

Report: NOAA Environmental Literacy Program and Science On a Sphere® Collaborative Network Joint Workshop

May 7-9, 2024

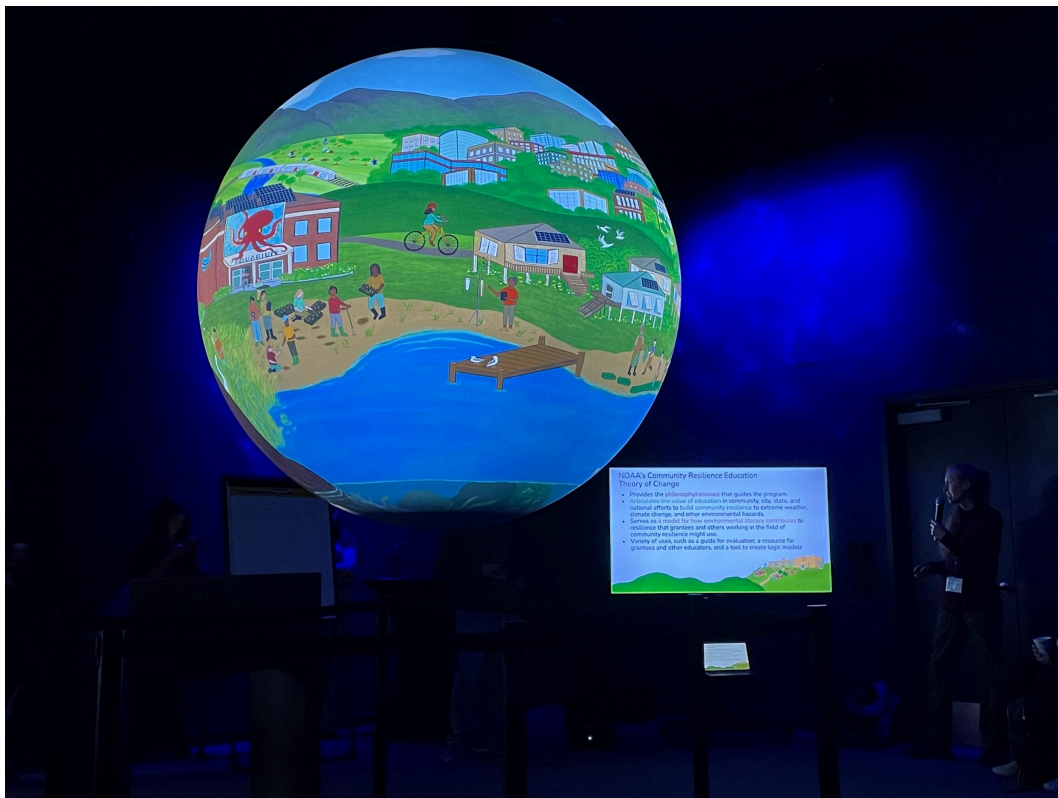


**GLOBAL
TO LOCAL**



Introduction

For the first time, NOAA hosted a joint workshop with [NOAA's Environmental Literacy Program \(ELP\)](#) grantees and [NOAA's Science On a Sphere \(SOS\) Users Collaborative Network](#). At this event, users came together to share knowledge of engaging communities around the global-to-local issues we face.



A resilient community projected on the SOS installation at The Wild Center (credit: The Wild Center).

[The Wild Center](#), the location host, is a leader in informal science education and has both an SOS exhibit that is integrated with their climate solutions exhibit and is a two-time recipient of funding from ELP for their youth climate resilience work. We were grateful for the opportunity to hold this event at The Wild Center and would like to acknowledge the land where The Wild Center stands as the ancestral land and original territory of the Haudenosaunee people.

Our theme for the workshop, “Global to Local: Using data and visualizations to build community resilience,” built off the strengths of both the SOS network and ELP grantees. Tackling global challenges like climate change and pandemics requires an understanding of how planet-scale dynamics manifest at a local level. It also requires skills in local implementation of equitable solutions that address the resulting impacts. These two groups exemplify these types of efforts. We want to thank the members of the ELP resilience education grantee community of practice and the SOS Collaborative Network members for coming together and building new connections. The attendees were able to interact with each other and learn about the complementary approaches they are using to engage audiences.

The complete workshop program, including the schedule for the workshop, information on the plenary speakers, and concurrent sessions, is appended at the end of this report (Appendix 1), starting on page 34.

Table of Contents

Introduction	1
Workshop objectives	4
What the attendees said about the workshop	4
Major takeaways	5
Participant testimonials	5
Who was there?	6
Highlights from the workshop	7
Opening remarks	7
NOAA opening remarks	7
The Wild Center opening remarks	8
Climate solutions with an open heart	9
Concurrent sessions	10
Poets for Science	11
Forces for change: Youth and local government	16
Workforce pathways for youth: Taking climate action	17
Education to empower climate change action: Research, gaps, and opportunities	19
Environmental Literacy Program (ELP) Breakout	21
Science On a Sphere (SOS) Breakout	22
Educational resources	23
Share-a-thon	24
Fun at The Wild Center	29
Concluding remarks	33
Appendix 1- Workshop Program	34

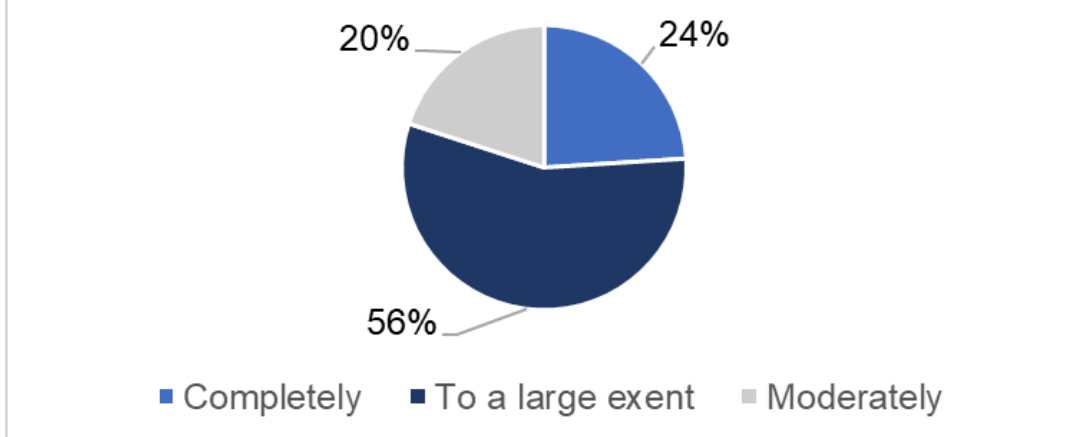
Workshop objectives

- Share ideas and strategies for how global data and data visualization and local community resilience efforts can complement each other.
- Help users communicate about climate change effectively in order to increase resiliency, sustainability, climate solutions, and actions.
- Learn about novel methods for engaging the public with data and participatory science.
- Create personal and professional bonds among individuals, projects, and institutions across the SOS networks and ELP grantee community.
- Build knowledge of NOAA's data visualization and climate resilience tools and resources.
- Showcase the versatility of the SOS technology.
- Promote adoption of new approaches for climate resilience education as highlighted in the [ELP Theory of Change](#).
- Inform future NOAA directions for supporting these programs and funding solicitations.

What the attendees said about the workshop

We asked workshop participants to provide feedback on their experiences to help the NOAA team improve future efforts. Responses were submitted by attendees of both the SOS Collaborative Network and ELP grantees or affiliated organizations. More than 30% of attendees responded to the survey, of which 36% were affiliated with SOS, 41% with ELP, 13% with both groups, and 10% with other affiliations. The responses were complimentary, with many enjoying learning more about the SOS network and ELP community-based projects. The attendees emphasized the benefits of including Indigenous voices and knowledge as part of the workshop and were excited about new ideas around community involvement and audience engagement.

How well did the workshop address challenges and needs of your project or SOS installation?



Attendees agreed that the workshop adequately addressed the challenges and opportunities specific to their resilience education projects or SOS installation.

Major takeaways

Attendees consistently mentioned that they developed new ideas and felt renewed professionally leaving the workshop. The following takeaways were mentioned the most by attendees:

- **Young people are the future of the climate movement.** Youth were highlighted in multiple panels and through a community poem reading. Adult allies can position themselves to support youth in their climate actions and goals. Participants were inspired by the work already being done by youth.
- **NOAA SOS and ELP resources are valuable and can be used in your community.** Attendees reflected on the tools and resources they will use in their programs across SOS and ELP. Survey responses on the use of tools and resources ranged from creating content to share on SOS to repurposing the [Climate Resilience Activity Book](#) for students.
- **There are many people and institutions to collaborate with across the SOS and ELP communities.** The cross-pollination of ideas between the SOS and ELP communities during the workshop allowed participants to build new partnerships and open channels of communication across projects.

Participant testimonials

“We are not working in silos - we have a community of like-minded passionate folks working hard!”

“There are so many organizations out there doing work similar to mine that could serve as a strong collaborator. There is a wealth of knowledge out there in this community and the folks are really interested in sharing it.”

“The first plenary, presented by Neil, set the tone for the meeting in more ways than one and it led me to reflect on how I could investigate the Indigenous presence in our county and how we could bring that population into our programming at my workplace.”

“I LOVED the joint workshop. It was great to hear from people who are teaching climate science, environmental science, and more to learn how people are using different approaches and tactics.”

“Thank you for running this workshop - I know it was a lot of work but it was very valuable to me and my staff - they told me several times it was one of the best conferences they have been to.”

Who was there?

The workshop had 120 attendees from more than 62 institutions, with participants hailing from countries such as Canada, Germany, Australia, and 26 U.S. states and territories, including Hawai'i, Alaska, and the U.S. Virgin Islands.

Organizations

- K-12 Schools
- Universities
- Museums and science Centers
- Aquariums and zoos
- Community-based organizations
- Haudenosaunee community
- Local and state governments
- Other non-profit organizations
- Private companies
- Federal agencies: NOAA and NASA
- NAAEE

Groups

- ELP grantees and program officers
- Science On a Sphere users, team, and distributors
- Coastal Ecosystem Learning Centers Network (CELC)
- Community Collaborative Rain, Hail, and Snow (CoCoRaHS) Network
- National Network of Ocean and Climate Change Interpretation (NNOCCI)

Highlights from the workshop

The following sections provide a summary of plenaries and events held during the workshop. Read on to learn more about the highlights from our first ever ELP-SOS Joint Workshop. The views in each plenary summary represent those of the speakers themselves and do not reflect the opinions of NOAA or the Department of Commerce.

Opening remarks

NOAA opening remarks



Attendees enjoying the opening remarks to the ELP-SOS Joint workshop. (photo credit: The Wild Center)

The NOAA Office of Education team welcomed the attendees and reviewed the objectives of the joint workshop. Director of NOAA Education, Louisa Koch, thanked The Wild Center for hosting the event and our eeBLUE partners at North American Association of Environmental Education (NAAEE) for their expertise and support in creating a more environmentally literate society. She emphasized the potential in combining Science On a Sphere's focus on data visualization and effective communication with the Environmental Literacy Program's emphasis on community engagement for climate solutions at the local level.

Koch reviewed relevant legislation and resources that could benefit all participants and their education programs. NOAA has received support to help communities and coasts become climate smart and climate ready through the Bipartisan Infrastructure Law or the Inflation Reduction Act. Participants should be ready to apply for opportunities through NOAA to support climate resilience work in their communities. She encouraged participants to incorporate aspects of the [Fifth National Climate Assessment](#) into their education programs as the report

includes art pieces interpreting climate change impacts and solutions in the context of social systems and justice. NOAA publishes the annual [Billion Dollar Weather and Climate Disasters Report](#) to increase awareness about the cost of climate and weather disasters, which she said may also be a useful resource for attendees. Finally, Koch drew attention to the [Climate Literacy Guide](#) which is being updated under the U.S. Global Change Research Program and serves to inform the public and provide educators with guidance on increasing climate literacy.

The Wild Center opening remarks



Jen Kretser (right) and Stephanie Ratcliffe (right) giving The Wild Center opening remarks to the ELP-SOS Joint workshop. (photo credit: The Wild Center)

Stephanie Ratcliffe (Executive Director, The Wild Center) and Jen Kretser (Director of Climate Initiatives, The Wild Center) provided an overview of their efforts and initiatives regarding climate solutions. Kretser highlighted the unique characteristics of the Adirondack Park, a six-million-acre region divided equally between private and public lands, encompassing diverse landscapes and communities. She noted the demographic challenge of an aging population with more youth leaving the area over time. Kretser emphasized the center's commitment to exploring climate solutions, such as green infrastructure and comprehensive staff training, and introduced the Climate Solutions Exhibit. This exhibit aims to elevate stories of changemakers dedicated to climate action, encouraging visitors to find their place in the movement.

Ratcliffe discussed the implementation of NOAA's Science On a Sphere in 2012 at The Wild Center, which served as the museum's pioneering climate change educational tool. She elaborated on the Drawdown-inspired exhibition, which focuses on climate solutions through personal storytelling. Ratcliffe also mentioned the [Six Americas Super Short Survey \(SASSY!\)](#) conducted at their site in 2020, which revealed that over 84% of visitors were alarmed or concerned about climate change. These findings helped shape the exhibit's narrative, grounding it in public perception and creating a framework for effectively communicating climate issues and solutions.

Climate solutions with an open heart



Neil Patterson speaking about the Center for Native People and the Environment during his plenary. (photo credit: The Wild Center)

Neil Patterson, a member of the Haudenosaunee (Tuscarora) and affiliated with the [State University of New York \(SUNY\) Environmental Science and Forestry \(ESF\) Center for Native Peoples and the Environment](#), kicked off the workshop with a plenary talk on Traditional Ecological Knowledge (TEK). He described TEK as a cumulative body of knowledge, practice, and belief that has evolved over millennia and continues to evolve. TEK encompasses observations, oral and written knowledge, practices, and beliefs that promote environmental sustainability and natural resource stewardship. Highlighting recent policy changes, Patterson noted the White House's commitment in November 2021 to incorporate Indigenous Knowledge in federal policy decisions and President Biden's guidance in November 2022, which calls for acknowledging history, respecting different world views, recognizing challenges, and pursuing cooperation in stewardship.

Patterson emphasized the significance of the [United Nations Declaration on the Rights of Indigenous Peoples](#) as the gold standard for engaging with Indigenous communities and protecting their rights. He elaborated on Haudenosaunee teachings, such as the *Kayanrestiyu:* (The Great Law of Peace), which dates back 2000 years and serves as both a constitution and a map. This law encourages gratitude over demands, and the phrase 'bury the hatchet' symbolizes both literal and figurative peace among the five nations. The 'Dish with One Spoon' metaphor underscores equity and common resource sharing, reminding people to care for the collective rather than divide resources.

Patterson also touched on language revitalization and the profound loss of Haudenosaunee access to and, therefore, ability to care for their land. He stressed that climate justice is

intrinsically linked to land justice, noting that Indigenous Peoples steward 80% of the world's biodiversity on less than half of the world's land. Initiatives like Native Earth aim to restore access and care, bringing young people to the Adirondacks to reconnect with traditional practices and food systems. Indigenous cartography and the teachings of John Mohawk further illustrate the Indigenous perspective that nature is a guide, and it is humanity's responsibility to read and incorporate nature into their lives.

Concurrent sessions

Due to the unique nature of this workshop, 50 concurrent sessions took place in spaces around the museum, including the Planet Adirondack exhibit, which houses a Science On a Sphere installation. Each session had a unique format engaging the audience in different activities such as climate action board games, nature walks, art activities, and traditional presentations sharing the work done across institutions. Attendees were encouraged to participate in presentations outside their network to learn more about other ways to engage in environmental literacy.



SOS presentations occurred in The Wild Center's Planet Adirondack exhibit. (photo credit: The Wild Center)



Attendees learning about the native Hawaiian perspective on climate resilience from ELP grantees at University of Hawai'i Maui College. (photo credit: The Wild Center)

Poets for Science



Youth Climate Community leaders presenting their community poem "Millions of Voices" about the effects of climate change on their home, the Adirondacks. (photo credit: The Wild Center)

David Hassler (Bob and Walt Wick Executive Director, Wick Poetry Center at Kent State University) and Kate Semmens (Science Director, Nurture Nature Center) discussed the evolution of the [Poets for Science initiative](#) founded by poet and environmental activist Jane Hirshfield in 2017. The initiative explores the intersection of science and art and brings poetry to the most urgent and evolving needs of our climate crisis. Hassler presented several Poets for Science collaborative projects that offer expressive writing interventions, interactive exhibits, and digital platforms and tools for educators. The movement has grown to cover a range of

scientific and societal issues such as [climate](#), [vaccines](#), and [healthcare workers](#). He concluded by sharing some [community poem videos](#) and offering an opportunity for participants to share reflections on an interactive online platform and contribute to community poems. Poetry can make us better climate advocates by allowing us to share and work through shared emotions around the difficulties of working on climate issues.

A community poem, “Millions of Voices” was created by the members of the Youth Climate Community that call the Adirondacks their home. The youths [performed a live reading](#) during the workshop.

Millions of Voices

A Youth Climate Community Poem

I am an avalanche of a woman
all unpredictability and a natural at disaster.
They should teach classes on how to survive me,
because here I am persuading you to release
your carbon strangle on our winter
with the millions and millions of snowflakes.

THIS WINTER THE WARMEST EVER RECORDED IN THE ADIRONDACKS

We've all heard the saying about biting the hand that feeds.
And yet, still, we are parasites, latching on, piercing skin, imbibing blood.
Like fleas or leeches, we are drunk on life
from our devouring of material stuff.

When did the Earth become simultaneously *too much* and *not enough*?

When did we start praying with hands spread open?

The signs of change too quick to adapt to
are beating down the door,
native bees, out too soon,
hungry for pollen that's not there yet.

“Historically, there were fewer ticks in this area,”
I read in the literature.
Now, by the calm waters,
they fill the grasses, waiting.

Fear exists where it did not before.

The wind toys with reflections
of trees on the lake.
How ferocious she was
when ice-out came early!

The unseasonable warmth broke the spell
like the Person from Porlock.
She irritably rose from her cool winter slumber,
her waters choppy, rolling, violent.
It wasn't time to wake.

In the Science of Climate Change,
we learned this is the pivotal century.
In this singular lifetime,
our species' choices will
determine the time scale
and severity of warming.

My generation will shape Earth's climate
for thousands of generations to come.

The alarm bells have sounded.
The young of our young hang in the balance.
What legacy will we leave?
What future will we grant them?

I was born in a land made of beauty.

I was born in a place tough like stone.
I was born on a planet fierce like fire
And the fire bloomed like a rose.

I live in an icy dread
frigid drops of melting icicles
quivering above our necks
and dripping
 down
 my
 spine
not knowing if this snowfall
will be
my last.

I AM TOO DAMN YOUNG TO BE THINKING
ABOUT DOING THINGS FOR THE LAST TIME

From the Earth we came, to the Earth we will go.
We are one in the same,
 Each.
 And.
 Every.
 One.

Of us.

In the West the mountains tower.
They protect us, most times.
But when the valleys fill with fire,
they can't block the smoke from our eyes.

Now my stars are all caught up in
in smoke nets that the sunlight turns all white.
Like the Pope anointing each factory,

all pure, all good, alright. But
when you close your eyes
all you got is a mouth
full of haze.

We blame the planet for not being calm,
when we are the ones dropping bombs.

We are stuck between grasping at straws and inaction.

Now is the time for solution and revolution.
It's "We the People" in the Constitution.

From the fisher to the bee
all our relations need to be free.
We are one in the same.

The first time I heard an avalanche
we froze in our snowshoes because we thought a bomb
went off before we realized it was not violence
only the explosion of change.

It is hundreds of thousands of snowflakes
that make an avalanche rumble.

And here we are –
millions
and millions
of voices.

Forces for change: Youth and local government



Shanequa Perry, Nadia Harvieux, Cedar Young, and Frank Niepold (left to right) answering audience questions during their panel discussion. (photo credit: The Wild Center)

Frank Niepold (Senior Climate Education Coordinator, NOAA's Climate Program Office) led a panel discussion with Nadia Harvieux (Associate Director for Educational Programs, Finger Lakes Institute), Hannah Barg (Climate Network Manager, The Wild Center), Cedar Young (student, St. Lawrence University and Saranac Lake Climate Strong Community), and Shenequa Perry (Task Force Coordinator, Homer Climate Strong Community) as panelists. The panel introduced [Climate Smart Communities](#) (CSC) and discussed how to elevate the role of youth in local government as an effective way to catalyze climate action in local communities.

Climate Smart Communities is a New York State Program designed to help local governments take steps in their communities to reduce greenhouse gas emissions and adapt to climate change. The local government makes a climate smart pledge and achieves the certification through planning and actions taken to curb greenhouse gas emissions in their communities. There are now more than 300 certified CSC in New York state. At the national level, the [Sustainable States Network](#) is working to support local governments in the development of climate education and action on climate goals and clean energy.

The panelists shared examples from their own experiences as well as strategies and tools to facilitate partnerships between youth, community leaders, and government to create more resilient and inclusive community climate action. Young and Perry described what it was like to be part of a CSC task force as teenagers and how they took actions through communications and coordination to mitigate their communities' contribution to climate change. Young worked

with Saranac Lake's local government as the communications member of the CSC task force as a teen and attended the first [White House Summit on Building Climate Resilient Communities](#). Perry led the formation of the CSC task force in Homer while still in high school and helped them achieve certification as a CSC. Both Young and Perry were part of the Youth Climate Program at The Wild Center and used their skills to shape their CSC.

Barg coordinates Youth Climate Summits across the United States and discussed how the NOAA ELP grant supported the development of the [Forces for Change Youth Guide](#), a guide to provide young people, their adult allies, and local government with information and skills to build CSC. Harvieux emphasized the importance of allowing young people to have a say in their communities' future and the power that youth can have when given support. As an adult ally, Harvieux made the effort to help the local high school (Honeoye Falls-Lima High School) environmental team convince their mayor to join the CSC movement. It took a year and a half, but the students persevered and made their goals a reality, serving as a resource for other school districts and towns pursuing a CSC certification. Overall, the panel provided useful tools and ideas for promoting youth engagement with local government and climate action projects through their powerful stories and efforts.

Workforce pathways for youth: Taking climate action



Keeley Jock, Zarela Gulli, Astrid Saint Pierre, and Ariah Mitchell (left to right) answering questions during their panel. (photo credit: The Wild Center)

Garrett Marino and Alicia Lamb from The Wild Center moderated a panel discussion with four local youth leaders on how they turned their climate anxiety into climate action. Zarela Gulli (ClimaTeens Fellow, The Wild Center), Astrid Saint Pierre (co-founder of [Placid Earth LLC](#)),

Keeley Jock ([Climate Justice Fellow, Adirondack North Country Association](#)), and Aariah Mitchell (Climate Fellow, Paul Smith's College Center for Sustainability) provided their perspectives on climate change and how they were inspired to enact change in the Adirondacks. They believe that climate anxiety and fear should be channeled into action with an optimistic outlook. The panelists explained how they overcame imposter syndrome in the environmental action field and are learning to take a step back and look at the bigger picture when they are overwhelmed by the amount of work that needs to be done.

All of the panelists were from the Adirondacks but came into the climate action field through different paths. Jock grew up in Akwesasne, a Mohawk reservation on the border of New York State and Canada. She uses her belief in the Seven Generations philosophy, which she learned at a young age, to drive her purpose in protecting the natural world. The Seven Generation principle emphasizes that the decisions we make today should result in a sustainable world for the next generations. Being raised to respect the planet has led Jock into the climate action field where she fights for Indigenous land rights. Guilli found herself facing climate anxiety from “end of the world” messaging at school and found her ice climbing seasons with her father getting shorter. She has now stepped out of her comfort zone to advocate for the environment and discuss how we can improve our world through activism. Saint-Pierre became involved in the Youth Climate Program at The Wild Center and knew her place was in the climate movement. She started her own composting company and continues to work towards bridging the gap in advocacy with a focus on climate justice issues. Mitchell grew up in a family that did not believe that human activities contributed to climate change. She became interested in climate change while reading about it in a National Geographic magazine. Since then, she has taken every opportunity to fight climate change and finds power in helping others understand the issues and how they can help.



Keeley Jock and Zarela Gulli (left to right) answering questions during their panel. (photo credit: The Wild Center)

The young panelists described the apathy and indifference they have faced from others who are not invested in the climate movement. They agreed that you need to find something in common with that audience to connect people back to the Earth. Everyone is affected by the climate crisis, whether they realize it or not. The panelists credit their success to the support and advice they have received from mentors, family members, their roots, and their peers. The advice given for young people interested in getting involved in the climate movement was to step out of your comfort zone, follow your interests, and just start taking action. Every step is a step towards progress and building stronger, more resilient communities.

Education to empower climate change action: Research, gaps, and opportunities



Judy Braus and Sarah Bodor (left to right) presenting on Climate Change Education efforts happening at NAAEE. (photo credit: The Wild Center)

The [North American Association for Environmental Education](#) (NAAEE) has formed multiple partnerships with NOAA over the years and plays an important role in strengthening the field of environmental education. Judy Braus (Executive Director, NAAEE) and Sarah Bodor (Senior Director of Capacity Building, NAAEE) discussed the relevance of climate change in environmental education and how NAAEE is working to incorporate environmental and climate literacy into curriculum. NAAEE’s mission is to use the power of education to advance environmental literacy and civic engagement to create a more just and sustainable future. They work with partners in North America and around the world, including NOAA, the NAAEE affiliate network, and the Environmental Protection Agency (EPA).

Climate change education and policy are priorities for NAAEE. Speakers discussed that climate change is the biggest existential threat facing our global society, and its effects are being felt around the world. Educators are being asked to teach about climate without having the support,

training, and resources needed. Being an educator today is challenging for many reasons, including the impact that negative news about climate and other issues is having on all ages.

To get a better understanding of the climate change education landscape, NAAEE has produced reports to better understand what is happening across the United States. One report reviewed state-level policy materials, and looked at more than 800 education policy documents to map the landscape of climate change K-12 education policy in the United States. The analysis found that most school policies do not mention climate change or only mention climate change in science subjects. The social aspects, policies, and actions to take around climate change are often overlooked. NAAEE worked with Edge Research to conduct a survey of administrators and teachers from all disciplines. The results showed that educators are truly invested in climate change and concerned about how it affects them and their students. Nonetheless, many are not teaching about it because they don't feel informed, don't have support from school administrators, and don't have the locally relevant resources. The survey also showed that educators want to see climate change taught across the curriculum, but that's not happening in most schools. Each report provides recommendations, including that states update their Environmental Literacy plans with a stronger focus on climate justice and action, Indigenous knowledge, and climate mitigation; that schools and universities adopt more policies that support climate change education; and that we provide more support to educators, including professional development and access to high-quality, locally relevant materials.

NAAEE and NOAA are working to address the needs of educators and to advance environmental literacy as part of their [eeBLUE](#) partnership. Through this program, they have supported projects such as the [Watershed STEM Education Grant](#) and [Aquaculture Literacy Mini-Grants](#), which focus on supporting educators in incorporating relevant environmental topics into their efforts at both formal and informal education venues.

NAAEE supports young leaders through the [CEE-Fellowship Program](#), which links environmental education and civic engagement, while promoting climate change action. They also sponsor [EE 30 Under 30](#), which recognizes young people under 30 around the world for efforts to address environmental and social challenges in their communities. The NAAEE [Coalition for Climate Education Policy Program](#) is focused on advancing climate change education policy and making the case that education should be recognized as a critical and effective strategy in addressing climate change.

The NAAEE website includes a number of resources focused on climate change education and policy, including opportunities to advance state and local advocacy efforts. The coalition is also developing a toolkit to help organizations do more to advance climate change education policies at the states and local levels. In addition, the newest module in NAAEE's "Guidelines for Excellence" series is focused on climate action and climate justice. The guidelines represent the collective wisdom from the field and focus on what effective practices include, with key characteristics and examples to help advance high quality environmental education. The Guidelines are available for download on the [NAAEE website](#). *Educating for Excellence: Educating for Climate Action and Justice* should be published in summer of 2024.

Environmental Literacy Program (ELP) Breakout



Sarah Schoedinger and Carrie McDougall (left to right) presenting during the ELP breakout session. (photo credit: The Wild Center)

The presentation from the Environmental Literacy Program (ELP) began with an overview of several NOAA-related funding programs of potential interest to ELP grantees. These programs include [NOAA's Heat Watch](#), the NOAA Bay Watershed Education and Training ([B-WET](#)) program, the Climate Smart Communities Initiative ([CSCI](#)), and NOAA's Climate Ready Workforce ([CRW](#)). This summer, NOAA, in collaboration with the U.S. Departments of Health and Human Services (HHS) and Housing and Urban Development (HUD), along with community scientists, will map the hottest neighborhoods, known as urban heat islands, in 14 U.S. communities and four international cities. The NOAA B-WET Program supports Meaningful Watershed Educational Experiences (MWEEs) for students and offers related professional development, with regional opportunities currently available. Meanwhile, the Climate Smart Communities Initiative (CSCI) seeks to enhance the capacity of U.S. communities to address climate-related impacts, prioritizing the needs of those on the front lines. Lastly, the Climate-Ready Workforce program focuses on supporting communities disproportionately affected by climate risks and inequities, promoting climate resilience, and developing a climate-literate workforce.

Managing a NOAA award has gotten more difficult recently as we transition to a new grants management system called "eRA Commons." Both grantees and NOAA staff are experiencing difficulties operating this new system. However, the ELP team, along with others at NOAA, are actively working to resolve these issues. If you have any questions about managing your award, you are encouraged to email the ELP team (oed.grants@noaa.gov). NOAA appreciates grantees' cooperation and understanding as the agency works towards a smoother experience with the new system.

The ELP team is planning to update [NOAA's Community Resilience Education Theory of Change](#), marking the first major revision since 2020. This update will incorporate feedback from

past workshops with ELP grantees and insights from a literature review. To facilitate this project, the team will hire a contractor to serve as the project manager and seek a graduate student to conduct the literature review. Interested parties are encouraged to contact the ELP team. The project is set to kick off in January or February 2025, with a target completion date between July and August 2025.

In terms of future competitions offering new funding, the Environmental Literacy Program has been delayed in launching another competition due to the transition to the new grants system. New funding will not be available until fiscal year 2025 and the funding availability is expected to be similar to recent years, with approximately \$3 million being made available annually. Recognizing that there is far more work to be done than \$3 million can support, the ELP team is attempting to identify co-funders. For example, the Gulf Research Program at the National Academies has been identified as a strong potential co-funder for 2025. The program is also seeking additional co-funders and welcomes interest from other institutions. Due to ongoing concerns about the accessibility of the eRA system for new grantees, the team may only run a competition for Phase 2 projects, though no specific timeframe has been established for these projects yet.

Science On a Sphere (SOS) Breakout



Eric Hackathorn presenting updates for SOS to attendees during the SOS breakout session.
(photo credit: The Wild Center)

The [Science On a Sphere \(SOS\) program](#), which moved from NOAA Research to the NOAA Office of Education in 2022, has undergone significant developments, including transitions to cloud-based servers, updates to the Ubuntu operating system, and enhancements to the real-time clouds dataset and iPad controller. As part of a new focus on educators, the team recently released [SOS Explorer® \(SOSx\)](#), an interactive virtual globe loaded with NOAA's

datasets for use on Windows laptops and desktops. The SOS Explorer Mobile app offers an alternative way to experience SOS on Apple and Android devices, including Chromebooks and Mac Apple Silicon. All you need is an Internet connection to download these free applications.

Educational resources

The monthly [SOS Education forum](#) provides fresh content, inspiration, and practical guidance. The NOAA SOS team is also considering creating an SOS education advisory board to help drive the development of content and adaptation of new tools. Contact Hilary Peddicord (hilary.peddicord@noaa.gov) if you are interested in either effort.

The SOS team encourages users to engage with [The Nurture Nature Center](#) on their Education Research grant funded by the National Science Foundation titled, "[Building Insights Through Observation](#)." This project aims to enhance science teaching by integrating arts-based instructional methods and geospatial data visualizations.

Share-a-thon

Workshop attendees and NOAA staff displayed their products and resources during the Share-a-thon, providing more detailed information about their projects.

The two Share-a-thon sessions at the ELP-SOS Joint Workshop highlighted innovative strategies and educational tools aimed at empowering communities, educators, and students to address climate change challenges. Attendees shared their projects and findings through presentations and interactive exhibits, which focused on hands-on learning and community engagement. Participants experienced cutting-edge virtual reality, interactive games, and role-play scenarios to understand the impacts of climate change and explore resilience strategies.



Attendees were able to experience a virtual reality tour through Washington, D.C., to look at the urban heat effect during the Share-a-thon. (photo credit: The Wild Center)



Attendees engaging in conversation with the National Wildlife Federation on their Resilient Schools Consortium (RiSC) Program and curriculum during the Share-a-thon. (photo credit: The Wild Center)



Attendees engaging with The Wild Center on youth summits and engagement during the Share-a-thon. (photo credit: The Wild Center)



Attendees learning about climate solutions activities designed by Kettering University during the Share-a-thon. (photo credit: The Wild Center)



Attendees interacting during the Share-a-thon in the Climate Solutions Space. (photo credit: The Wild Center)



Attendees engaging with Manomet Conservation Science during the Share-a-thon. (photo credit: The Wild Center)

Here are brief summaries of the presentations given during the two share-a-thon sessions:

- **SOS alignment training:** John Marciniak of BWC Visual Technology offered refresher training on aligning Science On a Sphere, covering everything from factory resets to regular touch-ups.
- **Planning forward: Engaging communities in values-based climate planning:** Gayle Bowness from the Gulf of Maine Research Institute presented a learning experience designed to help communities engage in complex climate planning through values and identity discussions, modeling problem-solving processes for resilient futures.
- **Building environmental resilience leaders:** Jaymee Nanasi Davis from the University of Hawai'i Maui College discussed project-based learning (PBL) for climate action, emphasizing critical thinking, collaboration, and real-world problem-solving skills for students and teachers.
- **NOAA SOS virtual reality (VR):** Juan Pablo Hurtado Padilla, Sung-Chu Liao, and Eric Hackathorn from the NOAA SOS team showcased various VR experiences, including urban heat islands and 360 videos, inviting feedback and ideas from participants.
- **Brockton kids lead the way:** Molly Jacobs of Manomet Conservation Science presented on their collaborations with Wildlands Trust and Brockton Public Schools to create outdoor learning spaces and promote climate resilience education through curricular support and co-teaching.
- **Community resilience from the youth up:** Ethan Lowenstein and Laura Florence from the Southeast Michigan Stewardship Coalition showed how they employ Place-Based Education (PBE) in Detroit and Southeast Michigan high schools, partnering with various stakeholders to develop resilience strategies against climate impacts.
- **Dive into Science On a Sphere programming:** Bayley McKeon and Alia Payne from the Smithsonian National Museum of Natural History showcased how they integrate specimens into Science On a Sphere programming to facilitate deeper public engagement in research and conservation.

- **Developing neighborhood climate resilience with climate resilient Flint:** Pamela Carralero from Kettering University highlighted the Climate Resilient Flint initiative, which uses forums and community events to foster grassroots climate resilience and urban renewal in Flint, Michigan.
- **Community resilience through education, art, technology and engagement (CREATE) connections:** Kathryn Semmens of the Nurture Nature Center introduced the CREATE Connections project, which focuses on building community resilience and environmental literacy through collaborative educational programming and public engagement in Easton and Bethlehem, Pennsylvania.
- **Storybooks of community resilience:** Rachel Wellman from Florida Atlantic University Pine Jog Environmental Education Center shared lesson plans and student examples from the Climate Resilience Education and Action for Dedicated Youth (Climate READY) project.
- **Sea-Level rise pop-ins!:** Ali Rellinger and Jolie Griffey from Mississippi State University offered interactive games to educate the public about sea-level rise and its impacts.
- **Hazard education awareness & resilience task force (HEART):** Katya Schloesser from Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado - Boulder, presented scenario-based role-play games that engage students in responding to natural hazards and developing community resilience.
- **Interactive climate change activities for aquarium guests:** Tom Naiman from the Maritime Aquarium demonstrated interactive stations that educate guests about coastal resilience, ocean acidification, and extreme weather.
- **Faunero Center Ward 7 resilience hub community coalition:** Stacy Lucas discussed the Ward 7 Resilience Hub in Washington, D.C., which supports residents through resource distribution and environmental education.
- **Preparing agents of change for tomorrow (PACT) in West Virginia:** Megan Kruger from West Virginia University outlined the PACT initiative, which empowers high school students and their communities to develop resilience plans against climate change impacts.
- **Science shop for climate resilience:** Andrew Kleiner from the Academy of Natural Sciences of Drexel University presented a community-based participatory research approach to climate resilience, emphasizing trust-building and collaboration with environmental justice communities.
- **Climate change resilience investigation with middle schoolers:** Jennifer Jacques from Ocean Discovery Institute showed how they engage middle school students in hands-on learning about climate change and resilience.
- **Climate impacts and adaptations mapping activities:** Tiffany Harvey and Kelsey Hawkins-Johnson from Groundwork Ohio River Valley show how they lead a mapping activity to help residents suggest climate adaptation strategies for vulnerable communities.
- **SOS Explorer® now available on your computer:** Hilary Peddicord and the NOAA SOS Team introduced SOS Explorer, a free software for displaying Science On a Sphere datasets on any screen.
- **Resilient schools and communities (RiSC) program:** Emily Fano from the National Wildlife Federation showed how they educate students about climate science, impacts, and resilience solutions through the RiSC program.
- **Environmental literacy for Alaskan stewards (ELACS):** Sheryl Sotelo from Chugach School District shared the ELACS project, which involves Alaskan students in climate literacy through hands-on environmental monitoring and community resilience planning.

- **Community climate education for a resilient Raleigh:** Ariel Bushel from the city of Raleigh discussed their efforts to increase community resilience through climate education and collaboration with local partners.
- **Artificial intelligence (AI): A new type of team member:** Eric Hackathorn and Juan Pablo Hurtado Padilla from NOAA SOS Team introduced "Orbit," an AI guide for NOAA's Science On a Sphere program.
- **The Wild Center:** Hannah Barg and Elle Eberhardt showcased The Wild Center's Youth Climate Program resources, including toolkits for planning youth climate summits and climate action.

Fun at The Wild Center

The Wild Center provided attendees with ample opportunities to have fun, meet new people, and explore the campus. From creative exhibits indoors such as the Climate Solutions Space and Otter Falls, to the outdoor Forest Music trail and Wild Walk, there was always something to see. Enjoy these shots of the workshop attendees exploring The Wild Center and the wonderful critters that call The Wild Center home.



The Wild Center introduced guests to their animal ambassadors throughout the workshop. People loved learning about the animals like Stickley the porcupine enjoying corn on the cob.
(photo credit: The Wild Center)



Attendees were encouraged to create their own memes with images at this station. (photo credit: The Wild Center)



Workshop attendees trying out solar panels to learn about solar energy. (photo credit: The Wild Center)



Attendees dancing at the silent disco station. (photo credit: The Wild Center)



Many photos were taken in the eagle's nest at the end of the Wild Walk, which is made true to size. (photo credit: Hilary Peddicord)

Concluding remarks

The first ELP-SOS Joint Workshop included a variety of projects and presentations focused on building more climate resilient communities and making sure all voices are brought to the table to discuss our changing world.

Sessions highlighted the importance of community-based education and participatory research, demonstrating successful models of collaboration between local organizations, schools, and municipalities. These initiatives aim to build social capital, enhance environmental literacy, and foster grassroots resilience through place-based education and project-based learning. The emphasis was on empowering individuals and communities to engage in meaningful climate action and develop tailored solutions to their unique environmental challenges.

Thank you to all who attended and contributed to the development of this workshop! We look forward to your continued efforts and success in protecting our communities and natural world.

Appendix 1- Workshop Program

2024 Environmental Literacy Program and Science On a Sphere Joint Workshop

GLOBAL TO LOCAL



Using Data and Visualizations to
Build Community Resilience

May 7-9, 2024
The Wild Center • Tupper Lake, NY



naaee

THE
WILD
CENTER



Table of contents

2024 Environmental Literacy Program and Science On a Sphere Joint Workshop	0
Global to Local: Using Data and Visualizations to Build Community Resilience	0
May 7-9, 2024 at the Wild Center, Tupper Lake, NY	0
Table of contents	1
Environmental Literacy Program and Science On a Sphere® Collaborative Network Joint Workshop	2
Workshop Logistics	5
Session formats	5
Social media	5
Agenda	6
Agenda At-A-Glance	6
Day 1 - Tuesday, May 7, 2024	6
Day 2 - Wednesday, May 8, 2024	8
Day 3 - Thursday, May 9, 2024	9
Detailed Agenda	11
Day 1 - Tuesday, May 7, 2024	11
Day 2 - Wednesday, May 8, 2024	19
Day 3 - Thursday, May 9, 2024	27
Plenary Speakers Biographies	34
Acronym Glossary	44

Environmental Literacy Program and Science On a Sphere® Collaborative Network Joint Workshop

We are delighted to welcome you to our first Environmental Literacy Program (ELP) and Science On a Sphere Collaborative Network (SOS) Joint Workshop! The 2024 ELP-SOS Workshop is organized by the [NOAA Office of Education](#) and hosted by [The Wild Center](#).

We are grateful for the opportunity to hold this event at The Wild Center and would like to acknowledge where we stand. The Wild Center is located on the ancestral land and original territory of the Haudenosaunee people. Please consider learning about the [history of the land where you reside](#).

NOAA's [Environmental Literacy Program](#) (ELP) program aims to empower individuals and communities to enhance local resilience to environmental threats monitored by NOAA. This is done through grants and support for programs that educate and inspire people to use Earth system science to improve ecosystem stewardship and increase resilience to environmental hazards. Communities in the United States are struggling to recover from on-going extreme weather events and climate impacts, while also preparing for the problems of climate change to develop further. The funding and partnerships gained through ELP allow communities to develop the environmental literacy needed to take actions to address extreme weather and climate change in a way that contributes to community health and socio-economic equity. Use [this link](#) to learn more about previous and current awards.

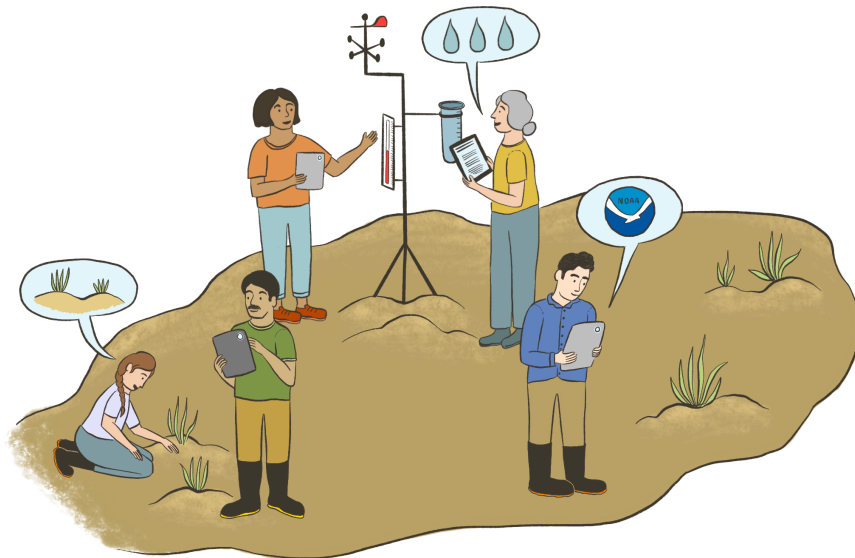


Figure 1. Drawing of community members using participatory science to understand and protect their environment.

NOAA's [Science On a Sphere](#) (SOS) develops data visualization technologies that feature interdisciplinary Earth and space data, along with supporting educational resources. The oldest part of the program, and the origin of the name, is a 6-foot sphere surrounded by four projectors that seamlessly display a variety of Earth and space science content through custom software created by NOAA. These striking SOS installations can be [found throughout the USA and around the world](#). Apart from the astonishing full-room display that SOS represents, a suite of more

accessible products have been developed including: virtual spheres with NOAA data for your computer (i.e., SOSx) and/or mobile devices (i.e., SOSx mobile), paper globes for younger audiences to build their own models, and Virtual Reality content.



Figure 2. Suite of display options for Science On a Sphere datasets.

Previously, both the ELP and SOS Programs have had separate biannual meetings to bring together members of their networks. In 2021, the SOS Program was brought into the NOAA Office of Education. With both programs being housed in the Office of Education and the return to in-person gatherings, we decided to combine the events and make the most of this cross-pollination networking opportunity for the incredible people from both groups. This was also inspired by institutions, such as the host of this workshop, that are or have been recipients of an ELP grant and have a Science On a Sphere installation.

Our theme for this workshop, *“Global to local: Using data and visualizations to build community resilience,”* builds off the strengths of both the SOS network and ELP grantees. Tackling global challenges like climate change and pandemics require an understanding of how planet-scale dynamics manifest at a local level. It also requires skills in implementation of equitable solutions that address local impacts on communities as well as their underlying causes. These two networks exemplify these types of efforts. We think the members of the ELP resilience education grantee community of practice and SOS Network members will enjoy interacting with each other and learning about approaches they’re each using to engage audiences. Our goals and objectives in combining these groups for a single workshop are:

- Share ideas and strategies for how global data and data visualizations and local community resilience efforts can complement each other; Help users communicate climate change effectively in order to increase resiliency, sustainability, climate solutions, and actions;
- Learn about novel methods for engaging the public with data and participatory science;
- Create personal and professional bonds among individuals, projects, and institutions across the SOS networks and ELP grantee community;
- Build knowledge of NOAA’s data visualization and climate resilience tools and resources;
- Showcase the versatility of the SOS technology;

- Promote adoption of new approaches for climate resilience education highlighted in the [ELP Theory of Change](#);
- And, inform future NOAA direction for supporting these programs and funding solicitations.

In support of these objectives, we received submissions for 71 sessions including: 27 30-min sessions, 13 60-min sessions, 9 15-min sessions, and 22 share-a-thon presentations. Further, 123 registrants representing over 65 institutions from across the United States and two other countries are joining us to present and participate in the discussions. Attendees are diverse in their expertise, serving as communication specialists, formal and informal educators, scientists, software engineers, evaluators, and more. We hope this workshop will provide you with new approaches to engage the public with cutting-edge science and exciting visuals, a better understanding of NOAA climate resilience tools and resources, and an expanded network of climate warriors.

Finally, as with any workshop, the organization of it is a team effort. We hope you'll appreciate the team throughout the next three days of the workshop and make the most of this exciting opportunity.

Sincerely,

Your NOAA ELP-SOS Workshop team:

Carrie McDougall, Beth Russell, Hilary Peddicord, Juan Pablo Hurtado, Kayla Mladinich Poole, John McLaughlin, Shadaesha Green, and Alfonso Macias Tapia.

The team from the Wild Center: Jennifer Kretser, Anna Stuckey; and NAAEE: Grace Charabati

Agenda

Program format: The Agenda-At-A-Glance displays the times and locations of the different sessions, with links to the descriptions in the Detailed Agenda below. The Detailed Agenda provides information about the presenters of each session and a short session description in addition to the times and locations for each event.

Agenda At-A-Glance

Day 1 - Tuesday, May 7, 2024

7:30 AM	Buses depart / travel to Wild Center			
8:15 AM	Arrive at Wild Center - Registration at <i>Front Desk</i> Breakfast - <i>Great Hall / Cafe</i>			
9:00 AM	Welcome Remarks <i>Flammer Theater</i>			
9:30 AM	Plenary - Climate Solutions with an Open Heart <i>Flammer Theater</i>			
10:30 AM	Transition time			
10:40 AM	ELP Break Out <i>Flammer Theater</i>	SOS Break Out <i>Climate Solutions Space</i>		
11:40 AM	Transition time			
11:50 AM	Flammer Theater	Solutions	Nat Cab	pADK-SOS
	Building Green Careers: EcoRise's Green Careers Academy Internship Model	Accessibility is for everyone	The Best of SOS on your Laptop - SOS Explorer is Free	The Sun: Our Living Star
				Recent SOS content from NASA
12:20 PM	Lunch <i>Great Hall / Cafe</i>			
1:20 PM	Flammer Theater	Solutions	Nat Cab	pADK-SOS
	Science Shop for Community Resilience	A Python-based Recipe for Weather and Climate Reanalysis Visualization for the Science-on-a-Sphere	Mobile Application for NOAA Data Visualizations	CREATE Resilience SOS Showcase
				VOLA's Earth Adventures
	Fostering Climate Resilience Through Public Forums and Community Events	Newark Resilient Solar Initiative	Exploring Extended Reality on SOS	Exploring Climate Realities and Solutions through SOS

2:20 PM	Transition time			
2:30 PM	Plenary - Poets For Science <i>Flammer Theater</i>			
3:15 PM	Break with Snacks Great Hall			
3:45 PM	Flammer Theater	Solutions	Nat Cab	pADK-SOS
	Cultivating Climate Leaders of Today: Learning from The Wild Center's Youth Climate Program Model	Climate, Water & Craftivism	Visual Thinking Strategies - Facilitating Personal Discovery	Story on a Sphere
	Growing climate resilience (literally!): USVI Storm Strong and Mangroves in the Classroom Projects, U.S. Virgin Islands			Pi'i ke kai: Addressing Rising Seas in Oceania with SOS Technology
				SOS Versatility in 360 VR and Live Video to PIP!
Greenhouse Gases Live Program for SOS				
4:45 PM	Transition and Announcements <i>Great Hall</i>			
5:00 PM	Bus loading			
5:15 PM	Buses depart / travel to hotels			

Day 2 - Wednesday, May 8, 2024

9:45 AM	Bus loading			
10:00 AM	Buses depart / travel to Wild Center			
10:45 AM	Arrive at Wild Center - Announcements in Great Hall			
11:00 AM	Flammer Theater	Solutions	Nat Cab	pADK-SOS
	The Wild Center Green Campus Tour	Using local data to bring context to global conversations	Planning Forward: Engaging Communities in Values-Based Climate Planning	Climate Resiliency in Your Community
				Creatures on Climate Change
12:00 PM	Lunch <i>Great Hall / Cafe</i>			
1:00 PM	Plenary - Forces for Change: Youth & Local Government <i>Flammer Theater</i>			
2:00 PM	Share-a-thon I Gulf of Maine Research Institute, University of Hawaii Maui College, NOAA SOS VR, Manomet Conservation Science, SE Michigan Stewardship Coalition, Smithsonian, Kettering University, Nurture Nature Center, FAU Pine Jog, Mississippi State University, CSU CoCoRaHS			pADK-SOS
				SOS Alignment Training
3:00 PM	Share-a-thon II CIRES, Maritime Aquarium, RHCC, West Virginia University, Academy of Natural Sciences of Drexel University, Ocean Discovery Institute, Groundwork Ohio River Valley, NOAA SOSx, National Wildlife Federation, Chugach School District, The Wild Center, Artificial Intelligence with SOS, City of Raleigh			
4:00 PM	Outdoor Campus Exploration			
4:50 PM	Transition time			
5:00 PM	Workforce Pathways for Youth: Taking Climate Action Youth Panel <i>Flammer Theater</i>			
5:45 PM	Networking Reception and Exploration of The Wild Center Hors d'oeuvres			
7:30 PM	Bus loading			
7:45 PM	Buses depart / travel to hotels			

Day 3 - Thursday, May 9, 2024

7:15 AM	Bus loading			
7:30 AM	Buses depart / travel to Wild Center			
8:15 AM	Arrive at Wild Center - Registration at Front Desk Breakfast - Great Hall / Cafe			
8:45 AM	Plenary - Education to Empower Climate Change Action: Research, Gaps, and Opportunities <i>Flammer Theater</i>			
9:30 AM	Transition time			
9:40 AM	Flammer Theater	Solutions	Nat Cab	pADK-SOS
	Youth-Led Community Resilience in Melrose, South Bronx	‘Ike Kupuna - Native Hawaiian perspectives on climate resilience	A Method for Automatically Downloading & Preparing Pictures of the Sun for Display on SOS	Using the SOS Visual Playlist Editor & the SOS Remote iPad App
	Promoting Climate Action Through Re-Framing the Climate Conversation	Successes & Challenges of Co-Production & Community Driven Citizen Science & Culturally Responsive Education in Rural Alaska	Sifting through the Haystack: Using AI to Interact with NOAA Resources	
10:40 AM	Transition time			
10:50 AM	Flammer Theater	Solutions	Nat Cab	pADK-SOS
	Integrating Canva into SOS Presentations	The Wild Center Green Campus Tour	Resilient Schools and Communities (RISC): A Case Study for Intergenerational Community Resilience	Connecting Spaces: Integrating Climate Solutions Through Storytelling
11:50 AM	Lunch <i>Great Hall / Cafe</i>			
12:50 PM	Flammer Theater	Solutions	Nat Cab	pADK-SOS
	Our Elizabeth, Our Responsibility: Elizabeth River Project's Resilient River Star Schools	Empowering Communities of Resilience through Participatory Deliberations	SOS in Higher Education	Creating content for SOS with open source/free tools
	Hurricane Resilience: A Curriculum for High Schools in the Cone of Uncertainty		Create Your Own Community Resilience Storybook	Kiosk Customization and Beyond
	Creating Legacy Resources as ELP Programs Sunset	Research Using the Science On a Sphere	From Climate Resiliency Planning to Boots on the Ground Efforts	SOS Operations and Maintenance

2:20 PM	Transition time
2:30 PM	Closing remarks <i>Flammer Theater</i>
3:00 PM	Bus loading
3:15 PM	Buses depart / travel to hotels or Albany airport

Detailed Agenda

Day 1 - Tuesday, May 7, 2024

Note: all times shown are Eastern Daylight Time (EDT = UTC - 4 hours)

Welcome Remarks (9:00 - 9:30 am)

Location: *Flammer Theater*

Speakers: representatives from NOAA and The Wild Center

Plenary - Climate Solutions with an Open Heart (9:30-10:30 am)

Location: *Flammer Theater*

Speakers: from the Wild Center: Stephanie Ratcliffe, Executive Director & Jen Kretser, Director of Climate Initiatives; from the Center for Native Peoples and the Environment: Neil Patterson, Executive Director

[Link to Biographies](#)

Climate solutions exist - we have the knowledge, we have the technology. What is required is the human-powered collective action to implement solutions. A solutions-based framing inspired The Wild Center to seek out and profile changemakers in our community and to consider different ways of creating just and sustainable change.

Transition Time (10:30-10:40 am)

Concurrent Breakout Sessions (10:40-11:40 am)

Flammer Theater

ELP Breakout Session (10:40-11:40 am)

Speaker: ELP team, NOAA Office of Education

Come meet with the ELP team to get program updates on funding, the theory of change, and new additions to the ELP team.

Climate Solutions Space

SOS Breakout Session (10:40-11:40 am)

Speaker: SOS Team, NOAA Office of Education

Join the SOS Team to get all the latest updates on the project, from who we are to what we have been working on and what is coming up next. We will also let you know about all the concurrent sessions that will be presented from the SOS team during the workshop.

Transition time (11:40 - 11:50 am)

Concurrent Breakout (11:50-12:20 pm)

Flammer Theater

Building Green Careers: EcoRise's Green Careers Academy Internship Model (11:50-12:20 pm)

Speaker: Brittany Jayroe, Senior Director of Youth Programs & Curriculum, EcoRise

This session explores EcoRise's successful model for creating green career internships. We'll delve into how EcoRise leverages youth climate councils to identify local environmental needs through community engagement and collaboration. The focus is on how these insights are then translated into impactful internship projects with

partnering nonprofits. While not directly using data visualizations, the workshop aligns with the theme "Global to Local" by showcasing how local knowledge from youth councils informs and complements broader climate action efforts. We will discuss how we can design internship projects that effectively engage our communities to identify local environmental needs that benefit both the community and the learning objectives of student interns within partnering organizations? Additionally, how can we leverage data and visualizations (beyond traditional methods) to enhance this needs identification process and ensure internship projects directly serve the needs of local community organizations?

Climate Solutions Space

Accessibility is for Everyone (11:50-12:20 pm)

Speaker: Marissa Jones, Communication Coordinator, NOAA Office of Education; Celeste Frazier Barthel, Education Specialist, Greater Albany Public Schools

In this session, you will learn what it means to make products accessible to people with disabilities, why it matters, and why it's important for technology and materials to be accessible to everyone. We will cover the relatively simple steps that we all can take when creating documents, videos, presentations, and web resources with a focus on basic principles that apply across many different formats and content types. You'll also learn how to center accessibility in your work and practice accessible communication strategies and inclusive language. Our takeaway is that accessibility is for everyone, both because there are things we all can do to make sure everyone can use and understand our products and because accessibility benefits all of us.

Naturalists Cabinet

The Best of SOS on your Laptop - SOS Explorer is Free (11:50-12:20 pm)

Speaker: Hilary Peddicord, SOS Education Lead, NOAA SOS Team; Beth Russell, NOAA SOS Team; Sung-Chu Liao, NOAA SOS Team

We are very excited to be releasing SOS Explorer as a free download for your Windows personal computer. Whether you want to be able to display SOS datasets in full resolution on any screen anywhere, to take SOS with you into classrooms, or to develop your own complimentary exhibit next to your SOS, it is all possible now on a shoestring! In this session we plan to give you the download on all the ways in which educators use SOS Explorer as a perfect compliment to their SOS programming.

Planet Adirondack- Science On a Sphere (pADK-SOS)

The Sun: Our Living Star (11:50-12:05 pm)

Speaker: Ron Proctor, Motion Graphics Designer, NSF's NOIRLab

"The Sun: Our Living Star" is a scripted SOS playlist developed for docent presentations at Kitt Peak National Observatory's new Windows on the Universe Center. The show combines datasets from NOAA's catalog with original datasets produced by NOIRLab. "The Sun: Our Living Star" will be distributed freely along with many more resources at noirlab.edu

Recent SOS content from NASA (12:05-12:20 pm)

Speaker: Mark SubbaRao, Scientific Visualization Studio Lead, NASA

An overview of the latest SOS content produced by NASA's Scientific Visualization Studio. Topics include solar eclipses and climate change.

Lunch (12:20-1:20 pm)

Location: *Great Hall/Cafe*

Concurrent Breakout (1:20 - 2:20 pm)

Flammer Theater

Science Shop for Community Resilience (1:20-1:50 pm)

Speaker: Andrew Kleiner, Director of Community Sciences, Academy of Natural Sciences of Drexel University
The Academy of Natural Sciences (ANS) is proud to present the Science Shop for Climate Resilience. Science Shop is a novel approach to research, community engagement, and education rooted and expressed through the tents of Community Based Participatory Research. During this presentation, ANS' Director of Community Science will overview the process through which ANS engages local communities, works to meet people where they are at through two-way communication, and co-develops research questions with community partners. This session will overview this approach while also addressing the unique challenges that this form of engagement presents as well as the opportunities that grow from addressing those challenges including building trust with communities, creating a space to speak and share, and connecting subject experts to community members to deepen relationships. Due to the success of this project being dependent on efforts related to climate resilience, this session will also overview the educational and informational work that will be undertaken related to climate resiliency in our targeted communities. Lastly, the session will explain how this project and model is specifically tailored to engagement and partnership with environmental justice communities who have experienced a history of environmental injustice, systematic racism, and red lining.

Fostering Climate Resilience Through Public Forums and Community Events (1:50-2:20 pm)

Speaker: Robin Saha, Associate Professor and Program Director, University of Montana- Environmental Studies Program

ResilienceMT is a NOAA-funded project collaborating with Montana tribal and rural communities to advance climate action planning. PI Robin Saha from the University of Montana will share ResilienceMT project goals and activities, highlighting community climate resilience forums collaboratively organized with partner communities. A short documentary about a forum held in the Bitterroot Valley in November 2023 will provide an example. The concept of action competence will provide a framework for participants to consider the benefits of public forums and community events and ways to organize them.

Climate Solutions Space

A Python-based Recipe for Weather and Climate Reanalysis Visualization for the Science-on-a-Sphere (1:20-1:50 pm)

Speaker: Kevin Tyle, Manager of Departmental Computing, SUNY Albany- Department of Atmospheric and Environmental Science; Ross Lazear, Department of Atmospheric and Environmental Science, SUNY at Albany
In our Meteorological Data Analysis and Visualization class, offered each spring to third-year undergraduates in our Atmospheric Sciences B.S. program, our students use Python to analyze and display a variety of meteorological/climatological datasets. For their final project, students choose a weather event of interest. We provide the students with a Jupyter notebook that accesses, analyzes, and visualizes global reanalysis data on our Science-on-a-Sphere. The students' presentations are featured at an end-of-semester Undergraduate Student Showcase event across the UAlbany campus. In this presentation, we will share our Jupyter notebook and invite attendees to use it and also contribute to the recipe's further development.

Newark Resilient Solar Initiative (1:50-2:20 pm)

Speaker: Karen Alsen, Managing Director of Education, Solar One; Audris Torres, Solar One

The Newark Resilient Solar Initiative uses NOAA mapping tools to train high school students in local climate impacts and how to mitigate them using solar. Come learn some solar technical skills as we explore how this fast growing career can accelerate decarbonization and make vulnerable communities more resilient to climate change.

Naturalists Cabinet

Mobile Application for NOAA Data Visualizations (1:20-1:50 pm)

Speaker: Adrian Chase, Software Developer, NOAA SOS Team

SOSx Mobile is an app-based spin off of widely used Science On a Sphere (SOS) and SOS Explorer, the Exhibit flat-screen version. SOSx Mobile introduces a plethora of features aimed at average home users and educational use. In this session, we will be exploring the features of SOSx Mobile and showcasing its functionality, followed by showcasing some of the improvements and features the SOSx team has been thinking about, and finally, gathering thoughts and ideas from the crowd that could help steer the development of SOSx Mobile. We will be showcasing the current version of SOSx Mobile, so knowledge and/or experience of the app is not required to attend this session.

Exploring Extended Reality on SOS (1:50-2:20 pm)

Speaker: Juan Pablo Hurtado Padilla, Visualization Lead, NOAA SOS Team; Sung-Chu Liao, NOAA SOS Team; Eric Hackathorn, NOAA SOS Team

Extended Reality is becoming mainstream with the advances in hardware and software. The SOS program sees this as a potential way to enhance our platform while increasing accessibility, interactivity, and learning. During this session we will present some project demos of some XR projects we have been working on and we look forward to hearing from you regarding opportunities and challenges for this technology.

Planet Adirondack- Science On a Sphere (pADK-SOS)

CREATE Resilience SOS Showcase (1:20-1:35 pm)

Speaker: Kathryn Semmens, Science Director, Nurture Nature Center

The Nurture Nature Center's CREATE Resilience project (ELP funded) was a multi-disciplinary collaboration with youth, municipal leaders, artists, and community members to increase knowledge of weather and climate science, the risks from local hazards, and strategies for hazard mitigation, while storytelling and co-creating a vision for community resilience. Running from January 2019 to September 2022, the project engaged the community in thinking about what resilience means leading to a vision of resilience depicted in large murals created by participating, local artists active in each community. The project had many ripples of impact, including spurring additional CREATE Resilience projects. This SOS showcase will show the four minute SOS film created as part of the project to provide an overview of the process and inspiration and example for others interested in resiliency. It features interviews with a local official, artist, emergency management professional, community member, and youth ambassador, and showcases the three community murals that reflect each community's vision of resilience. In addition to briefly discussing the CREATE Resilience project, the showcase will also cover the process of creating a film for SOS and answer audience questions.

VOLA's Earth Adventures (1:35-1:50 pm)

Speaker: Patrick Rowley, Science On a Sphere & Technology Facilitator, J.E. Richmond Science Center/ Charles County Public Schools

Join VOLA (Virtual Orbital Latitude Assistant) on an interactive journey around the world and explore the influence of Earth's tilt on seasons, weather, and climate. As part of our K-12 programming, students learn about the

northern and southern hemispheres and lines of latitude, including the Equator, Tropic of Cancer, Tropic of Capricorn, and Arctic and Antarctic Circles. Along the way, VOLA asks students questions in an interactive game format via Nearpod. Further, VOLA assists students in gathering global temperature data, before creating charts and graphs to analyze the data, further helping them understand the influence of Earth's tilt on climate. The James E. Richmond Science Center is a part of Charles County Public Schools in Maryland and our programs are tailored to match our curriculum. While this program is highly customized, we hope that it can serve as inspiration for using the SOS in a highly interactive way for your programs.

[Exploring Climate Realities and Solutions through SOS \(1:50-2:05 pm\)](#)

Speaker: Bayley McKeon, Smithsonian National Museum of Natural History; Alia Payne, Smithsonian National Museum of Natural History

Come experience the Smithsonian National History Museum's newest Science On a Sphere climate change program that integrates dynamic ocean data sets with visitor interactivity and objects to foster understanding and inspire action. We invite the audience to explore how we are noticing changes in temperature in the ocean, how humans are affecting that change, and the power we have to create different outcomes. This program integrates and creates discussions on how humans can impact and how we are impacted by climate change and ends with a spotlight on resilient communities. Time will be held after the demo for group discussion.

Transition time (2:20-2:30 pm)

Plenary - Poets For Science (2:30-3:15 am)

Location: *Flammer Theater*

Speakers: David Hassler, Bob and Walt Wick Executive Director, Wick Poetry Center at Kent State University; and Kate Semmens, Science Director, Nurture Nature Center

[Link to Biographies](#)

David will discuss the evolution of the *Poets for Science* initiative which explores the intersection of science and art and brings poetry to the most urgent and evolving needs of our climate crisis. He will present several *Poets for Science* collaborative projects which offer expressive writing interventions, interactive exhibits, and digital platforms and tools for educators. He will conclude by showing two community poem videos and offering an opportunity for us to share our reflections on an interactive online platform.

Break with Snacks (3:15 - 3:45 pm)

Location: *Great Hall*

Concurrent Breakout (3:45 - 4:45 pm)

Flammer Theater

[Cultivating Climate Leaders of Today: Learning from The Wild Center's Youth Climate Program Model \(3:45 - 4:15 pm\)](#)

Speaker: Hannah Barg, Climate Network Manager, The Wild Center; Jen Kretser, The Wild Center

The Wild Center has been growing a robust Youth Climate Program since hosting our first Youth Climate Summit in 2009. Since then, we have developed a Youth Climate Summit Network to support other sites using our summit model; published a Youth Climate Summit Toolkit; partnered with youth and local governments through the NYS Climate Smart Communities program; and started a year-round paid climate leadership program for teens. Much of this work was made possible by two NOAA ELP grants awarded over the last 6 years. In this session, we will give an overview of the Youth Climate Program & share best practices and lessons learned from being a part of the ELP

network.

Growing climate resilience (literally!): USVI Storm Strong and Mangroves in the Classroom Projects, U.S. Virgin Islands (4:15 - 4:45 pm)

Speaker: Allie Durdall, Watershed and Marine Research Technician, University of the Virgin Islands; Sierra Mueller, University of the Virgin Islands; Kristin Grimes, University of the Virgin Islands; Laura Bloem, University of the Virgin Islands;

Our team will present (with slides and a video screening) the recent work of our in-school place-based engagements across the 3 U.S. Virgin Islands. We will bring materials to demonstrate the lesson activities following the presentation. A brief description of what the presentation will cover: In the U.S. Virgin Islands, our team brings place-based lessons to students at their schools through two partner programs. The programs' place-based curriculum teaches students 1) community resilience programming which promotes hurricane preparedness and community resilience with a series of in-class lessons across a semester, and/or 2) the biology, ecology, benefits, and threats to mangroves using local examples that are aligned to Next Generation Science Standards. They are highly engaging: students co-design a mangrove growth experiment, plant, grow and monitor mangroves at their schools, and can engage in a mangrove outplanting and kayaking field trip. The format empowers students by giving them ownership over efforts to increase resilience in the territory through mangrove shoreline restoration. The lessons allow student collaboration within the classroom and beyond, as experimental data are pooled and shared across schools and islands. Teachers involved express that the facilitators, place-based lessons, and provided materials offered a welcome break for them, a fun change of pace for students, and valuable content aligned to coastal resilience. This program format may serve as a model for others seeking to engage youth in climate mitigation work.

Climate Solutions Space

Climate, Water & Craftivism (3:45 - 4:45 pm)

Speaker: Nadia Harvieux, Associate Director for Education Programs, Finger Lakes Institute at Hobart and William Smith Colleges; Michale Glennon, Adirondack Watershed Institute of Paul Smith College; Tom Collins, Adirondack Watershed Institute of Paul Smith College

Combining scientific data and art can be a beneficial and powerful tool in communicating climate change and other environmental challenges - known as craftivism! During this session, we will examine aquatic ecosystem health at The Wild Center through water quality data collection and interpretation of the on-site waterbodies, emphasizing the value of community science initiatives in long term monitoring. Upon collecting our data, we will explore different ways in which data can be represented through the fiber arts, highlighting the Wool and Water project of the Adirondack Watershed Institute at Paul Smith's College. Our group will create our own unique fiber arts data representation to showcase during the ELP-SOS workshop that will ultimately be contributed to the Wool and Water project. Prepare to be inspired!

Naturalists Cabinet

Visual Thinking Strategies - Facilitating Personal Discovery (3:45 - 4:45 pm)

Speaker: Hilary Peddicord, Education Lead, NOAA SOS Team; Kathryn Semmens, NNC; Kerri Ziemann, The Wild Center

Discover the joy and value in slowing down and fostering observations and join us for a fun and insightful hour focused on Visual Thinking Strategies (VTS). VTS is a facilitation method for observation and group discussion that has been predominantly used in informal art museums, and has also been successful in science museum and K-12 classroom settings by the pioneers leading this session. During this session, we plan to talk through the structure of

the method, demonstrate VTS in science museums using physical artifacts as well as in classrooms using art and geospatial data visualization, and share some highlights from current research with middle school teachers.

Planet Adirondack- Science On a Sphere (pADK-SOS)

Story on a Sphere (3:45 - 4:00 pm)

Speaker: Rachel Wellman, Coordinator of Educational and Training Programs, FAU Pine Jog Environmental Education Center; Jill Nadler, FAU Pine Jog/Page Turner Adventures and Producer at South Florida PBS

The Florida Atlantic University Pine Jog Environmental Education Center (FAU Pine Jog) would like to share one of our ELP funded products, "Story on a Sphere" on an available Science On a Sphere (SOS) installation. The student created stories focused on community climate resilience in South Florida with particular attention to towns and cities within Palm Beach County. FAU Pine Jog is working on a total of 15 stories using the SOS that are 3-4 minutes long and we'd like to showcase at least one of those stories at the joint ELP-SOS meeting. Led by FAU's Climate Resilience Education and Action for Dedicated Youth (Climate READY) Ambassadors, each story was written and illustrated by either the teen ambassador teams or by their collaborations with 4th and 5th grade local after school students using our unique Resilience Storybook Template. The idea of sharing these stories on the SOS came about while helping Galaxy E3 Elementary School utilize their SOS system in a way that K-5th grade students could understand. The stories are intended to draw the students into the unique learning space, which has the potential to explore more resources on the SOS related to community climate resilience and beyond.

Pi'i ke kai: Addressing Rising Seas in Oceania with SOS Technology (4:00 - 4:15 pm)

Speaker: Emily Holmberg, Museum Educator, Bishop Museum

Pi'i ke kai is an 'ōlelo no'eau, or poetical saying, translated by Mary Kawena Pukui to mean "the sea has risen." As a highly esteemed member of the Hawaiian community who helped to collect, translate, and preserve hundreds of oral traditions during her time at the Bishop Museum, Pukui not only recorded the literal translations of countless Hawaiian language resources, but also the deeper symbolic meanings behind the language of the kūpuna, the ancestors. In a metaphorical translation, this saying can also mean "the temper has risen." Both the literal and symbolic interpretations of this 'ōlelo no'eau are very relevant to the current field of climate science in Hawai'i and in the broader Pacific region. The ocean that has supported life on these islands for thousands of years is now encroaching on shorelines as global sea levels rise. Additionally, as ocean temperatures rise, tropical cyclones are occurring more frequently and with higher intensity than ever before. The goal of this session is to highlight different Science On a Sphere datasets that bring attention to these critical issues facing the Pacific region and highlight members of the Oceanic community who are studying and speaking about these issues.

SOS Versatility in 360 VR and Live Video to PIP! (4:15 - 4:30 pm)

Speaker: Thomas Quayle, Education Program Specialist, Clark Planetarium

Did you know SOS can be used as an aquarium? What about an animal exhibit at a zoo, or even view a volcano from a helicopter? Science On a Sphere is phenomenal for displaying global and spherical information. SOS video formatting and display output are quite versatile and potentially more flexible than you may know. New and engaging experiences can be created using both 360 VR Video background, as well as using pips as a second output screen. Participants will learn ways to download and convert 360 VR Video content and format it for use on the sphere. We will also go over ways to convert live output from a computer screen to display on SOS using the built-in webcam pip command. Join us as we explore ways to use the versatility of SOS and provide creative paths to connect global information to local experiences.

Greenhouse Gases Live Program for SOS (4:30 - 4:45 pm)

Speaker: Helen-Nicole Kostis, Product Manager-Data Visualization, NASA-Scientific Visualization Studio; Mark

Subbarao, Scientific Visualization Studio, NASA

This session unveils the new Greenhouse Gases Live program developed by NASA's Scientific Visualization Studio in collaboration with NOAA.

Transition and Announcements (4:45 - 5:00 pm)

Location: *Great Hall*

Day 2 - Wednesday, May 8, 2024

Note: all times shown are Eastern Daylight Time (EDT = UTC - 4 hours)

Announcements (10:45 - 11:00 am)

Location: *Great Hall*

Concurrent Breakout (11:00-12:00 pm)

Flammer Theater

The Wild Center Green Campus Tour (10:50-11:50 am)

Speaker: Phil Wagschal, Facilities Director, The Wild Center

Take a tour of The Wild Center's campus to find out what green technology we have infused into our daily operations, both public facing and behind the scenes. Everything from heating, to composting, to keeping our animals healthy you will see what we have done on our site to inspire action to ensure a thriving natural world.

Climate Solutions Space

Using local data to bring context to global conversations (11:00-12:00 pm)

Speaker: Thomas Quayle, Education Program Specialist, Clark Planetarium

Come explore ways to bring local context to global data visualizations! A wide variety of content is already available for SOS through NOAA and partner organizations but doesn't always have a granular perspective that easily connects local communities to the information that specifically impacts them. Integrating live data feeds, dashboards and various information sites to real-time data visualizations can help strengthen understanding and better engage others in the stories and science that matter most to them. Participants will learn about resources that have been successful for field trip programs at Clark Planetarium and be led through discussion and brainstorming activities with each other. (Having your own device/laptop is recommended). Our goal to meet during this session will include ways to find, collect and pair information onto SOS or auxiliary screens in ways that can help teach content, bring context, and increase understanding of global environments and impacts on a local, community scale.

Naturalists Cabinet

Planning Forward: Engaging Communities in Values-Based Climate Planning (11:00-12:00 pm)

Speaker: Gayle Bowness, Senior Program Manager, Gulf of Maine Research Institute

Planning Forward is a learning experience designed to help communities prepare for the complexities surrounding climate planning. Participants practice difficult, real-life conversations about climate impacts in a safe and creative space. Per design, it assumes all members of a community can inform decision making and influence change. Conversations around values and identity help guide the experience and empower participants to confront the difficult reality of our changing climate and consider possible futures through new perspectives. The goal of Planning Forward is to model a problem-solving process. In doing so, it helps build and reflect on the knowledge, skills, and relationships needed for our communities to plan for a resilient future. There is both a community-workshop and a classroom-setting framework. As designed, Planning Forward is rooted in Maine-specific challenges and resilience strategies that reflect rural, coastal communities. But it offers a model that can be leveraged for diverse geographies and climate impacts such as urban neighborhoods dealing with extreme heat or western mountain communities threatened by wildfires. Join to experience Planning Forward and discuss how it could be modified to meet the needs of the communities and audiences you serve.

Planet Adirondack- Science On a Sphere (pADK-SOS)

Climate Resiliency in Your Community (11:00-11:30 am)

Speaker: Kathryn Semmens, Science Director, Nurture Nature Center; Leon Geschwind, NOAA Inouye Regional Center

Climate resilience action often focuses on technical analysis of assets, vulnerabilities, and action plans specific to decision-makers, but there are many other ways for community members, especially youth, to support resiliency. The NOAA Office of Education and Nurture Nature Center (NNC) created an activity book, "Climate Resiliency in Your Community," for youth about building climate resilience in their own communities. Drawing on the U.S. Climate Resilience Toolkit, the activity book provides resources, activities, and accessible steps that guide young learners in supporting their community. Topics include identifying community assets, Traditional Ecological Knowledge, and environmental justice. It is adaptable for informal and formal learning settings. Following the initial activity book, NOAA Inouye Regional Center and NNC worked with formal classroom teachers and Hawaiian cultural practitioners to adapt the content, examples, and images to the Hawaiian and island community context. There is also an interactive, personalized, digital version for use by educators and students. We will describe the activity book, the process of its creation, and how it was adapted for Hawai'i. We will show resilient community images on Science On a Sphere, discuss examples of how the activity book can be used, and engage the audience in brainstorming further reach.

Creatures on Climate Change (11:30-12:00 pm)

Speaker: Chris Werni, School Programs Coordinator, The Wild Center; Alicia Lamb, The Wild Center

Participants are introduced to the science of climate change and the exploration of its impacts on Adirondack wildlife. Groups will discover the solutions of these issues through visualizing global data sets on NOAA's Science On a Sphere and meeting a live animal ambassador.

Lunch (12:00-1:00 pm)

Location: *Great Hall*

Plenary - Forces for Change: Youth & Local Government (1:00-2:00 pm)

Location: *Flammer Theater*

Frank Niepold, Senior Climate Education Coordinator, NOAA's Climate Program Office; Nadia Harvieux, Associate Director for Educational Programs, Finger Lakes Institute; Hannah Barg, Climate Network Manager, The Wild Center; Cedar Young, Student, St. Lawrence University

[Link to Biographies](#)

Elevating the role of youth in local government is an effective way to catalyze climate action in local communities. This session will share examples, strategies and tools to facilitate partnerships between youth, community leaders and government to create more resilient and inclusive community climate action.

Share-a-thon I (2:00-3:00 pm)

Planet Adirondack- Science On a Sphere (pADK-SOS)

SOS Alignment Training

Speaker: John Marciniak, BWC Visual Technology

Description: Join John Marciniak of BWC Visual Technology for refresher training on aligning Science On a Sphere. He will cover everything from doing a factory reset and starting fresh on alignment to touching up alignment on a regular basis. If your SOS is in need of alignment, then this session is for you!

Climate Solutions Space and Naturalists Cabinet

Planning Forward: Engaging Communities in Values-Based Climate Planning

Speaker: Gayle Bowness, Senior Program Manager, Gulf of Maine Research Institute

Planning Forward is a learning experience designed to help communities prepare for the complexities surrounding climate planning. One purpose of the experience is to practice difficult, real-life conversations about climate impacts in a safe and creative space. Per design, it assumes all members of a community can inform decision making and influence change. Conversations around values and identity help guide the experience and empower participants to confront the difficult reality of our changing climate and consider possible futures through new perspectives. The goal of Planning Forward is to model a problem-solving process. In doing so, it helps build and reflect on the knowledge, skills, and relationships needed for our communities to plan for a resilient future. There is both a community-workshop and classroom-setting framework. As designed, Planning Forward is rooted in Maine-specific challenges and resilience strategies that reflect rural, coastal communities. But it offers a model that can be leveraged for diverse geographies and climate impacts such as urban neighborhoods dealing with extreme heat or western mountain communities threatened by wildfires. Swing by to explore the materials and chat about how this model could be adapted to your community's climate planning needs.

Building Environmental Resilience Leaders: Climate Action Problem-based Learning for students and teachers

Speaker: Jaymee Nanasi Davis, Project Director, University of Hawai'i Maui College

Project Based Learning (PBL) setting, students actively participate in their own learning to address real and relevant problems contributing to their own understanding and achievement outcomes. PBL is effective for teaching critical thinking, communication, collaboration, and applying knowledge to real-world situations. In PBL, students are engaged problem solvers, seeking to identify the root problem and conditions needed for a good solution and in the process becoming self-directed learners. PBL is focused, experiential learning organized around the investigation and resolution of messy, real-world problems. Share-a-ton content includes Building Environmental Resiliency Leaders curriculum including Problem-based Learning tenants; Problem Topic Statement; Curriculum Modules; and examples of student work. Empowering and providing autonomy for teachers creates active problem-based learning environments for students. Professional development for teachers and is a critical component in shifting teachers mindsets towards Problem-based Learning. Teachers also need content specific support and resources to teach climate change. Community partners are essential to the success of any initiative. Highlights will be shared on the Climate Action Problem-based Learning Professional Development for teachers including lessons learned, curriculum outline, and examples of teacher work.

NOAA SOS Virtual Reality (VR)

Speaker: Juan Pablo Hurtado Padilla, Visualization Lead, NOAA SOS Team; Sung-Chu Liao, NOAA SOS Team; Eric Hackathorn, NOAA SOS Team

Stop by to try some of the virtual reality experiences we have been working on. From a Urban Heat Island experience, to experimenting with 360 video we want to share our work and hear your feedback or ideas.

Brockton Kids Lead the Way

Speaker: Molly Jacobs, Vice President for Environmental Education and Outreach, Manomet Conservation Science Manomet is collaborating with Wildlands Trust, a local land trust, and Brockton Public Schools to design and build outdoor learning spaces at elementary schools in Brockton. We're also providing curricular support and co-teaching to encourage adoption of outdoor learning and climate resilience education. Our table will showcase our first outdoor learning space, and participants will have the opportunity to try out some of our climate resilience lessons.

Community Resilience from the Youth Up: A Place-Based Strategy for Southeast Michigan

Speaker: Ethan Lowenstein, Director, Southeast Michigan Stewardship Coalition; Laura Florence, Southeast Michigan Stewardship Coalition

"Community Resilience from the Youth Up" uses a Place-Based Education (PBE) process in Detroit and southeast Michigan high schools to increase resilience to climate change in these communities. We partner students and teachers with place-based educators, climate scientists, adaptation professionals, municipalities, and community organizations to explore local climate impacts and develop resilience strategies that protect vulnerable school campuses, households, and neighborhoods from the increased occurrence and intensity of heat waves, storm events, and flooding. Using an ecojustice approach to PBE, we locate community and climate resilience within a broader vision of youth and adult health and well-being and we are grounded in the belief that issues of social and ecological justice are inseparable. Join us to explore many of the activities, materials, educational and partnership strategies, and NOAA assets that have been a successful part of this project. We'll share tips and tools that can be used with a wide range of audiences and geographic areas.

Dive into Science On a Sphere Programming through Collections-Based Learning

Speaker: Bayley McKeon, Ocean Education Specialist, Smithsonian National Museum of Natural History; Alia Payne, Smithsonian National Museum of Natural History

NMNH has over 6,000 specimens in its education collection and Ocean Educators have been incorporating some of these specimens into Science On a Sphere programming to generate deeper dialogue with the general public that is driven by their interests. Come by this Share-a-thon table to explore how tactile collections experiences can enhance conversations about research and conservation.

Developing Neighborhood Climate Resilience with Climate Resilient Flint

Speaker: Pamela Carralero, Assistant Professor, Kettering University/Climate Resilient Flint

In a "share-a-thon" format, Climate Resilient Flint (ELP) will showcase material from its My Climate Resilient Neighborhood and Cool Lot Design forums. Drawing on the Steps to Resilience framework and U.S. Climate Resilience Toolkit, these forums 1) introduced participants from Flint, MI to their county's changing climate and the concept and practice of climate resilience, and 2) convened community members to collaborate on a climate resilient vision for their neighborhood. Discussion of climate resilience circulated around the hands-on-project of revitalizing empty lots in North Flint through tree plantings to develop urban heat island and heat safety awareness as well as a sense of community-based environmental stewardship. The forums culminate in five spring 2024 community "planting parties" that will populate select lots in Flint with trees and native plants using designs created by forum participants in partnership with the Genesee Conservation District. Stop by the Climate Resilient Flint team's table if you would like to share strategies that enable under-resourced communities to begin climate resilience discussions at the neighborhood level. Climate Resilient Flint is funded by the NOAA Environmental Literacy Program. It is a coalition of Flint-based academic and community organizations that aim to fill the climate change gap in city and community conversation as well as foster grassroots climate resilience discussions based in urban renewal and social justice.

CREATE Connections

Speaker: Kathryn Semmens, Science Director, Nurture Nature Center

Building upon its successful CREATE Resilience project, the Nurture Nature Center has embarked on a new CREATE Connections project that uses a whole community approach to build collective environmental literacy and address current and future environmental hazards related to climate change in our local communities. Focusing on climate action plans recently adopted in Easton and Bethlehem, PA, the CREATE Connections project brings together community-based organizations, artists, students, educators, municipalities, libraries, businesses, and residents to

build social capital, connectedness and community resilience. Educational programming, outreach materials, public art installations, internships, book clubs, climate action weeks, climate-friendly kits, and an annual Youth Climate Summit will help build the knowledge, connections, and motivation required to make climate action a community priority.

Storybooks of Community Resilience: Lesson Plans and Examples

Speaker: Rachel Wellman, Coordinator of Educational Programs, FAU Pine Jog Environmental Education Center
FAU Pine Jog Environmental Education Center would like to share the lesson plans, templates, and additional student examples to compliment our "Story on a Sphere" content from our Climate Resilience Education and Action for Dedicated Youth (Climate READY) ELP funded project (Oct. 2020 to Sept. 2023) .This will include hard copies of the lessons and templates that can be given to interested participants, information on digital access through a Google Classroom, and "I am Climate READY!" stickers.

Sea-Level Rise Pop-Ins!

Speaker: Ali Rellinger, Extension instruction, Mississippi State University & Mississippi-Alabama Sea Grant; Jolie Griffey, Mississippi State University

Want to play a game? Come try out our "Community Balance Tumbling Tower" and "When did that happen?" games to learn about sea level rise and its impacts through fun and interactive activities. Find out how we share cutting edge data and leverage social science research to communicate sea-level rise topics to the general public.

Share-a-thon II (3:00-4:00 pm)

Climate Solutions Space and Naturalists Cabinet

HEART Force

Speaker: Katya Schloesser, Curriculum Developer, CIRES, CU Boulder

HEART Force Scenario-Based Role-Play games focused on different natural hazards (flood, wildfire, drought) have become the signature component of our curriculum, and engage students in responding to, or recovering from a hazard in their own community. These games are an excellent tool for students to process their understanding of hazards and community resilience and develop ideas for their own community action projects.

Interactive Climate Change Activities for Aquarium Guests

Speaker: Tom Naiman, Vice President-Education, The Maritime Aquarium

The Maritime Aquarium's ELP grant funded the development and implementation of a three-session program on extreme weather and coastal resilience for middle school and high school students. The Aquarium's Education team has leveraged the materials and activities from that program to create interactive climate change stations to engage Aquarium guests, which number approximately 500,000 per year. At the Share-a-thon, we will present a selection from those activities, which focus on coastal resilience, ocean acidification and extreme weather.

Faunteroy Center Ward 7 Resilience Hub Community Coalition (WDC)

Speaker: Stacy Lucas, Program Coordinator, Faunteroy Center

Ward 7 Resilience Hub Community Coalition (is a 501(c)(3) not-for-profit organization based in Washington, DC's Ward 7 created by Ward 7 residents. Our mission is community-focused: supporting residents, coordinating communication, distributing resources and reducing carbon pollution while enhancing quality of life. RHCC serves to further a range of physical and social goals by utilizing trusted, physical spaces such as a community center, recreation facility, or a multi- family housing building as well as the surrounding infrastructure such as a vacant lot, community park, or local business.

PACT: Preparing Agents of Change for Tomorrow in West Virginia

Speaker: Megan Kruger, Evaluation and Research Specialist, West Virginia University

In West Virginia, communities face heightened vulnerability to flooding amid a lack of readiness for the intensifying impacts of climate change. A paradigm shift in education and action is imperative to tackle this pressing issue. West Virginia University (WVU), alongside WVU Extension, spearheads the Preparing Agents of Change for Tomorrow (PACT) initiative. PACT seeks to empower high school students and their communities to confront climate realities by fostering resilience. Over three years, PACT will draw on NOAA's Community Resilience Theory of Change and Climate Resilience Toolkit to equip youth with the skills to assess vulnerabilities and co-create resilience plans. Through an innovative curriculum grounded in active learning, PACT will cultivate a new cadre of leaders capable of driving collective action in five flood-prone counties. It will also provide disaster literacy education and preparedness activities. PACT will culminate with three Youth Resilience Leadership Summits, where youth present their plans to peers and stakeholders. It envisions a safer and more equitable future for West Virginia. This session will go over our project's theory of change and how we are moving youth through the three project tiers. Cross-disciplinary collaboration will also be discussed.

Science Shop for Climate Resilience

Speaker: Andrew Kleiner, Director of Community Science, Academy of Natural Sciences of Drexel University

The Academy of Natural Sciences (ANS) is proud to present the Science Shop for Climate Resilience. Science Shop is a novel approach to research, community engagement, and education rooted and expressed through the tents of Community Based Participatory Research. During this presentation, ANS' Director of Community Science will overview the process through which ANS engages local communities, works to meet people where they are at through two-way communication, and co-develops research questions with community partners. This session will overview this approach while also addressing the unique challenges that this form of engagement presents as well as the opportunities that grow from addressing those challenges including building trust with communities, creating a space to speak and share, and connecting subject experts to community members to deepen relationships. Due to the success of this project being dependent on efforts related to climate resilience, this session will also overview the educational and informational work that will be undertaken related to climate resiliency in our targeted communities. Lastly, the session will explain how this project and model is specifically tailored to engagement and partnership with environmental justice communities who have experienced a history of environmental injustice, systematic racism, and red lining.

Climate Change Resilience Investigation with Middle Schoolers

Speaker: Jennifer Jacques, Program Manager, Ocean Discovery Institute

Discover the heart of our middle school programs, where we delve into the intricate facets of climate change, including carbon sinks, sustainable building practices, and the impact of urban heat islands. Witness how our students engage in hands-on learning experiences, from observing their communities to analyzing data, conducting inquiry investigations, and advocating for meaningful change.

Climate Impacts and Adaptations Mapping Activities

Speaker: Tiffany Harvey, GIS Analyst, Groundwork Ohio River Valley; Kelsey Hawkins-Johnson, Groundwork Ohio River Valley

Our share-a-thon presentation will allow attendees to complete the mapping activity we ask residents in climate change vulnerable communities to complete during our Climate Advisory Groups. They will be provided with a map of the area with made up climate impacts. They will be asked to suggest adaptations to mitigate the impacts shown in the map by marking a physical map or online through Survey123. The 30 min potential presentation could include participants pretending they are a Green Team implementing the adaptation projects. They will be asked to use Field Maps to record their projects by going to the suggested sites and marking the projects outdoors. These

projects will be shown in a dashboard automatically.

SOS Explorer now available on your computer

Speaker: Hilary Peddicord, Education Lead, NOAA SOS Team; Beth Russell, Senior Program Coordinator, NOAA SOS Team; Adrian Chase, NOAA SOS Team; Sam Liao, NOAA SOS Team

We are very excited to be releasing SOS Explorer as a free download for your Windows personal computer. Whether you want to be able to display SOS datasets in full resolution on any screen anywhere, to take SOS with you into classrooms, or to develop your own complimentary exhibit next to your SOS, it is all possible now on a shoestring! Stop by to learn more!

Resilient Schools and Communities (RISC) program

Speaker: Emily Fano, Sr. Manager of Climate Resilience Education, National Wildlife Federation

The National Wildlife Federation's Resilient Schools and Communities (RISC) program educates middle and high school students about climate science, climate impacts like sea level rise, climate justice, and resilience solutions.

Environmental Literacy for Alaskan Stewards

Speaker: Sheryl Sotelo, STEM Outreach Specialist, Chugach School District

Environmental Literacy for Alaskan Stewards was funded from 2018-2022. Students w \ The Environmental Literacy through Alaskan Climate Stewards (ELACS) project involved K-12 Alaskan rural students as they increased their understanding about what is happening in their local environments as well as increasing their overall climate literacy. Students and teachers learned climate literacy through first-hand experiences of terrestrial monitoring and data sampling, built ocean observation systems for the near-shore interface, facilitated community-based monitoring, and hosted local climate conversations and interviews about observed changes over time. Students examined their community resilience strategies in their villages which have experienced lifestyle altering impacts from the extreme weather events and climate changes. The people in these villages are especially vulnerable to the impacts of climate changes in the Arctic and this project brings together resources that will help gather traditional knowledge and scientific data. Communities armed with data and an awareness of what is happening in their local environment, will be better equipped to implement a community resilience plan.

Community Climate Education for a Resilient Raleigh

Speaker: Ariel Bushel, Communications Analyst, City of Raleigh Stormwater Management

The City of Raleigh Office of Sustainability and Stormwater Management Program are collaborating with internal and external partners to increase community resilience through climate education. The Community Climate Education for a Resilient Raleigh (CCERR) Project will support learning networks on flood resilience, urban heat, and environmental justice; disseminate severe weather and emergency preparedness best practices through educational materials and interactive activities; and incorporate community priorities for resilience building through stakeholder collectives on a neighborhood level. Through these initiatives, we aim to create a more resilient city with environmentally engaged residents and communities. Learn about our partners (Partners of Environmental Justice, Raleigh Fire, and North Carolina State Climate Office) and their community resilience efforts; our recent advisory convenings to identify collaboration opportunities; and upcoming plans for our initiatives!

AI: come meet a new type of team member

Speaker: Eric Hackathorn, SOS Research Lead, and Juan Pablo Hurtado Padilla, Visualization Lead for NOAA SOS Team

Try chatting with "Orbit," an AI guide specialized in explaining NOAA's Science On a Sphere (SOS) program and its diverse datasets.

The Wild Center

Speaker: Hannah Barg, Climate Program Network Manager and Elle Eberhardt, Climate Communications & Development Coordinator - The Wild Center

Explore The Wild Center's Youth Climate Program resources including our toolkit collection: How to Plan a Youth Climate Summit; Climate Action Planning; and newest toolkit *Forces for Change: A Youth Guide to the New York State Climate Smart Community Program*.

Outdoor Campus Exploration (4:00-4:50 pm)

Wild walk and forest music

Transition time (4:50-5:00 pm)

Youth Panel - Workforce Pathways for Youth: Taking Climate Action (5:00-5:45 pm)

Location: *Flammer Theater*

Moderators: Garrett Marino & Alicia Lamb - The Wild Center

Presenters: Zarela Gulli, Astrid Livesey, Keeley Jock, Aria Mitchell

[Link to Biographies](#)

This panel will highlight the various ways which high schoolers, college students, and young professionals have approached finding climate solutions through their respective life trajectories. The broad array of ages, interests, and career goals will showcase the many ways to take climate action.

Poets for Science Community Workshop Poem (5:45-5:50 pm)

Location: *Flammer Theater*

Facilitators: Hilary Peddicord, NOAA SOS Team

Session summary: As part of the Poets for Science plenary and related activity, David Hassler will be putting together words submitted by workshop participants into a community poem performed on stage.

Networking Reception and Exploration of The Wild Center (5:50-7:30 pm)

Location: Throughout the exhibit hall and outside the Naturalist Cabinet

Session summary: Join us for an evening of hands-on activities, art, and joy as we celebrate our climate work together in this fun-filled evening. Food and a cash bar will be available.

Day 3 - Thursday, May 9, 2024

Note: all times shown are Eastern Daylight Time (EDT = UTC - 4 hours)

Breakfast (8:15 - 8:45 am)

Location: *Great Hall/Cafe*

Plenary - Education to Empower Climate Change Action: Research, Gaps, and Opportunities (8:45-9:30 am)

Location: *Flammer Theater*

Speaker: Judy Braus, Executive Director, NAAEE; Sarah Bodor, NAAEE

[Link to Biography](#)

Join us for a session on what we've learned about the status of climate change education and climate policy in the US and opportunities for advancing our collective work. Research by NAAEE and leading universities consistently demonstrates that education can activate pro-environmental behaviors and lead to individual and collective action. We also know that education is essential to prepare a future green workforce that has the knowledge, skills, and attitudes to support more sustainable, climate-friendly practices. To gather baseline data, NAAEE has conducted a number of surveys and reports on the status of climate change education and we'll share the highlights—including what's going well and where the gaps are. For example, we know that educators want to see climate change taught across the curriculum, but it's currently not happening in most school districts across the country. We also know that educators want locally relevant, high quality materials and more support from administrators and other leaders. We'll also showcase NAAEE resources and those of our partners that can advance our work, and discuss how we can move forward to empower climate action and civic engagement to create a more just and sustainable future.

Transition time (9:30-9:40 am)

Concurrent Breakout (9:40-10:40 am)

Flammer Theater

Youth-Led Community Resilience in Melrose, South Bronx (9:40-10:10 am)

Speaker: Basil Alsubee, Project Manager and Climate Hub Advocate, We Stay/Nos Quedamos; Imani Cenac, We Stay/Nos Quedamos; John Sanchez, We Stay/Nos Quedamos; Hailey Miranda, We Stay/Nos Quedamos

This presentation will connect the dots between the environmental literacy program and community resilience by allowing youth organizers to speak to the intersections of community education and the resilience hubs being built across community gardens and spaces in the South Bronx. It will reflect on Nos Quedamos's work around food insecurity, urban farming, and community education with the end goal of participating in city-wide and state-wide housing justice and environmental justice campaigns. By giving our youth the opportunity to share back with others in the ELP and SOS programs, we will showcase firsthand their growth through the ELP project as leaders and organizers fighting for the futures of their own communities.

Promoting Climate Action Through Re-Framing the Climate Conversation (10:10-10:40 am)

Speaker: Kait Birghenthal, NNOCCI President & Project Coordinator, The Marine Mammal Center / National Network for Ocean and Climate Change Interpretation (NNOCCI)

Although more than 75% of US residents believe climate change is currently occurring, only about 25% hear people they know talk about these issues each month. Knowing people care is the first step to breaking this spiral of silence and digging into climate action. For the last 14 years, the National Network for Ocean and Climate Change Interpretation (NNOCCI) has been utilizing empirically-tested communication strategies to teach climate

communicators how to lead hopeful, equity-based, and actions-focused dialogues about our changing world. Using strategically-framed tools, we have trained over 800 climate framers across 43 states, who are empowered to speak on the causes of climate change, as well as direct the conversation toward community-level actions. The members we train become conduits for change, accessing hundreds of thousands of people across North America with effective climate messaging that we can quantify leads to action. Learn scientifically-tested language to support your climate communications, and opportunities to connect your work and climate actions to a larger community of climate communicators across the country. During the workshop, we will also discuss the variety of your projects' actions and how NNOCCI can support in promoting your efforts as case studies for climate action across our network.

Climate Solutions Space

'Ike Kupuna - Native Hawaiian perspectives on climate resilience (9:40-10:10 am)

Speaker: Jaymee Nanasi Davis, Project Director, University of Hawaii Maui College; Kimela Keahiolalo, Activities Coordinator - Cultural Educator, University of Hawaii Maui College

The knowledge base of Indigenous people's is generational understanding of the local environment. The study of place is the foundation for survival for Native people. Traditional knowledge creates a baseline for understanding climate change and working towards climate resilience. In this workshop, participants will share and discuss other ways of knowing and Indigenous perspectives related to climate resilience. To begin the conversation, Project Coordinator from University of Hawai'i Maui College will share insights of Ike Kūpuna (Native Hawaiian Ancestral Knowledge) that emerged during the implementation of the Building Environmental Resiliency Leaders project. Community practitioners and kūpuna (elders) provided insights into concepts such as makawalu (interconnectedness), aloha 'āina (love of land), kilo (observations), and hō'ailona (signs) that support understanding of the environment. When presented with the topic of climate change one Kūpuna questioned, "Isn't that Hō'ailona?" Hō'ailona from this perspective is the deep study of the environment such that hō'ailona (signs) are presented and carefully reflected upon. It is this simple question that shifts the conversation of climate change to a deeply personal inquisition.

Successes & Challenges of Co-Production & Community Driven Citizen Science & Culturally Responsive Education in Rural Alaska (10:10-10:40 am)

Speaker: Elizabeth Trowbridge, Executive Director, Center for Alaskan Coastal Studies

The SACRED project aims to build relationships and enrich collaborations so educators, community leaders, tribal organizations, and scientists can co-learn local food security and water access issues in a changing environment. It also engages youth in culturally relevant community-based monitoring projects, strengthening community resilience. As we enter our 3rd year of a 5-year ELP project, our successes include deepening relationships and trust among partners and entities. We are co-developing innovative opportunities for tribal youth and other community members to support needed scientific and cultural information for resilience planning and subsistence food security. We have shared meals, stories, grant opportunities, environmental concerns, and social and economic impacts we are all experiencing in unique ways, and this has brought our organizations and communities together and strengthened our commitment to collaboration. Community-driven, culturally responsive approaches to monitoring projects of local importance have had challenges, especially when navigating the intricacies of Alaska Natives' unique relationship with the Federal government and the structure of tribal entities, communities, and corporations as developed by the Alaska Native Claims Settlement Act. Weather, vast distances, transportation challenges, seasonal subsistence patterns, and changing workforce and economic stressors have meant that we have had to be flexible, patient, and resourceful. Explore these successes and challenges and share experiences, solutions, and lingering questions.

Naturalists Cabinet

A Method for Automatically Downloading & Preparing Pictures of the Sun for Display on SOS (9:40-10:10 am)

Speaker: Ron Proctor, Motion Graphics Designer, NSF's NOIRLab

We have developed a method for downloading and processing hemispheric pictures of the Sun into equirectangular pictures for display on SOS. Our method uses a Crontab-launched Bash script to download images with Curl, then the images are processed into equirectangular format with Blender. The resulting files replace the previous files in the dataset. This process runs daily and keeps our SOS up to date with current pictures of the Sun in multiple wavelengths.

Sifting through the Haystack: Using AI to Interact with NOAA Resources (10:10-10:40 am)

Speaker: Eric Hackathorn, Research Lead and Senior Developer, NOAA Global Systems Laboratory; Juan Pablo Hurtado Padilla, NOAA Science On a Sphere Team

This presentation suggests enhancing NOAA's Science On a Sphere by integrating Large Language Models (aka generative AI) to allow users to interact with environmental data through natural language queries. This aims to make exploring complex data more intuitive and personalized, transforming the sphere into an interactive platform for engaging with science.

Planet Adirondack- Science On a Sphere (pADK-SOS)

Using the SOS Visual Playlist Editor & the SOS Remote iPad App (9:40-10:40 am)

Speaker: Shilpi Gupta, Technical Lead & Senior Software Engineer, NOAA SOS Team; Beth Russell, NOAA SOS Team

"The Visual Playlist Editor (VPLE) is an SOS Desktop application that allows users to easily create and modify SOS presentation playlists, as well as visually lay out, modify and preview SOS datasets. The SOS Remote app for the iPad is the primary way to control SOS for presenters. In this session, we will do a deep dive on how to use each of these applications with real-world examples so you can learn to customize your SOS presentations and content. We will also explore how these tools can be leveraged to create more interactive presentations for increased audience engagement (e.g., how to use TextPIPs as a Q&A feature on the sphere, how to dynamically layer and draw on the sphere, etc).

Transition time (10:40-10:50 am)

Concurrent Breakout (10:50-11:50 am)

Flammer Theater

Integrating Canva into SOS Presentations (10:50-11:50 am)

Speaker: Patrick Rowley, Science On a Sphere & Technology Facilitator, J.E. Richmond Science Center/ Charles County Public Schools

Creating customized datasets that are visually appealing, especially to younger audiences, can be a challenge. Canva has a range of tools that can be integrated into your SOS presentations. Some examples include: finding fun graphics for PIPs, quickly editing a map, creating short animations, developing graphics for a special event, and even creating customized icons to use with the app. During this breakout session, there will be a short presentation of how I have used Canva. We'll then run through a tutorial, and end with you working to create something for your own Sphere. You will need to provide your own computer or tablet. I recommend creating a free account ahead of time at canva.com, if you don't already have one.

Climate Solutions Space

The Wild Center Green Campus Tour (10:50-11:50 am)

Speaker: Phil Wagschal, Facilities Director, The Wild Center

Take a tour of The Wild Center's campus to find out what green technology we have infused into our daily operations, both public facing and behind the scenes. Everything from heating, to composting, to keeping our animals healthy you will see what we have done on our site to inspire action to ensure a thriving natural world.

Naturalists Cabinet

Resilient Schools and Communities (RiSC): A Case Study for Intergenerational Community Resilience (10:50-11:50 am)

Speaker: Emily Fano, Sr. Manager, Climate Resilience Education, National Wildlife Federation/Resilient Schools and Communities (RiSC) program

The National Wildlife Federation's Resilient Schools and Communities (RiSC) program educates middle and high school students about climate science, climate impacts like sea level rise, climate justice, and resilience solutions. In this 60-minute workshop, we'll view a short documentary about the RiSC program, ""Where it Floods,"" narrated by a high school student. The film highlights the lived experiences of community members in the frontline community of Coney Island, Brooklyn and follows NYC students as they revegetate dunes to help protect local residents from coastal flooding. We'll have a discussion afterwards in which participants can share how they have integrated equity and justice into their climate and resilience education work with communities, including successes and challenges. After that, we will delve into several new RiSC program resources including a film viewing companion guide for educators and a RiSC Replication Toolkit which walks interested groups through the elements needed to implement the RiSC program in a local community.

Planet Adirondack- Science On a Sphere (pADK-SOS)

Connecting Spaces: Integrating Climate Solutions Through Storytelling (10:50-11:50 am)

Speaker: Nicholas Corcoran, Education Services Coordinator, The Wild Center; Garrett Marino, The Wild Center

Are you excited about the exhibits in your institution? Do you make connections from those exhibits to Science On a Sphere? Although we may have amazing spaces within our institutions, it's not always natural or easy to integrate them with SOS. Facilitating and bridging the experiences from your exhibit spaces with SOS takes a prepared staff and robust programming. Learn about The Wild Center's new exhibit focusing on Climate Solutions and how we connected this action based exhibit to climate change science, impacts, justice, and solutions in an accessible way for our visitors. We will explore how we have trained our staff to become skilled storytellers using SOS. The Wild Center relies on storytelling methods to build empathy and connection alongside science and data. After hearing about what we are doing we will have breakout sessions to generate new ways to connect the incredible technology of SOS to other aspects of your space that you may not have considered.

Lunch (11:50-12:50 pm)

Location: *Great Hall*

Concurrent Breakout (12:50-2:20 pm)

Flammer Theater

Our Elizabeth, Our Responsibility: Elizabeth River Project's Resilient River Star Schools (12:50-1:20 pm)

Speaker: Sarah McBride, School Outreach Coordinator, Elizabeth River Project

Virginia's Elizabeth River has the highest rate of sea level rise on the east coast. Communities experience flooding daily. In 2019, the nonprofit Elizabeth River Project (ERP) developed “Resilient Youth of South Hampton Roads, A Pioneer Strategy of Hope and Action to Prepare Those Who Will Inherit Rising Seas” as part of a 3-year NOAA Environmental Literacy award that empowered over 21,000 youth to help create a resilient river. Since then, the Elizabeth River Project has launched a yearlong K-12 youth program, Resilient River Star Schools, to support teachers and students in environmental action projects that address flooding and sea level rise. In addition, multi-day teacher workshops (self-paced, virtual and in person) complement ERP's education initiatives and focus on science, art, culture, and history. Participants that attend this session will learn how ERP educates over 30,000 youth annually through land and water-based education platforms, how schools implement action projects as Resilient River Star Schools and best practices for teaching environmental education in an industrial urban river through movement, music, art, and history.

Hurricane Resilience: A Curriculum for High Schools in the Cone of Uncertainty (1:20-1:50 pm)

Speaker: Becca Hatheway, Director, UCAR Center for Science Education

An NGSS-aligned curriculum for high schools in hurricane-prone locations, Hurricane Resilience helps students explore the science of these storms through place-based learning. Students develop an understanding of the risks that their local community faces due to hurricanes and tropical storms, how that risk will increase as climate change strengthens these storms, how sea level rise increases the risk, and how our actions can help us be less vulnerable and more resilient. The curriculum unit aims to empower high school students to have a voice in resilience planning and help them understand the relationship between the science of hurricanes and the local impacts of these storms on people and places. Hurricane Resilience was developed through a collaboration with two Louisiana bayou school districts, a Louisiana informal learning center, and a Colorado-based science education group. The team from Colorado was able to successfully lead this project due to strong relationships in the Louisiana communities. The project required much resilience on the part of the project team and participating teachers and students, as the curriculum was piloted during the 2019-2020 school year that ended early due to the Covid-19 pandemic, followed by a direct hit from Hurricane Ida in August 2021.

Creating Legacy Resources as ELP Programs Sunset (1:50-2:20 pm)

Speaker: Katya Schloesser, Curriculum Developer, CIREs, CU Boulder

Join us for a discussion of how to transition from an actively funded ELP Program into new opportunities. We invite participants to share the most valuable components or resources from their program and discuss strategies for continued utilization and promotion of products, resources, tools and strategies learned under ELP funding. Additionally, we welcome insights into the opportunities and successive programs that have emerged as a result of their ELP program.

Climate Solutions Space

Empowering Communities of Resilience through Participatory Deliberations (12:50-1:50 pm)

Speaker: Emily Hostetler, pTA Project Manager, CSPO at Arizona State University; David Sittenfeld, Museum of Science, Boston; Avery Davis Lamb, Creation Justice Ministries; Pamela Carralero, Kettering University

Participatory community engagement around socio-scientific issues and policies has gained the attention of many types of governing bodies across the globe. Dialogue and deliberation practices allow community members to consider and make recommendations about the societal and ethical dimensions of climate hazards and of potential resilience strategies to address them. But what does this principle of democratic deliberation actually look like in practice? In this session, a panel of practitioners will share their diverse experiences in engaging and educating communities around climate resilience including how they presented this complex information, participant recruitment and engagement strategies, and research around how participants and resilience planners were

impacted by the experience. Practitioners will also share experiences of grounding forum activities and proceedings in ongoing community civic concerns so that forum participants' climate resilience awareness and climate knowledge develop from a local sense of place and prepare participants to engage in climate discussions at the municipal level. Session participants will then be welcomed to join their own facilitated small group conversations, ask questions, and share their perspectives on community engagement around climate resilience.

Research Using the Science On a Sphere (1:50-2:20 pm)

Speaker: Daniel Curtis, PhD Student/Graduate Assistant, Northern Illinois University

This session is for both Science On a Sphere (SOS) users and researchers to discuss use of the SOS for research, including research studies both with and on the various SOS systems. The session will present a brief overview of extant SOS published research and evaluations followed by presentation of my upcoming SOS research plans. Following these presentations will be time for a roundtable discussion of past, present, and future SOS research. If you have an interest in SOS research or what it has to offer SOS users, please join us.

My research project summary: To investigate whether the different SOS systems have a different effect on viewers, we will measure changes in educational gains, topical interest, and climate concern among viewers of climate presentations given using the SOS and SOS Explorer systems. By comparing the changes in variables between the two different systems, we can determine whether there is a difference in what effect each type of system has on the viewer. Participants will include undergraduate students and general public and follow up studies will compare differences between auto-run video presentations and docent-led presentations.

Naturalists Cabinet

SOS in Higher Education (12:50-1:20 pm)

Speaker: Carrie Wicker, Educator/SOS Coordinator, Michigan State University

Meet with other SOS users in higher education to discuss topics such as collaborating with university classes, working with faculty and college students, and using SOS for outreach projects and research communication.

Create Your Own Community Resilience Storybook (1:20-1:50 pm)

Speaker: Rachel Wellman, Coordinator of Educational and Training Programs, FAU Pine Jog Environmental Education Center

This presentation would pair nicely with our "Story on a Sphere" 15-minute SOS feature that is designed to showcase one of our student written and illustrated community resilience storybooks. High School students that were trained to be Climate Resilience Education and Action for Dedicated Youth (Climate READY) Ambassadors were given the task "Children's Storybook Assignment: Stories of Community Resilience" with the ultimate goal of collaborating with 4th and 5th grade after school students and writing a story of local community resilience together. This was a several step process that included an assignment for the Climate READY Ambassador teams to develop a story first. After going through the process, the high school students were able to translate a version of this lesson with the 4th and 5th graders. FAU Pine Jog would like to provide lesson materials (printed and digital) for participants and help walk them through the lesson by creating a story of their own that relates to their community and the climate change hazards they are facing. This session will help all students, including adults, see these issues through the lens of a child and will often broaden their perspectives on how communities can work together towards solutions.

From Climate Resiliency Planning to Boots on the Ground Efforts (1:50-2:20 pm)

Speaker: Tiffany Harvey, GIS Analyst, Groundwork Ohio River Valley; Kelsey Hawkins-Johnson, Groundwork Ohio River Valley

We will briefly introduce Groundwork Ohio River Valley, the Climate Safe Neighborhoods program, and the Green

Team program. This will include an overview on how we use GIS and local resident knowledge to find vulnerable communities, how we use GIS data visualizations to communicate climate conditions to residents, and how GIS is used to present resident data in a Climate Resiliency Plan map. The goal is to show the connection between our resident-led climate resiliency programming and our youth program who provide boots on the ground to make climate resiliency planned adaptations reality. Participants will be able to see their data entries update in real time on a simple dashboard.

Planet Adirondack- Science On a Sphere (pADK-SOS)

Creating content for SOS with open source/free tools (12:50-1:20 pm)

Speaker: Juan Pablo Hurtado Padilla, Visualization Lead SOS Program, NOAA SOS Team

Creating content for SOS can be challenging especially if we don't have the tools needed. By using open source/free tools we remove this barrier and we can unleash our creativity. During this session we'll quickly go over the development of a movie for SOS from beginning to end, while highlighting best practices and accessible tools. We also want to hear your questions, suggestions, tips and trips so join us and let's learn together.

Kiosk Customization and Beyond (1:20-1:50 pm)

Speaker: Alexander Kirst, SOS Developer and Technical Support Lead, NOAA SOS Team; Beth Russell NOAA SOS Team

Did you know that you can choose which datasets to show on your SOS Kiosk? Do you have new, fresh ideas on how we can improve the Kiosk? If so, please join us for this session which will cover topics like Kiosk customization and operation, as well as a discussion on how you can more deeply integrate the kiosk with your goals for SOS. We are always looking for new ideas on how the Kiosk can improve, so we'll make sure to leave time to hear from you about your experiences and suggestions!

SOS Operations and Maintenance (1:50-2:20 pm)

Speaker: Alexander Kirst, SOS Developer and Technical Support Lead, NOAA SOS Team

This session will cover topics on the operation of your SOS machine including: the best ways to keep your machine and software up to date, a brief walk through of how to run your system, an explanation on how data downloads and backups are performed, and an overview of our support resources available to you. If you're new to the world of SOS, or just need a refresher on some of the inner workings, we hope to see you there!

Transition time (2:20-2:30 pm)

Closing Remarks (2:30 - 3:00 pm)

Location: *Flammer Theater*

Representatives from NOAA and The Wild Center

Plenary Speakers Biographies

“Climate Solutions with an Open Heart”

Day 1- Tuesday May 7, 2024 at 9:30 am

Location: *Flammer Theater*



Stephanie Ratcliffe

Executive Director, The Wild Center

Biography: Stephanie (she/her) has been the Executive Director of The Wild Center since June 2007. Stephanie played a leading role in the creation of the Center’s current exhibits and programs, including all of the interior live exhibits, multimedia presentations, Wild Walk, campus-wide interpretation and climate change initiatives. As an active participant and catalyst in the community, the museum has been a leader in driving climate change awareness and acting as a convener of climate change and green building conferences targeting regional and youth audiences in the Adirondack region. Stephanie is a passionate champion of urging science museums to be active participants in climate change education in their communities.



Jen Kretser

Director of Climate Initiatives, The Wild Center

Biography: Jen (she/her) manages The Wild Center’s climate change engagement programs including the global Youth Climate Program which was highlighted by the Obama White House Office of Science and Technology; interpretive programs for visitors; green building education & design; and other climate related initiatives/partnerships. She is working to help catalyze youth climate summits around the world. In November 2021, Jen led the Wild Center Youth Delegation and the US Action for Climate Empowerment (ACE) Delegation at the UN COP 26 in Glasgow. She is a member of the NY Climate Resilience and Education Task Force

which elevates climate change education and action in NY Public Schools; and the national Climate Literacy and Energy Awareness Network Board. Jen has over 30 years experience working in the non-profit sector supporting educators and youth in and out of schools. When not working, Jen can be found outside hiking, paddling, xc skiing and picking blueberries with her family and friends.



Neil Patterson

Executive Director, Center for Native Peoples and the Environment

Biography: Neil (he/him) reconnects Indigenous communities and youth with their ancestral lands and celebrates Indigenous ways of knowing. As Executive Director of the Center for Native Peoples and the Environment at the SUNY College of Environmental Science and Forestry (ESF), he teaches students about Traditional Ecological Knowledge (TEK). He also studies the relationship between Indigenous knowledge and scientific understanding to find ways to live respectfully in the world. He is a citizen of the Tuscarora Nation, a founder of the Tuscarora Environment Program and has been working with the Haudenosaunee Environmental Task Force for over twenty years. My work has been to celebrate, restore, and build relationships between indigenous communities and their aboriginal territory. This space still creates language, tradition, and story of human interaction for several thousand years. The pragmatic way in which indigenous people have co-evolved within their landscapes provides the most sublime template for re-imagining and creating sustainable food, material, and energy systems.

“Poets for Science”

Day 1- Tuesday May 7, 2024 at 2:30 pm

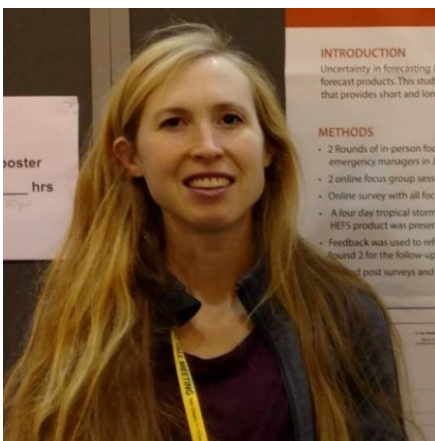
Location: Flammer Theater



David Hassler

Bob and Walt Wick Executive Director, Wick Poetry Center at Kent State University

Biography: David Hassler is the Bob and Walt Wick Executive Director of the Wick Poetry Center at Kent State University, which collaborated with poet Jane Hirshfield in 2017 to create the *Poets for Science* project and interactive exhibit which travels nationally and collaborates with organizations and individuals to explore the intersection of art and science. In 2009, Hassler co-founded *Traveling Stanzas*, a community arts project which brings poetry to the most urgent and evolving needs of our communities through expressive writing interventions, interactive exhibits, and digital platforms. In 2018 Hassler helped co-found the Poetry Coalition, a coalition of the nation's leading poetry organizations, where he continues to serve and advise in the leadership cohort. Hassler is the author or editor of ten books of poetry and nonfiction, including *Dear Vaccine: Global Voices Speak to the Pandemic*. His play, *What We Learned While Alone*, drawn from the *Dear Vaccine* anthology, debuted at the National Academy of Sciences in 2022. Hassler is also the author of the play, *May 4th Voices: Kent State, 1970*, based on the Kent State Shootings Oral History Project, which was produced in 2020 as a national radio play. Hassler's awards include Ohio Poet of the Year, the Ohioana Book Award, and the Carter G. Woodson Honor Book Award. In addition to his creative writing publications, he has co-authored articles on poetry, technology, and healing in multiple journals.



Kathryn Semmens

Science Director, Nurture Nature Center

Biography: Kathryn Semmens is the Science Director of the Nurture Nature Center. She holds a Ph.D. in environmental and earth sciences from Lehigh University, along with a master's degree in marine policy from the University of Delaware and a bachelor of science in environmental studies from Ursinus College. Kathryn was employed previously as a postdoctoral associate at the Agricultural Research Service of the United States Department of Agriculture and has also worked for the Pew Environment Group in Washington, D.C. Her awards include a NASA Earth and Space Science Fellowship for doctoral research, a Udall Environmental Scholarship and a EPA Greater Research Opportunity Fellowship for her undergraduate studies. Kathryn's interests focus on the nexus of science, policy, and community. Her responsibilities at NNC are to help advance the organization's outreach efforts on scientific and environmental issues generally, with a special emphasis on floods, climate change, and social science research.

“Forces for Change: Youth & Local Government”

Day 2- Wednesday May 8, 2024 at 1:00 pm

Location: *Flammer Theater*



Frank Niepold

Senior Climate Education Coordinator, NOAA's Climate Program Office

Biography: Frank Niepold (he/him) is the Senior Climate Education Coordinator at NOAA's Climate Program Office (CPO) in Silver Spring Maryland, co-manage the NOAA CPO Communication, Education and Engagement Division, Climate.gov Education section lead, a co-chair of the U.S. Global Change Research Program's Climate Engagement and Capacity Building Interagency Group, the U.S. National Communications Report chapter lead on Education, Engagement, Training, and Workforce Development for the U.N. Framework Convention on Climate Change (UNFCCC), former Action for Climate Empowerment National Focal Point for the United States, founding member of the CLEAN Network and co-chair of the CLEAN Network Leadership Board, a member of the Federal Steering Committee for the Fourth National

Climate Assessment (NCA4) and federal lead for the White House Climate Education and Literacy Initiative (2013-2016). At NOAA, he develops and implements NOAA's Climate goal education and engagement efforts that specifically relate to NOAA's Building a Climate Ready Nation goal. Frank is the “Teaching Climate” lead for NOAA's Climate.gov web portal that offers learning activities and curriculum materials, multimedia resources, and professional development opportunities for formal and informal educators who want to incorporate climate science into their work. Additionally, he is the managing lead of the U.S. Global Change Research Program (GCRP) document, *Climate Literacy: The Essential Principles of Climate Science*. NOAA, NSF, NASA, AAAS Project 2061, CIRES, American Meteorological Society, and various members from both the science and education community worked to define climate literacy in the United States.



Nadia Harvieux

Associate Director for Educational Programs, Finger Lakes Institute

Biography: As a passionate advocate for place-based experiential learning, Nadia (she/her) designs and leads innovative programs to engage students and adults in participatory community science addressing local environmental issues. FLI’s K-12 programs include the Finger Lakes Youth Climate Summit, Science on Seneca, the Finger Lakes Regional Stream Monitoring Network, supporting STEAM opportunities for Geneva’s Youth through Geneva 2030, and providing professional development for educators. In addition to her role at the FLI, Nadia supports students entering the teaching profession as an Adjunct Instructor in the Teacher Education Program at Hobart and William Smith Colleges. Focusing the FLI’s programs through the lens of climate action has been a key component of the FLI’s recent environmental education work. Nadia credits growing up on Canandaigua Lake for sparking her interest in stewardship, education, and protection of the Finger Lakes.



Hannah Barg

Climate Network Manager, The Wild Center

Biography: Hannah Barg (they/them) is the Climate Network Manager at The Wild Center. They support the international Youth Climate Summit Network of over 165 summits in 9 countries! Hannah hosts monthly Network meetings and travels to other summit sites with the climate team and regional high school climate leaders. They studied environmental science at Goshen College and holds a Masters degree in Experiential and Outdoor Education from Western Carolina University. For their Masters thesis study, Youth Got the Power: Building Youth-Adult Partnerships for Climate Action, Hannah worked with 3 high school students to design and implement a climate action project. Hannah is passionate about several climate topics including climate justice, climate fiction/music, and climate action planning.



Cedar Young

Student, St. Lawrence University

Biography: Cedar Young (she/her) is a junior at St. Lawrence University. She studies Environmental Studies and Government. While in high school, in her hometown of Saranac Lake, she spent her free time working with various climate-centered groups. One of Cedar's main focuses was the Saranac Lake Climate Smart Communities Task Force. This task force worked to document the ways the Village of Saranac Lake has lowered their greenhouse gas emissions and reduced waste. Cedar was one of the student members on the team, working to create a social media profile and raise awareness of the Climate Smart Communities initiatives. This past summer, Cedar was an intern with the Youth Climate Program at The Wild Center and loves sharing her personal climate story.



Shenequa Perry

Veterinary Assistant, Bethlehem Veterinary Hospital

Biography: Shenequa Perry (she/her) is an ESF graduate with a degree in environmental biology, where she was the undergraduate director of sustainability. She was the community coordinator for the village of Homer, leading them to receive bronze certification as a climate smart community. And has used her story to help inspire other youth and municipalities to work together.

“Workforce Pathways for Youth: Taking Climate Action”

Day 2- Wednesday May 8, 2024 at 5:00 pm

Location: Flammer Theater

Facilitators

Alicia Lamb



Jeanne Hutchins Climate Program Manager, The Wild Center

Biography: Alicia (she/her) grew up in Binghamton, New York, and earned her Bachelor of Science in biology and her master’s in ecology and evolution. She first came to the North Country in 2010 and it keeps calling her back. She has taught high school and university courses in ecology, scientific data collection, and ethical international service. Alicia has also taught students about the diversity of holistic wildlife conservation globally while working with National Geographic Student Expeditions. She is an avid traveler and has spent time in Madagascar, Kenya, Namibia, the Democratic Republic of the Congo, Ecuador, and the Galapagos. In her free time, Alicia enjoys working on ceramics projects and adopting new house plants. She is happiest outside - whether that be hiking in the forest with her dog or hanging with her backyard chickens. Alicia is thrilled with her current position at the Wild Center as the Climate Program Manager and hopes to inspire the next generation of young explorers and climate activists.

Garrett Marino



Youth Climate Leadership Coordinator, The Wild Center

Biography: Garrett (he/him) is a recent graduate of Skidmore College where he studied English and Business. For many years, he guided month-long, experiential canoe trips in the northernmost regions of Ontario Canada. These trips instilled in him a deeply rooted respect, humility, and appreciation for the natural world. During his undergraduate studies, he interned at the Tang Teaching Museum and learned how significant of an impact museum’s could have on culture and society. Garrett is motivated by his love for people, and works everyday in his role at The Wild Center to discover what making a life means, and looks like, in the midst of the climate crisis. At The Wild Center, Garrett is responsible for managing the ClimaTeens Fellowship Program, designing and facilitating public programs, and working with our partners to create pathways for youth to usher in a better future. Garrett also coordinates Saranac Lake’s Climate Smart Communities Task Force, and works closely with John Brown Lives, a racial justice organization to do what he can to contribute to a brighter future.

Panelists



Zarela Gulli

ClimaTeens Fellow, The Wild Center

Biography: Zarela Gulli (she/her) is a Junior at Keene Central School, in the heart of the Adirondacks. She has grown up living and breathing nature, whether that be scaling the rocky, icy New York cliffs, or enjoying the fresh water of the Ausable River. Her love of the outdoors and athletics has been disrupted by climate change, and especially the ways in which Winter has become more mild. Zarela is always looking for new ways to get active in the climate movement, which has led her to become a ClimaTeens fellow at the Wild Center, along with leading her school's environmental team, helping start her town's Climate Smart Community Task Force, along with many other opportunities and

future experiences. Zarela hopes to do all she can for the world she lives on, and in the process inspire more youth to become active parts of the solution to the dire climate crisis.

Keeley Jock



Climate Justice Fellow, Adirondack North Country Association

Biography: Keeley Jock (any pronouns) grew up in Akwesasne where her strong belief in the Seven Generations philosophy, taught to them at a young age, moved them to obtaining a B.S. in Environmental Science from Paul Smith's College, with the dream of doing something bigger than herself in this world. With a keen interest in wetland ecology and botany, Keeley wrote their undergraduate thesis on Indigenous Knowledge informing EPA standard wetland assessments to help improve regulations for highly impacted/less pristine wetlands. As a recent graduate, she is starting off her career with beginning work at ANCA beginning in 2024, as a Climate Justice Fellow through a NYSERDA grant program.

Ariah Mitchell



Student, Paul Smith's College

Biography: Ariah Mitchell (she/her) is a senior at Paul Smith's College, dual majoring in Environmental Studies (B.A.) and Communication (B.S.). For three years she worked at the Paul Smith's College Center for Sustainability as a Climate Fellow, where she aided in grant writing and outreach designed to engage other young people at events such as the Wild Center's Adirondack Youth Climate Summit. Ariah is a student steward for the Resiliency Studies Consortium and has spoken as a youth panelist on climate change at St. Lawrence University. In her spare time, Ariah loves reading, writing, and creating art, and she aspires to pursue a career in environmental communication regarding wetland ecosystems and watersheds.



Astrid Saint-Pierre

Student, Paul Smith's College

Biography: Astrid Saint-Pierre (she/her) is a college student who is passionate about sustainability and climate activism. She co-founded Placid Earth LLC, a non-profit composting business while in high school and has been a dedicated youth activist for five years. Astrid is one of the featured portraits in the Climate Solutions exhibit at The Wild Center. Astrid hopes to inspire others to take action to build a healthier planet.

“Education to Empower Climate Change Action: Research, Gaps, and Opportunities”

Day 3- Tuesday May 9, 2024 at 8:45 am

Location: *Flammer Theater*



Judy Braus

Executive Director, NAAEE

Biography: Judy Braus brings to her role as NAAEE Executive Director a wealth of experience in the environmental education profession, with a focus on conservation education, equity and inclusion, and using the power of education to help create healthier communities that empower people to help restore and protect the environment. She comes to NAAEE from the National Audubon Society, where she was the Senior Vice President of Education and Centers, overseeing an extensive nationwide network of nature centers and educators. Prior to that, she led the education programs at World Wildlife Fund (WWF), the U.S. Peace Corps, and the National Wildlife Federation (NWF). Judy also has extensive experience with NAAEE, having served in a number of capacities in the past several decades, including past president, conference chair, and editor of a number of publications. Additionally, she is committed to strong partnerships and has negotiated and implemented lasting relationships with organizations, government agencies, foundations, and universities. NAAEE is the Secretariat of the Global Environmental Education Partnership (GEEP), and supports the Natural Start Alliance, and the NAAEE Affiliate network—networks designed to strengthen environmental education to create a more just and sustainable future.

Acronym Glossary

AI: Artificial intelligence
ANS: Academy of Natural Sciences
CCPS: Charles County Public Schools
CEEE: Center for Education, Engagement and Evaluation
CIRES: Cooperative Institute for Research in Environmental Sciences
Climate READY: Climate Resilience Education and Action for Dedicated Youth
CREATE: Community Resilience through Education, Art, Technology and Engagement
CSPO: Consortium for Science Policy and Outcomes
CU: Colorado University
ELASC: Environmental Literacy through Alaskan Climate Stewards
ELP: Environmental Literacy Program
FAU: Florida Atlantic University
GIS: Geographic Information System
HEART Force: Hazard Education Awareness & Resilience Task Force
NAAEE: North American Association for Environmental Education
NASA: National Aeronautics and Space Administration
NGSS: Next Generation Science Standards
NMNH: National Museum of Natural History
NNC: Nurture Nature Center
NNOCCI: National Network for Ocean and Climate Change Interpretation
NOAA: National Oceanic and Atmospheric Administration
NOIRLab: National Optical-Infrared Astronomy Research Laboratory
NSF: National Science Foundation
PACT: Preparing Agents of Change for Tomorrow
PBL: Problem-based learning
PIP: picture in a picture
pTA: Participatory Technology Assessments
RHCC: Residence Hub Community Coalition
RiSC: Resilient Schools and Communities
SACRED: Southern Alaska Collaborative for Resilience through Education and Decision-making
SOS: Science On a Sphere
SUNY: State University of New York
UCAR: University Corporation for Atmospheric Research
VOLA: Virtual Orbital Latitude Assistant
VPLE: Visual Playlist Editor
VR: Virtual Reality
VTS: Visual Thinking Strategies
WVU: West Virginia University
XR: Extended Reality