



GLOBE Mission Mosquito Newsletter # 2 November 27th, 2018

As we finish up our second month of the GLOBE **Mission Mosquito** Campaign, we are delighted to see our community growing. In this newsletter you will hear from our science lead Dr. Russanne Low about the impact of climate change on mosquitoes. We will share which GLOBE teachers are our leaders in sending in their Mosquito Habitat Mapper data to GLOBE, and we have an interview from one of these teachers who happens to be in a region with active mosquitoes. You will also see a few new resources and some ideas for how to engage your students with this campaign.

Scientists' Blog: More About Climate Change and Mosquitoes



Dr. Russanne Low,
IGES

Our mosquito story is a climate story. In the Early Holocene around 8200 years ago, the area that is today the Sahara Desert was much wetter and supported grassland vegetation. During the mid-Holocene, about 5000 years ago, changes in the monsoon began to dry out much of north Africa. This caused the Sahara to expand, and the yellow fever mosquito (*Aedes aegypti*) was forced to retreat to areas where they could still find standing water to breed. These were also the same places where humans migrated, congregated and settled. A changing climate brought people and mosquitoes together, and the yellow fever mosquito adapted by preferentially biting humans instead of other animals for their blood meal. They also adopted human-manufactured containers as a preferred breeding site over the natural tree holes that had been their breeding habitat in the past. Read the rest of the story [here](#).

There have been some requests for information on basic mosquito biology. Here are links to a new video from our colleagues at FIOCRUZ, a research institution in Brazil that is renowned worldwide for its contributions to our understanding of public health. I would be very interested in your comments and how you might use this video with your students. You can put your comments in the "[Ask a Scientist](#)" thread. The video is available in English, Spanish and Portuguese:

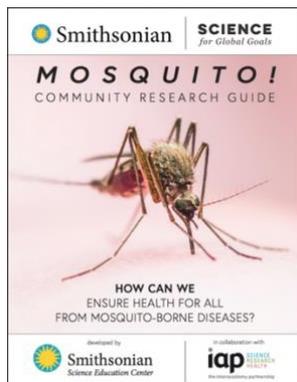


[Conociendo los mosquitos Aedes - Transmisores de arbovirus](#)

[Knowing the mosquitoes of Aedes - Transmitters of arboviruses](#)

[Conhecendo os mosquitos Aedes - Transmissores de arbovirus](#)

Educator's Corner



The international curriculum ***Mosquito! Community Research Guide*** just received the "2018 Smithsonian Education Innovation Award." Dr. Russanne Low, our science Lead, served as a project advisor and is a featured scientist within the curriculum. ***Mosquito!*** links to GLOBE Observer Mosquito Habitat Mapper (GO MHM) and associated educational resources within the curriculum. One of the units within the module, Unit 5, engages students in a citizen science activity using the GO MHM app. The curriculum is composed of stand- alone units, which together provide a roadmap to assist students in the planning and implementation of a place-based, locally relevant action research and/or science fair project. The curriculum can be accessed [here](#).

Designed for middle and high school students, there are six stand- alone units, including mosquito biology, disease transmission, habitats and mosquito management.

Honor Roll

We would like to note the top schools that recently uploaded MHM data! We interviewed one of the teachers from an Honor Roll school in this newsletter. You can see which schools are at the top in uploading "Mosquito Habitat Mapper" data [here](#): scroll down to where you see the "Most Active" and choose the "*Mosquito Habitat Mapper*" protocol.

These are the schools reporting the most data using GLOBE Observer Mosquito Habitat Mapper as of November 14:

Data Entries	School	Country
4	Nabua National High School	Philippines
4	Lycee Seydina Limamoulaye	Senegal
4	Centro Educacional Leonardo da Vinci	Brazil
3	Benin GLOBE v-School	Benin
3	Paphayomphittayakom School	Thailand
2	CEF 08 Sobradinho DF	Brazil
2	Lycee Seydina Limamoulaye	Senegal
2	Panagan National High School-Lagonoy	Philippines
2	Municipalidad distrital de Palcazú, Pasco GLOBE v-School	Peru
2	Juan L. Filipino Memorial High School	Philippines
2	Banlankrabue	Thailand
2	Payatan NHS	Philippines
2	CEG 5 Lokossa	Benin

Notes from the Field

In this section we profile citizen scientists, teachers and students working with the GLOBE *Mission Mosquito* campaign. Here is our interview with GLOBE Teacher **Justin Carlos Degbey**, University of Abomey Calavi, Benin.

Can you explain how you are using the MHM with your classes?

With the help of MHM, we photograph the area where the mosquitoes are. At the moment of observation, we count the number of mosquito larvae that are in the water. Then we watch the larvae and use the lens magnifier to take photographs. All this is done using the GLOBE Observer app by following the instructions. After we take the pictures, then I send the data. In the end, I throw the rest of the water out so the larvae won't hatch.

How do you prepare your students to be involved?

Students are from the community and live with the consequences of diseases caused by mosquitoes. We begin by discussing and learning about the management of diseases caused by mosquitoes and then talk about the prevention of mosquito bites. Convinced of the need to lead such a fight against mosquitoes, they are very engaged with the GLOBE Zika Education and Prevention Effort initiative. After a very detailed explanation of the fight against mosquito-borne diseases and the on the Zika virus, they participate in all the steps of water and larval observation.

Are your students planning to use their mosquito observations in a science fair project?

Yes, the students have a research project. The following are some of the different investigations the students are doing:

- how to avoid the multiplication of mosquitoes
- what products to use against the bites of mosquitoes that are safe
- how to prevent diseases transmitted by mosquitoes

Thank you and good reception to all- Justin Carlos Degbey, University of Abomey Calavi, Abomey Calavi, Benin

Let's start to see more of our wonderful GLOBE teachers and schools featured here!

November 8th Webinar Summary



In case you missed our second webinar, which was held on Nov. 8th, you can view the archived session [here](#).

During this webinar, Dorian Janney shared information on how and why NASA Earth observing satellite data are being used to predict, monitor, and respond to mosquito-transmitted diseases. Dr. Mike Wimberly, University of Oklahoma, explained how NASA data and other data sources are used to develop the predictive models used to forecast where and when people are at risk for West Nile virus. Currently, these models do not use citizen science data, but he said that this is something that he would like to include in future models once we have enough citizen science data to analyze. This is an important reason to be part of the GLOBE **Mission Mosquito** Campaign. Next, we heard from GLOBE teacher Jeff Bouwman, who works at Shumate Middle School in Gibraltar, Michigan. Jeff described how he organizes his students to conduct their different GLOBE research projects and he highlighted the four middle school students who are working with the GLOBE **Mission Mosquito** campaign for their IVSS project. Dorian shared a little information about her work mentoring these students, and we finished with Cassie Soeffing showing participants where they can "[join our community](#)" and how to access our [discussion forums](#).

Your GLOBE Observer Mosquito Habitat Mapper: Tips and Tricks



Want to get started? It's never too early to start getting your students ready for active mosquito season. Even if it isn't active mosquito season where you live- we need your observations! Be sure to download the [GLOBE Observer app](#) to access the Mosquito Habitat Mapper (MHM) tool. If you haven't, you'll need to register for a free account before using it for the first time.

Take a good look around your school yard for potential breeding habitats. Look for standing water and potential breeding sites in and around your school. Mosquitos tend to prefer standing water in shady places to lay their eggs. Water collects in the smallest of containers such as bottle caps or puddles found in and among garbage, so check those out also. Your observations can be made at any time: remember to use the GO MHM tool to document and photograph those potential breeding sites. Try to have your students do a new GO MHM observation every week or so. This is really easy to do with a smart phone or an iPad- and until

active mosquito season starts up, they only need to take pictures of potential mosquito breeding habitats and empty the water if they can. It is a great way to get them used to identifying these places where mosquitoes will lay their eggs during active mosquito season. Students could even work with their families and also identify these potential mosquito



breeding habitats in and outside of their homes. and then add link to this resource for them to learn more. You can find more information on the GLOBE International Virtual Science Symposium (IVSS) [here](#).

Upcoming Events

K-12 Webinar #3: Jan. 23rd at 09:00 UTC (2 PM EST)

Please note the time change- Do attend with your students if you can!

Join us as we hear from GLOBE teachers and students who are conducting research using the GO Mosquito Habitat Mapper for science investigations. Teachers and students will share their "best practices" for collecting data using the Mosquito Habitat Mapper "bundle." The "bundle" is a group of suggested GLOBE protocols which could be used to investigate mosquitoes and their preferred habitats. We will have a scientist to help answer questions and assist with research design and data analysis. Come ready to share your investigations, data, and ask questions!

We are looking for a few GLOBE teachers and students to share their work during this webinar. Please contact Dorian at dorian.w.janney@nasa.gov if you are interested! She will also be reaching out to those schools who are submitting their "Mosquito Habitat Mapper" observations to invite them to present and/or be interviewed for our newsletter.

K-12 Webinar #4: Feb. 6th at 09:00 UTC (2 PM EST)

As students are finishing up their investigations for this year's science projects, we will hear from GLOBE students and teachers who will be submitting research projects to the IVSS that are related to this campaign. We will offer suggestions for completing science fair projects as well as answer questions on how to write up the final reports. Our science lead, Dr. Russanne Low, will be on hand to answer questions and guide research conclusions.

Opportunity Knocks

The U.S. Department of State and GLOBE Zika Education and Prevention project are interested in hosting another virtual exchange program (tentatively scheduled to start in or shortly after January 2019) and is looking for U.S. schools interested in participating.

This will be a similar program to a pilot that was conducted in the spring 2018 in which they hosted four schools in three GLOBE regions (Latin America and Caribbean, Africa, Asia and Pacific) in a three-month virtual exchange program.

Students and teachers met on average twice per month for one hour each session via Zoom online videoconferencing to share their collective GLOBE mosquito research experience and learn how to tell a science story.

Feedback from teachers participating in the spring virtual exchange program was overwhelmingly positive, including:

- Students developed more interest in science and research;
- Students loved being a part of an international exchange; able to meet and learn from others around the world;
- Students gained confidence in oral speech skills.

The project is seeking U.S. participants that are able to meet the following criteria:

- Schools are actively making and reporting GLOBE mosquito habitat mapper protocol observations
- Access to Wi-Fi;
- Ability to set up and use a Zoom account;
- Approximately 10 hours over a three-month period to prep for and participate in the virtual exchange sessions.

Please reach out to mosquitoes@globe.gov by **Monday, December 3** if you have any U.S. schools to recommend.