Middle Atlantic Planetarium Society 2022 Conference

"Dome Visualization and Climate Change" May 18-21, 2022







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MAPS Conference Program Committee

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A special THANK YOU to our 2022 Conference Hosts!

Versant Power Astronomy Center & Maynard Jordan Planetarium

University of Maine

Shawn Laatsch, Director

Arrival Information

CONFERENCE HOTEL – Black Bear Inn & Conference Center:

The hotel is located at 4 Godfrey Drive in Orono, Maine. It is about a 15 minute drive from the Bangor Airport (BGR). The hotel is 2.8 miles from the Versant Power Astronomy Center.

VERSANT POWER ASTRONOMY CENTER:

The planetarium and astronomy center are at 167 Rangeley Road in Orono, ME which is on the grounds of the University of Maine flagship campus.

PARKING ON CAMPUS:

Sponsors and delegates are encouraged to park in the lot behind the Versant Power Astronomy Center during their visits. Parking is also available at the IMRC on campus. No permits are needed as the academic year has finished.

VENDOR HALL:

Room 104 (a.k.a. Fernald Adaptive Presentation Environment) will serve as the Vendor Hall for our conference. This room is located within the IMRC (Innovative Media Research Center) at the University of Maine. Vendors are welcome to arrive at the IMRC starting at 10:00 am for booth set-up.

NEW MEMBERS:

New MAPS Members and first-time conference attendees are encouraged to attend a brief orientation and Planetarium Primer Session in the IMRC Room 122 at 5pm.

WELCOME RECEPTION:

All delegates and sponsors are invited to attend the Opening Reception in Room 104 at the IMRC at 6:00pm on Wednesday, May 18. Drinks and heavy hors d'oeuvres will be serve, and welcome remarks will take place.

Tuesday - May 17, 2022

8:00 - 10:00pm

MAPS Board Meeting

Versant Power Astronomy Center

NOTES:

Wednesday - May 18, 2022

9:00am –4:00pm	Mini-LIPS Workshop	Versant Power Astronomy Center
10:00am – 4:00pm	Vendor Booth Setup	IMRC Room 104
4:00pm	Delegate Registration Opens	IMRC Vestibule
5:00 - 5:45pm	Planetarium Primer Session	IMRC 122
6:00pm	Opening Reception IMRC Room 104 Welcome Remarks University of Maine Provost John Volin, Dean CLAS – Emily Haddad, and Physics & Astro Chair – John Thompson MAPS President – Brian Koehler Sponsored by RSA Cosmos – Konica Minolta & California Academy of Sciences	
7:10 – 7:25pm	Leo Group Moves to Planetarium	
7:25 – 10:00pm	Leo Group Dome Sessions 1 Scorpius Group "Unmanned Missions" & Vendo	Versant Power Astronomy Center r Time IMRC
10:00pm	Observing at Clark Telescope (Weather Permitting)	Versant Power Astronomy Center

Thursday - May 19, 2022

8:00am	Planetarium Welcome Remarks Vendor Hall Opens	Versant Power Astronomy Center IMRC Room 104
8:30am	Mark SubbaRao – Climate Visualizations and ot	her resources from NASA'SVS VPAC
9:00am	Scorpius Group Dome Sessions 1 Leo Group Moves to IMRC	Versant Power Astronomy Center IMRC
9:15am	Leo Group "Unmanned Missions" & Vendor Time	e IMRC
10:00am	Morning Break Sponsored by Astro-Tec Manufacturing & Bo	IMRC & VPAC owen Technovation
11:30am	Move to Lunch	
Noon	Lunch with Guest Speaker Sascha Deri Sponsored by Hubblo	Wells Conference Center

Launching Sustainable Aerospace with blueshift - In 2022 bluShift Aerospace commercially launched the first rocket powered by bioderived, non-toxic, near carbon neutral fuel from a former Air Force station in Maine. Learn how this company has navigated the technical, political, and funding challenges of developing a more Earth-friendly space launch service that targets students, academics, researchers and ultimately commercial companies provide broadband and Earth-imaging services from Low Earth Orbit.

Thursday - May 19, 2022 (Continued)

1:00pm	Move to Dome/IRMC	
1:30pm	Scorpius Group Dome Sessions 2 Leo Group "Unmanned Missions" & Vendor Time	Versant Power Astronomy Center IMRC
3:00pm	Afternoon Break Sponsored by Digitalis Education Solutions & GOT	IMRC & VPAC D, Inc.
4:20pm	Leo Group Dome Sessions 2 Scorpius Group "Unmanned Missions" & Vendor Time	Versant Power Astronomy Center IMRC
6:30pm	Board Bus to Challenger Learning Center	Versant Power Astronomy Center
7:00pm	Lobster Roll Dinner – A Maine Specialty! Sponsored by SSIA Technologies & Sky-Skan	Challenger Learning Center
7:30pm	Challenger Visit and Missions	Challenger Learning Center
9:15pm	Board Bus to Versant Power Astronomy Center	
10:00pm	Observing at Clark Telescope (Weather Permitting)	Versant Power Astronomy Center

Friday - May 20, 2022

9:00am	David Weigel with Mar Carter Emmart - What Sean Birkel - Climate	rk SubbaRao – World Wide Tel	Planetarians
11:00am	Morning Break Sponsored by	Creative Planet	Versant Power Astronomy Center
11:15am	Ryan Wyatt – What Is		Versant Power Astronomy Center and Multi-format Visualizations
11:45am	Move to Lunch		
Noon	Lunch with Guest Spea Sponsored by		Wells Conference Center

Maine Won't Wait: How Maine is Taking Action on Climate Change - is a four year state climate plan packed with actionable strategies and goals to emit less carbon, produce energy from renewable sources and protect our natural resources, communities and people from worst case scenarios. Dr. Rose will talk about what's in the plan, how it's being put into action, and the Maine Climate Council's approach to communicating with the public about climate action.

Friday - May 20, 2022 (Continued) 1:00 pm Move to Planetarium Versant Power Astronomy Center Vendor Area Breakdown **IMRC** 1:30pm Paper Session Versant Power Astronomy Center Shawn Laatsch - BSU-IPS Free Shows Caity Sullivan - Explore: Our Changing Earth 2:00pm Move to Jenness Hall Paper Session (15 minutes per paper) 2:15 pm Jenness Hall 100 Amie Gallagher - Collaborating with Colleagues Brian Koehler - First Class: Blazing a Trail with NASA's Community Anchor Awardees Cara Muscio - The Art of Crafts: Adding Interactivity, Fun, and Value to Shows Susan Button - IPS Website-Untapped Resources 3:15pm Afternoon Break Jenness Hall 100 Sponsored by COSM Content & Seiler Instruments/Zeiss 3:30pm Paper Session (15 minutes per paper) Jenness Hall 100 Noreen Grice - Accessible Adaptations for The Big Astronomy Toolkit Tiffany Stone Wolbrecht - NEREID: Convergence Between Earth & Space Science Paul Krupinski - The Mysterious Case of the Wandering Sun Ryan Wyatt - Thoughts on Motivating Behavior Change in Audiences 4:30pm MAPS General Assembly Jenness Hall 100 Free Time/Banquet Preparation 5:45pm Buchanan Alumni House 6:30pm Cash Bar 7:00pm Banquet Sponsored by SSIA Technologies/Sky-Skan & Quebec Cultural Services 7:45 pm MAPS Awards & Margaret Noble Talk Margaret Noble Talk

Steve Fentress - Fresh courage glimmers from planets

The title comes from a poem by Joy Harjo. Each of us receives some inheritance, tangible or intangible, and leaves some legacy. Along the way there may be sharp turns, intentional reversals, or tedious, drill-like progress. What is there to hold on to? We can count on the majestic vastness of nature, our sense of wonder, and our capacity to conceive ideals.

Saturday - May 20, 2022

8:30am Bus pickup for Maine Mineral and Gem Museum

Versant Power Astronomy Center

8:45am Depart for Maine Mineral and Gem Museum

11:00am Maine Mineral and Gem Museum Meteorite Gallery Tour – Touching Moon & Mars

Maine Mineral and Gem Museum

Have an out of this world experience at the Maine Mineral & Gem Museum. To further our scientific understanding of our origins, the Museum holds - and actively curates one of the most breathtaking collections of meteorites the world has ever known. Through immersive presentations and interactive displays, the Space Rocks gallery featuring the Stifler Collection of Meteorites, opens an extraordinary window for visitors to learn the science behind how our own planet and the solar system was formed. See the largest piece of the Moon and the planet Mars known to exist on Earth — you'll even get to hold a piece of each too! Check out meteorites from Vesta and other asteroids and learn what we can learn from these visitors from space.





- 12:30pm Lunch at Maine Mineral and Gem Museum
- 1:00pm Board Bus Depart for Orono
- 3:30pm Arrive Versant Power Astronomy Center

Delegate Paper Talks

"Planetarium Primer" --- Patty Seaton, Amie Gallagher, Tony Kilgore, and Kevin Williams

Are you relatively new to the planetarium field? Are you being asked to handle marketing or ticketing or a gift shop for the first time? Are you looking for tips under the dome from more "seasoned" planetarians? Then this panel is for you! Our panel is selected to bring best practices and new ideas that will help planetarians of ANY level of experience in the field!

"What Is Viz?" --- Ryan Wyatt

What is visualization, in the simplest terms? And how can we leverage visualizations effectively in our domes? We need to give thought to how we represent data visually in planetariums, and this talk reviews some basics of visualization and advocates careful consideration of the visual language in which we present content to our audiences. In particular, how do we avoid confusing and confounding our audiences by assuming the visual vernacular of the sciences which may well be unfamiliar to the uninitiated? The talk recommends specific resources and visualization best practices.

"AstroViz Project: Multi-wavelength, Multi-format, and Multi-sensory Astronomical Visualizations" --- Frank Summers

The AstroViz Project combines multi-wavelength data from NASA's space telescopes to create cinematic visualizations for the public domain. Awesome sights such as Eta Carinae, the Whirlpool Galaxy, and the Ultra Deep Field are presented in 3D to enlighten and engage learners of all ages. In addition, sonification of the visuals and 3D printing of the models can provide accessible, multi-sensory experiences for broad audiences. AstroViz is part of NASA's Universe of Learning, funded by the NASA Science Mission Directorate Science Activation program.

"IPS Free Shows – Ball State University and AAVSO" --- Shawn Laatsch

Enhance your planetarium experiences with free content from the American Association of Variable Star Observers (AAVSO), Ball State University (BSU), and the IPS. These shorts are available in 2K and 4K fulldome versions in English and French languages. Handouts and other resources are provided to help you share variable stars with your audiences.

"The Mysterious Case of the Wandering Sun" --- Paul Krupinski

In this talk, I will explain how I'm using a low spring-line planetarium dome at the Maryvale UFSD Planetarium to have Intermediate grade students predict the position of the rising Sun over a nine (9) month period of time. Using our digital planetarium projector, I have the students in each class make a visual prediction of the Sun's rising position along the eastern horizon. That Sun position is then 'fixed' to the dome with a 'Sun tag' and is used as a reference marker for next month's sunrise prediction.

"Collaborating with Colleagues" --- Amie Gallagher

How many planetariums have you visited? How many planetariums have your visitors visited? Amie Gallagher (Raritan Valley Community College), Cara Muscio (Ocean County College), and Amy Barraclough (Rowan University) are encouraging visitors to visit not just their local planetarium, but the other planetariums in New Jersey! Get your passport stamped! Closer to home, we are each working with other departments at our colleges to expand our programming. There's always something new to experience.

Delegate Paper Talks (Continued)

"First Class: Blazing a Trail with NASA's Community Anchor Awardees" --- Brian Koehler and Jordan Ecker

In 2021, NASA began a new system of grant awards called the Community Anchor Awards (CAAT). Our museum has the honor of being one of the first grant recipients - funds that we will use to develop new STEM programs for underserved Middle School students in CT. During this paper talk, we will share our experiences so far with the CAATs with the hope of inspiring our friends to pursue this opportunity in the future! "The Art of

Crafts: Adding Interactivity, Fun, and Value to Shows" --- Cara Muscio

Putting the A in STEAM! Inexpensive ways to bring more people in, turn shows into interactive events, and send folks home with something they made!

"IPS Website-Untapped Resources" --- Susan Button

There is a wonderful array of resources and opportunities to connect globally with planetarium colleagues. To help you be connected in a big way, stop reinventing the wheel, think outside of the box, and be even more creative.

"Accessible Adaptations for The Big Astronomy Toolkit" --- Noreen Grice

Big Astronomy: People, Places, Discoveries is a multifaceted research and outreach project supported by several partners and funded by the National Science Foundation. It delivers a unique learning experience by integrating virtual interactions with those living and working at Chilean observatories with curricular resources and a planetarium show. I was brought into the Big Astronomy project as a consultant to create accessible experiences using the Big Astronomy Toolkit. I will present examples of the adaptations I developed that make the toolkit activities more accessible, equitable and inclusive to learners who are blind or visually impaired.

"NEREID: Convergence in the Spaces Between Earth and Space Science" --- Tiffany Stone Wolbrecht

The Network for Earth-space Research Education and Innovation with Data (NEREID) is an interdisciplinary community centered around earth and space science data as well as research and education. NEREID is intentionally designed to bridge domains, connect professionals working in research, education, policy, and industry, and facilitate convergence across these domains and professions. In achieving its goals, NEREID cultivates a collaborative space for curious minds to discuss shared challenges and brainstorm creative solutions. This presentation will focus on our goals and priorities, and what NEREID can offer potential and current members, and the broader STEM community.

"Explore: Our Changing Earth" --- Caity Sullivan

The Charles Hayden Planetarium has premiered a new live show tackling the topic of climate change. This presentation will share the tools and delivery techniques used in this program and prompt a discussion on best ways to tell climate stories under the dome.

Delegate Poster Presentations

<u>POSTERS</u>: Will be on-display for the duration of the conference in the Multi-Purpose Room at the Versant Power Astronomy Center. These will be digitally displayed on monitors in that area. Participants are encouraged to ask questions and discuss in more detail.

"Arctic Lights/Arctic Nights" --- April Whitt

During the pandemic, when a 2nd grade teacher requested a (remote) lesson about shadows, seasons and moon phases, this lesson was developed using Miller and Van Zyle's book Arctic Lights/Arctic Nights. Students discussed what makes shadows, graphed amounts of daylight recorded through a year in northern Alaska and predicted the Moon's position using Stellarium.

"Planetarium in the Classroom: Using Planetarium Data Visualizations for Environmental Literacy" --- Jacque Benitez

This poser will showcase the premiere of Living Worlds educational resources.

"The Big Astronomy Project: Moving Forward with What We've Learned" --- Tiffany Stone Wolbrecht

Big Astronomy is an NSF funded project that includes the award-winning bilingual planetarium show Big Astronomy: People, Places, Discoveries. The Big Astronomy project utilizes design principles to spark audience interest, support audience agency in how they continue to learn and engage and support the development of audience STEM identity. This poster focuses on how the project was shaped during the pandemic-related shutdowns, where the project is now, and the near-future expansion of resource offerings that are more accessible for those in the blind and visually impaired (BVI) and deaf and hard of hearing (DHH) communities.

Margaret Noble Address

"Fresh courage glimmers from planets" Steve Fentress, Rochester Museum & Science Center's Strasenburgh Planetarium

The title comes from a poem by Joy Harjo. Each of us receives some inheritance, tangible or intangible, and leaves some legacy. Along the way there may be sharp turns, intentional reversals, or tedious, drill-like progress. What is there to hold on to? We can count on the majestic vastness of nature, our sense of wonder, and our capacity to conceive ideals.

Steve Fentress is Director of the Rochester (NY) Museum & Science Center's Strasenburgh Planetarium, where he led the Planetarium's fiftieth-anniversary digital upgrade and renovation. Earlier influential experiences came from Griffith Observatory, Los Angeles Valley College Planetarium, JPL, studies in classical music at Cal State Northridge and Indiana University, and public radio at WFIU, Bloomington, Indiana. He has written articles for the Griffith Observer and space.com, as well as his own book, *Sky to Space: Astronomy Beyond the Basics with Comparisons, Ratios, and Proportions.*



NOTES:

Invited Guest Speakers – Thursday, May 19

Mark SubbaRao

Mark SubbaRao leads <u>NASA's Scientific Visualization Studio</u>, a group tasked with visualizing NASA science results for public audiences. Before joining NASA, Mark spent 18 years at the Adler Planetarium in Chicago, where he produced planetarium shows and designed museum exhibits featuring data-driven scientific visualizations. During 2019-2020 Mark served as President of the International Planetarium Society (IPS), where he spearheaded the '<u>Data to Dome'</u>' initiative - an effort to prepare the planetarium community for the big data era. Before that he worked at the University of Chicago where he was part of a team that created the largest 3D map of the Universe, the Sloan Digital Sky Survey.



NASA's Scientific Visualization Studio (SVS) creates visualizations to communicate the story of NASA Science. Over its 30-year history the SVS has assembled the world's largest repository of scientific visualizations. This presentation will give an overview of the resources the SVS has available for planetarians. In particular we will focus on a suite of new climate visualizations produced for COP26, the annual temperature announcement, and other uses.

<u>Sascha Deri</u>



Sasch Deri grew up in Maine earning a degree in physics from Earlham College and one in electrical engineering from University of Southern Maine. In 2014 he founded <u>bluShift Aerospace</u>. The company made history on January 31 of 2021, with the first commercial rocket launch powered by bio-derived fuel in the world, using a proprietary modular hybrid rocket engine that is also unique to the aerospace industry. Their series of small rockets will be able to lift 30-kilogram payloads suborbitally to space and then to low Earth orbit for academic research and commercial customers.

In 2022 bluShift Aerospace commercially launched the first rocket powered by bioderived, non-toxic, near carbon neutral fuel from a former Air Force station in Maine. Learn how this company has navigated the technical, political, and funding challenges of developing a more Earth-friendly space launch service that targets students, academics,

researchers and ultimately commercial companies provide broadband and Earth-imaging services from Low Earth Orbit.

Invited Guest Speakers – Friday, May 20

Carter Emmart

Carter Emmart is the Director of Astrovisualization for the American Museum of Natural History where he directs the production of its award-winning space shows and oversees the development of the NASA supported OpenSpace software project that interactively visualizes the museum's Digital Universe 3D Atlas. Carter, who previously worked at NASA Ames Research Center, and the National Center for Atmospheric Research got his bachelor's degree in geophysics from the University of Colorado where he was also an organizer and illustrator for the Case for Mars conference series. He received his honorary Ph.D. from Sweden's Linkoping University for directing their graduate interns at AMNH to bring latest visualization research into planetarium domes. In 2016, he was awarded the prestigious Technical Achievement Award from the International Planetarium Society. Carter grew up in a family of artists and started planetarium courses at the Hayden Planetarium at age ten in 1971.



<u>Sean Birkel</u>



Sean Birkel is an Assistant Professor at the University of Maine's Climate Change Institute with a joint appointment to Cooperative Extension. He is also the Maine State Climatologist. In these roles he conducts climate research and outreach to Maine stakeholders. Since 2012, Sean has been developing Climate Reanalyzer, a data visualization website for reanalysis, climate, and weather forecast models with content for researchers, educators, and the general public. Climate Reanalyzer is an online platform for visualizing an array of climate and weather models and datasets. The most visited page is Today's Weather, which provides an overview of the current patterns of temperature, precipitation, and other measures across the globe. Other pages allow users to dig into climate trends over recent decades by plotting maps, time series, and correlations for different

variables. There are also animated forecast maps. His talk explores the Climate Reanalyzer and how it could be used in planetaria.

Kathy Mills

Dr. Katherine Mills is a research scientist at the <u>Gulf of Maine Research</u> <u>Institute</u> (GMRI) and leads the <u>Integrated Systems Ecology Lab</u>. Kathy's lab investigates climate adaptation within marine ecosystems, with a particular focus on commercial fisheries and developing models to support adaptation planning by fishery participants, fishing communities and fishery managers. In her first-ever planetarium presentation, and with Carter Emmart piloting Open Space using both NASA and GMRI research data, Kathy will explore how the dome can be used to share evidence of local climate impacts -- in this case, the impact of warming ocean temperature on Maine's iconic crustacean, *Homarus americanus*.



Invited Guest Speakers – Friday, May 20

<u>Cassaundra Rose</u>



Cassaundra is a Senior Science Analyst and Climate Council Coordinator with the Governor's Office of Policy Innovation and the Future (GOPIF). Dr. Rose has more than ten years of academic climate research experience, with expertise in long-term shifts in terrestrial and oceanographic environments and their variability. She holds a MS in Geology from the University of California, Riverside, and a PhD in Earth and Environmental Science from Columbia University. Dr. Rose supports the state climate council, sciencebased policy analysis, and communications for GOPIF.

Maine Won't Wait is a four year state climate plan packed with actionable strategies and goals to emit less carbon, produce energy from renewable sources and protect our natural resources, communities and people from

worst case scenarios. Dr. Rose will talk about what's in the plan, how it's being put into action, and the Maine Climate Council's approach to communicating with the public about climate action.

David Weigel

A. David Weigel is the Director of the INTUITIVE Planetarium at the U.S. Space & Rocket Center in Huntsville, AL. David and his planetarium team strive to provide exciting live and interactive astronomy education, bolstered by immersive visualizations of the latest available data. He also serves as an astrovizicist for the American Astronomical Society - WorldWide Telescope Project, creating interactive astronomical visualizations and educational video tours of the universe. WorldWide Telescope (WWT) is an open-source tool that provides users accessibility to explore astronomical phenomena in context using cloud based big data. WWT has a plethora of use cases - David will explore a few of these, explaining how it can power planetariums and be used to create web interactives for education or research.



Sponsor Presentation Detailed Schedule

Wednesday, May 19th - LEO Group 1

7:25 pm	Laser Fantasy
7:30 pm	Ash Enterprises
7:35 pm	Adler Planetarium
7:40 pm	Chroma Cove
7:45 pm	Seiler Instruments/Zeiss
7:55 pm	Astro Tec
8:05 pm	GOTO, Inc.
8:15 pm	Bowen Technovation
8:25 pm	COSM/E&S/Spitz
8:55 pm	Cal Academy/Morrison Planetarium
9:20 pm	Hubblo

Thursday, May 20th – SCORPIUS Group 1

9:00 am	RSA Cosmos/Konica Minolta
9:20 am	SSIA Technologies/Sky-Skan
10:00 am	Break
10:15 am	Quebec Cultural Office
10:55 am	Digitalis Education Solutions
11:05am	Milwaukee Public Museum/Sofren Planetarium
11:15 am	Creative Planet

Thursday, May 20th – SCORPIUS Group 2

1:30 pm	Laser Fantasy
1:35 pm	Ash Enterprises
1:40 pm	Adler Planetarium
1:45 pm	Chroma Cove
1:50 pm	Seiler Instruments/Zeiss
2:00 pm	Astro Tec
2:10 pm	GOTO, Inc.
2:20 pm	Bowen Technovation
2:30 pm	COSM/E&S/Spitz
3:00 pm	Break
3:15 pm	Cal Academy/Morrison Planetarium
3:40 pm	Hubblo

Thursday, May 20th – LEO Group 2

4:20 pm	RSA Cosmos/Konica Minolta
4:40 pm	SSIA Technologies/Sky-Skan
5:20 pm	Quebec Cultural Office
6:00 pm	Digitalis Education Solutions
6:10 pm	Creative Planet
6:20 pm	Milwaukee Public Museum/Sofren Planetarium