

## Tuesday, 03 July 2018

### Professional Development Schedule:

The GLOBE International Organizing Committee has designed a diverse and exciting professional development program for all GLE participants who won't be carrying out fieldwork with the students on Tuesday and Thursday mornings. Each morning there are three session strands to choose from.

On Tuesday, Session 1 is a three hour workshop specifically for middle school teachers. We ask that those who attend Session 1 participate for the entire morning. Session 2 has two presentations focused on GLOBE in primary/elementary classes, two presentations focused on GLOBE in middle/secondary classes, short presentations from International Virtual Science Symposium teachers, and a general session. Session 2 is tailored for teachers, country coordinators, GLOBE partners and other GLOBE community members. Participants are encouraged to attend any/all of these sessions that are relevant to your needs and use time set aside for open-ended discussions with fellow participants and presenters. This is a great opportunity to learn about what's happening in GLOBE around the world, exchange best practices and get ideas for what you can do! Session 3 is a 90 minute session on school-based measurements and citizen science with the ICESat-2 Mission.

At a Glance:

Location	Mangerton	InnisFallen	Torc
Themes	Curriculum	GLOBE Implementation Best Practices	Mission Science
9:00	<b>PD.1. Helping More Teachers Do GLOBE Through a Five-week Unit About Weather Phenomena</b>	<b>PD.2. Primary/Elementary: GLOBE Goes Into the Woods</b> Presenter: Peter Schmidt	<b>PD.8. Height Matters: School-based Measurements and Citizen Science with the ICESat-2 Mission</b> Presenter: Brian Campbell
9:20	Presenters: Becca Hatheway, Lisa Gardiner, John Ristvey	<b>PD.3. Primary/Elementary: Incorporating Elementary GLOBE in your Classroom</b> Presenter: Mikell Lynne Hedley	
9:40		<b>PD.4. Middle, Junior/Secondary: Hop Onboard the CSEP Train</b> Presenter: Vicky Gorman	

10:00		<b>PD.5. Middle, Junior/Secondary: A Teacher's Journey from Field Campaign to IVSS</b> Presenter: Angela Rizzi	
10:20		<b>PD.6. IVSS Teacher: Joristen Barge</b>	
10:40		<b>IVSS Teacher: Diana Johns</b>	
11:00		<b>IVSS Teacher: Amy Woods</b>	
11:20		Discussion	
11:40		<b>PD.7. GLOBE Digital Games and the GLOBE MOOC in Israel</b> Presenter: Farid Hamdan	
12:00	Lunch	Lunch	Lunch

**PD.1. Helping More Teachers Do GLOBE Through a Five-week Unit About Weather Phenomena – Mangerton – 9:00 am – 12:00 pm**

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

Summary: Learn about the GLOBE Weather middle school curriculum that's currently in development. Get an overview of this phenomena-based curriculum, participate in hands-on and data analysis activities, and provide input on how this curriculum can connect with other aspects of the GLOBE Program.

**PD.2. Primary/Elementary: GLOBE Goes Into the Woods – InnisFallen – 9:00 am – 9:20 am**

Presenter: Peter Schmidt (peter.schmidt@qc.cuny.edu); Queens College, New York, New York, USA

Summary: A review of a four year NOAA Environmental Literacy grant funded program: "Into the Woods." The focus of the program was using GLOBE protocols as part of a strategy to get New York City elementary school teachers to integrate use of the outdoors as a regular part of their teaching.

**PD.3. Incorporating Elementary GLOBE in your Classroom – InnisFallen – 9:20 am – 9:40 am**

Presenter: Mikell Lynne Hedley (mikell.hedley@utoledo.edu); University of Toledo, Toledo, Ohio, USA

Summary: Bringing Elementary GLOBE into your classroom using GLOBE materials and NASA resources is an easy way to meet your school's science standards. Building on student's curiosity and GLOBE protocols turn your young students into active science researchers. Science class becomes the class they look forward to each day.

**PD.4. Hop Onboard the CSEP Train – InnisFallen – 9:40 am – 10:00 am**

Presenter: Vicky Gorman (vgorman@medford.k12.nj.us); Medford Memorial Middle School, Medford, New Jersey, USA

Summary: Learn about the latest paradigm shift in United States science education. The Next Generation Science Standards call for a three-dimensional approach to science instruction. Each dimension works with the other two to help students build a cohesive understanding of science over time. Do you think we're on the right track?

**PD.5. A Teacher's Journey from Field Campaign to IVSS – InnisFallen – 10:00 am – 10:20 am**

Presenter: Angela Rizzi (arizzi@olmc-school.com); Our Lady of Mount Carmel School and NASA, Newport News, Virginia, USA

Summary: A teacher will share how she guided students through the process of making observations to contributing to a GLOBE field campaign, working with a NASA mentor, and ultimately completing group projects which were submitted to the IVSS. Benefits for students will be discussed as well as lessons learned.

**PD.6. IVSS Teacher Presentations – InnisFallen – 10:20 am – 11:40 am**

Presenters: Joris ten Barge (j.tenbarge@helenparkhurst.asg.nl); Helen Parkhurst School, Almere, Netherlands; Diana Johns (drjohns@csdm.k12.mi.us); Crestwood High School, Dearborn Heights, Michigan, USA; Amy Woods(awoods@sfxcs-pa.org); St. Francis Xavier Catholic School, Gettysburg, Pennsylvania, USA

Summary: Teachers of the drawing winners for the 2018 GLOBE International Virtual Science Symposium (IVSS) will discuss how their students chose their research topics, successes and pitfalls in the research process, and advice for other teachers interested in taking part in the IVSS.

**PD.7. GLOBE Digital Games and the GLOBE MOOC in Israel – InnisFallen – 11:40 am – 12:00 pm**

Presenter: Farid Hamdan (yusra@inter.net.il); GLOBE National Coordinator, Tel-Aviv, Israel

Summary: EurekaWorld is designed to enable students and teachers to dream, experience, develop and create their own Edu 3D3C regions. The creation in EurekaWorld combines traditional 3D tools, working in VR, 3D printing, Arduino controller and other peripherals devices. EurekaWorld enables the GLOBE Program several gamifications and creation processes.

**PD.8. Height Matters: School-based Measurements and Citizen Science with the ICESat-2 Mission – Torc – 9:00 am – 10:30 am**

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

Summary: As ICESat-2 measures height from space, NASA is calling on students and citizen scientists to take measurements from the ground to help validate the satellite data. These students and citizen scientists will measure heights of trees to aid in NASA's investigations of a changing Earth.

**Thursday, 05 July 2018**

**Professional Development Schedule:**

On Thursday, Session 1 is designed to reveal some GLOBE ‘hidden gems.’ Join Lynne Hehr in two one-hour long workshop on GLOBE Data Explorations and GLOBE Weather and Climate learning resources. Following these workshops, learn about the European Air Quality Campaign, Meteorology in Schools, and Online Learning. Session 2 has two 90 minute sessions focused on GLOBE in Engineering and Science, Technology, Engineering, Arts, and Mathematics (STEAM). Session 3 is an adult field experience (including a 7 km/4.35 mi walk, NO TRANSPORT PROVIDED) with Brid Colhoun from Killarney National Park to explore local ecology. This session is limited to 20 adults. Tickets will be available at the registration table. Please pick up your ticket early in order to reserve a spot. One ticket per person.

At a Glance:

Location	Mangerton	InnisFallen	Walking Tour (meet outside of the Ballroom)
<b>Themes</b>	<b>Curriculum and Campaigns</b>	<b>Engineering and STEAM</b>	<b>Field Experience</b>
9:00	<b>PD.9. GLOBE Data Explorations</b> Presenter: Lynne Hehr	<b>PD.14. Establishing an Engineering Focus for GLOBE</b> Presenters: Kevin Czajkowski, Janet Struble, Glenn Lipscomb, Caleb Farny, David Bydlowski	<b>PD.16. Exploring Ireland's Ecology</b> Presenter: Brid Colhoun (meet outside of the Ballroom)
10:00	Break		
10:15	<b>PD.10. From Weather to Climate &amp; Climate Classification</b> Presenters: Lynne Hehr, John Hehr		
10:30		<b>PD.15. Full STEAM Ahead with GLOBE Science</b> Presenters: Jenn Paul Glaser and Rusty Low	
11:15	<b>PD.11. The European Air Quality Campaign</b> Presenter: Danielle de Staerke		

11:30	<b>PD.12. Meteorology in the School</b> Presenter: Claudia Romagnoli		
11:45	<b>PD.13. Online Learning: Promoting Technology and Science Learning Experiences for Students Well Beyond the Classroom</b> Presenter: Lucretia Octavia Tripp		
12:00	Lunch	Lunch	Lunch

**PD.9. GLOBE Data Explorations – Mangerton – 9:00 am – 10:00 am**

Presenter: Lynne Hehr (lhehr@uark.edu); University of Arkansas Center for Math and Science Education, Fayetteville, Arkansas, USA

Summary: Need activities to help middle to high school students (and teachers) learn how to analyze GLOBE environmental data while also learning atmospheric science concepts and geography? Join this session to discover two of the nine GLOBE Data Explorations developed by UCAR Center for Science Education for GLOBE. The lessons to be explored are 1) *Make a Climograph*, learn how to construct, read, and analyze climographs & understand how climate differs from weather, and 2) *Rainfall and Health*, learn about the relationship between three infectious diseases & rainfall in the country of Benin. PowerPoints and other resources will be provided to attendees.

**PD.10. From Weather to Climate & Climate Classification – Mangerton – 10:15 am – 11:15 am**

Presenter: Lynne Hehr (lhehr@uark.edu), John Hehr; University of Arkansas Center for Math and Science Education, Fayetteville, Arkansas, USA

Summary: Explore two GLOBE activities designed for middle/high school students and teachers to: 1) work with short- and long term air temperature data to better understand the differences between weather and climate; 2) understand that climates can be broadly classified using a system that is based upon specific variables: air temperature and precipitation; and 3) become familiar with the Köppen-Geiger Climate Classification system. PowerPoints and other resources will be provided to attendees.

**PD.11. The European Air Quality Campaign – Mangerton – 11:15 am – 11:30 am**

Presenter: Danielle de Staerke (danielle.destaerke@cnes.fr); CNES, Toulouse, France; Eric Abgrall, Dana Votápková, Sabrina Moore

Summary: Air Quality Campaigns are organized on a European scale in spring and autumn. Measures obtained by schools are posted on the GLOBE database to be shared and used in classroom projects. The presentation will explain what the students can do during the Campaigns and how they can share their findings.

**PD.12. Meteorology in the School – Mangerton – 11:30 am – 11:45 am**

Presenter: Claudia Romagnoli (clauromag@gmail.com); GLOBE Argentina, Rosario, Santa Fe, Argentina; Viviana Sebben

Summary: A training project for primary teachers (1<sup>o</sup>-7<sup>o</sup> grades) on topics related to Atmosphere, included in the curricular contents of Natural Sciences is presented. The objective is to train teachers so that they introduce your students (6-13 years) to observation and recording meteorological variables following GLOBE protocols. Finally, students do different school researches.

**PD.13. Online Learning: Promoting Technology and Science Learning Experiences for Students Well Beyond the Classroom – Mangerton – 11:45 am – 12:00 pm**

Presenter: Lucretia Octavia Tripp (tripplo@auburn.edu); Auburn University, Auburn, Alabama, USA

Summary: Our presentation will focus on an interactive learning environment to share youth oriented content. The target users will be teachers and students. We developed a student-friendly web application to support the student and the teacher in understanding science content around the world. This project will aim to help develop them to be more citizen science literate.

**PD.14. Establishing an Engineering Focus for GLOBE – InnisFallen – 9:00 am – 10:30 am**

Presenters: Kevin Czajkowski (kevin.czajkowski@utoledo.edu); University of Toledo, Toledo, Ohio, USA; Janet Struble, Glenn Lipscomb, Caleb Farny, David Bydlowski

Summary: GLOBE has the potential to engage students in engineering projects. In this session, we will share examples of students projects using the Arduino and Raspberry Pi programming and processors to build instrumentation piloted by GLOBE Mission EARTH universities. Also, we will share the use of kites and rovers through the AREN Project.

**PD.15. Full STEAM Ahead with GLOBE Science – InnisFallen – 10:30 am – 12:00 pm**

Presenters: Jenn Paul Glaser (jennglaser@scribeararts.org); Scribe Arts for Our Planet, Oceans and Fisheries/IGES, Boulder, Colorado, USA; Rusty Low

Summary: This hands-on workshop introduces you to STEAM (Science, Technology, Engineering, Art and Mathematics). Newly emerging STEAM pedagogies build creative capacity and divergent thinking in science students. You'll return home with a robust activity that connects students with GLOBE science using the power of art and storytelling.

**PD.16. Exploring Ireland's Ecology – Walking Tour (meet outside of the Ballroom) – 9:00 am – 12:00 pm**

Presenter: Brid Colhoun (Brid.Colhoun@chg.gov.ie); Killarney House & Gardens/Killarney National Park, Killarney, Ireland

Summary: This walking tour will take 20 participants on a 7 km (4.35 mile) walk through Muckross Abbey - Old Irish Monastery and Modern Irish Graveyard. Explore this early Christian settlement through discussion on land-use changes and discover the dramatic past of the Abbey which lies close to the shoreline of Lough Leane - the Lake of Learning. From here we discuss freshwater ecosystems in the region and how Ireland monitors and protects its watercourses. Be prepared to walk and come dressed for the weather! Make sure to get your ticket in advance.

