

## AGENDA FOR 23RD GLOBE ANNUAL MEETING 14 JULY–19 JULY 2019

Community Schedule and Registration Desk Hours

THEME: Intersections of Diverse Environments

Session/Day	Sunday, 14 July	Monday, 15 July	Tuesday, 16 July
7:00 am–8:15 am	Breakfast (Not provided)	Breakfast (Provided)	Breakfast (Provided)
<b>Daily Check-In</b> 8:15 am–8:30 am			<b>Day's Schedule Announcements</b>
<b>Morning 1</b> 8:30 am–10:15 am	<b>Working Group Meetings</b>	<b>Welcome to Annual Meeting Plenary Sessions</b>	8:30 am: <b>Students Depart for Howell Nature Center</b> <b>NASA SciAct Training Sessions</b> (Hotel or Belle Isle—buses depart at 8:45 am)
10:15 am–10:30 am	Break	Break	Break (hotel only)
<b>Morning 2</b> 10:30 am–12:00 pm	<b>Working Group Meetings</b>	<b>Reports from Region Offices, Working Groups</b>	<b>NASA SciAct Training Sessions</b> (Hotel or Belle Isle)
<b>Lunch</b> 12:30 pm–1:30 pm	Lunch (Provided for WG members)	Lunch (provided) <b>Keynote speaker</b>	12:00 pm–1:15 pm Lunch (provided) <b>Guided Networking</b>
<b>Afternoon 1</b> 1:45 pm–3:15 pm	<b>Working Group Meetings</b>	<b>Community Presentations</b> <b>Country Coordinator &amp; US Partner Meetings</b>	1:30 pm–3:15 pm <b>Community Presentations</b>
3:15 pm–3:30 pm	Break	Break	Break
<b>Afternoon 2</b> 3:30 pm–5:30 pm	<b>Working Group Meetings</b>	<b>Country Coordinator &amp; US Partner Meetings</b> (ends at 5:00 pm) <b>Teacher/Community Session</b> (ends at 4:30) <b>Volunteer Check In</b> (5:00 pm–5:30 pm) <b>Poster Set Up</b>	<b>Community Presentations</b>
5:30 pm–6:30 pm		Dinner (not provided)	Dinner (not provided)
<b>Evening</b> 6:30 pm–8:30 pm	<b>Opening Networking Session</b> (Dinner provided)	<b>6th Student Research Exhibition and Community Posters</b> (Remove posters at 8:30 pm)	Free Evening—Time to Network Explore Local Sites
<b>Registration Desk Hours</b>  (Note that staff can be contacted during off times by emailing <a href="mailto:meetings@globe.gov">meetings@globe.gov</a> or 720-828-9309)	8:00 am–9:00 am  12:00 pm–8:30 pm	7:30am–5:45 pm	8:00 am–9:00 am 10:00 am–10:30 am  12:00 pm–2:00 pm 3:00 pm–3:30 pm

Wednesday, 17 July	Thursday, 18 July	Friday, 19 July
Breakfast (Provided)	Breakfast (Provided)	Breakfast (Not provided)
<b>Day's Schedule Announcements</b>	<b>Day's Schedule Announcements</b>	
<b>NASA SciAct Training Sessions</b> (Hotel or Belle Isle—buses depart at 8:45 am)	<b>Community Presentations</b>	<b>Working Group Meetings</b>
Break (hotel only)	Break	Break
<b>NASA SciAct Training Sessions</b> (Hotel or Belle Isle)	<b>Community Presentations</b> <b>Chaperones pick up students</b> by 12:00 pm	<b>Working Group Meetings</b>
Free Afternoon (Lunch not provided)	Lunch (provided) <b>Q&amp;A with GIO and Sponsors</b>	Lunch (Provided for WG members)
<b>Optional: BE with GLOBE</b> (prior registration required) 1:30-4:00pm	<b>Unconferencing</b>	
	Break	
<b>Informal Networking Time</b>	<b>Student Presentations on Research Experience</b> (ends at 5:00 pm)	
Dinner (not provided)		
Free Time	6:00 pm: <b>Group picture</b> <b>Dinner</b> (provided) <b>Reception</b> <b>Meeting Adjourns</b> (ends at 10:00 pm)	
8:00 am–9:00 am 10:00 am–10:30 am  12:00 pm–2:00 pm	8:00 am–9:00 am 10:00 am–10:30 am  12:00 pm–2:00 pm 3:00 pm–3:30 pm	

## DETAILED AGENDA

### Sunday, 14 July 2019

Registration Desk Hours: 8:00 am–9:00 am; 12:00 pm–8:30 pm

8:30 am–10:15 am	<b>Working Group Meetings</b>	Grand BC
10:15 am–10:30 am	Break (RCOs and Working Group Members only)	Grand A
10:30 am–12:00 pm	<b>Working Group Meetings</b>	Grand BC
12:30 pm–1:30 pm	Lunch (RCOs and Working Group Members only)	Grand A
1:45 pm–3:15 pm	<b>Working Group Meetings</b>	Education–Plaza C Evaluation–Terrace B Science–Terrace C Technology–Plaza AB
3:15 pm–3:30 pm	Break (RCOs and Working Group Members only)	Grand A
3:30 pm–5:30 pm	<b>Working Group Meetings</b>	Education–Plaza C Evaluation–Terrace B Science–Terrace C Technology–Plaza AB
6:30 pm–8:30 pm	<b>Opening Networking Session</b> (Dinner Provided)	Grand A and Balcony

### Monday, 15 July 2019

Registration Desk Hours: 7:30 am–5:45 pm

7:00 am–8:30 am	Breakfast	Grand A
8:30 am–10:15 am	<b>Opening of the 23rd GLOBE Annual Meeting</b>	Grand BC
8:30 am–8:35 am	<b>GIO Welcome: Tony Murphy and Julie Malmberg</b>	
8:35 am–8:40 am	<b>Host Welcome: David Bydlowski and Kevin Czajkowski</b>	
8:40 am–9:00 am	<b>Sponsor Welcome: Chaired by Tony Murphy</b>	
	<b>Brandon Jones, NSF</b>	
	<b>Allison Leidner, NASA</b>	
	<b>John McLaughlin, NOAA</b>	
	<b>Daniel Tripp, DoS</b>	
9:00 am–9:05 am	<b>Naming of the Countries: David Bydlowski and Kevin Czajkowski</b>	
9:05 am–9:15 am	<b>Annual Meeting General Information: Julie Malmberg</b>	
9:15 am–9:40 am	<b>GIO Report Out: Tony Murphy</b>	
9:40 am–10:15 am	<b>SSAI Report Out + Social Media: David Overoye and Autumn Burdick</b>	
10:15 am–10:30 am	Break	Grand A
10:30 am–12:00 pm	<b>Opening of the 23rd GLOBE Annual Meeting (continued)</b>	Grand BC

10:30 am–11:30 am	<b>Working Group Report Out</b> (1 hour) <b>Convened by Tony Murphy</b>	Grand BC
	<b>Technology Working Group</b> (Elzbieta Woloszyńska-Wiśniewska, Chair)	
	<b>Science Working Group</b> (Mullica Jaroensutasinee, Chair)	
	<b>Evaluation Working Group</b> (Nektaria Adaktilou, Chair)	
	<b>Education Working Group</b> (Jessica Taylor, Chair)	
11:30 am–12:00 pm	<b>NASA Science Activation (SciAct) Projects</b> (30 minutes) <b>Convened by Lin Chambers</b>	Grand BC
	<b>Arctic and Earth SIGNs, PI: Elena Sparrow</b>	
	<b>AREN Project, PI: David Bydlowski</b>	
	<b>GLOBE Mission EARTH, PI: Kevin Czajkowski</b>	
	<b>NASA Earth Science Education Collaborative, PI: Theresa Schwerin</b>	
12:30 pm–1:30 pm	<b>Lunch and Keynote Speaker: Brian Peterson-Roest</b>	Pick up lunch in Grand A, Seating in Grand BC
1:45 pm–3:15 pm	<b>Teacher and Community Session</b>	Grand BC
	<b>Country Coordinator Meeting</b>	Plaza AB
	<b>US Partner Meeting</b>	Terrace C
	<b>Student Introduction to the Week</b>	Grand A
3:15 pm–3:30 pm	Break	Grand A
3:30 pm–4:30 pm	<b>Teacher and Community Session (continued)</b>	Grand BC
3:30 pm–5:00 pm	<b>Country Coordinator Meeting (continued)</b>	Plaza AB
	<b>US Partner Meeting (continued)</b>	Terrace C
4:00 pm–4:30 pm	<b>Student Poster Set Up</b>	Grand A
4:30 pm–6:00 pm	<b>Community Poster Set Up</b>	Grand A
5:00 pm–5:30 pm	<b>Volunteer Check In</b> This is for volunteers who are assisting with convening sessions, setting up posters, and other tasks—not for BE with GLOBE!	Terrace B
6:30 pm–8:30 pm	<b>6th Student Research Exhibition and Community Posters</b>	Grand A
8:30 pm	<b>Remove posters from Grand A</b>	

## Tuesday, 16 July 2019

Registration Desk Hours: 8:00 am–9:00 am, 10:00 am–10:30 am, 12:00 pm–2:00 pm, 3:00 pm–3:30 pm

7:00 am–8:15 am	Breakfast	Grand A
8:15 am–8:30 am	<b>Day's Schedule and Announcements</b>	Grand BC
8:30 am	<b>Student Experience—Buses leave for Howell</b>	Hotel Lobby (1st Floor)

## DETAILED AGENDA

8:30 am–10:15 am	<b>NASA SciAct Trainings</b> Buses leave for Belle Isle at 8:45 am	Hotel Lobby (1st Floor)
	<b>Arctic and Earth SIGNs</b>	Plaza AB
	<b>GLOBE Mission Earth</b>	Grand BC
	<b>NESEC (GLOBE Observer)</b>	Belle Isle
	<b>AREN Project</b>	Belle Isle
10:15 am–10:30 am	<b>Break (Hotel only)</b>	Grand A
10:30 am–12:00 pm	<b>NASA SciAct Trainings (cont'd)</b> Buses leave from Belle Isle at 11:30 am	Hotel Lobby (1st Floor)
	<b>Arctic and Earth SIGNs</b>	Plaza AB
	<b>GLOBE Mission EARTH</b>	Grand BC
	<b>NESEC (GLOBE Observer)</b>	Belle Isle
	<b>AREN Project</b>	Belle Isle
12:00 pm–1:15 pm	Lunch and <b>Guided Networking</b>	Pick up lunch in Grand A, Seating in Grand BC
1:30 pm–3:15 pm	<b>Community Presentations</b> See page I9 for more information	Grand BC, Plaza AB, Terrace B, Terrace C, Plaza C
3:15 pm–3:30 pm	Break	Grand A
3:30 pm–5:30 pm	<b>Community Presentations</b> See page I9 for more information	Grand BC, Plaza AB, Terrace B, Terrace C, Plaza C

Free Evening: Time to Network, Explore Local Sites

### Wednesday, 17 July 2019

Registration Desk Hours: 8:00–9:00 am, 10:00–10:30 am, 12:00 pm–2:00 pm

7:00 am–8:15 am	Breakfast	Grand A
8:15 am–8:30 am	<b>Day's Schedule and Announcements</b>	Grand B
8:30 am–10:15 am	<b>NASA SciAct Trainings</b> Buses leave for Belle Isle at 8:45 am	Hotel Lobby (1st Floor)
	<b>Arctic and Earth SIGNs</b>	Plaza AB
	<b>GLOBE Mission EARTH</b>	Grand BC
	<b>NESEC (GLOBE Observer)</b>	Grand A
	<b>AREN Project</b>	Belle Isle
10:15 am–10:30 am	Break (Hotel only)	Prefunction Space
10:30 am–12:00 pm	<b>NASA SciAct Trainings (cont'd)</b> Buses leave from Belle Isle at 11:30 am	Hotel Lobby (1st Floor)
	<b>Arctic and Earth SIGNs</b>	Plaza AB
	<b>GLOBE Mission EARTH</b>	Grand BC
	<b>NESEC (GLOBE Observer)</b>	Grand A
	<b>AREN Project</b>	Belle Isle
Free Afternoon		
1:30–4:00pm	<b>BE with GLOBE</b>	Grand BC

## Thursday, 18 July 2019

Registration Desk Hours: 8:00- 9:00 am, 10:00- 10:30 am, 12:00 pm–2:00 pm, 3:00 pm–3:30 pm

7:00 am–8:15 am	Breakfast	Grand A
8:15 am–8:30 am	<b>Day's Schedule and Announcements</b>	Grand BC
8:30 am–10:15 am	<b>Community Presentations</b> See page 20 for more information	Grand BC, Plaza AB, Terrace B, Terrace C, Plaza C
10:15 am–10:30 am	Break	Grand A
10:30 am–12:00 pm	<b>Community Presentations</b> See page 20 for more information	Grand BC, Plaza AB, Terrace B, Terrace C, Plaza C
12:00 pm	Chaperones pick up students in Grand A	
12:30 pm–1:30 pm	Lunch and <b>Q&amp;A with GIO and the Sponsors</b>	Pick up lunch in Grand A, Seating in Grand BC
1:45 pm–3:15 pm	<b>Unconferencing</b>	Grand BC
	<b>Students Prep for Presentations</b>	Grand A and Plaza AB
3:15 pm–3:30 pm	Break	Grand A
3:30 pm–5:00 pm	<b>Student Presentations on Research Experience</b>	Grand BC
6:00 pm	<b>Group Photo</b>	To Be Announced
6:30 pm–10:00 pm	<b>Banquet Keynote Speaker: Alycia Meriweather</b>	Grand ABC
	<b>Meeting Adjourns</b>	

## Friday, 19 July 2019

8:30 am–10:15 am	<b>Working Group Meetings</b>	Education—Plaza C
		Evaluation—Terrace B
		Science—Terrace C
		Technology—Plaza AB
10:15 am–10:30 am	Break (Working Group Members Only)	Grand A
10:30 am–12:00 pm	<b>Working Group Meetings</b>	Grand BC
12:30 pm–1:30 pm	Lunch (Working Group Members Only)	Pick up lunch in Grand A, Seating in Grand A and Grand BC

## CONCURRENT SESSIONS

To align with the GLOBE Strategic plan, sessions will correspond with the following themes:

- Exploring Changing Environments
- GLOBE and Technology
- GLOBE Gives Back
- Website and Technology Information Presented by SSAI
- Finding Nature in Urban Landscapes

### MONDAY, 15 JULY

### LOCATION

	Grand BC	Plaza AB	Plaza C	Terrace B	Terrace C
1:45 PM	<b>Country Coordinator Meeting</b>	<b>US Partner Meeting</b>		<b>Guided Teacher/Scientist Networking</b>	
2:00 PM					
2:15 PM					
2:30 PM					
2:45 PM					
3:00 PM					
3:15 PM					
3:30 PM					
3:45 PM					
4:00 PM					
4:15 PM					
4:30 PM					
4:45 PM					

**TUESDAY, 16 JULY**

**LOCATION**

	<b>Grand BC</b>	<b>Plaza AB</b>	<b>Plaza C</b>	<b>Terrace B</b>	<b>Terrace C</b>
1:30 PM	<b>ECE1.</b> Integrating GLOBE Into Undergraduate Education Lead Presenter: Kevin Czajkowski	<b>ECE4.</b> Combating Social Injustice with Science: How Eco-Schools USA and The GLOBE Program Empower Youth to Speak Truth to Power Lead Presenter: Jennifer Hammonds	<b>Tech 1.</b> Country Coordinators and Partners—Using the GLOBE Website	<b>GGB1.</b> Long Term Impact of GLOBE Student Participation Presenter: Diana Johns	<b>GT1.</b> Digital Collaborative Tools in GLOBE Presenter: Farid Hamdan
1:45 PM				<b>GGB2.</b> Interviews With Teachers at the GLE Lead Presenter: Nektaria Adaktylou	
2:00 PM				<b>GGB3.</b> The GLOBE Zika Education and Prevention Project: Annual Update Lead Presenter: Kristin Wegner	<b>GT3.</b> Utilizing Google Applications to Better Manage Student Research Presenter: Jeffrey Bouwman
2:15 PM	<b>ECE2.</b> Students Observe Trees Over Seasons in European Phenology Campaign Lead Presenter: Bára Semeráková	<b>GT4.</b> Integrating Geospatial Visualization Presenter: Michael Jabot			
2:30 PM	<b>ECE3.</b> Elementary GLOBE Needs Assessment: Sharing Results and Gathering GLOBE Community Feedback Lead Presenter: Becca Hatheway		<b>Tech 2.</b> GLOBE Treasure Hunt	<b>GT8.</b> Facilitate Innovative STEM Education & Workforce Readiness Using Weather Data Lead Presenter: Richard Osuagwu	
2:45 PM		<b>GT6.</b> U.S. Student Research Symposia: Four Years of Development, Growth and Building Sustainability Presenter: Jennifer Bourgeault			<b>GT9.</b> CODAP—A Free, Easy, Online Data Analysis Tool for GLOBE Data Presenter: William Finzer
3:00 PM	<b>ECE5.</b> E&E Board: GLOBE Challenges Identified & Discussed Lead Presenter: Anthony Purcell		<b>Tech 2.</b> GLOBE Treasure Hunt continued	<b>GGB4.</b> Evidence of GLOBE's Impact in Different Settings Lead Presenter: Nektaria Adaktylou	
3:15 PM		<b>ECE6.</b> GLOBE Collaborates with the United Nations Environment Programme Lead Presenter: Lyn Wigbels			<b>FNUL1.</b> The Effect of Water Mites on Dipterans of Human Pathological Importance in Metro Detroit Lead Presenter: Adrian Vasquez
3:30 PM	<b>ECE7.</b> Ireland: GLOBE Air Pollution Campaign Lead Presenter: Anthony Purcell		<b>FNUL2.</b> Restoring An Urban Stream: One Macroinvertebrate At A Time Lead Presenter: Alisa Wickliff		
3:45 PM		<b>GT7.</b> Teaming Up with GLOBE Lead Presenter: Holli Kohl			
4:00 PM	Break		Break	Break	Break
4:15 PM		Break			
4:30 PM	Break		Break	Break	Break
4:45 PM		Break			
5:00 PM	Break		Break	Break	Break
5:15 PM		Break			



## CONCURRENT SESSIONS

**THURSDAY, 18 JULY**

**LOCATION**

	<b>Grand BC</b>	<b>Plaza AB</b>	<b>Plaza C</b>	<b>Terrace B</b>	<b>Terrace C</b>
8:30 AM	<b>ECES8.</b> Tracking Changes in the Vernal Window Using Bundled GLOBE Protocols Lead Presenter: Elizabeth Burakowski	<b>GT11.</b> Know Your Water - Testing in Diverse Environments Presenter: Greg Perugini		<b>FNUL6.</b> GLOBE Protocol Bundles: Urban, ENSO, Mosquito, Soil, and Air Quality Lead Presenter: Mullica Jaroensutasinee	<b>GGB5.</b> Improving GLOBE classroom Implementation: Rethinking Professional Development Lead Presenter: Janelle Johnson
8:45 AM	<b>FNUL3.</b> Nature in Urban Landscapes: Understanding Science, Activating the Society, Enhancing Participation Lead Presenter: Constantinos Cartalis	<b>GT12.</b> Introducing the User Guide for GLOBE Data Presenter: Helen Amos	<b>GT17.</b> Understanding GLOBE Apps Lead Presenter: Ela Woloszyńska-Wiśniewska		
9:00 AM		<b>GT13.</b> Student Designed Instrumentation Presenter: Mike Jabot			
9:15 AM		<b>GT14.</b> Merging GLOBE with Mixed Reality for Data Visualization and Data Collection Training Lead Presenter: Peter Dorofy			
9:30 AM	<b>GT15.</b> Using NASA Earth Observing Satellite Data to Predict, Monitor, and Respond to Disease Presenter: Dorian Janney	<b>GGB6.</b> GLOBE-al Urban Climate Vulnerability: Citizen Science Curriculum Implementation Framework Presenter: David Padgett continued			
9:45 AM	<b>FNUL4.</b> Supporting Diversity, Inclusion, and Equity Through STEM Experiences Lead Presenter: Svetlana Darche				
10:00 AM	<b>FNUL5.</b> The Zika Zine: Increasing Public Understanding of Mosquitoes, Disease, and GLOBE Observer Through Comics Presenter: Lisa S. Gardiner	<b>GT16.</b> Geo-Mentors promoting GLOBE Lead Presenter: David Afolayan		<b>FNUL7.</b> CLUB SERVIR West Africa Programme: Raising Environmental Awareness and Promoting STEM Among Youth, Especially Girls Lead Presenter: Saliou Gaye Ndoye	<b>GGB7.</b> Assessment of Water Quality and GLOBE Awareness Programme in Some Parts of Southwestern Nigeria Lead Presenter: Olawale Oluwafemi
10:15 AM	BREAK	BREAK	BREAK	BREAK	BREAK
10:30 AM	<b>ECES9.</b> Helping More Teachers Do GLOBE Through a Five-Week Unit About Weather Phenomena Lead Presenter: Becca Hatheway	<b>ECE10.</b> GLOBE Protocol Bundles: Water Lead Presenter: Mullica Jaroensutasinee	<b>Tech 4.</b> Vis/ADAT, Story Maps and the GLOBE API	<b>FNUL8.</b> Students, Teachers, Citizen Scientists, and NASA Observing the Height of Our Planet, One Tree at a Time Presenter: Brian Campbell	<b>GGB8.</b> New GLOBE Trainer & Mentor Trainer Certification Process Lead Presenter: Jessica Taylor
10:45 AM					
11:00 AM					
11:15 AM					
11:30 AM					<b>GGB9.</b> Champions Owning Detroit's Environment (CODE-Green) A Citizen Science Project Lead Presenter: Donele Wilkins
11:45 AM					

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**THURSDAY, 18 JULY****LOCATION**

	<b>Grand BC</b>	<b>Plaza AB</b>	<b>Plaza C</b>	<b>Terrace B</b>	<b>Terrace C</b>
1:45 PM	<b>Unconference</b>		<b>Tech 5.</b> Citizen Scientist Involvement		
2:00 PM					
2:15 PM					
2:30 PM				<b>Tech 6.</b> Open Q&A	
2:45 PM					
3:00 PM					

## SESSION DESCRIPTIONS

### Exploring Changing Environments

#### ECE1.

##### Integrating GLOBE Into Undergraduate Education

Grand BC • Tuesday, 1:30–2:30 pm

**Presenters:** Kevin Czajkowski (kevin.czajkowski@utoledo.edu) University of Toledo, Toledo, Ohio, USA; David Padgett, Michael Jabot, Sherry Heron

Traditionally, GLOBE was a program where GLOBE Partners trained teachers who worked with K-12 students. But, more frequently university instructors are finding that GLOBE can be used at the undergraduate level. In this panel, undergraduate instructors and professors will share the ways they integrate GLOBE into their undergraduate courses.

#### ECE2.

##### Students Observe Trees Over Seasons in European Phenology Campaign

Grand BC • Tuesday, 2:30–2:45 pm

**Presenters:** Bára Semeráková (europe@globe.gov), Dana Votápková; Europe and Eurasia Region Coordination Office, TEREZA Educational Center, Prague, Czech Republic

More than 150 schools from 13 countries joined the European Phenology Campaign this year. Teachers and students selected a tree to observe and compare their results with other schools who follow the same tree species in their country. Students learn about the changes in vegetation green-up timing around Europe and in different environments as well.

#### ECE3.

##### Elementary GLOBE Needs Assessment: Sharing Results and Gathering GLOBE Community Feedback

Grand BC • Tuesday, 2:45–3:15 pm

**Presenters:** Becca Hatheway (hatheway@ucar.edu), UCAR Center for Science Education, Boulder, Colorado, USA; Jessica Taylor

The results from the Elementary GLOBE Needs Assessment will be shared, including information learned from K-4 teachers and informal science educators. Follow up questions for the GLOBE community will be discussed to help inform future development plans for Elementary GLOBE resources.

#### ECE4.

##### Combating Social Injustice with Science: How Eco-Schools USA and The GLOBE Program Empower Youth to Speak Truth to Power

Plaza AB • Tuesday, 1:30–3:00 pm

**Presenters:** Jennifer Hammonds (hammondsj@nwf.org), National Wildlife Federation, Reston, Virginia, USA; Jennifer Dowd

In many instances a decision to take action stems from a social or environmental injustice. Empowering student voice with protocols for collecting and using scientific evidence (The GLOBE Program) and strategies for community and civic engagement (Eco-Schools USA) are key to justice for all.

#### ECE5.

##### E&E Board: GLOBE Challenges Identified & Discussed

Grand BC • Tuesday, 3:30–4:30 pm

**Presenters:** Anthony Purcell (apurcell@eeu.antaisce.org), Antaisce, Dublin, Ireland; Representation from the Europe & Eurasia Board

This presentation will explore current challenges experienced by participating GLOBE Europe & Eurasia countries implementing, growing and developing The GLOBE Program, and provide opportunities for discussing how and what solutions can be developed to help overcome these challenges.

#### ECE6.

##### GLOBE Collaborates with the United Nations Environment Programme

Grand BC • Tuesday, 4:30–5:00 pm

**Presenters:** Lyn Wigbels (lwigbels@ucar.edu), International Coordinator, GLOBE Implementation Office, Washington D.C., USA; Charles Mwangi Maina, Pierre Henri Boileau

The National Aeronautics and Space Administration and the United National Environment Programme (UNEP) recently signed an agreement for cooperation on the GLOBE Program. In this session, we will describe GLOBE and UNEP plans for collaboration on and global promotion of their activities as well as highlight existing GLOBE community engagement in UNEP activities and publications.

LEFT: Grove of trees, Howell Nature Center

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## SESSION DESCRIPTIONS

### ECE7.

#### **Ireland: GLOBE Air Pollution Campaign**

Grand BC • Tuesday, 5:00–5:30 pm

**Presenters:** Anthony Purcell (apurcell@eeu.antaisce.org), Sabrina Moore; An Taisce, Dublin, Ireland

The presentation will provide a summary report of a recent GLOBE air quality campaign carried out with Irish schools, measuring NO<sub>2</sub> levels. It will explore opportunities for further development and expansion to the GLOBE community and current constraints and limitations from a GLOBE perspective.

### ECE8.

#### **Tracking Changes in the Vernal Window Using Bundled GLOBE Protocols**

Grand BC • Thursday, 8:30–8:45 am

**Presenters:** Elizabeth Burakowski (elizabeth.burakowski@unh.edu), UNH, Durham, New Hampshire, USA; Alix Contosta, Rebecca Sanders-DeMott, Danielle Grogan, John L. Campbell

The vernal window is a key period in seasonally snow-covered, forested ecosystems. The vernal window opens with snowmelt and closes with the emergence of the forest canopy. Here, we will track changes in the vernal window using GLOBE snow depth, soil frost, and canopy green-up protocols, and a protocol to estimate soil respiration.

### ECE9.

#### **Helping More Teachers Do GLOBE Through a Five-Week Unit About Weather Phenomena**

Grand BC • Thursday, 10:30 am–12:00 pm

**Presenters:** Becca Hatheway (hatheway@ucar.edu), John Ristvey, Lisa Gardiner; UCAR Center for Science Education, Boulder, Colorado, USA

Learn about the recently released GLOBE Weather middle school curriculum. Get an overview of this phenomena-based curriculum, participate in hands-on and data analysis activities, learn how this curriculum can connect with other aspects of The GLOBE Program, and discuss training and implementation strategies.

### ECE10.

#### **GLOBE Protocol Bundles: Water**

Plaza AB • Thursday, 10:30 am–12:00 pm

**Presenters:** Mullica Jaroensutasinee (mullica.jn@gmail.com), Walailak University, Nakhon Si Thammarat, Thailand; Krisanadej Jaroensutasinee, Rebecca Boger, Amy Barfield, Claudia Caro, Constantinos Cartalis, Dixon Butler, Hameed Sulaiman, Oluwafemi Olawale, Margaret Pippin

Water—the main reason for life on Earth—continuously circulates through one of Earth’s most powerful systems. Water flows endlessly between the ocean, atmosphere, land, surface, and soil. Several hydrology bundles exploits a group of complementary GLOBE protocols in view of integrated knowledge which can support students in gaining a better understanding of their local hydrosphere environment.

# GLOBE Gives Back

## GGB1.

### Long Term Impact of GLOBE Student Participation

Terrace B • Tuesday, 1:30–1:45 pm

**Presenter:** Diana Johns (drjohns@csdm.k12.mi.us), Crestwood High School, Dearborn Heights, Michigan, USA

This presentation will highlight a few alumni student video testimonials on how life-changing participation in GLOBE has been for my underserved population of students. They will speak to what it was about the program that has led them to their admittance to college and their current success there. I've tracked my alumni for the past few years and their stories are compelling ones. We know that the GLOBE experience has short-term gains but these anecdotal student-driven comments will speak to what long-term impact their participation has meant to them.

## GGB2.

### Interviews With Teachers at the GLE

Terrace B • Tuesday, 1:45–2:00 pm

**Presenters:** Nektaria Adaktylou (nektaria.adaktylou@mail.wvu.edu), West Virginia University, Morgantown, West Virginia, USA; Kevin O' Connor, Andrea Ventoso

A short survey - three questions- for teacher interviews about their and their students' participation in GLOBE was put together by the Evaluation Working Group during the 2018 GLE to benefit from the face-to-face interaction with them. Feedback from the interviews will be shared with the community.

## GGB3.

### The GLOBE Zika Education and Prevention Project: Annual Update

Terrace B • Tuesday, 2:00–3:00 pm

**Presenters:** Kristin Wegner (kwegner@ucar.edu), GLOBE Implementation Office, Boulder, Colorado, USA; Lyn Wigbels), Department of State Representative

The GLOBE Zika Education and Prevention project is a multi-year project that engages the community to use the GLOBE Mosquito Habitat Mapper app to collect and mosquito larvae. The project spans three GLOBE regions (Africa, Asia and Pacific, Latin America and Caribbean) and includes twenty-nine countries. In this panel presentation, GLOBE community members will present project updates, share

accomplishments and implementation strategies, and discuss the ways they are engaging diverse community groups in order to eliminate Zika.

## GGB4.

### Evidence of GLOBE's Impact in Different Settings

Terrace B • Tuesday, 3:30–4:30 pm

**Presenters:** Nektaria Adaktylou (nektaria.adaktylou@mail.wvu.edu), West Virginia University, Morgantown, West Virginia, USA; Kevin O'Connor, Kevin Czajkowski, Karl Schneider

The panel will discuss observations and findings from case studies in which GLOBE resources have been used by K-12, undergraduate and graduate students. The focus will be on the effects identified with respect to changes in content knowledge, skills, attitudes towards science and development of a sense of place.

## GGB5.

### Improving GLOBE classroom Implementation: Rethinking Professional Development

Terrace C • Thursday, 8:30–9:30 am

**Presenters:** Janelle Johnson (jjohn428@msudenver.edu), Metropolitan State University of Denver, Dever, Colorado, USA; Rich Wagner

MULTI STEM is an approach to professional development that has emerged from a reciprocal process of theory and practice under grant funding from the National Science Foundation. Its goals are to support and learn from educators' efforts to close opportunity gaps for underserved students in STEM fields through STEM Equity Pedagogies; increase the relevance and utility of science knowledge for teachers and their students; and to collectively expand and refine its professional development model through design-based research.

## GGB6.

### GLOBE-al Urban Climate Vulnerability: Citizen Science Curriculum Implementation Framework

Terrace C • Thursday, 9:30–10:00 am

**Presenter:** David Padgett (tsuglobeme@gmail.com), Tennessee State University, Nashville, Tennessee, USA

The GLOBE-al Urban Climate Vulnerability (GUCV) is an effort to expand the reach of GLOBE at HBCUs and for young people from populations underrepresented in the STEM disciplines. Several HBCU faculty members will be certified in the Atmosphere Protocols. The GUCV framework is intended to be replicable at HBCUs lacking geoscience courses.

## SESSION DESCRIPTIONS

### GGB7.

#### Assessment of Water Quality and GLOBE Awareness Programme in Some Parts of Southwestern Nigeria

Terrace C • Thursday, 10:00–10:15 am

**Presenters:** Olawale Oluwafemi (walefemi007@yahoo.com), Nigerian Space Agency & Centre for Geodesy and Geodynamics, Toro, Bauchi State, Nigeria, Africa; Akinola Akinwumiju, Jolaade Oluwafemi

This study assessed stream and shallow well microbial loads in Ilaramokin, Southwestern Nigeria. GLOBE Water Quality Bundle, laboratory analysis, Remote Sensing and GIS analytical operations were employed using ArcGIS10.5 include overlay, query and Inverse distance weighted (IDW) interpolation. Sixteen sites were selected in November, 2018 where samples were collected and analysed.

### GGB8.

#### New GLOBE Trainer & Mentor Trainer Certification Process

Terrace C • Thursday, 10:30–11:30 am

**Presenters:** Jessica Taylor (jessica.e.taylor@nasa.gov), Education Working Group Chair, NASA Langley, Hampton, Virginia, USA; Francis Wasswa N. Nsubuga, Rod Allan A. de Lara, Diana Garasic, Marta Kingsland, Lynne Hehr, John Ristvey

The Education Working Group has revised the GLOBE Trainer/Mentor Trainer Certification Process based on community feedback from the last two years. This updated process is designed to be more flexible and allow The GLOBE Program to continue to grow while maintaining GLOBE integrity and leveraging eTraining opportunities.

### GGB9.

#### Champions Owning Detroit's Environment (CODE-Green) A Citizen Science Project

Terrace C • Thursday, 11:30 am–12:00 pm

**Presenters:** Donele Wilkins (donele@greendoorinitiative.org), The Green Door Initiative, Detroit, Michigan, USA; David Padgett

CODE Green is a project of the Green Door Initiative directed at high school students, the presentation will describe the Citizen Science Project which features the Water Sampling activities undertaken by the students.

## GLOBE and Technology

### GT1.

#### Digital Collaborative Tools in GLOBE

Terrace C • Tuesday, 1:30–1:45 pm

**Presenter:** Farid Hamdan (yusra@zahav.net.il), NC ISRAEL & Supervisor of Ministry of Education, Tel Aviv, Israel

I will present a concept for diverse digital tools are used in the context of “collaborative digital tools” to foster advanced expertise for GLOBE teachers. These skills are highly valued within the scientific community especially in the GLOBE protocols. GLOBE teachers who communicate by diverse tools, can also find a good platform to expand GLOBE students motivation to collaborate and to improve their literacy skills.

### GT2.

#### 360 Photos for GLOBE Measurements

Terrace C • Tuesday, 1:45–2:15 pm

**Presenter:** Laura Altin (laura662@gmail.com), GLOBE Estonia, Tartu, Estonia

With satellite images different types of land cover can be identified. So far The GLOBE Program has used six photos to describe describe investigation sites. We have been testing 360 photos in Estonia and will share the experience with you.

### GT3.

#### Utilizing Google Applications to Better Manage Student Research

Terrace C • Tuesday, 2:15–2:45 pm

**Presenter:** Jeffrey Bouwman (bouwmaj@gjbdist.net), Shumate Middle School, Gibraltar, Michigan, USA

Learn how to utilize Google applications to better engage your Citizen Scientists. Jeffrey Bouwman will provide best practices and show you how to set up your own Google Classroom to better manage student research and to connect with scientists from around the world. #GettingScienceDone

### GT4.

#### Integrating Geospatial Visualization

Terrace C • Tuesday, 2:45–3:15 pm

**Presenter:** Michael Jabot (jabot@fredonia.edu), SUNY Fredonia, Fredonia, New York, USA

This session will share a series of tutorials that can be integrated into our work with students. These tutorials take advantage of a number of open-source geospatial visualization software packages to allow teachers and students do develop visualizations and analyses into their work using data collected by students as well as other data sources that parallel this work.

## GT5.

### Acquire-Analyze-Apply (A3)

Plaza AB • Tuesday, 3:30–4:00 pm

**Presenters:** John D. Moore (jmoore@bcbridges.org), GLOBE Mission Earth, NSF IUSE Big Data, Palmyra, New Jersey, USA; Peter Dorofy, Peder Nelson, Mike Jabot, Tracy Ostrom

Discussion focused on the emerging technological opportunities and career readiness skills that present new opportunities for a more diverse audience to engage in GLOBE/STEM. Working through the complete process of acquiring, analyzing, and applying imagery, visualizations, and remote sensing earth data, will lead towards higher Data Literacy.

## GT6.

### U.S. Student Research Symposia: Four Years of Development, Growth and Building Sustainability

Plaza AB • Tuesday, 4:00–5:00 pm

**Presenter:** Jennifer Bourgeault (usglobecc@gmail.com), Leitzel Center, University of New Hampshire, Durham, New Hampshire, USA

Four years ago, the Student Research Symposia (SRS) was an idea with buy-in from a core of U.S. GLOBE Partners. Today, the SRS involves 250+ students and teachers annually, many of them from underrepresented and underserved communities. Students present and discuss GLOBE research with professional scientists and peer and “do science.”

## GT7.

### Teaming Up with GLOBE

Plaza AB • Tuesday, 5:00–5:30 pm

**Presenters:** Holli Kohl (holli.kohl@nasa.gov), NASA Goddard Space Flight Center, Greenbelt, Maryland, USA; Cornell Lewis

GLOBE is launching a new team tool that makes it possible to create new teams of GLOBE Observers that can include GLOBE students, teachers, and partners. This means that a school can add GLOBE Observers such as parents or other members of the local community, to their school. This discussion session is intended to generate ideas on how to use the tool, collect feedback on the tool, and build partnerships. How can this tool build the GLOBE community and enable a wider variety of student research through broader inclusion?

## GT8.

### Facilitate Innovative STEM Education & Workforce Readiness Using Weather Data

Terrace C • Tuesday, 3:30–4:00 pm

**Presenters:** Richard Osuagwu (rosuagwu@earthnetworks.com), Earth Networks, Germantown, USA; Matt Spencer

For an educator, getting your students to close the book and dive into “real world learning” using a topic that students are familiar with like the weather, is a challenge. This presentation will shed light on a few ways to incorporate weather data into everyday classroom learning.

## GT9.

### CODAP—A Free, Easy, Online Data Analysis Tool for GLOBE Data

Terrace C • Tuesday, 4:00–4:30 pm

**Presenter:** William Finzer (wfinzer@concord.org), Concord Consortium, Emeryville, California, USA

Learn about new web-based software for teachers and students to work with GLOBE data. Drag and drop is all it takes to get GLOBE data into CODAP. Display maps with site location and make graphs of relationships between variables. And they are linked to help you discover patterns!

## GT10.

### Making GLOBE Student’s Learning Visible: ePortfolios for Assessment and Evaluation

Terrace C • Tuesday, 4:30–5:30 pm

**Presenters:** Evangeline Harris Stefanakis (edhs@bu.edu), Boston University, Boston, Massachusetts, USA; Jeff Yan

Assessment for learning involves collecting, selecting and reflecting on student’s work and teacher’s work. This workshop will demonstrate what works in implementing ePortfolios in classes and schools.

## GT11.

### Know Your Water—Testing in Diverse Environments

Plaza AB • Thursday, 8:30–8:45 am

**Presenter:** Greg Perugini (greg@light-analytics.com), Chairman, Light Analytics Inc, New Jersey, USA

We are creating a technology using AI and spectroscopy that will allow everyone to test water easily and cheaply. We wish to introduce this system at the GLOBE conference, and look to work with GLOBE and governmental agencies to bring this technology to the world.

## SESSION DESCRIPTIONS

### GT12.

#### Introducing the User Guide for GLOBE Data

Plaza AB • Thursday, 8:45–9:00 am

**Presenter:** Helen Amos ([helen.m.amos@nasa.gov](mailto:helen.m.amos@nasa.gov)), NASA Goddard Space Flight Center / SSAI, Greenbelt, Maryland, USA

In this presentation, the community will be introduced to the new User Guide for GLOBE Data. The User Guide is a technical document for scientists and researchers that describes how GLOBE data is collected, how to access it, and what is in the data files you download. The goal of the User Guide is to make it easier to understand GLOBE data and use it in scientific research.

### GT13.

#### Student Designed Instrumentation

Plaza AB • Thursday, 9:00–9:15 am

**Presenter:** Michael Jabot ([jabot@fredonia.edu](mailto:jabot@fredonia.edu)), SUNY Fredonia, Fredonia, New York, USA

This session will share the expanded use of technologies around student driven research using GLOBE Protocols. These technologies are common to the classroom and their use allows for expanded data collection, analysis and visualization.

### GT14.

#### Merging GLOBE with Mixed Reality for Data Visualization and Data Collection Training

Plaza AB • Thursday, 9:15–9:30 am

**Presenters:** Peter Dorofy ([pdorofy@bcbbridges.org](mailto:pdorofy@bcbbridges.org)), Institute for Earth Observations at Palmyra Cove, Palmyra New Jersey, USA; John Moore

Mixed reality and its potential use within GLOBE is introduced by the developer of HoloGLOBE, an AR app to render earth data, and Lunar Expeditions, an app that celebrates the 50th anniversary of the Apollo 11 moon landing and introduces GLOBE students to making field observations on the lunar surface.

### GT15.

#### Using NASA Earth Observing Satellite Data to Predict, Monitor, and Respond to Disease

Plaza AB • Thursday, 9:30–10:00 am

**Presenter:** Dorian Janney ([dorian.w.janney@nasa.gov](mailto:dorian.w.janney@nasa.gov)), NASA/GSFC/GPM, Greenbelt, Maryland, USA

Participants will learn how and why NASA Earth observations are being used to predict, monitor, and respond to vector-borne disease. They will become aware of the connection between the NASA missions and the GLOBE Mosquito Habitat Mapper.

### GT16.

#### Geo-Mentors promoting GLOBE

Plaza AB • Thursday, 10:00–10:15 am

**Presenters:** David Afolayan ([giskonsult@gmail.com](mailto:giskonsult@gmail.com)), GIS Konsult LTD, Nigeria, Africa; Olajumoke Afolayan

An Epic Journey started out with my desire to turn Africa the right way up. The narrative of some high school students catalyzed a nationwide effort to mentor and present the realities of a changing world. Our journey of a thousand miles started with the first step.

### GT17.

#### Understanding GLOBE Apps

Plaza C • Thursday, 8:45–10:15 am

**Presenters:** Ela Woloszyńska-Wisniewska ([ela@gridw.pl](mailto:ela@gridw.pl)), (GLOBE Program Country Coordinator), Warsaw, Poland; Ana Beatriz Prieto, Charles Mwangi, Kris Jaroensutasinee, Ahmad Mbaidin, Laura Altin, Allyson Edwards, Eslam Khair, Cornell Lewis, David Overoye

The Technology Working Group will be walking through the GLOBE Apps: Data Entry and GLOBE Observer. An interactive session to better understand the tools that GLOBE is placing in your hands and the hands of your students.

*Transcending*, by David Barr and Sergio De Gusti, sculpture symbolizing the cycle of labor



## Finding Nature in Urban Landscapes

### FNUL1.

#### The Effect of Water Mites on Dipterans of Human Pathological Importance in Metro Detroit

Terrace B • Tuesday, 4:30–5:00 pm

**Presenter:** Adrian Vasquez (avasquez@wayne.edu), Wayne State University, Detroit, Michigan, USA

Detroit is one of the top mosquito problem cities in the US. Mosquito-borne diseases are a global concern and the UN Intergovernmental Panel on Climate Change reported that changing temperatures may allow new pests and diseases to invade new habitats and become established posing new threats to human health. My preliminary work on water mite diets and on predation of mosquitoes in mesocosm systems in urban parks have shown that water mites may be able to mitigate mosquito presence in urban habitats.

### FNUL2.

#### Restoring An Urban Stream: One Macroinvertebrate At A Time

Terrace B • Tuesday, 5:00–5:30 pm

**Presenters:** Alisa Wickliff (abwickli@uncc.edu), UNC at Charlotte, Center for STEM Education, Charlotte, North Carolina, USA; David Pugalee, Kim Garrett

Urban streams have a long history of being neglected, channelized and piped underground. In Charlotte, stream restoration project areas provide excellent study sites for students to use GLOBE Hydrology protocols. Monitoring the return of a diversity of macroinvertebrates to a stream can be directly correlated to improving water quality.

### FNUL3.

#### Nature in Urban Landscapes: Understanding Science, Activating the Society, Enhancing Participation

Grand BC • Thursday, 8:45–9:45 am

**Presenters:** Constantinos Cartalis (ckartali@phys.uoa.gr), National and Kapodistrian University of Athens, Athens, Greece; Kevin Czajkowski, Karl Schneider

Against the background of examples presented by the panelists, issues of nature in urban areas are discussed from an integrative perspective. GLOBE inspired approaches are discussed, to understand the function of urban areas, to reflect on the value of urban green spaces and to show opportunities facilitating citizen participation.

### FNUL4.

#### Supporting Diversity, Inclusion, and Equity Through STEM Experiences

Grand BC • Thursday, 9:45–10:00 am

**Presenters:** Svetlana Darche (sdarche@wested.org), WestEd, San Francisco, California, USA; Tracy Ostrom

We will discuss an NSF-funded inner city afterschool youth development and internship program called "Exploring Careers and Learning Informally to Prepare for STEM Employment" (ECLIPSE) that incorporates GLOBE and career development strategies to support youth-driven investigations and projects and expand the youths' future career options and preparation for STEM careers.

### FNUL5.

#### The Zika Zine: Increasing Public Understanding of Mosquitoes, Disease, and GLOBE Observer Through Comics

Grand BC • Thursday, 10:00–10:15 am

**Presenter:** Lisa S. Gardiner (lisagard@ucar.edu), UCAR Center for Science Education, Boulder, Colorado, USA

The Zika Zine, a comic story about three fictional mosquitoes. Teaches readers how Aedes mosquitoes live and transmit Zika virus and how we can monitor their whereabouts and prevent them. Freely available online in ten languages, the Zika Zine was developed with funding from the U.S. Department of State.

### FNUL6.

#### GLOBE Protocol Bundles: Urban, ENSO, Mosquito, Soil, and Air Quality

Terrace B • Thursday, 8:30–10:00 am

**Presenters:** Mullica Jaroensutasinee (mullica.jn@gmail.com), Walailak University, Nakhon Si Thammarat, Thailand; Krisanadej Jaroensutasinee, Rebecca Boger, Amy Barfield, Claudia Caro, Constantinos Cartalis, Dixon Butler, Hameed Sulaiman, Oluwafemi Olawale, Margaret Pippin

Finding nature in urban landscapes would be something that GLOBE students can simply do after school. Urban, Air Quality and Soil Protocol Bundles are a group of GLOBE protocols that can provide students and teachers with integrated knowledge of the environment in urban areas, including various physical processes and their interactions. In addition, the Mosquito Protocol Bundle introduces the issue of mosquito habitats in urban areas, in view of tracking and controlling their spread. Finally the ENSO Protocol Bundle introduces the impact of the El Niño-Southern Oscillation climate phenomenon to the urban environment. In practical terms, the above Bundle Protocols support the monitoring

## SESSION DESCRIPTIONS

and assessment of a number of variations/changes of different—from micro to macro - spatial and temporal scales, in the prevailing urban environmental conditions. Citizen science contributions are particularly needed to adequately characterize the urban environment as well as to monitor variations/changes in time and space.

### FNUL7.

#### **CLUB SERVIR West Africa Programme: Raising Environmental Awareness and Promoting STEM Among Youth, Especially Girls**

Terrace B • Thursday, 10:00–10:15 am

**Presenters:** Saliou Gaye Ndoye (aliou.ndoye@tetrattech.com), SERVIR WA Niamey, Niger, Africa; Mariama Nana Issoufou

We will be presenting the STEM program developed by SERVIR WA, that used the GLOBE model for experimentation protocol but adapted to food security, climate change, land Use land cover and Water resources

### FNUL8.

#### **Students, Teachers, Citizen Scientists, and NASA Observing the Height of Our Planet, One Tree at a Time**

Terrace B • Thursday, 10:30 am–12:00 pm

**Presenter:** Brian Campbell (Brian.A.Campbell@nasa.gov), NASA Wallops Flight Facility Wallops Island, Virginia, USA

The Trees Around the GLOBE Student Research Campaign aligns well to NASA satellites and instruments measuring tree height and land cover. Students can compare measurements in their local environments to remotely-sensed data, providing another data layer for research. We will also delve into the NASA GLOBE Observer Trees Protocol.



### **BE with GLOBE**

Benefit the Environment with GLOBE by helping Bees in the D on Wednesday afternoon. Bees in the D is a Detroit-based non-profit organization whose mission is to create a cooperative effort between residents, schools, organizations, and businesses to contribute to both the health of honey bee colonies and the education of their importance to our environment. For more information: <https://beesinthed.com/>

## Website and Technology Information Presented by SSAI

### Tech 1.

#### **Country Coordinators and Partners—Using the GLOBE Website**

Plaza C • Tuesday, 1:30 pm–3:00 pm

Managing people and schools, holding workshops, school status reporting, communicating with teachers. Also time for questions and answers.

### Tech 2.

#### **GLOBE Treasure Hunt**

Plaza C • Tuesday, 3:00 pm–4:00 pm

An Introduction to the GLOBE Website—All the things you need to know to find information and “Do GLOBE”

### Tech 3.

#### **Teachers—Using the GLOBE Website**

Plaza C • Tuesday, 4:00 pm–5:00 pm

Setting up sites, entering and retrieving data, using student accounts, collaboration, student reports, using GLOBE teams and referral codes in your classroom. Also time for questions and answers.

### Tech 4.

#### **Vis/ADAT, Story Maps and the GLOBE API**

Plaza C • Thursday, 10:30 am–12:00 pm

All the ways to retrieve, visualize and use GLOBE data.

### Tech 5.

#### **Citizen Scientist Involvement**

Plaza C • Thursday, 1:45 pm–2:30 pm

Learn about GLOBE Observer, GLOBE Teams and current and upcoming campaigns.

### Tech 6.

#### **Open Q&A**

Plaza C • Thursday, 2:30 pm–3:00 pm

Time for you to get one on one help for any questions you may have.

# HOWELL NATURE CENTER SCHEDULE

	<b>Monday</b> 15 July	<b>Tuesday</b> 16 July	<b>Wednesday</b> 17 July	<b>Thursday</b> 18 July	
8:30–9:00am	<b>See Detailed Agenda</b>	<b>Travel to Howell Nature Center</b>	Breakfast at Howell	Breakfast at Howell	
9:00–9:30		<b>Welcome, Check-in, room assignments</b> <b>HNC Tour/WW Tour</b>	<b>Icebreakers</b>	<b>Travel to Crowne Plaza</b>	
9:30–10:00			<b>Edible Plants</b>		Free time
10:00–10:30				<b>Live Animal Program</b>	
10:30–11:00			<b>Protocol Demos</b> <b>Start thinking about groups</b> (4–6 students)		Lunch
11:00–11:30		Lunch			
11:30am–12:00pm			Lunch		
12:00–12:30		Lunch			
12:30–1:30	Lunch				
1:30–2:00		Free time	<b>Team Challenge</b>	<b>Data Collection</b> Canoes and Kayaks available	Free time
2:00–2:30	1:45–3:15pm <b>Student Planning Meeting</b>				
2:30–3:00		3:45–4:00 Break Pick your project groups			
3:00–3:30					
3:30–4:00	4:00–4:30pm <b>Student Poster Set-up</b>	<b>Data Collection</b> Canoes and Kayaks available	<b>Work on projects</b>	<b>Student Presentations Round Robin</b>	
4:00–4:30					Free time
4:30–5:00	Free time				
5:00–5:30		<b>Work on Projects</b> or <b>Attend Presentations</b>			
5:30–6:00			Dinner		
6:00–6:30	Dinner				
6:30–7:00		Free time			
7:00–7:30			Free time		
7:30–8:00	<b>6:30–8:30pm</b> <b>Poster Presentations</b>				
8:00–8:30		<b>Night Hike</b>			
8:30–9:00			<b>Beach Party/Campfire</b> Bring a story or song to share!		
9:00–9:30	<b>GLOBE programming</b> <b>HNC programming</b>				
		Free time			
			Free time		
	Free time				