

2024 **GLOBE** ANNUAL MEETING  
**CLIMATE AND RESILIENCE**

FREDONIA • NEW YORK • USA • 15-18 JULY



Meeting sponsored by:



Supported by:



# TABLE OF CONTENTS

GLOBE Welcome Letter .....	3
Keynote Speakers .....	4
SUNY Fredonia Welcome .....	4
Maps and Space for Notes .....	6
Detailed Agenda .....	8
Snapshot Agenda .....	12
Community Presentation Sessions .....	14
Student Experience Overview .....	16
IVSS Stipend Recipients .....	17
Student Research Symposia Participants .....	17
Student Experience Agenda .....	18
GLOBE Sponsors, RCOs and Working Groups .....	20
Space for Notes .....	21
Map of the GLOBE Community .....	22

## SOCIAL MEDIA • CONNECT • SHARE • LEARN



Dear GLOBE community,

Welcome to the shores of Lake Erie, Western New York State, and the GLOBE Annual Meeting, the 28th since the founding of the Program in 1995.

Some of my earliest childhood memories include visits to Lake Erie exploring the flora and fauna along the shores of one of the five Great Lakes of the United States. Can you name the others? Some of my favorite memories include picnics on the beaches of Presque Isle, canoeing along the nearby waterways, as well as visiting the majestic falls at Niagara! I hope you too will enjoy some of the natural wonders of this region and use GLOBE protocols to learn more about them. However, these precious ecosystems are changing before our eyes due to climate change. Therefore, it is fitting that the theme of this year's meeting is Climate and Resilience.



Developing a deeper understanding of climate has been a central theme for The GLOBE Program in 2023-2024 with the GLOBE Year of Climate and Carbon (YCC) action and awareness campaign. Over the past year, students have engaged in regional research projects centered on climate and carbon topics and shared their work at the Student Research Symposia (SRS) in the United States and the International Virtual Science Symposium (IVSS).

I would like to thank Lyn Wigbels and Mike Jabot for leading the International Organizing Committee (IOC) and their work in helping to develop the meeting program that will enable all of us to explore the theme of Climate and Resilience over the course of the week. I would like to thank Simon Castro-Wooldridge, Tara Torres and Alison Mote for their work with pulling together the programming and logistics for this year's meeting. Both the adult and the student program promise to be engaging and relevant to our work in GLOBE and as citizens of our planet.

The GLOBE Annual Meeting is sponsored by the National Science Foundation (NSF). UCAR deeply appreciates the commitment of the NSF along with all of the federal sponsors (NASA, NOAA, and the US Department of State) for their continued support of GLOBE.

As this is the final GLOBE event organized by the GLOBE Implementation Office (GIO) at UCAR, I would like to provide my special thanks to all of the dedicated staff who have contributed to the mission of GLOBE over the last twenty years. It has been an honor to serve alongside so many who have made GLOBE what it is today.

Finally, I extend best wishes to the new GIO who will serve the GLOBE community into the future!

Sincerely,

John Ristvey  
GLOBE Director of Operations and Implementation

**HOST: SUNY FREDONIA**



**Mike Jabot**

*Distinguished Professor of Science Education, Department of Curriculum and Instruction, Fredonia State University of New York, USA*

I want to welcome you to the State University of New York at Fredonia. SUNY Fredonia is so HONORED and HUMBLLED to have you be part of our campus community while you are here. As I think about our focus this past year on Climate and Carbon, I can not think of a location that is better “placed” to help share the impact of these ideas than SUNY Fredonia. We sit on the shores of a water body system that represents 20 percent of the World’s total freshwater; we sit on the edge of an escarpment that divides our region feeding into both the Great Lakes as well as the Mississippi watersheds and this all occurs within a distance of hundreds of meters; and we have a unique agricultural opportunity that owes its abundance to the last great glacial advance.

Our “place” serves as a great example of how earth system science serves to help us understand the importance of understanding the interconnectedness of these systems as well as the impacts that changes to these spheres has on the entire system. Try to take note of this uniqueness as we explore together and learn how we can bring GLOBE to play in the lives of those we support. So please enjoy your time exploring our “place” and NEVER hesitate to let me know how I can help.

**KEYNOTE SPEAKERS**



**Rhiannan Price**

*Senior Advisor, DevGlobal Partners and Lead for NASA Lifelines*

Rhiannan Price is a Senior Advisor at DevGlobal Partners and lead for NASA Lifelines, a new community building initiative bringing together humanitarians and scientists to accelerate use of satellite data for humanitarian action.

Rhiannan has over 15 years’ experience working at the intersection of technology and development, leveraging satellite imagery, AI, crowdsourcing, and other digital tools in support of the UN Sustainable Development Goals. She’s passionate about the potential for technology to break down our siloes and help us leapfrog to a more resilient, sustainable world.

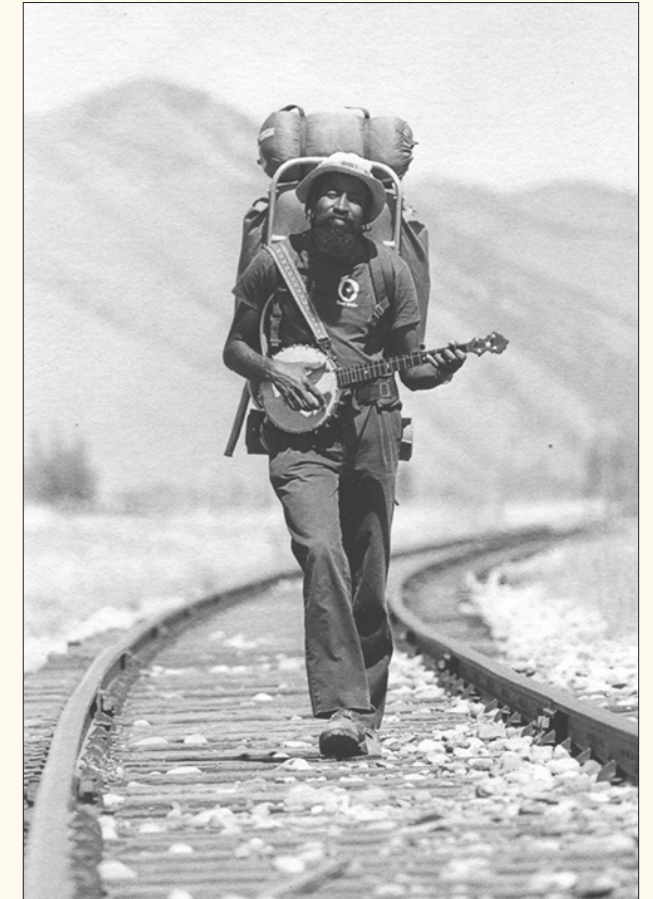
Prior to joining DevGlobal, Rhiannan led the Sustainable Development portfolio at Maxar Technologies where she founded their Open Data Program, among other initiatives.

Rhiannan has lived in Uganda, Tanzania, and Dominica and speaks four languages. A former Peace Corps Volunteer, Rhiannan has a master’s degree in International Human Rights from the Korbel School at University of Denver where she was a Boren Fellow.



**Katie Spellman with Elena Sparrow, Christine Villano, and daughters Izzy and Simone Spellman**

Katie Spellman is a professor, ecologist and educator at the University of Alaska Fairbanks International Arctic Research Center. Her research focuses on how climate change influences boreal and Arctic plant communities and education strategies to prepare people for navigating a rapidly changing climate. Katie has dedicated her career to making sure that youth, adults, and elders from diverse communities have a voice and active role in climate change research and action. She is an active leader in the GLOBE Alaska Partnership, is a founding faculty fellow of the UAF Climate Scholars Program and has designed and operated 7 major community and participatory science projects across Alaska and beyond. She will be joined in this intergenerational keynote by her mentor Elena Sparrow, her mother Christine Villano, and her daughters Izzy and Simone Spellman.



**John Francis**

*The Planetwalker*

John Francis, known globally as the Planetwalker, is an environmental activist who began his journey in 1971 after witnessing an oil spill in San Francisco Bay. Renouncing motorized vehicles and taking a vow of silence for 17 years, he founded Planetwalk, a nonprofit focused on environmental awareness.

He holds a B.S., a Master’s in Environmental Studies, and a Ph.D. in Land Resources. Appointed as the UN Environment Program’s Goodwill Ambassador in 1991, he has walked across the Americas and Caribbean, developed environmental curricula, and published books with the National Geographic Society. As a visiting professor, he taught at the University of Wisconsin-Madison and is currently walking from Cape Town to Cairo to promote science and kindness.

**MAPS • ADD NOTES OR SKETCHES ABOUT YOUR EXPLORATIONS**

**Regional Snapshot**



**SUNY Fredonia**



## DETAILED AGENDA

MONDAY • 15 JULY		
8:00 am-5:00 pm	Registration Desk   Helpdesk Open	Williams Center (WC)
8:00 am-9:00 am	Networking Breakfast   Breakfast Provided	Willy C Cafeteria
9:00 am-10:00 am	<p><b>OPENING SESSION</b></p> <p><b>WELCOME REMARKS</b></p> <ul style="list-style-type: none"> <li>Host: SUNY Fredonia: Stephen H. Kolison, Jr. and Mike Jabot</li> <li>Meeting Sponsor: National Science Foundation: Brandon Jones</li> <li>Federal Sponsors: NASA Earth Science Division: Jack Kaye; Department of State, Irina Karmanova; NOAA: John McLaughlin</li> <li>UCAR: John Ristvey</li> </ul> <p><b>KEY LOGISTICS AND SAFETY BRIEF</b></p> <ul style="list-style-type: none"> <li>UCAR: Simon Castro-Wooldridge</li> <li>Logistics and identification of on-duty UCAR and SUNY Fredonia staff</li> <li>Student Experience</li> </ul> <p><b>MEDIA AND OUTREACH</b></p> <ul style="list-style-type: none"> <li>A brief about social media, filming and photos during the meeting: Leana Nordstrom</li> <li>GLOBE Observer: how to join GO activities this week: Holli Kohl and Kristen Weaver</li> </ul>	Williams Center MPR
10:00 am-10:30 am	Networking Break   Tea and Coffee Provided	Rear of MPR
10:30 am-11:30 pm	<p><b>Program Session No. 1: Climate and Resilience Introduction</b></p> <ul style="list-style-type: none"> <li>GLOBE Year of Carbon and Climate (YCC) Campaign: Grace Crain-Wright</li> <li>Introduction to meeting theme and strands: Mike Jabot and Julie Malmberg</li> </ul>	MPR
11:30 am-12:15 pm	<p><b>Keynote No. 1</b></p> <p>Speaker: John Francis, Planetwalk Title: <i>Planetwalk/GLOBE, Kindness in XR</i></p>	MPR
12:30 pm-1:30 pm	Responses to the Keynote   Working Lunch Provided	Willy C Cafeteria
1:45 pm-2:30 pm	<p><b>The 2024 Eclipse</b>   See page 14 for detailed agenda</p> <ul style="list-style-type: none"> <li>Lightning talks</li> </ul>	MPR
2:30 pm-3:15 pm	<p><b>Community Presentations Session No. 1</b>   See page 14 for detailed agenda</p> <ul style="list-style-type: none"> <li>Featured Strand: Exploring Climate through GLOBE Science and Data</li> <li>Lightning talks</li> </ul>	MPR
3:15 pm-4:00 pm	Community Shareathon No. 1   Tea and Coffee Provided	Blue Lounge 1st floor, WC
4:00 pm-6:00 pm	<p><b>Program Session No. 2</b></p> <ul style="list-style-type: none"> <li>Introduction: Amy P. Chen, GLOBE Program Manager, NASA</li> <li>Jack Kaye, NASA Earth Science Division Associate Director for Research: NASA ESD Update</li> <li>GIO Introductions: John Ristvey, Rebecca Lewis and Becky Boger</li> <li>GLOBE Federal Sponsors and GIO: Fireside Chat and Q&amp;A</li> <li>David Hassler, Executive Director of Wick Poetry Center, and GLOBE Students: Community Poem</li> </ul>	MPR
6:15 pm-8:00 pm	Opening Reception and Poster Presentation   Buffet Provided	WC 2nd Floor

TUESDAY • 16 JULY		
8:00 am-5:00 pm	Registration Desk   Helpdesk Open	WC
8:00 am-8:45 am	Networking Breakfast   Breakfast Provided	Willy C Cafeteria
8:45 am-10:00 am	Joint US Partner and Country Coordinator Meeting	MPR
9:00 am-10:00 am	<p><b>DIS Clinic</b></p> <ul style="list-style-type: none"> <li>GLOBE Data Visualization System, Troubleshooting</li> </ul>	Room 103B WC
10:00 am-10:30 am	Networking Break   Tea and Coffee Provided	Rear of MPR
10:30 am-11:30 am	<p><b>Learning about Protocols Session</b></p> <ul style="list-style-type: none"> <li>Outdoors, six stations, participants carousel around three of their choice, 20-minute activities</li> <li>Jessica Taylor: <i>A Hands-on protocol session that will train participants in the key elements of the Clouds protocol, engage them in a modified Cloudscape learning activity, and showcase how to use corresponding satellite data.</i></li> <li>Andrea Ventoso: <i>Learning activities in this session will be related to the Atmosphere and Biosphere spheres, including: air temperature, clouds, aerosols, precipitation, wind, land cover classification, MUC, etc.</i></li> <li>Lynne Hehr: <i>Temperature and precipitation/Weather and Climate using the 'What in the World is Happening to Our Climate' storybook.</i></li> <li>Cassie Soeffing: <i>Mosquito identification and GLOBE Observer Mosquito Habitat Mapper.</i></li> <li>Christi Buffington: <i>Frost Tube (soil freezing, air temperature, surface temperature), Land Cover Observations focused on freshwater ice.</i></li> <li>Todd Toth: <i>New, unexpected developments with CO2 sensor development and weather suite.</i></li> </ul>	Patio outside MPR
11:30 am-12:15 pm	<p><b>Keynote Speaker No. 2</b></p> <p>Speaker: Rhiannan Price, NASA Lifelines Title: <i>A Community of the Future for Humanitarian Action</i></p>	MPR
12:30pm-1:30 pm	NASA Lifelines 'Lunch Club' Activity   Working Lunch Provided	Willy C Cafeteria
1:45 pm-3:15 pm	<p><b>Community Presentations Session No. 2</b>   See page 15 for detailed Agenda</p> <ul style="list-style-type: none"> <li>Featured Strand: <i>Amplifying GLOBE's Contribution to Improving Life on Our Planet</i></li> <li>Lightning talks</li> </ul>	MPR
3:15 pm-4:00 pm	Community Shareathon No. 2   Tea and Coffee Provided	Blue Lounge 1st floor, WC
4:00 pm-5:00 pm	<p><b>Working Group Updates</b></p> <ul style="list-style-type: none"> <li>Member Introduction</li> <li>WG Report Outs: Shareathon</li> <li>Cross-WG Project Updates: Instrumentation</li> </ul>	MPR
5:15 pm-6:30 pm	Vendor Exhibition	Rear of MPR
6:30 pm-7:30 pm	<p><b>Dinner   Provided</b></p> <ul style="list-style-type: none"> <li>Cookout on the patio, weather permitting</li> </ul>	MPR Patio or Willy C Cafeteria

## DETAILED AGENDA

WEDNESDAY • 17 JULY		
8:00 am-5:00 pm	Registration Desk   Helpdesk Open	WC
7:30 am-8:15 am	Networking Breakfast   Breakfast Provided	Willy C Cafeteria
8:15 am-8:30 am	Boarding Field Trip Transport <ul style="list-style-type: none"> <li>Location: Meet outside Williams Center</li> </ul>	Williams Center
8:30 am-10:00 am	Transport to Niagara Falls	Shuttles
10:00 am-2:30 pm	Niagara Falls State Park and Niagara Power Vista Field Trip <ul style="list-style-type: none"> <li>Bag lunch provided</li> <li>Cave of the Winds visit</li> <li>Niagara Power Vista Visitors Center</li> </ul>	Offsite field trip
2:30pm-4:00 pm	Transport to SUNY Fredonia <ul style="list-style-type: none"> <li>Will drop outside Williams Center</li> </ul>	Shuttles
4:15 pm-5:00 pm	Program Session No. 3 <ul style="list-style-type: none"> <li>DIS Update</li> <li>GLOBE Observer Update</li> <li>Classroom Twinning Pilot Project Update</li> </ul>	MPR
5:15 pm-6:30 pm	GLOBE Gives Back Panel Discussion: <i>The Future of Climate Education (consistent)</i> <ul style="list-style-type: none"> <li>Moderator: Mike Jabot</li> <li>Panelists: Don Haas, Kelli Grabowski, Rebecca Lewis</li> <li>Welcoming members of the Fredonia and Western New York State Earth System Science community</li> </ul>	MPR
6:30 pm-7:30 pm	Dinner   Provided	Willy C Cafeteria

THURSDAY • 18 JULY		
8:00 am-5:00 pm	Registration Desk   Helpdesk Open	WC
8:00 am-8:45 am	Networking Breakfast   Breakfast Provided	Willy C Cafeteria
8:45 am-9:00 am	Announcements   Reminders	MPR
9:00 am-10:00 am	Program Session No. 4 <ul style="list-style-type: none"> <li>GPO Update</li> <li>New GIO Work Plan for Community Input</li> </ul>	MPR
10:00 am-11:00 am	Community Presentation Session No. 3   See page 14 for detailed agenda <ul style="list-style-type: none"> <li>Featured Strands: <i>Responding to a Changing Climate; Using GLOBE to Increase Resilience</i></li> <li>Lightning Talks</li> </ul>	MPR
11:00 am-11:30 am	Community Shareathon No. 3   Tea and Coffee Provided	Blue Lounge 1st floor, WC
11:30 am-12:15 pm	Keynote Speaker No. 3 <ul style="list-style-type: none"> <li>Speakers: Katie Spellman: University of Alaska, Fairbanks, joined by Elena Sparrow, Chris Villano, and daughters Izzy Spellman and Simone Spellman</li> <li>Title: <i>GLOBE Year of Climate and Carbon - Past, Present and Future of GLOBE Climate Change Research and Action</i></li> </ul>	MPR
12:30 pm-1:30 pm	Responses to the Keynote   Working Lunch Provided	Willy C Cafeteria
1:30 pm-2:15 pm	Student Experience Report Out <ul style="list-style-type: none"> <li>Students Sharing What They have learned during the Student Experience</li> </ul>	MPR
2:15 pm-2:45 pm	Networking Break   Tea and Coffee Provided	Rear of MPR
2:45 pm-4:00 pm	Closing Session <ul style="list-style-type: none"> <li>Next Steps</li> <li>GLOBE Observer Highlights of the Week</li> <li>Social Media and Communications Highlights of the Week</li> <li><i>Week in Review</i> Film</li> <li>Evaluation Survey</li> <li>Acknowledgements</li> </ul>	MPR
6:00 pm-9:00 pm	Meeting Banquet and Official Closing   Dinner Provided	MPR

# AGENDA SNAPSHOT

Networking, dining, snacks
  Keynote Speaker
  Programs Sessions
  Banquets and Events
  Field Trips and Off-Site Activities

TIME	MONDAY • 15 JULY	TUESDAY • 16 JULY
	Registration / Helpdesk open • 7:00 am-5:00 pm	Registration / Helpdesk open • 7:00 am-5:00 pm
EARLY MORNING	Networking Breakfast	Networking Breakfast Joint US Partner and Country Coordinator Meeting DIS Clinic
	Opening Session	
MORNING	Networking Break	Networking Break
	Program Session No. 1	Learning About Protocols Session
LUNCH	<b>KEYNOTE SPEAKER NO. 1</b> John Francis Planetwalk  Responses to the Keynote Working Lunch Provided	<b>KEYNOTE SPEAKER NO. 2</b> Rhiannan Price NASA Lifelines  NASA Lifelines 'Lunch Club' Working Lunch Provided
AFTERNOON	The 2024 Eclipse Community Presentations Session No. 1 Exploring Climate Through GLOBE Science and Data Community Shareathon No. 1 Program Session No. 2	Community Presentations No. 2 Amplifying GLOBE's Contribution to Improving Life on Our Planet Community Shareathon No. 2 Working Group Updates
EVENING	Opening Reception Poster Presentation	Vendor Exhibition Dinner

Networking, dining, snacks
  Keynote Speaker
  Programs Sessions
  Banquets and Events
  Field Trips and Off-Site Activities

TIME	WEDNESDAY • 17 JULY	THURSDAY • 18 JULY
	Registration / Helpdesk open • 7:00 am-5:00 pm	Registration / Helpdesk open • 7:00 am-5:00 pm
EARLY MORNING	Networking Breakfast Transport to Niagara Falls	Networking Breakfast Announcements   Reminders
MORNING	Visit to Niagara Falls State Park	Program Session No. 4 Community Presentations Sessions No. 3 Community Shareathon No. 3
LUNCH	Bag lunch at Niagara Falls	<b>KEYNOTE SPEAKER NO. 3</b> Katie Spellman University of Alaska with Elena Sparrow, Christine Villano, and daughters Izzy Spellman and Simone Spellman  Responses to the Keynote Working Lunch Provided
AFTERNOON	Visit to Niagara Power Vista Visitor Center Transport Back to SUNY Fredonia Program Session No. 3	Student Session Networking Break  Closing Session
EVENING	GLOBE Gives Back Dinner	Meeting Banquet

## COMMUNITY PRESENTATION SESSIONS



MONDAY • 15 JULY		
THE 2024 ECLIPSE	LIGHTNING TALKS EXPLORING CLIMATE THROUGH GLOBE SCIENCE AND DATA	SHAREATHON NO. 1
<p><b>1:45 pm-2:30 pm</b></p> <p><b>Kristen Weaver:</b> <i>Engaging Audiences with Eclipses</i></p> <p><b>Marile Colon Robies:</b> <i>GLOBE Eclipse: First Look at Results During the 2024 Total Solar Eclipse</i></p> <p><b>Femi Oluwafemi:</b> <i>Engaging Directly with Students, Teachers, and Citizen Scientists: Before, During and After the 2024 Solar Eclipse Event</i></p> <p><b>John Olgin:</b> <i>Understanding Desert Climate From Solar Eclipses and Varying Seasonal Effects Using GLOBE Observer Protocols and Professional Collaborators</i></p> <p><b>Dorian Janney:</b> <i>Training Lifelong Learners to Share the Excitement of the Eclipses</i></p> <p><b>Theresa Schwerin:</b> <i>GLOBE Eclipse Libraries: Fostering a Community of Practice</i></p>	<p><b>2:30 pm-3:15 pm</b></p> <p><b>Todd Toth:</b> <i>Student Data Collection and Climate Change</i></p> <p><b>Cassie Soeffing:</b> <i>STEM Enhancement in Earth Science: Engaging GLOBE Students in Research Across the Data Life Cycle</i></p> <p><b>Dana Votapkova:</b> <i>Exploring Climate: A Journey Through Tree Observations</i></p> <p><b>Maria Royle:</b> <i>Analyzing Global Patterns With the Earth System Satellite Images</i></p> <p><b>Rusty Low:</b> <i>Climate Chronicles: A Research Framework to Explore Local Environmental Change Using GLOBE Observer and Remote Sensing Data</i></p> <p><b>Joe Carstensen:</b> <i>Utilizing GLOBE to Engage Students</i></p> <p><b>John Moore:</b> <i>Satellites and Remote Sensing: Observing Earth and Visualizing the Future</i></p>	<p><b>3:15 pm-4:00 pm</b></p> <p>Rosalba Giarratano</p> <p>Haley Wicklein / US Country Coordination Office</p> <p>Connie Atkinson</p> <p>Heather Mortimer</p> <p>Dana Votapkova</p> <p>John Moore</p> <p>Todd Toth</p> <p>Rusty Low</p> <p>Joe Carstensen</p> <p>Sheila Yule and alumni</p>

TUESDAY • 16 JULY	
LIGHTNING TALKS AMPLIFYING GLOBE'S CONTRIBUTION TO IMPROVING LIFE ON OUR PLANET	SHAREATHON NO. 2
<p><b>1:45 pm-3:15 pm</b></p> <p><b>Claudia Maria Romagnoli:</b> <i>The Study of Trees at School 1345 in Pujato, Argentina, as a Benefit to the Environment</i></p> <p><b>Larisa Schelkin:</b> <i>Amplifying GLOBE's Global Impact Through UNESCO Story Circle Methodology</i></p> <p><b>Julie Houck:</b> <i>Making History and Connections in the GLOBE Community!</i></p> <p><b>Dana Votapkova:</b> <i>Amplifying GLOBE's Contribution: The Story of GLOBE Students</i></p> <p><b>Svetlana Darche, Kevin Czajkowski:</b> <i>Scaling GLOBE Through an Online Course: Demo and Input Opportunity</i></p> <p><b>Christi Buffington, Ashlee Wells:</b> <i>Sailing to the Future with GLOBE on the Tall Ship MIRAIE</i></p> <p><b>Yitong Jiang, Kevin Czajkowski, Margaret Pippin, Juthi Mitra:</b> <i>Fostering Participation in Air Quality Studies using Small Sensors</i></p> <p><b>Dixon Butler:</b> <i>Growing GLOBE Internationally with YLACES</i></p> <p><b>Pamela Zuniga:</b> <i>Bridging Science Diplomacy and STEAM Education in Public Schools in Central America and the Caribbean: Supporting GLOBE Program Implementation Through the GLOBE Plus Post Initiative</i></p> <p><b>Beatrice Oyange:</b> <i>Enhancing Science Education through the Integration of GLOBE Program Protocols</i></p> <p><b>Josephine Joy Tolentino-Antalan:</b> <i>Unlocking Curious Minds: Transformative Learning of PSHS-CLC Students with the GLOBE Program Protocols</i></p>	<p><b>3:15 pm-4:00 pm</b></p> <p>Kevin Czajkowski</p> <p>Christi Buffington / Ashlee Wells</p> <p>GLOBE Accessibility Subcommittee</p> <p>Ana Prieto</p> <p>Katie Spellman</p> <p>Sheila Yule and alumni</p> <p>Julie Houck</p> <p>Dana Votapkova</p> <p>Dixon Butler</p>
THURSDAY • 18 JULY	
LIGHTNING TALKS RESPONDING TO A CHANGING CLIMATE USING GLOBE TO INCREASE RESILIENCE	SHAREATHON NO. 3
<p><b>10:00 am-11:00 am</b></p> <p><b>Holli Kohl:</b> <i>GLOBE Tool for Community Science and Resilience</i></p> <p><b>Eleanor Jaffee:</b> <i>Evaluation Evolution: Adapting Evaluation of the GLOBE US Student Research Symposia 2016-2024</i></p> <p><b>Ngosse Fall:</b> <i>Resilience to Low Rainfall in Ferlo: The Contribution of the GLOBE Senegal Program</i></p> <p><b>Aileen Bright:</b> <i>GLOBE Ireland: Exploring Local Climate Risks and Resilience Opportunities Through GLOBE</i></p> <p><b>Cynthyny (Bo) Lebo:</b> <i>Finding Connection to GLOBE Through Nature and Nurture, Rigor and Relevancy</i></p> <p><b>Nico Janik:</b> <i>Urban Heat Island Design Challenge</i></p>	<p><b>3:15 pm-4:00 pm</b></p> <p>Holli Kohl</p> <p>Eleanor Jaffee</p> <p>Bo Lebo</p> <p>Sheila Yule and alumni</p>



## GLOBE ANNUAL MEETING STUDENT EXPERIENCE OVERVIEW

GLOBE students representing all six GLOBE regions will participate in a learning experience to discover the local environment and collect data in the Fredonia, New York area with distinguished GLOBE scientists and peers during the 2024 GLOBE Annual Meeting Student Experience. Students will explore the Annual Meeting theme of “Climate and Resilience” as they uncover how an understanding of Earth systems and processes can inform climate solutions in their local communities. Students will also explore one of the natural wonders of North America on a field trip to Niagara Falls State Park and the Niagara Power Vista. Student Experience projects will connect to the theme of the 2024 GLOBE Annual Meeting as students investigate the local environment using GLOBE Protocols and evaluate solutions to promote climate resiliency in their local communities.

Students will engage with meeting participants as they present their International Virtual Science Symposium (IVSS) and Student Research Symposia (SRS) research projects during the opening reception poster session. On the final day of the meeting, students will present their learning from the week to showcase their Student Experience projects. Students have also collaborated with David Hassler, Executive Director of the Wick Poetry Center at Kent State University, to co-create a community poem that will be read on the first day of the meeting.

### Student Experience Facilitators



**Alison Mote**, Student Experience Lead, The GLOBE Program



**Gregory Holmberg**, Student Experience Facilitator, SUNY Fredonia.



**Alyssa Wright**, Student Experience Facilitator, SUNY Fredonia.



**Peter Falcon**, Student Experience Facilitator, NASA Jet Propulsion Laboratory



**Elizabeth Mays**, Student Experience Facilitator, UCAR Center for Science Education

In GLOBE, we find our passions light, exploring Earth, both day and night.

**Mahrah Salim  
Mohammed Mahfoodh  
Al-Mazruui**

Student from Oman

## 2024 IVSS STIPEND RECIPIENTS

### ASIA AND PACIFIC

**Title:** *A Comprehensive Investigation on Carbon Storage in the Vegetation of Our Schoolyard and Determining the Carbon Footprint of the School Through the Measurement of Carbon using GLOBE's Carbon Cycle Protocols*

**Educator:** Arun Kumar Chhetri

**Students:** Sangay Choden, Yeshey Wangchuk, Kalpana Mongar, Usha Pyakurel, Shankar Ghimrey

**Additional Contributors:** Sahapati Gurung

**School:** Pelrithang Higher Secondary School, Gelephu, Bhutan

### EUROPE | EURASIA

**Title:** *Monitoring and Protection of Marmont Alley*

**Educator:** Snježana Marković-Zoraja

**Students:** Josip Ferenčina, Marta Kupres

**Additional Contributors:** Domagoj Zoraja

**School:** OS Dubovac, Karlovac, Croatia

### LATIN AMERICA AND CARIBBEAN

**Title:** *Reducing Our Carbon Footprint: Rochester School's Strategies to Reduce Emissions*

**Educators:** Maria Del Pilar Tunarroza, Juan Pablo Aljure Leon

**Students:** Angelina Chiodo, Isabella Diaz, Maria Paula Garcia, Natalia Lopez, Luciana Lozano, Laura Pardo, Mariana Roa, Paula Romero, Diego Sierra

**Additional Contributors:** Juan Felipe Restrepo, Liliana Medina, Jorge Quintero, Emilia Rodriguez, Laura Valentina Perilla, Bautista Saavedra

**School:** Rochester School, Chia, Colombia

## SRS TEAMS ATTENDING 2024 GLOBE ANNUAL MEETING

### NORTHEAST AND MIDATLANTIC

**Title:** *Onondaga County River Quality and Oswego County River Quality*

**Educator:** Jessica Halsey **Students:** William Francisco, Collin Hallock, Zym Goodberry, Nico Wejko, and Devin Eberly **School:** APW JR/SR High School, New York

### PACIFIC AND NORTHWEST

**Title:** *Dissolved Oxygen and Fish and Wildlife Habitat in Gravel Pit Ponds*

**Educator:** Queen Anne Paninsoro **Students:** Ralph Steeves, Gavin Smith

**School:** Aniak Junior Senior High School, Alaska

### NEAR EAST AND NORTH AFRICA

**Title:** *The Effect of Soil Type on the Growth of Rose Flowers*

**Educator:** Hifa Rashid Al kaabi

**Students:** Taima Abdllah Al Alnsari, Mahra Saliman Mohamed Al Mazroii

**School:** Alshaffa bint Abdullah, Suhar, Oman

### NORTH AMERICA

**Title:** *A Random Forest Analysis of Remote Sensing Driven Mosquito Habitat Prediction in West Africa*

**Educator:** Cassie Soeffing

**Students:** Ruchi Bondre, Ryan Chan, Andrew Liu

**Additional Contributors:** Dr. Russanne Low, IGES; Peder Nelson, OSU, Andrew Clark, IGES; Dr. Erika Podest, NASA JPL

**School/Organization:** Institute for Global Environmental Strategies (IGES) GLOBE v-School, NASA SEES Summer Program, USA

**Title:** *Water Temperature and pH Measurements on Gulkana Glacier and Phelan Creek, Alaska*

**Teacher:** Christina Buffington

**Students:** Yi Luo, Lydia Patterson, Tori L. Brannan

**School/Organization:** Department of Natural Resources and Environment, Fairbanks, Alaska, USA

### AFRICA

**Title:** *Impact of Industrial Emissions on Climate*

**Educators:** Maureen Achieng Okayo, Richard Muema, Beatrice Shiro Oyange

**Students:** Nishil Mahesh Patel, Hafsa Yasir Jamal, Agatha Rague Mambori

**School:** Shree Swaminarayan Academy, Mombasa, Kenya

### SOUTHEAST

**Title:** *Pearl River Pollution*

**Educator:** Angela Lee **Students:** Kyle Triplett, Lauren Hanshaw, Jaden Sanford **School:** Bayou View Middle School, Mississippi

### SOUTHWEST

**Title:** *Outdoors Air Quality on the Reservation*

**Educator:** Nate Raynor **Students:** Haleigh Shendo, Caydence Palmer, Miley Cojo

**School:** Mescalero Apache School, New Mexico

# STUDENT EXPERIENCE AGENDA

FREDONIA, NEW YORK, USA | 15-18 July 2024

PLACE	TIME	ACTIVITY
<b>SUNDAY 14 JULY</b>		
SUNY FREDONIA AND COLLEGE LODGE	2:20 pm-6:00 pm	Participants arrive, shuttle transport from BUF Airport to SUNY Fredonia <i>Williams Center</i> Free time in <i>Williams Center Game Room</i>
	6:00 pm-6:20 pm	Transport to <i>College Lodge</i>
	7:00 pm-8:00pm	Dinner at <i>College Lodge</i>
	8:00 pm-8:30 pm	Welcome and Ice Breaker
<b>MONDAY 15 JULY</b>		
COLLEGE LODGE, LAKE ERIE AND SUNY FREDONIA	8:00 am-9:00 am	Breakfast and Icebreaker Activity at <i>College Lodge</i>
	9:00 am-10:00 am	Student Experience Introduction and Geological History of the Great Lakes Region
	10: am-12:00 pm	Earth System Operations: Data Collection at <i>College Lodge</i>
	12:00 pm-1:00 pm	Lunch at <i>College Lodge</i>
POINT GRATIOT PARK	1:00 pm	Transport to <i>Point Gratiot Park</i>
	1:30 pm-2:45 pm	Data Collection at <i>Point Gratiot Park</i> on shores of Lake Erie
SUNY WILLIAMS CENTER	2:45 pm	Transport to <i>main meeting site at SUNY Fredonia Campus</i>
	3:00 pm-3:30 pm	Break
	3:30 pm-4:30pm	<b>Group 1:</b> Community Poetry Reading Practice with David Hassler, Kent State University in <i>Room G103A</i> <b>Group 2:</b> Activity with Reem Hasan, GLOBE Educator in <i>Room S222</i>
	4:30 pm-5:15 pm	Set up posters and practice presentations
	5:15 pm-6:00 pm	Attend Community Poetry Presentation
	6:00 pm-6:15 pm	Break
	6:15 pm-8:00 pm	Poster Session and Open Session; hors d'oeuvres provided
	8:00 pm	Transport to <i>College Lodge</i>
COLLEGE LODGE		
<b>TUESDAY 16 JULY</b>		
	8:00 am-9:00 am	Breakfast and Icebreaker Activity at <i>College Lodge</i>
	9:00 am-10:00 am	Guest Speaker: John Francis, Planetwalk at <i>College Lodge</i>
	10:00 am-12:00 pm	Data Collection and XR Activity with John Anderson, University of Idaho, and John Francis, Planetwalk at <i>College Lodge</i>
	12:00 pm-1:00 pm	Lunch at <i>College Lodge</i>
	1:00 pm-2:15 pm	ArcGIS StoryMaps Introduction and Exploration
	2:15 pm-2:30 pm	Break
	2:30 pm-4:00 pm	Carbon Dioxide Solutions Activity with Julie Malmberg, UCAR Center for Science Education, at <i>College Lodge</i>
	4:00 pm-5:30 pm	Choose Your Own Adventure!
	5:30 pm-6:30 pm	Dinner
	6:30 pm-8:30 pm	Game Night!

<b>STUDENT EXPERIENCE LOCATIONS AND ADDRESSES</b>		
<ul style="list-style-type: none"> <li>• <b>SUNY College Lodge</b>, 8067 Rte 380, Brocton, New York 14717</li> <li>• <b>SUNY Williams Center</b>, 280 Central Avenue, Fredonia, New York 14063</li> <li>• <b>Point Gratiot Park</b>, NY-5 and Point Drive West, Dunkirk, New York 14048</li> <li>• <b>Niagara Power Vista Visitors Center</b>, 5777 Lewiston Road, Lewiston, New York 14092</li> </ul>		
PLACE	TIME	ACTIVITY
<b>WEDNESDAY 17 JULY</b>		
COLLEGE LODGE	7:45 am-8:15 am	Breakfast at <i>College Lodge</i>
NIAGARA FALLS STATE PARK	8:15 am	Transport to <i>Niagara Falls State Park</i>
	10:00 am-11:00 am	Cave of the Winds Tour at <i>Niagara Falls</i>
	11:00 am-11:20 am	Walk Across Bridge to <i>Observation Tower</i>
	11:20 am-12:00 pm	Elevator to Base of <i>Niagara Gorge</i>
	12:00 pm-1:00 pm	Picnic Lunch at <i>Niagara Falls</i>
	1:00 pm-1:20 pm	Transport to <i>Niagara Power Vista</i>
	1:30 pm-3:30 pm	<i>Niagara Power Vista Exhibits</i> and Tour
COLLEGE LODGE	3:30 pm-4:00 pm	Niagara Power Vista Discussion / Reflection
	4:00 pm-5:30 pm	Transport to <i>College Lodge</i>
	6:00 pm-7:00 pm	Dinner
	7:00 pm-9:00 pm	Movie Night!
<b>THURSDAY 18 JULY</b>		
COLLEGE LODGE	8:00 am-9:00 am	Breakfast at <i>College Lodge</i>
	9:00 am-11:00 am	Finalize and Practice Presentations
SUNY FREDONIA	11:00 am	Transport to <i>SUNY Fredonia</i>
	11:30 am-12:30 pm	Keynote Speaker: Katie Spellman, University of Alaska at Fairbanks
	12:30 pm-1:30 pm	Lunch and Response to Keynote Speaker
	1:30 pm-2:15 pm	Student Experience Presentations at <i>SUNY Williams Center</i>
	2:15 pm-2:45 pm	Break
	2:45 pm-4:00 pm	Closing Session
	4:00 pm-6:00 pm	Free Time
	6:00 pm-9:00 pm	Closing Celebration and Banquet
COLLEGE LODGE	9:00 pm	Transport to <i>College Lodge</i>
<b>FRIDAY 19 JULY</b>		
SUNY FREDONIA	5:30 am	Transport to SUNY Fredonia on <i>Early Bus</i>
COLLEGE LODGE	8:00 am	Breakfast at <i>College Lodge</i>
SUNY FREDONIA	9:00 am	Transport to SUNY Fredonia - <i>Remaining Participants</i>

## ACKNOWLEDGEMENTS

### SPONSORS

#### NASA

Amy P. Chen

#### National Science Foundation

M. Brandon Jones

#### NOAA

John McLaughlin

#### United States Department of State

Irina Karmanova

### REGIONAL COORDINATION OFFICES

#### Africa

Mark Brettenny  
GLOBE in Africa

#### Asia and Pacific

Desh Bandhu  
Indian Environmental Society

#### Europe and Eurasia

Dana Votápková  
TEREZA

#### Latin America and Caribbean

Mariano Savino  
ACES/Universidad Austral

#### Near East and North Africa

Salma Al Zubi  
Al Tarfiaa

### US COUNTRY COORDINATION OFFICE

Jen Bourgeault  
Haley Wicklein  
Alicia Carlson  
Jodi Haney

### WORKING GROUPS

#### Diversity, Equity and Inclusion

Nikitah Imani, USA (Chair)  
Beatrice Oyange, Ghana  
Francis Murillo Emralino, Philippines  
Juan Felipe Restrepo Mesa, Colombia  
Rafat Jambi, Saudi Arabia  
Rosalba Giarratano, USA  
Ylliass Destin Lawani, Benin

#### Education

Rod Allan De Lara, Philippines (Chair)  
Ngosse Fall, Senegal  
Ulle Kikas, Estonia  
Darío Greni Olivieri, Uruguay  
Nahid Nail Jamil Ajluni, Jordan  
Dorian Janney, USA,  
Yupaporn Laplai, Thailand  
Yogendra Chitraka, Nepal

#### Science

Rebecca Boger, USA (Chair)  
Peter Rugano, Kenya  
Josephine Joy Tolentino-Antalan,  
Philippines  
Rafael Babish, Israel  
Paula Carolina Paez, Argentina  
Badar Salim Al Maamari, Oman  
Marile Colon Robles, USA  
Marta Kingsland, Argentina

#### Technology

Laura Altin, Estonia (Chair)  
Babu Tamba, Gambia  
Joan Callope, Philippines  
Ana Beatriz Prieto, Argentina  
Sara Mierzwiak, USA  
Kristen Weaver, USA  
Shahina Masood, Pakistan

### 2024 GLOBE ANNUAL MEETING

#### International Organizing Committee (IOC)

Lyn Wigbels, USA (Co-Chair)  
Mike Jabot, USA (Co-Chair)  
Jen Bourgeault, USA  
Reem Hasan, Jordan  
Carmen Aparicio Guzman, Panama  
Desh Bandhu, India  
Dana Votapkova, Czech Republic  
Chungdu Tshering, Bhutan  
Siham Sami Salman, Jordan  
Todd Toth, USA  
Mariana Savino, Argentina  
Ramona Mercieca, Malta  
Mark Brettenny, South Africa  
Simon Castro-Wooldridge, USA

### UCAR BUSINESS SHARED SERVICES (BSS) STAFF

Tara Torres  
Lorrie Alberta  
Eryn Maccabee  
Inken Purvis

### SUNY FREDONIA STAFF AND STUDENTS

Jeff Walter  
Kathy Forster  
Katie Thies  
Rachel Martin  
Ronald Nissen  
Mark Delcamp  
Williams Prevet  
Alyssa Wright  
Gregory Holmberg  
Emily Neiswonger  
Densil J. Wilson  
Mark Suida

### COMMUNICATIONS

Copy Boy Instant Printing, Dunkirk,  
New York, USA  
Lorikeet Creative  
Scribe Arts

## NOTES

# THANKS TO OUR GLOBE COMMUNITY AROUND THE WORLD

