gary Lazich reports: Asheville Museum of Science (AMOS) now schedules its presentation of *Star Stories* on the Sunday afternoons nearest the First Quarter Moon. (This saves wear and tear on the GeoDome Portal equipment and on “Star Guy” Gary Lazich!) A new Dell Alienware X15 r2 Gaming Laptop now enables much faster and more reliable operation of the Portal. On September 22, AMOS celebrated its annual fundraiser *Under the Stars* with special guest Astronaut Joan Higginbotham.



Astronaut Joan Higginbotham (*Los Angeles Sentinel*)

Pisgah Astronomical Research Institute (PARI) has scheduled regular Outdoor Site and History Tours, Private Evening Optical Viewings, Dark Sky Astronomy Nights, and Private Guided Gallery tours. Public observing sessions will take place Oct. 20 – 21 (Orionid Meteor Show), Oct. 29 (Fall Celestial Harvest), Nov. 17 – 18 (Leonid Meteor Shower), and Dec. 16 – 17. The second date in each pair includes overnight camping and cabin facilities by reservation only.

Margaret C. Woodson Planetarium Salisbury, NC

Neil Pifer reports: The Margaret C. Woodson Planetarium and Horizons Unlimited have started hosting school groups in force this fall! The star ball and dome have survived Hurricane Ian and our students enjoy hearing about the fall stars. In the last year, we have added 3 new staff members and our growing staff is also learning about giving star talks with our A3P, in addition to digital stars and live sky talks. It's an exciting time to be under the dome!

South Carolina

Contact: Gary Senn

Director, Ruth Patrick Science

Education Center, USCA

Email: SennG@sc.edu

BlueCross BlueShield of South Carolina Planetarium

South Carolina State Museum Columbia, SC

Liz Klimek reports: At long last the planetarium has completed its major renovations, with only minor enhancements remaining. After upgrading from Digistar 5 to 7, replacing our two lamp-based Sony projectors with two laser-direct Christies, refurbishing our seats and getting new cove lights, it almost feels like a whole new theater. We even got a new control console chair! There was a special ribbon cutting at the end of September, during a joint meeting of the Museum Commission and Foundation, after which many of the new planetarium features were demonstrated.

The most exciting thing about our upgrade is the ability to add captions to many of our shows. Digistar can make use of an srt caption file and provide open captioning on the dome. I reached out to the show creators and producers of all of our playback shows, and many were able to either provide or create an SRT file for us. We will



work to create our own SRT files in cases where one can't be found for a particular show.

We ran our first captioned show, Superpower Dogs, during the museum's accessibility morning, which the museum started doing on the second Saturday of each month.

While the captions are a huge leap for us, we are still looking to improve accessibility for everyone in as many ways as we can. While we have always had this goal in mind, a lot of momentum has finally built up here at our museum, with a lot of support from our new executive director, and thus we are forging ahead with as much as we are able to do. We will also soon be experimenting with ways to bring in an ASL interpreter for our live programs using what we know about what other planetariums have done as a guide on where to start. For those who are blind or visually impaired, we recently met with the SC Space Grant Consortium to talk about ways

in which we can obtain and incorporate tactile-based teaching materials in some of our astronomy programs within and beyond the dome.

In other exciting news, our portable planetarium (what I lovingly call the “roam dome”) will go out on the road again starting in November as we very gradually resume outreach offerings. I’ll be a little more involved with the portable than I have been in the past being primarily responsible for helping train educators on astronomy content and presentation.

For the first time since we opened, we have a chill winter ahead (pun intended), with fewer holiday programs and a temporary pause in doing winter break camp. We just haven’t gotten our staffing level back up enough yet to be able to handle the winter holiday load of previous years. I’m looking forward to the possibility of being able to take a few days off to recharge before the busy spring season ramps up next year.

It was wonderful seeing so many colleagues at SEPA-WAC in Huntsville this past August, and I look forward to going to CAPE at Roper Mountain in mid-November!

DuPont Planetarium

Ruth Patrick Science Education Center

University of South Carolina Aiken

Aiken, SC

Gary J. Senn reports: The DuPont Planetarium at the Ruth Patrick Science Education Center (RPSEC) on the campus of the University of South Carolina Aiken (USCA) has enjoyed a return to “normal” after two years of influence from COVID. Our field trip interest has returned to the pre-COVID numbers, and we have had to place groups on a waiting list. Unfortunately, we did have a number of last-minute cancellations in September and October because of transportation issues. The main reason has been challenges with bus drivers.

For our Saturday evening public shows in September, we showed: *To the Moon and Beyond*, a local production; *Seven Wonders* from Evans and Sutherland; and *Magic Tree House: Space Mission* by UNC Morehead Planetarium and Science Center. In October we showed: *In My Backyard*, *Defying Gravity* by Daniel M. Soref Planetarium, and *Two Small Pieces of Glass* by Fulldome Database and ESO. In November we showed: *Grossology and You* by UNC Morehead Planetarium and Science Center, *Cosmic Colors* by Daniel M. Soref Planetarium in cooperation with the Great Lakes Planetarium Association, and *Pink Floyd: Dark Side of the Moon*.

We are looking forward to our busy holiday season when we will be showing *Mystery of the Christmas Star* from Evans and Sutherland.

Settlemyre Planetarium

Museum of York County

Rock Hill, SC

Carole Holmberg reports: This past summer, the Museum of York County hosted the traveling Dinosaur Discoveries exhibit from the American Museum of Natural History. The planetarium showed both ePlanetarium's *Dinosaur Prophecy* and *Did an Asteroid Really Kill the Dinosaurs?* from the Milwaukee Public Museum. These programs were presented daily and had wonderful attendance.

Apollo 16 astronaut Charlie Duke lived his early life nearby. The Smithsonian's Air & Space Museum gave us his never-worn spare ICG jacket, which is now on display outside our planetarium entrance.

Florida

Contact: Brett Jacobs
Museum of Science and History
Jacksonville, Florida

have done a full refresh on our carpeting, seating, acoustic panels, and repainted all the walls and doors. Our MS-8-star projector will be retiring and will be removed from the planetarium in November. We will be upgrading to a Digistar 7 system at the end of the year and expect to reopen early next year.

Brett Jacobs reports: The Bryan-Gooding Planetarium at the Museum of Science and History had a great summer ending with over 15000 in planetarium seats. We are currently running a monthly program called Siler Space Series aimed at the 50+ age groups. (Lots of coffee and donuts), a bi-monthly program called Planetarium Night Live! Different topics with a deeper look at the science behind it for a older age group (13+) our Cosmic Concert laser shows every weekend, along with special events such as Native American Tribal Dancers, weddings and more. ALSO our Museum is in the beginning stages of building a whole new Museum (bigger, different location) that will have a planetarium be we are not at the planetarium design part yet. SOON.

Derek Demeter reports: The Emil Buehler Planetarium has been closed since spring of 2022 for renovations and upgrades. We

Alabama

Contact: Mitzi Adams
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INTUITIVE Planetarium Emma Cleveland

Planetarium Specialist
U.S. Space & Rocket Center
One Tranquility Base
Huntsville, AL 35805
www.rocketcenter.com

Long time no see! This past August, the *INTUITIVE*® Planetarium hosted its very

first (and highly successful, we hope) SEPA/WAC 2022 conference. Over 100 participants, vendors and delegates alike, visited Huntsville, shared ideas and updates, and toured the Saturn V Hall along with former NASA engineers. The conference featured amazing guest speakers including Jim Odom, the former manager of the Hubble Space Telescope, Dr. Bill Cooke, who leads NASA's Meteoroid Environments Office, Heather Roden, who manages Space Camp education, and the author of *Rocket Boys* (October Sky anyone?), Homer Hickham. One highlight of the week was *Music of the Spheres*, a concert in the planetarium featuring the internationally acclaimed violinist: Itamar Zorman, that featured beautiful music paired with



stunning visuals on the dome. Following the success of SEPA/WAC 2022, the *INTUITIVE*® Planetarium is currently in the bidding process of hosting the International Planetarium Society's 2026 conference. Check out the bid website here: http://rocketcenter.com/ips_2026/.

September wrapped up the 2022 fiscal year at the US Space & Rocket Center. It was the best year yet for the *INTUITIVE*® Planetarium with a total of 112,074 guests. Each week, the planetarium team develops new shows and content for the Cocktails & Cosmos series, hosted every Friday night. Cocktails & Cosmos continues to grow especial-



ly after implementing a reoccurring James Webb Space Telescope (JWST) show. The three initial JWST shows quickly sold out and it is expected that the next JWST show in November will have a similar turn out. The planetarium team has integrated WorldWide Telescope web interactives into shows to extend the education and exploration experience for guests.

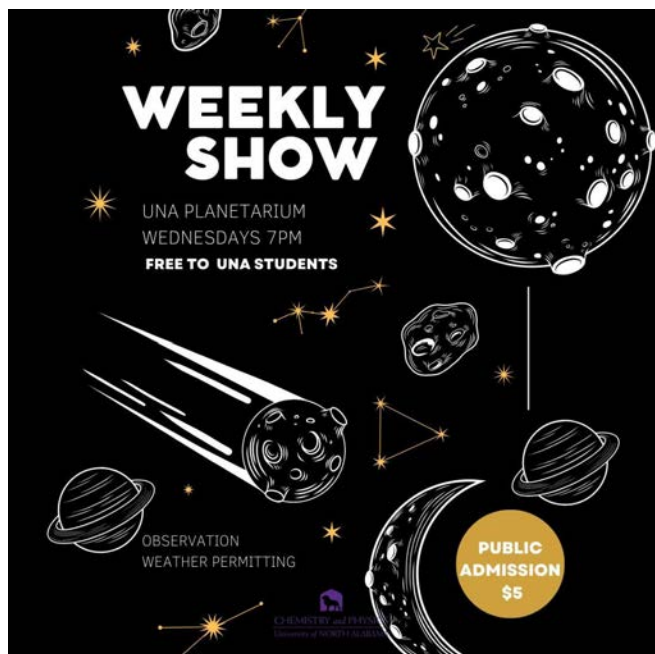
The interactive created to explore the first James Webb Space Telescope imagery went wildly viral on social media, garnering 1 million interactions and at least 150 million impressions to date.

Explore some of these WWT interactives here: <https://rocketcenter.com/INTUITIVEPlanetarium/interactiveastronomy>.



UNA Planetarium, Florence, Alabama

Mel Blake reports: The fall was a time of relative growth for our attendance, with things being helped along by two very capable and reliable volunteers, Harmonie Wildharber and Madie Guth. They have helped promote the planetarium programs across camps, and it has been great having students help visitors while I am in the dome or observatory doing programs. Madie is a history major and is also excellent with graphics and making posters. I am terrible with graphic art and having someone aboard with those skills is excellent. Harmonie is physics major and is great at answering astronomy questions when I am occupied. We are starting to build a true team.

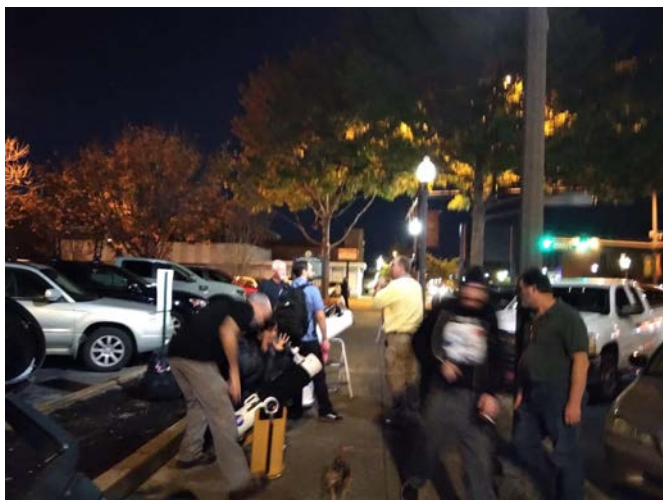


Poster for our weekly shows done by Madie Guth.

Our increased attendance has lead to some growing pains. The planetarium can hold about 65 people, but the observatory about 10—15 comfortably. So on busy tour nights we have had to split the second part of our programs into a group observing and another watching a video program. We then switch up. It is a problem We want to have! I am considering having a second tour night in the spring to see if we can have two smaller tours rather than one larger one. Hopefully we end up with two large tours and grow even more!

I also continue to work with the Shoals Astronomy club doing sidewalk astronomy and promoting astronomy that way. We are working on getting a 10-inch Meade telescope working at our observatory at La-grange mountain for doing research and imaging. We are looking forward to the second half of the fall.

Clear skies!

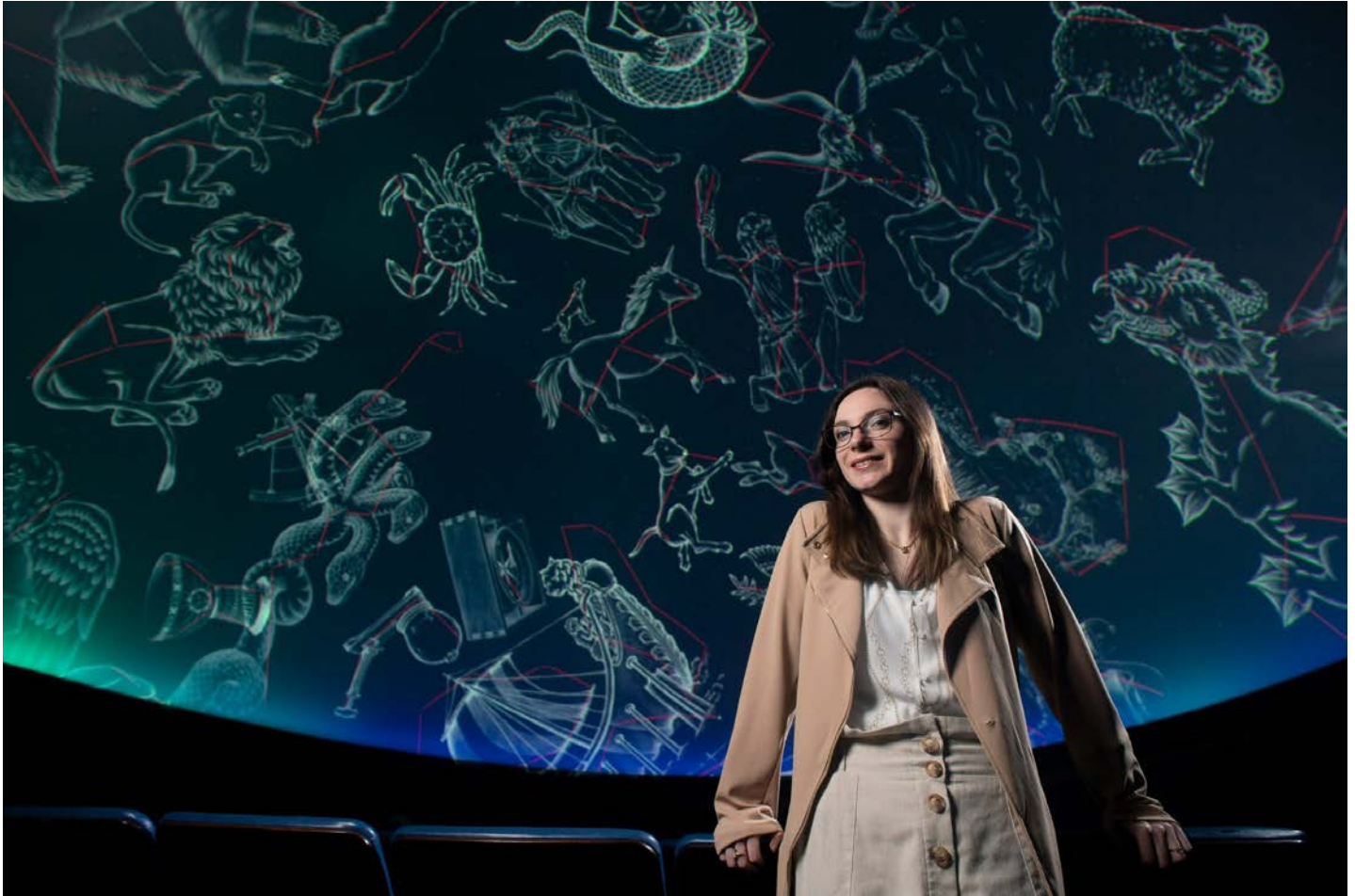


Sidewalk astronomy. Photo by Mel Blake.



The Rules of Improv

By Callie Boyle of Ingram Planetarium



The SEPA Conference of 2022 was certainly an incredible event all around, but it was a very special experience for me personally. Not only was it my first SEPA, but also the first conference that I was able to attend as new manager of my home dome, Ingram Planetarium. What a welcoming community full of bright minds ready to share in our passion for what we get to do! It was an honor to be able to introduce myself to the community by sharing a session on one

of my favorite topics, improvisation in the dome.

When it comes to presenting educational content in both formal and informal educator roles, working in front of live audiences can bring about several challenges. There is a particular kind of responsibility that accompanies sharing the sciences with the general public. Not only does content need to be accurate, but it must also be delivered in a way that is

concise and en-gaging. Public speaking and improvisation are important introductory skills to have in these kinds of roles. Just like any other skill, improvisation as a theatrical technique can be learned and improved upon.

The foundation of being able to present improvised content confidently is knowing and being comfortable with the material surrounding topics being presented on. This lays the groundwork for being able to stay in the moment and maintain focus. One of the infamous “rules of improv” is that no matter what situation may come up, the response should always be “Yes, and...” in order to keep the presentation moving forward. The show must go on! In the planetarium environment especially, guests may sometimes ask questions or present challenges to content that can bring a presentation to a stop. In such an instance, it is important to try and understand their view, yet be able to maintain a positive forward momentum when explaining or correcting content.

Being specific and being able to reiterate or clarify details for content is another aspect of improvisation that can be utilized. Not only does it help fill presentation time, but if done in a creative and engaging way, it can result in clearer understanding and connection to audiences. An unfortunate aspect of performing live content is that mistakes will inevitably happen. If it is a mistake that affects the message or the

content, it is important to address and correct it ONCE, then be prepared to let it go and move on. This is another aspect that helps a presenter stay in the moment.

It is important to remember the role that hard work and practice play in making progress. Actively practicing and applying improvisation skills will build confidence and stage presence that is sure to keep audiences of all varieties engaged and inspired.



DIGISTAR 7

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Justin Bartel
Immersive Experience Manager
Science Museum of Virginia



Marc Horat
Planetarium Director
Verkehrshaus der Schweiz



Rainer Christensen
Planetarium Director
Menke-Planetarium der
Hochschule Flensburg



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Adler Planetarium

www.adlerplanetarium.org

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SEPA Annual Business Meeting
US Space and Rocket Center
Huntsville, Alabama
August 26, 2022

President Liz Klimek called the meeting to order at 4:38 pm CDT with a quorum present. Jon Bell served as Parliamentarian.

Minutes of the 2021 virtual business meeting were distributed and approved. (Albury, Fleenor)

Financial Report: Patsy Wilson, Treasurer (printed copies were distributed) Balances as of June 30, 2022 are as follows: Interest Bearing Checking, \$23,906.73; Operating, \$29,423.44; Professional Development Fund, \$18,180.29 and PayPal \$111.96 for a total assets of \$71,662.42. the financial report was approved. (Brandt/Albury) Wilson reported that SEPA now has a nonprofit rate of 1.99% for PayPal and that the Dropbox account was been revised for a reduction in cost.

IPS Update: John Hare, IPS Representative, This is his last report to SEPA in this position since the IPS Council has been restructured. There will be a cyber meeting on October 29th that is open to all members. The 2024 conference will be in Berlin, Germany. The deadline to bid to host the 2026 conference is soon. Hare also keeps a deceased member database as IPS Historian.

By-Laws Changes: Jason Dorfman, Chair, introduced committee members: Kat Hunt, Leslie Bochenski, Dave Hostetter, and

Patsy Wilson.

The following revisions to the current by-laws were approved.

Article Two: Membership and Dues

1A Full membership may be extended to all individuals interested in and supportive of the purposes and activities of the Association who reside in Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, West Virginia, District of Columbia or all US Territories off the southeastern coast of the US.

1B Associate Membership can be granted to those persons interested in the aims of the Association but who do not reside within the SEPA region. (Dundee/Dunn) approved

Article Three: Executive Council of the Association

1A: The council shall consist of the President, President-Elect, Secretary, Treasurer and Past President.

1C No Officer, except the Secretary and Treasurer, are eligible for reelection to the same position for a consecutive term. No one may serve more than 3 (three) consecutive terms as the Secretary or Treasurer. An individual who has already served on council

may serve again after 2 (two) election cycles have passed. (Albury, Marcy)

4C The Secretary shall be responsible for keeping an accurate record of the membership of the Association.

5C The Treasurer shall be responsible for the Association's tax filing, 501(c)3 and incorporation status Remove all references to IPS Representative and split Secretary-Treasurer into two separate offices throughout the by-laws. (Bell/Fleenor

Article Seven: Committees

1. Authority:

A. Council may establish such committees from time to time as may be required to carry out the work of the Association. These Committees shall be dissolved upon the completion of their work or when dissolved by Council.

B. The duties of the Committees shall be established by Council.

C. Council shall have the authority to appoint or replace a Committee Chair from the membership. It will be the responsibility of the Committee Chair to recruit other committee members and facilitate committee activities.

D. All Chairs and members of all Committees must be Full Members of the Association in good standing.

2. Terms:

A. All active Committees and their

membership shall be reviewed at the end of the Annual Business Meeting.

B. It shall be the duty of Council to either extend a Committee's service into the next term or dissolve the Committee when deemed no longer required or relevant.

C. Committee members may not serve on the same committee for consecutive terms, unless the work on the committee has not been completed. (Maness/Albury)

Nominating Committee Report: Jason Dorfman, Chair introduced committee members Carole Holmberg and Patsy Wilson. He shared that finding candidates was a difficult process The nominees are: President-elect-Kat Hunt, Secretary- April Whitt, and Treasurer -Lee Tinker. An email will go out will bios and statements of candidates and the election will be held virtually within two weeks using Election Runner.Motion to close nominations was approved. (Brandt/Dundee)

Mini-Grants Committee Report: Jon Elvert, Chair. The Mini-grant proposal was made in 2020 at conference to help planetarians affected by COVID-19. The committee, Elvert, Wilson, Klimek, drafted an application and proposal. It was decided to offer three \$500 grants. This opportunity was publicized by email and dome-L. Nine applications were submitted and four grants were awarded. The winning applicants will share their projects in the journal and will be encouraged to present the 2023 conference;

SEPA has enough funds to extend this another year if approval is given.

Professional Development Committee Report: Jason Dorfman, Chair introduced the committee members David Weigel, Dave Maness, George Fleenor, and Patsy Wilson. There were six applicants but one was deemed ineligible. ; Five SEPA members were awarded payment for registration, the banquet and a \$500 travel stipend. One of the awardees was unable to attend. Members were encouraged to support the Silent Auction at the banquet in order to raise funds for future financial assistance to members.

Southern Skies Report: Mel Blake, Editor (Liz Klimek reported) Klimek made an appeal for more submissions and reminded professional development recipients of the requirement to submit papers for the next issue. Blake and Dorfman are working to improve the content and formatting. Members were reminded that submission deadlines (21st of January, April, July and October) will be observed in order to have the journal distributed in a timely fashion. The new email is southernskies@sepadomes.org.

Conference Committee Report: George Fleenor, Chair; introduced committee members Liz Klimek, Jack Dunn, Dave Hostetter, Kat Hunt, Kenneth Moore, and Rick Evans. He expressed thanks to Weigel, Abigail Peterson and the entire staff at the USSRC for hosting with only one year to plan. He announced that despite intensive efforts no host has yet been identified for 2024. The

committee is working on updates to the conference planning guidelines.

2023 National Conference Update: Adam Thanz, host reported the event , Stars for All 2023, will be held at Bays Mountain Park & Planetarium on June 20-24. Registration will be limited to 350 people with an estimated registration cost of \$350.00. There will be optional day-long workshops prior to the beginning of conference, experiential field trips, hands-on workshops and an optional vendor workshop. The Friday night gala will be held at the International Storytelling Center in Jonesborough, TN. Rooms at the Marriott Meadowview will be \$126 per night. Families will be offered free admission to the park during the conference.

Old Business: None

New Business: None

Announcements: Jack Dunn has made recordings of all the paper sessions. Council will decide how to make those available.

Liz Klimek recognized former members who passed away this year. Dionysius (Dennis) Simopoulos, a founding member of SEPA and Elizabeth (Betty) Wasiluk, a long time active member. Betty who saw SEPA as her family and she left a monetary gift to SEPA in her estate. Council is gathering information in order to fulfill her wishes as intended. More information will be shared as plans are made.

Ken Brandt passed along the President's Woodchuck chair to Liz Klimek

James Albury thanked the membership for entrusting him with the Presidency. There being no further business, the meeting adjourned at 5:55 CDT (Groce/Albury)

Patsy Wilson Secretary



Photos from SEPA 2022

By Jack Dunn



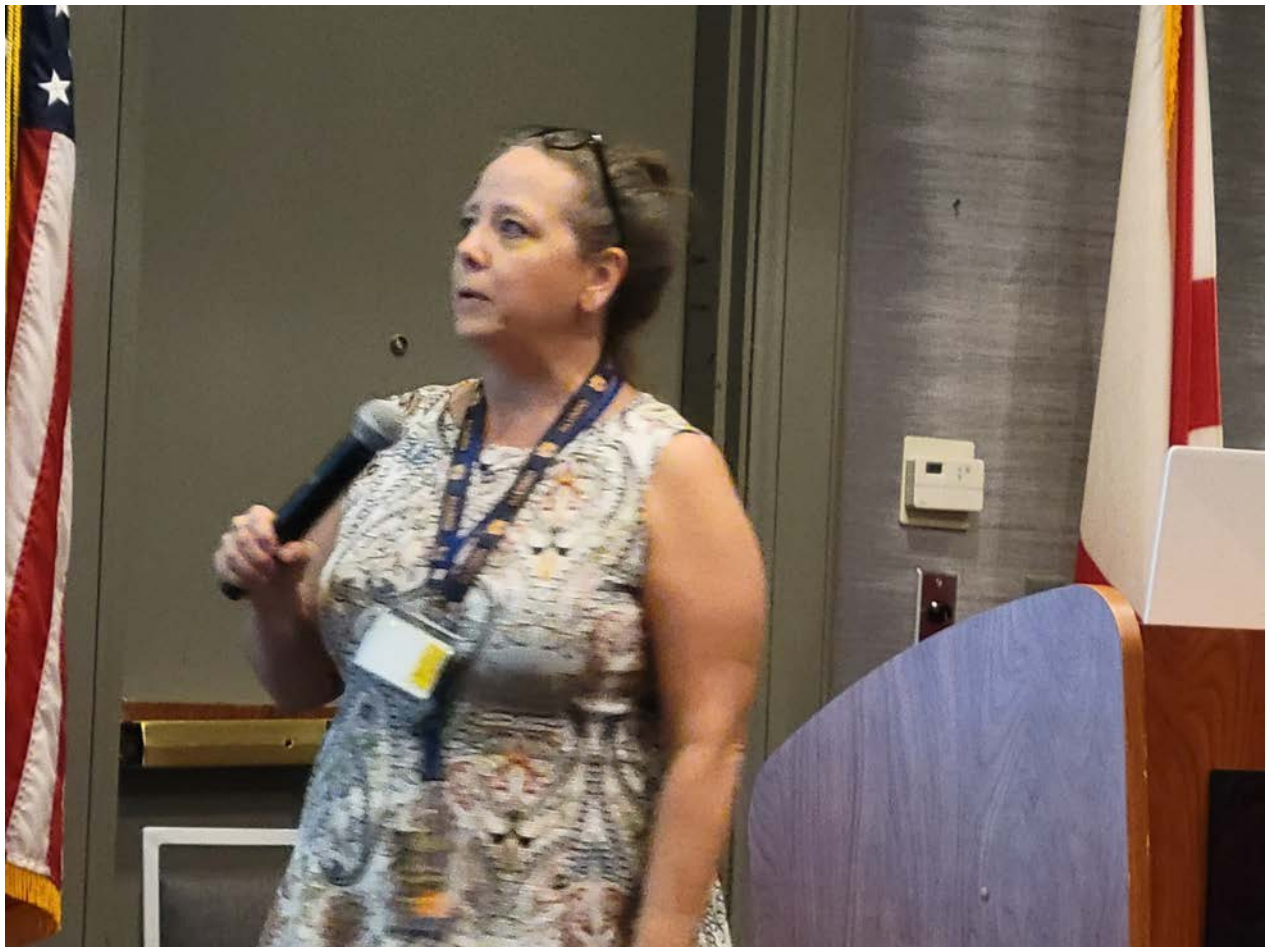


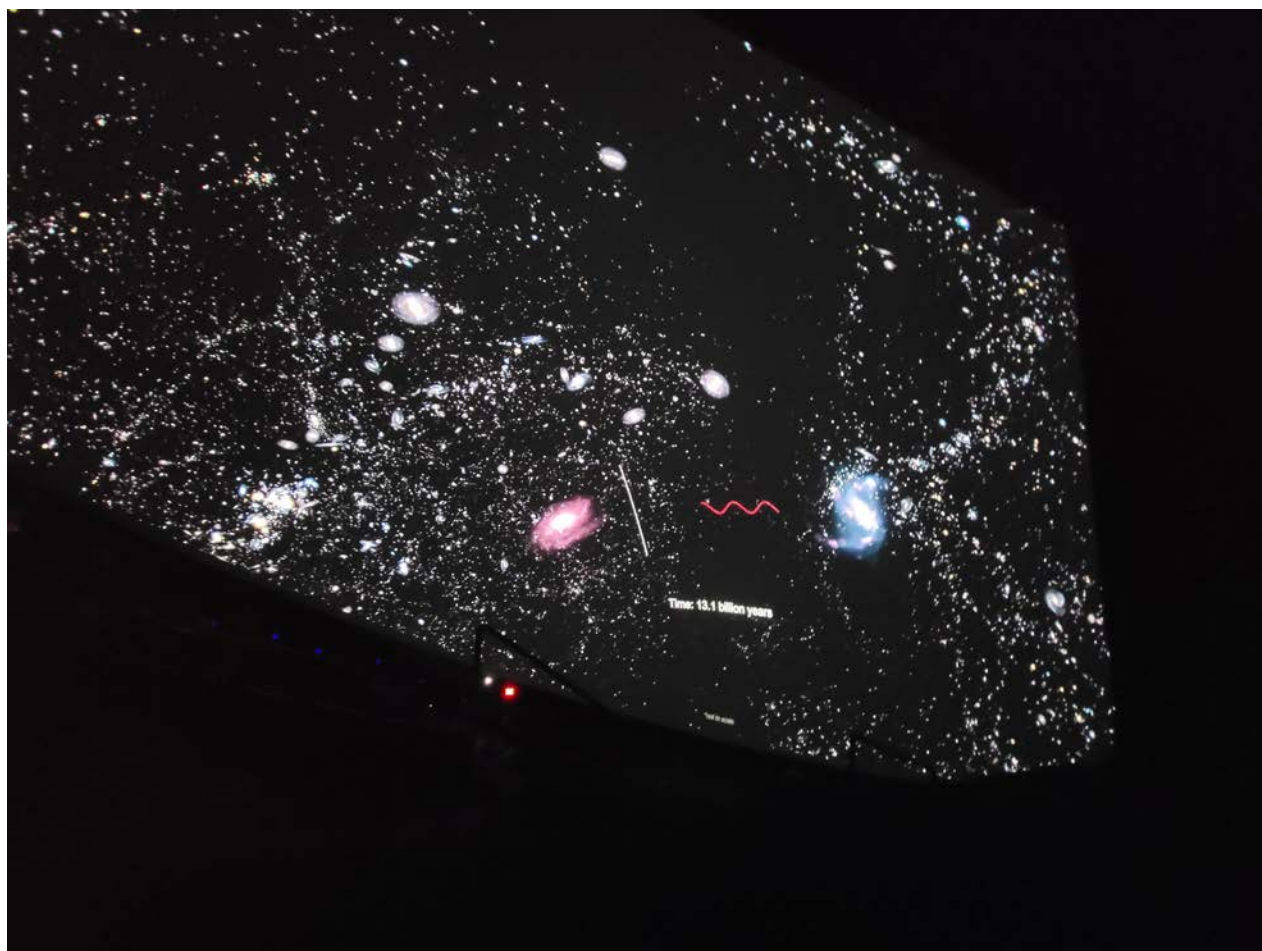
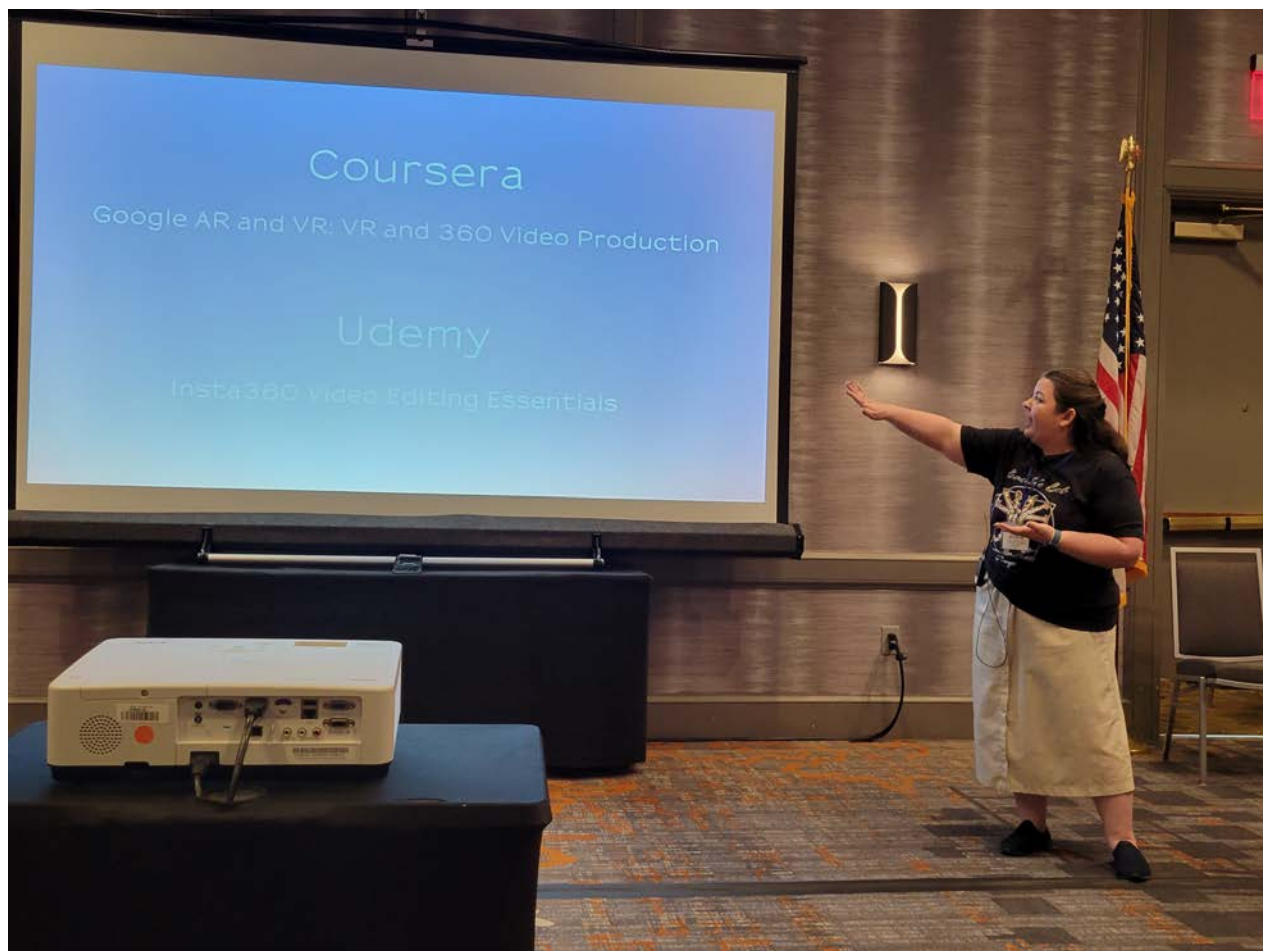






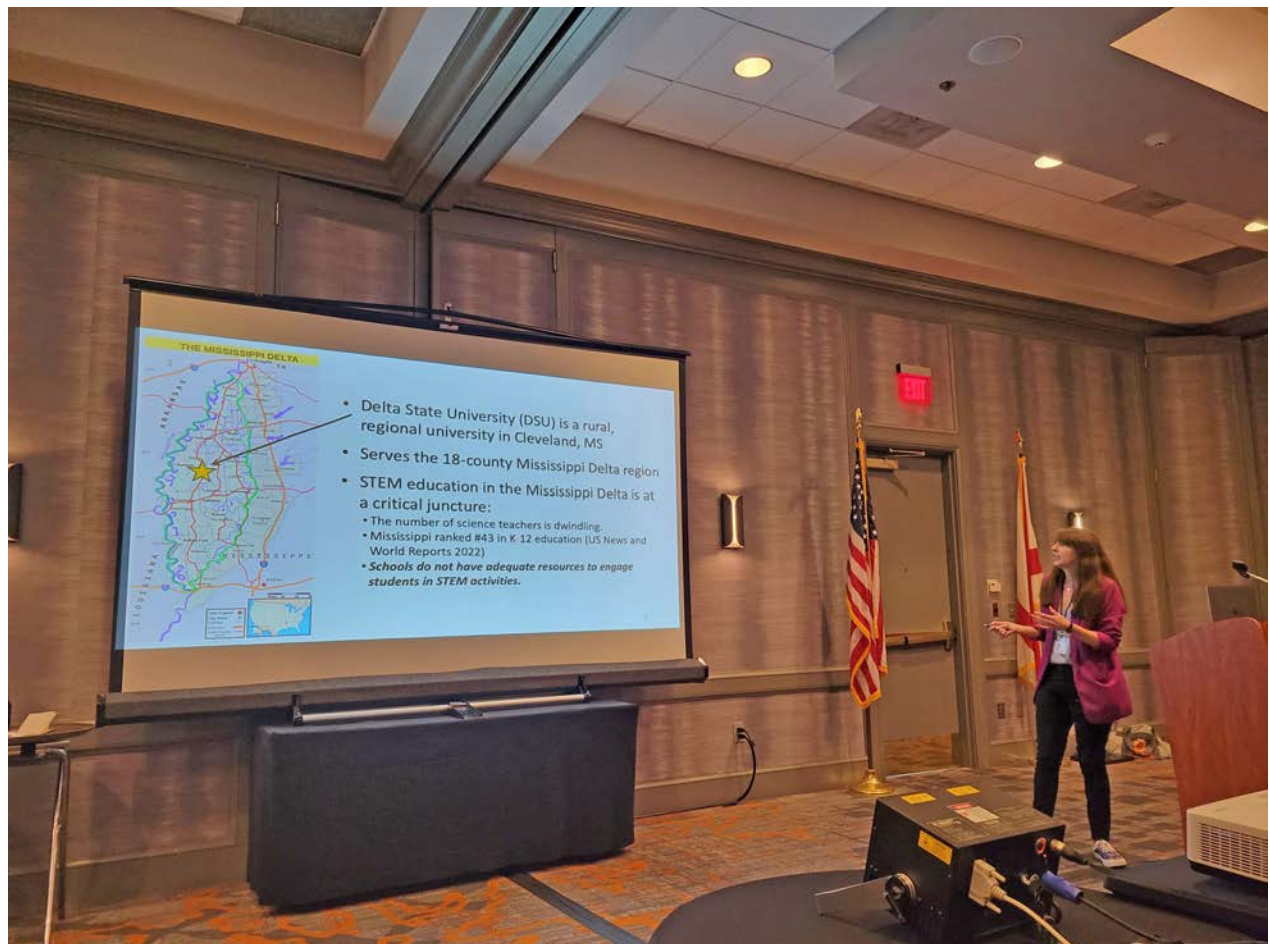












Light Monitor Grant Program

IDA Press release

Dec 1, 2022

We are pleased to announce the rollout of our new pilot Light Monitor Grant Program. By partnering with Asterion, we are providing specialized devices that monitor the presence of visible artificial light at night to our advocates.

These specialized devices can be valuable tools to collect data required for applications to the International Dark Sky Places Program, our award-winning Program that recognizes communities and protected places worldwide for their exceptional dedication to celebrating and protecting dark skies. By offering these devices in our Lighting Device Program, a Dark Sky Place applicant, IDA Chapter, or Delegate can use them to monitor light pollution without needing to purchase a new device on their own.

The Devices

The Light Monitor Grant Program includes two types of devices: Sky Quality Monitoring-Lens (SQM-L) handheld devices and the Opple Light Master III light meter (LM-III).

SQM-Ls measure zenith night sky brightness to indicate whether a location has pristinely dark skies. They are the most

common way to monitor the health of this resource long term.

LM-IIIs are helpful when determining if existing light fixtures meet the provisions of a Lighting Management Plan or policy and provide the necessary information to complete a Lighting Inventory table. At present, Color Correlated Temperature (CCT) is a required principle that needs to be recorded for an International Dark Sky Place application. In the future, there may be a need to record data for illuminance and flicker, which the LM-III can measure.

This Program is intended to supplement funding barriers from groups who wish to monitor artificial light at night and need additional assistance to do so. If extenuating circumstances prevent you or your group from purchasing these light monitors on your own, please follow the instructions below for describing the proposed monitoring area and goals of using these devices to advance local dark-sky efforts. This Program offers a limited number of devices that can be funded.

For more information and links to apply go to the IDA Website:

<https://www.darksky.org/light-monitor-grant-program/>



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Sky-Skan Europe

Calendar of Events December—February

By Mel Blake

Date	Event
December 3rd	Pioneer 10 first Jupiter flyby 1973
December 11	Annie Jump Cannon born 1863
December 13/14	Geminis Meteors Peak
December 14	Tycho Brahe born 1546
December 21	Winter Solstice
December 24	Apollo 8 becomes first crew to orbit the Moon 1968
December 27	Johannes Kepler born 1571
December 28	Arthur Eddington born 1882
January 1	Giuseppe Piazzi discovers Ceres 1801
January 3	Chang'e 4 first landing on lunar far side 2019
January 4	Quadrantid meteors peak
January 4th	Isaac Newton born 1643
January 20	Apollo 11 astronaut Buzz Aldrin born 1930
January 22	Venus-Saturn conjunction
January 30	Mercury greatest western elongation
January 30	Mars occulted by Moon
February 12	NEAR spacecraft first to land on an asteroid 2001
February 15	Galileo born 1564
February 15	Venus-Neptune conjunction
February 19	Copernicus born 1473