NORTHEAST AND MID-ATLANTIC REGIONAL SCIENCE SYMPOSIUM

BOSTON UNIVERSITY
MAY 31-JUNE 1, 2019
Welcome to the 3rd Annual GLOBE Northeast and Mid-Atlantic Regional Science Research Symposium held this year at Boston University. The six regional GLOBE symposia span North America from Puerto Rico to Alaska, with students representing more than half the states in the country. Our region is pleased to welcome students from Delaware, Washington D.C., Connecticut, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia, and West Virginia.

Students, teachers, and chaperones will be staying at the student dormitories located on the Charles River Campus of Boston University. Our special thanks to the great parents who have supported these young scientists in their research.

- The GLOBE Mission Earth Team from Wheelock College of Education, the Department of Earth and Environment, and the Department of Mechanical Engineering at Boston University.

Sponsors

GLOBE Program
The Global Learning and Observations to Benefit the Environment (GLOBE) Program is an international science and education program that provides students and the public worldwide with the opportunity to participate in data collection and the scientific process, and contribute meaningfully to our understanding of the Earth system and global environment.

NASA
NASA’s journeys have propelled technological breakthroughs, pushed the frontiers of scientific research, and expanded our understanding of the universe. These accomplishments, and those to come, share a common genesis: education in science, technology, engineering, and math. Primary Sponsor for GLOBE, with assistance from NSF and NOAA, and a sponsor with YLACES for the regional GLOBE science symposia.

Youth Learning As Citizen Environmental Scientists (YLACES)
YLACES seeks to develop citizens with scientific habits of mind, utilizing the environment as a learning laboratory where students conduct inquiry-based research and contribute to a better collective understanding of our changing world. YLACES shares the sponsorship of the regional GLOBE science symposia with NASA.
**Thanks for Sharing Facilities**

**Boston University**

BU is a major research institution seeking knowledge and creating breakthroughs in everything from air pollution monitoring to zebrafish genetics.

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**Schedule of Events**

**Friday, May 31**

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<thead>
<tr>
<th>Time</th>
<th>Location</th>
<th>What’s Happening</th>
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| 1:00-5:00 PM  | 1019 Commonwealth Ave Residence Hall                                      | Arrival and Registration at BU Residence Hall  
GLOBE SRS Assistants will guide participants to the Esplanade                                                                                           |
| 2:30-6:00 PM  | Outdoor gym @ Esplanade on Charles River                                  | Kite flying challenge on the Esplanade                                                                                                            |
| 6:00-8:30 PM  | 745 Commonwealth Ave downstairs in room B23/B24 (a combined room)         | Welcome Dinner  
Guest Speaker Kevin Ivey (HS Senior)  
Presentation on Mr. Ivey’s internship experience at NASA Langley during his Junior/Senior Year                                          |
| 8:30-10:30 PM | 1019 Commonwealth Ave Residence Hall                                      | Students/Chaperones/Teachers to Dorm  
Student work time/movie in Dorm Common Areas                                                                                                           |
<p>| 11:00 PM      | 1019 Commonwealth Ave Residence Hall                                      | Residence Hall Curfew – all residents must be in their rooms. Main doors will be locked at 11:00pm                                                                 |</p>
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<tbody>
<tr>
<td>7:30 - 8:30 AM</td>
<td><em>For Overnight Attendees:</em> Residence Hall Lobby</td>
<td>GLOBE SRS Assistants will guide overnight guests to the main event location</td>
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| 8:00 - 9:30 AM | Boston University Photonics Center 8 Saint Mary’s St. 9th Floor | Saturday check-in and pick up parking passes at Warren Towers Garage  
Welcome Breakfast and Poster Set-up/practice |
| 8:45 - 9:30 AM | Boston University Photonics Center, 8 St. Mary’s 9th floor | West End Lounge: Reviewers gather to discuss review process  
Colloquium Room: Students Practice Presentations |
| 9:30 - 10:30 AM | Boston University Photonics Center 8 St. Mary’s St. 9th Floor | Colloquium room: Poster Rotation and Review by Peers  
Room 901: Teacher & GLOBE Partner Professional Development Session *(refreshments provided)*:  
- Listening Session where educators can express their opinions and experiences about STEM education (lead by Vicky Gorman)  
- How have you used GLOBE in your classroom |
| 10:30-12:00 AM | Boston University Photonics Center 8 St. Mary’s St. 9th Floor | Colloquium room: Poster Rotation and Review by Scientists  
Room 901: Teacher & GLOBE Partner Partner Professional Development Session: GLOBE and Local Weather Forecasting *(refreshments provided)* |
| 12:00 - 1:00 PM | Boston University Photonics Center 8 St. Mary’s St. 9th Floor | Lunch (provided)  
Students: water quality cup construction |
| 1:00 - 3:00 PM | Boston University Photonics Center 8 St. Mary’s St. 9th Floor | Room 901: Scientist Reviewer Deliberations  
Saturday Challenge Activity: GLOBEcaching @ BU Beach  
Tour Around Fenway Park area (sign-up required) |
| 3:00 - 4:00 PM | Boston University Photonics Center 8 St. Mary’s St. 9th Floor | Recognition, Evaluation, and Closing |
# POSTER SESSION (on display 9:30 am – 12:00 pm on Saturday)

## Grade 4 Research Posters

1. **Cloud Cover Around the Globe**  
   Ava Joyner, Addison Fleming, William Hampton  
   Northern Shores Elementary, VA

## Grade 5-8 Research Posters

2. **Does the pH Level of Water Affect Plant Growth**  
   Star Nunez, Kate Leonard, Brendan Riche, Troy Rudder  
   Northbridge Middle School, MA (5<sup>th</sup> Grade)

3. **How Does Cloud Cover Affect the Data Collecting of Turbidity on the Mumford River**  
   JP Bolduc, Tyler Strazzulla, Aedan Holcomb  
   Northbridge Middle School, MA (5<sup>th</sup> Grade)

4. **How Do Water Flow and Water Clarity of the Mumford River Connect**  
   Alex Higgins, Trevor Roadman, Nadia Kotwica  
   Northbridge Middle School, MA (5<sup>th</sup> Grade)

5. **Investigating Water Quality in the St. Francis Xavier Stream**  
   Molly Fleming, Sophia Willard, Gabe Woods  
   St. Francis Xavier Catholic School, PA (6<sup>th</sup> Grade)

6. **The Reflection of Water Quality on the SFX Pond**  
   Piper Rohrbaugh  
   St. Francis Xavier Catholic School, PA (8<sup>th</sup> Grade)

7. **The Effects of Water Quality on Macroinvertebrates**  
   Lily Shriner  
   St. Francis Xavier Catholic School, PA (8<sup>th</sup> Grade)

8. **Investigating Water Quality at Source Stream and Treated School Water**  
   Keefer Stiles  
   St. Francis Xavier Catholic School, PA (8<sup>th</sup> Grade)

9. **The Relationship Between the Many Factors That Influence Air Quality**  
   Anna Willard  
   St. Francis Xavier Catholic School, PA (8<sup>th</sup> Grade)

10. **The Urban Heat Island Effect in a Small Town**  
    Jacob Fleming  
    St. Francis Xavier Catholic School, PA (8<sup>th</sup> Grade)

11. **Tracking the Vernal Window in Newport, NH**  
    Sophia Carnevale, Timothy Short  
    Newport Middle School, NH (8<sup>th</sup> Grade)

12. **Water Chemicals in Providence**  
    Benjamin Merritt  
    Nathan Bishop Middle School, RI (6<sup>th</sup> Grade)

13. **What’s In Water?**  
    Eli Yee  
    Nathan Bishop Middle School, RI (6<sup>th</sup> Grade)

14. **Do Pillbugs or Darkling Beetles Show a Preference for Specific pH or Nitrate Levels?**  
    Naima Suchman & Jasper Hoefferle  
    Nathan Bishop Middle School, RI (6<sup>th</sup> Grade)

15. **Water Quality in Narragansett Bay**  
    Ada Sobota-Walden  
    Nathan Bishop Middle School, RI (6<sup>th</sup> Grade)

16. **How Do Air and Soil Temperature Affect the Growth of Bulbs?**  
    Rory Merritt & George Groves  
    Nathan Bishop Middle School, RI (6<sup>th</sup> Grade)

17. **Using Drones to Identify Potential Mosquito Breeding Habitats**  
    Gavin Prom  
    Medford Memorial Middle School, NJ (7<sup>th</sup> Grade)

18. **Correlation between GOES-R ABI Band 13 data and Precipitation Amounts**  
    Logan Michaels, Andrew Fricke, Elena Garristina  
    Medford Memorial Middle School, NJ (7<sup>th</sup> Grade)

19. **Correlation between Split Window Data (GOES-16 ABI) and Cloud Cover/Type**  
    Royce Jacobs, Sophia Tenebruso  
    Medford Memorial Middle School, NJ (7<sup>th</sup> & 8<sup>th</sup> Grade)

20. **Ground Observation Correlated to Satellite Data**  
    Jackson Hickey and Sam Murphy  
    Fredonia Middle School, NY (8<sup>th</sup> Grade)

21. **Title TBD**  
    Calder Annear and Jayden Yerico  
    Fredonia Middle School, NY (8<sup>th</sup> Grade)
<table>
<thead>
<tr>
<th>Grade 9-12 Research Posters</th>
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| **22.** The Correlation of Aerosol Optical Thickness and Surface Temperature *in situ* vs. Satellite Data  
Neisha Boiteux, Shaina Bond, Prisha Kulkarni  
Stamford High School, CT (10<sup>th</sup> Grade) | **31.** How does the uptake of carbon by schoolyard vegetation compare to the emissions of carbon by the school?  
Lily Weber, Alyssa Ray, Talal Siddiqui  
Maynard High School, MA (9<sup>th</sup>–12<sup>th</sup> Grade) |
| **23.** How could changes in the Vernal Window affect the hydrology of a watershed?  
Jacob Burns  
Old Town High School, ME (11<sup>th</sup> Grade) | **32.** What type of vegetation should be added to our schoolyard to improve carbon uptake?  
Elizabeth Freeman, Grace Charon, Virginia Crossland, Matthew Cloutier  
Maynard High School, MA (9<sup>th</sup>–12<sup>th</sup> Grade) |
| **24.** How can we monitor changes in the timing of soil moisture and nutrients in a changing Vernal Window?  
Bradley Frizzell  
Old Town High School, ME (10<sup>th</sup> Grade) | **33.** A comparison of daily air temperature and number of observed contrails  
Starlyn Collado Bourdier, Omar Jean-Francois, Vanessa Reyes, Tayqwan Richardson  
Lexington School for the Deaf, NY (11<sup>th</sup> & 12<sup>th</sup> Grade) |
| **25.** What does the Vernal Window look like in two different forest types?  
Amanda Oertell  
Old Town High School, ME (10<sup>th</sup> Grade) | **34.** Does airplane size affect the number of contrails produced?  
Jean Carlos Estevez, Luis Linares, Tristan Valico  
Lexington School for the Deaf, NY (11<sup>th</sup> & 12<sup>th</sup> Grade) |
| **26.** What does soil respiration tell us about winter soil life in a Maine forest?  
Zakery Scalese  
Old Town High School, ME (11<sup>th</sup> Grade) | **35.** Title TBD  
Arianna Baggett & Andrew Burton  
Huntington High School, WV (11<sup>th</sup> Grade) |
| **27.** Can cheap and expensive tools tell the same ecological stories of wintertime change?  
Emily Nason  
Old Town High School, ME | **36.** Title TBD  
Jayson Johnson and Jenna Adkins  
Huntington High School, WV (11<sup>th</sup> Grade) |
| **28.** What are the Effects of Drought on Water Quality in Sub-Sahara Africa versus Massachusetts?  
Christopher Rivelli, Julianna Borusso, Lily Allen, Kylie Clement  
Northbridge High School, MA (9<sup>th</sup> Grade) | **37.** Case Studies: Effects of Location on Surface Temperatures  
Wilmer Ajataz Barrios, Emely Alonzo Collado, Cristian Alcantara Baez  
Freepoint High School, NY (12<sup>th</sup> Grade) |
| **29.** The Past and Present Effects of the Industrial Revolution on Water Quality in Europe and in the Blackstone Valley  
Aidan Roy, John Buckley, Anthony Reed, Kyla Dominguez  
Northbridge High School, MA (9<sup>th</sup> Grade) | **38.** Data Quality Results of Citizen Scientist Cloud Observations for the GLOBE Program  
Kevin Ivey  
James River High School, VA (12<sup>th</sup> Grade) |
| **30.** Drinking Water in California & Mitigating Its Environmental Impacts  
Charles Morrill, Bennet Morrill, Thomas Dequire  
Nipmuc Regional High School, MA (10<sup>th</sup> Grade) | |
THANK YOU FOR THE ASSISTANCE AND SUPPORT FROM:

The Boston University 2019 GLOBE SRS Planning Team

Bruce Anderson (Earth & Environment)  |  Peter Garik (Curriculum & Learning)
Donald DeRosa (Curriculum & Learning) |  Kathleen Johnson (Curriculum & Learning)
Caleb Farny (Mechanical Engineering)  |  Evangeline Harris Stefanakis (Curriculum & Learning)

A special thanks to Maryellen Madaio, Events Specialist, Wheelock College

Teachers

Amy Lauer, Fredonia Middle School, Fredonia, NY
Greg Lauer, Fredonia Middle School, Fredonia, NY
Elodie Bourbon, Freeport High School, Freeport, NY
Eric Canady, Huntington High School, Huntington, WV
Richard Sharpe, Huntington High School, Huntington, WV
Carla Snell, Huntington High School, Huntington, WV
Jillian Anderson, Lexington School for the Deaf, East Elmhurst, NY
Rosalba Giarratano, Lexington School for the Deaf, East Elmhurst, NY
Charles Phillips, Lexington School for the Deaf, East Elmhurst, NY
Valerie Cairns, Maynard High School, Maynard, MA
Vicky Gorman, Medford Memorial Middle School, Medford, NJ

Catheryn Burke, Newport Middle & High School, Newport, NH
James Gorman, Nipmuc Regional High School, Upton, MA
Christine Cote, Northbridge High School, Whitinsville, MA
Mary Stinchfield, Northbridge Middle School, Northbridge, MA
Emily Tebo, Northbridge Middle School, Northbridge, MA
Ed Lindsey, Old Town High School, Old Town, ME
Whytne Crabtree, Old Town High School, Old Town, ME
Amy Woods, St. Francis Xavier Catholic School, Gettysburg, PA
Sue Dougherty, Stamford High School, Stamford, CT

GLOBE Partners & GLOBE Personnel

Jennifer Bourgeault, US GLOBE Country Coordinator
Dixon Butler, Founder & President of YLACES and GLOBE Consultant
Tina Harte, Senior Education Specialist - SSAI NASA Langley
Anil Mehrotra, Hampton Plant Engineer/NASA Waste-To-Energy Facility

Michael Jabot, State University NY at Freedom
Eleanor Jaffee, GLOBE SRS Program Evaluator
Larisa Schelkin, President Global STEM Education Center
Haley Wicklein, US GLOBE Office, NH GLOBE Team
### Reviewers

| Jennifer Bourgeault, US GLOBE Country Coordinator  | Tina Harte, NASA LaRC |
| Anthony Barrasso, Boston University                | Michael Jabot, SUNY Fredonia |
| Dixon Butler, YLACES                               | Sadia Sharif, Waltham High School, Waltham, MA |
| Todd Czubek, Boston University                     | Larisa Schelkin, President Global STEM Education Ctr |
| Chelsea Hammond, Boston University                 | Evangeline Harris Stefanakis, Boston University |
|                                                    | Haley Wicklein, US GLOBE |

### Fenway Area Tour

- R. Zachary Sanzone, Editor & Writer for Yawkey Way Report

### Media

- Ralph Adler - GLOBE media/Freelance Writer
- Tommy Hyde - Videographer

### GLOBE SRS Assistants

| Milena Campos, Boston University                    | Stephanie Anakwe, Boston University |
| Kevyn Martins, Boston University                    | Kristin Doucette, Boston University |
| Mariafernanda Hernandez, Boston University          |                                        |