04 May 2021

GLOBE Student Exchange & Regional Campaign

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GLOBE Campaigns, Expeditions, Students Research & Exchange Program objectives:

- The objective of our Regional Campaigns, Expedition, Students Research & Exchange program is to develop a spirit of scientific learning, adventure and discovery. Organizing, planning, training and completing the Expedition or Exploration requires self-reliance, determination and cooperation.
- To Links students, teachers, and the scientific research community in an effort to learn more about the environment through student data collection and observation.
- In the past AP RCO has organized may successful activities to engage students and regional GLOBE Community.

How it has benefited the regional Community

- Expeditions, Students Research & Exchange programs has helped the student in our region learn, research & to adapt and to the new **ecosystem** which strengthens and expands their **knowledge** and skills on STEM education as well as on the cultural side.

- It also engaging students with exciting material and experiences from meeting different students from our region.

- Expenses are one of the most important factors for students. That is way AP region exchange program is very successful and popular, as students only have to cover the air fair as the host country took care of the accommodation & food along with RCO.

Proposed Expedition, Research & Students Exchange Program in the region during 2021/2022

Following activities are pending health and Country restrictions. We will still offer the option for students to participate in the program remotely (virtually).

Expeditions & Campaigns

Proposed dates for upcoming Expiditiond & campaigns

1. Students Exchange Program in Thailand

- AP RCO in coordination with GLOBE – Thailand is planning to Organize GLOBE Students Science Research Exchange and during January 2022.
- This activity is planned to promote scientific research among the students in our regional Community.
- Further details will be finalized after assessing the travelling restriction in the county due to current pandemic.

2. Expedition to the sea to Malé, Maldives

- AP RCO is Organizing the “Expedition to the Sea” for the last couple of Years. Where we engage both Teachers & Students in the Program.
- Earlier this expedition was proposed to held on April 2020, but due to COVID - 19 Pandemic got cancelled.
- We are planning to organize the program during April, 2022.
- As done in the previous years this program will also be a student Exchange Program as well as Teacher’s Training in the Country.

3. GLOBE Science festival – 2022 in Taipei, Taiwan

- RCO is planning to Organize 2022 GLOBE Science Festival in Taipei, Taiwan in association with GLOBE Partner- Taiwan.
- We are planning to host the in person meeting during May, 2022.
- RCO will encourage students participation through GLOBE student Research Project.
- Each country can submit 5 projects maximum upto 3 Students Project with Max No. of Students participating be ten (10).

GLOBE REGIONAL CAMPAIGNS

Campaigns

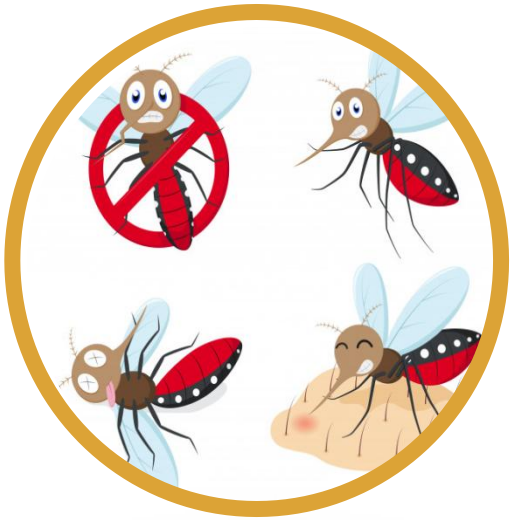
Both Regional & Inter- Regional

Water Bodies

Hydrology Campaign

Know your Soil

Pedospher Campaign



What's Biting?

Mosquito & Allied Protocol Campaign

Water Bodies Collaboration

About Rivers & Lakes

Freshwater is essential for our planet. It is vital for people and other living things around us. Freshwater environments include rivers, lakes, wetlands, streams and underground aquifers. They store and clean the water that's crucial for people and wildlife. Rivers and lakes in particular due to their greater water supply potential and easy access to human exploitation are facing greatest threat.

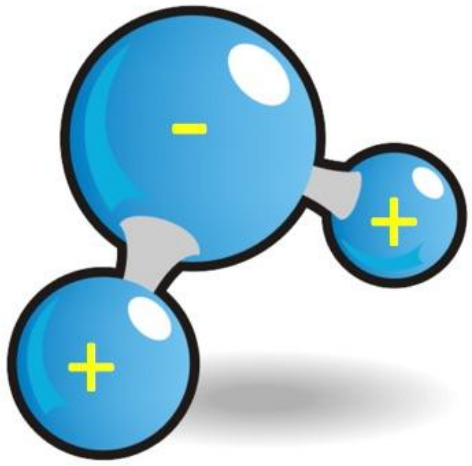
Rivers and lakes supply water for drinking, irrigation, manufacturing, energy and transport. They also help to prevent erosion, provide natural protection from flooding, moderate the local climate, and act as sink for the waste we dispose in rivers and lakes.

Water is recognized by the United Nations as a precondition for human existence and for sustainability of the planet, which guide us to undertake the responsibility to effectively manage this resource so as to avoid pollution and scarcity.

Why Study Hydrosphere

Water participates in many important chemical reactions. Completely pure water rarely occurs in nature because it carries impurities as it travels through the hydrologic cycle. Rain and snow capture aerosols from the air. Acidic water slowly dissolves rocks, placing dissolved solids in water. Small but visible pieces of rocks and soils also can become suspended in water and make some waters turbid.

Water is a good solvent. Because of its molecular polarity, it dissolved more substances than any other liquid. When water percolates into the ground, more minerals dissolve into water. Dissolved or suspended impurities determine water's chemical composition. **By studying changes in the quality and composition of water bodies, we are also gathering clues about changes in other parts of the Earth system.**



Rivers and Lakes Protocol Bundle

Dissolved oxygen	Alkalinity	pH	Transparency	Temperature	
Relative humidity	Air temperature	Nitrates	Salinity	Electrical Conductivity	Rivers and Lakes Protocol Bundle
Precipitation	Precipitation pH	Land cover			

Hydroshphere
Atmosphere
Biosphere

Mosquito awareness campaign

About mosquitoes

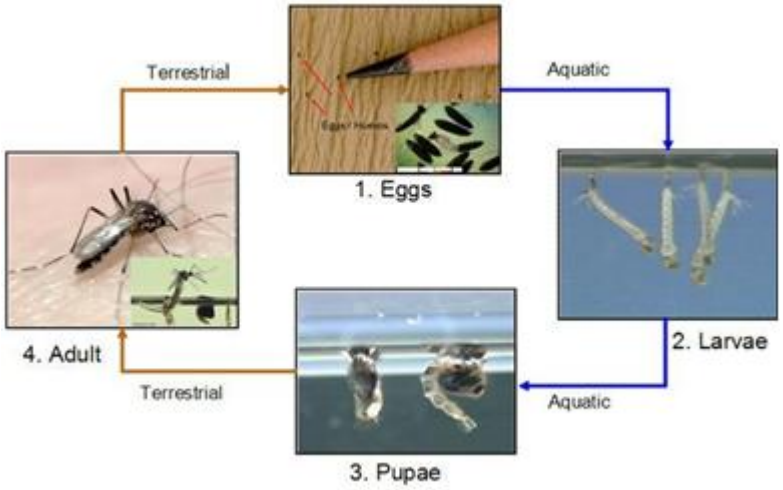
- Mosquitoes are common insects that live in various environments around the world, particularly in warm, tropic, and sub-tropic regions
- As temperatures increase in many areas of the world, presence of disease-carrying mosquitoes should be closely monitored to prevent future outbreaks of Zika and other vector-borne diseases
- Over 40 genera and 3,500 known species of mosquitoes
- Three of these genera, Anopheles, Aedes, and Culex, have species that transmit diseases
- These diseases include malaria, dengue fever, West Nile virus, and Zika

why collect mosquito data?

- Mosquitoes and climate change
- Understand the relationship between mosquitoes, pathogens, and environment
- Used locally to determine when outbreaks of disease such as malaria and dengue most likely will occur
- Globally, use data from satellites to predict onset, decline, and spread of vector-borne disease
- Reliable ground-based data are helpful but sometimes, sufficient data are not available
- This is where GLOBE observations come in!
- Vaccines are not available for most mosquito-borne diseases
- Only 3 ways to protect a community from mosquito vector-borne disease:
  - Surveillance
  - Habitat mitigation
  - Public education

Life Cycle of a Mosquito

Mosquitoes require water to breed and grow in their early life stages. Eggs hatch after two days, producing aquatic larvae. From the first larval stage to the adult mosquito, larvae pass through four stages, called "instars". The duration of the aquatic phase and each different larval phase depends on the temperature of the water. Seasonal patterns of temperature and precipitation may be altered by changes in climate where you live. These changes could affect the spread and intensity of the Zika virus and other disease outbreaks.



mosquito campaign protocol bundle

turbidity	water temperature	dissolved oxygen	precipitation pH	relative humidity	
salinity	water pH	air temperature	precipitation	trees	mosquito habitat mapper
green up, green down	land cover classification	biometry	soil moisture	land cover	

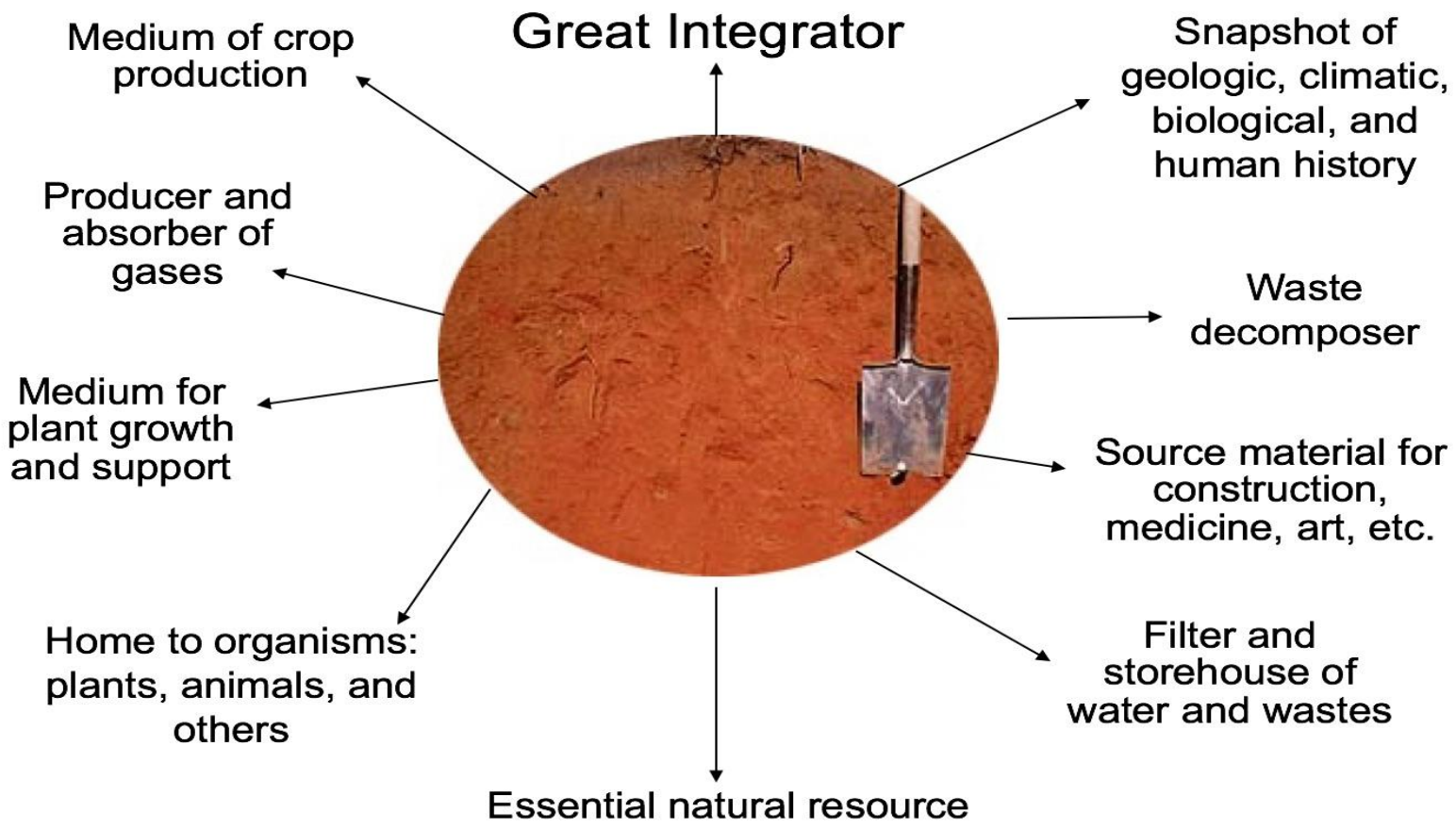
KEY
+ hydrology
+ atmosphere
+ biosphere
+ pedosphere
+ GLOBE observer

Pedospher (Soil) awareness campaign

About Soil

Soils are one of Earth's essential natural resources yet they are often taken for granted. Most people do not realize that soils are a living, breathing world supporting nearly all terrestrial life. They hold nutrients and water for plants and animals; they filter and clean water that flows through soils. They also influence the amount of water that recharges the groundwater. The amount of water in soil is known as soil moisture and it plays a very important role in predicting the type of plants that will grow in a given area, the occurrence of floods or droughts, and in predicting the weather (soil moisture can play a large role in cloud formation).

We Study Soil Because It's the



The Soil Bundle

Soil temperature	Soil Moisture	Soil Infiltration	Soil Fertility	Bulk density
Land cover	Precipitation	Relative humidity	Air temperature	Soil pH

Soil Bundle Protocol

Soil
Atmosphere
Land Cover

For Students

Sponsored by: NASA Supported by: NSF NOAA Implemented by: UCAR

Collaboration & Research

During one month (for Each Campaign), schools across the region students will collect data about the condition of water, Soil & Mosquitoes in their communities. In so doing the following research questions will be interrogated. Students should study water temperature and pH as well as macro invertebrates, the protocols that require little or no equipment. We encourage students to add any other protocols besides these.

Main Objectives

- Increase school participation and collaboration among schools
- To take a geographic snapshot of water conditions
- Interaction with scientists before, during and after the data collection event.

Expected outcomes

- Increase in student research projects, participation in International Virtual Science Symposium (IVSS) and collaboration activities
- Community benefits – connect to Sustainability Development Goals (SDGs)
- Data collected, maps and initial visualizations and analyses

Participants will

- undertake e- training in the basic GLOBE protocols
- identify a water source/body, Soil Site & Mosquito breeding sites in their neighbourhood
- map the water body and the shores & soil Site
- carry out the investigations following the bundle protocols
- submit the data to the GLOBE database
- share the results with other schools as well as with local community

Reaearch report selection procedure

Step 1

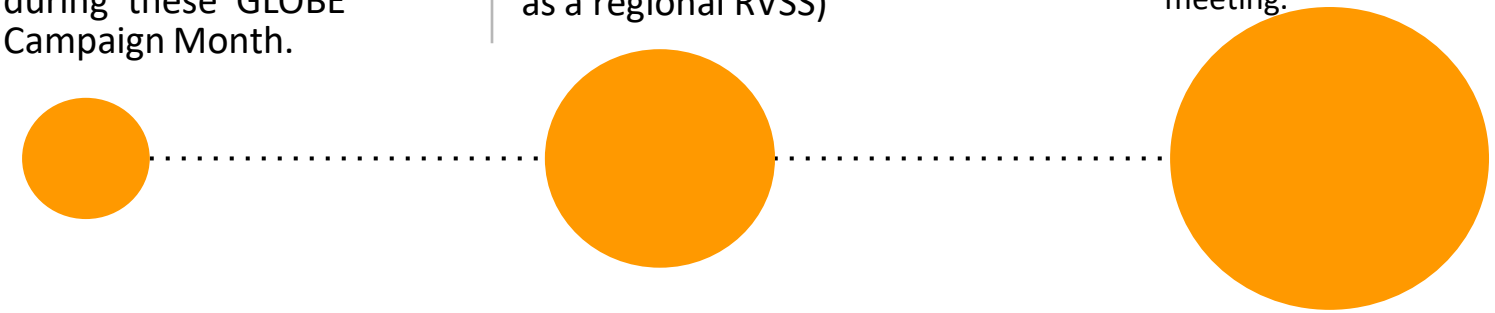
Students to Prepare on GLOBE Project on Data Collected during these GLOBE Campaign Month.

Step 2

The project which has been submitted by Schools in the region then will be evaluated by RCO. (as a regional RVSS)

Step 3

The **two best** projects will be awarded the regional RVSS winner and will be invited to take part in Regional GLE during the regional meeting.



- The aim of these regional campaign is to encourage participation of School for data collection of identified water bodies, Soil Sites & Mosquito Breeding Sites.
- The details of the campaign is shared with CCs for their Review

THANKS!

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