

# 2025 GLOBE International Virtual Science Symposium (IVSS)

Webinar #6: 2025 How to Submit an IVSS Project

www.globe.gov/news-events/meetings symposia/virtual-conferences













# Celebrating GLOBE's 30th Anniversary in 2025!







The 2025 IVSS celebrates the GLOBE Community's effort of submitting over over 250 million data points to the GLOBE database over the past 30 years.

We can't wait to see how students incorporate the analysis of GLOBE data in their 2025 IVSS projects!













# **2025 IVSS Timeline**

05 December - 05 March 2025: IVSS Projects Accepted

19 March 2025: Judging Webinar

19 March - 02 April 2025: Judging Period

**22 April 2025:** Earth Day Celebration, Feedback to Students and Stipend Drawing







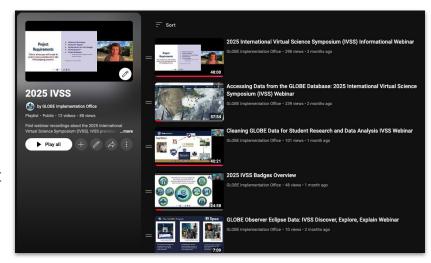




# **View 2025 IVSS Webinar Recordings!**



- 16 September 2024: General IVSS Informational Webinar
- 9 October 2024: Accessing Data from the GLOBE Database
- 24 October and 28 October 2024: Resources to Support Student Research from GLOBE Partners and NASA Scientists
- 20 November 2024: Cleaning GLOBE Data for Student Research and Data Analysis
- 4 December 2024: 2025 IVSS Badges Overview
- 8 January 2025: The Strengths and Possible Drawbacks of AI in Earth Systems: Leveraging Technology Ethically





Scan to access the 2025 IVSS YouTube playlist!













# Project Requirements

This is what you will need in order to be considered in the IVSS judging process.

# Most important: projects must include GLOBE data!

- Abstract/Summary
- Research report
- Explanation for each badge
- > Presentation
- > Photo release forms



# **Submitting Your 2025 IVSS Project**



Visit the IVSS webpage to access the IVSS Project Upload Tool:



You must be logged in to one of the following account types on GLOBE.gov to access the project upload tool:

- **GLOBE Educator**
- Citizen Scientist

## International Virtual Science Symposium



The International Virtual Science Symposium is an opportunity for GLOBE students to showcase their research to the rest of the community. Projects are judged by prestigious scientists and STEM professionals across dozens of GLOBE nations. Students are eligible for stipends and GLOBE badges.

Students may submit a project on any topic, but they are encouraged to align their research with the year's theme.

Note: Students must complete and sign a media release form for their project to be accepted for judging.



Upload a Research Report

Edit My Reports



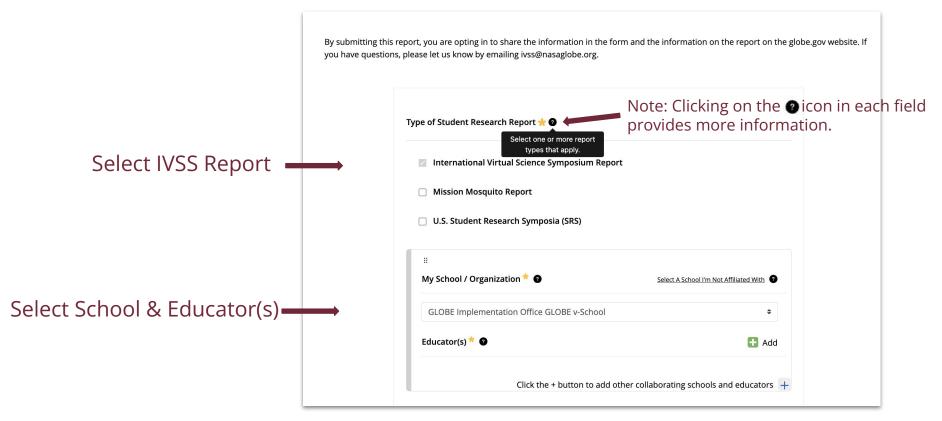






# **IVSS Project Upload Tool**















# **IVSS Project Upload Tool: Students and Collaborators**



Include names of all students who contributed to the project	Student(s) ** ②
Names & organizations of	Total Number of Students Involved *
collaborators; e.g. STEM Professionals, Scientists, etc.	Additional Contributors 🕜
	Grade Level *
	Select One









# **IVSS Project Upload Tool: Report Information**



Abstract or Summary from research report

Describe your project in 500 characters or less; include English translation, if possible, for the website.

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Abstra	act or Summary 🜟 🕜
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Short	Description of Report 🛨 🗹
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# **IVSS Project Upload Tool: Report Information**



Select all GLOBE protocols used in the project

Upload a PDF, DOC, or TXT file

JPG or PNG image to display with your report; note image size requirements

Atmosphere		+
Biosphere		+
Earth As a System		+
Hydrosphere		+
Pedosphere (Soil)		+
pload Research Report	*•	
Select  pload Optional Report  Image resizing help:	Cover Image (625 x 350 pixels) <b> </b>	
Select  pload Optional Report  Image resizing help:  • Mac users: Open the ii icon. Enter the pixel di	Cover Image (625 x 350 pixels)   mage in the Preview app. Open the "markup" toolbar and click on the "adjust imensions and save the resized image.  lage in MS Paint. Click on the "resize" icon in the toolbar. Enter the pixel dime	
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# **IVSS Project Upload Tool: Report Language**



Select one or more languages.

At least one language must be selected.		
☐ English		
☐ Spanish		
☐ French		
☐ Arabic		
☐ Croatian		
☐ Thai		
☐ Portuguese		
☐ Other		



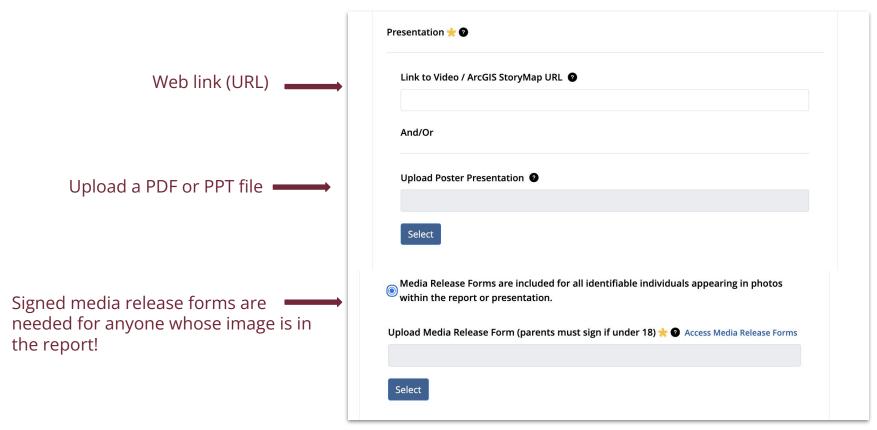






# **IVSS Project Upload Tool: Presentation**











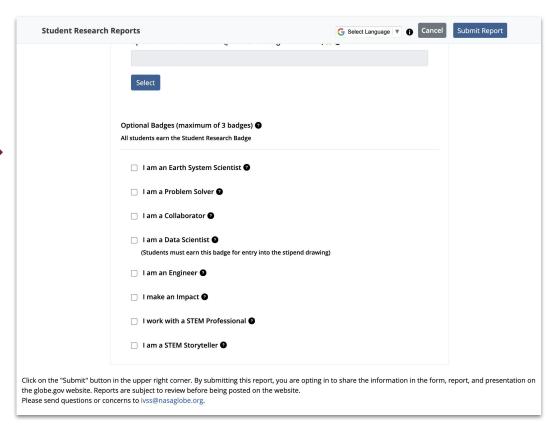


# **IVSS Project Upload Tool: Badges**



Select up to 3 badges

Note: Data Scientist badge must be selected and earned to qualify for stipend drawing.









# **Edit Your Report (time is limited!)**



Click "Edit My Reports" before report is published on GLOBE.gov to make any changes to your project.

Questions? Email ivss@nasaglobe.org

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# **Student Research Reports Database**



Projects that meet the minimum IVSS project requirements are published in GLOBE's Student Research Reports Database:

GLOBE.gov → Do GLOBE → Student Research Reports



## Report Cover Image





## Student Research Reports

Discover student projects from around the world with GLOBE's easy-to-use database. From studies on bacteria in the Mississippi River to microplastics in the Adriatic Sea, students and teachers can browse a wealth of student-conducted research to spark their next scientific inquiry. They can also filter the reports through various search parameters to find exactly what they are looking for.

**Upload a Research Report** 

**Edit My Reports** 

A sample Student Research Report Format can be found here.

Open Filters

Sort By: Date | Title

### 01/10/2025

Analyzing the Impact of Solar Arrays on Surrounding Vegetation in Agrivoltaic Farming for Performance Optimization

This study investigates the impact of solar arrays on vegetation health within agrivoltaic systems. By analyzing satellite imagery data, the research found that while solar panels generally decrease vegetation health, specific conditions may enhance photosynthesis. This research highlights the critical need for careful design and management strategies to optimize both energy production and agricultural productivity in agrivoltaic systems. >>











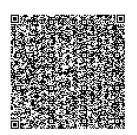
# **Student Research Reports: Project Details**



Share

Information entered in the IVSS Research Report upload tool is displayed on the IVSS Project Details page for each project.

 $GLOBE.gov \rightarrow Do GLOBE \rightarrow Student$ Research Reports





Analyzing the Impact of Solar Arrays on Surrounding **Use GLOBE Data for** Vegetation in Agrivoltaic Farming for Performance Research Student Research Reports Optimization

> Organization(s): Institute for Global Environmental Strategies (IGES) GLOBE v-School

Country: United States of America

Student(s): Yuki Oian, Ethan Poon, Eric Mittelman, Michael Manders,

Home > Do GLOBE > Use GLOBE Data for Research > Student Research Reports

GLOBE Science Process

GLOBE Publications

Grade Level: Secondary School (grades 9-12, ages 14-18)

GLOBE Educator(s): Cassie Soeffing

Contributors: Dr. Rusty Low, SME, IGES, mentor Peder Nelson, SME, Oregon State University, mentor Andrew Clark, SME, IGES, mentor Dr.

Erika Podest, SME, NASA IPL, mentor

Report Type(s): International Virtual Science Symposium Report,

Mission Mosquito Report

Protocols: Land Cover Classification, Earth As a System

Presentation Video: View Video Presentation Poster: View Document

Language(s): English Date Submitted: 01/10/2025

#### **View Research Report**

This project investigates the impact of solar arrays on surrounding vegetation within agrivoltaic systems to enhance operational efficiency. Agrivoltaics, which combines agricultural practices with solar energy production on the same land, offers a sustainable alternative to exclusive solar installations on agricultural land. By diversifying income for farmers and addressing energy equity issues in less grid-connected areas, agrivoltaics can play a crucial role in sustainable energy and rural economic development. The study focuses on understanding the intricate balance between energy production and agricultural yield in agrivoltaic sites. Solar panels create microclimates that influence plant growth dynamics, necessitating a comprehensive analysis of these effects. The primary research question explores the feasibility of using remote sensing tools and satellite data to assess the impact of solar arrays on vegetation health and productivity, thereby informing future agrivoltaic projects. The first step was identifying agrivoltaic sites across the United States by integrating global observer AOI data with the US Solar Photovoltaic Database (USPVDB). Then, LANDSAT satellite imagery is used to analyze these locations, leveraging NDVI, spectral wavelengths (particularly red









# **Additional Project Resources**





## International Virtual Science Symposium

Report Requirements

Badges

How Projects Are Judged

Teacher Resources

Student Resources

Stipend Recipients

Judge Resources and Guidelines

**Regional Statistics** 

Celebrating 2024 IVSS Reports

2024 IVSS Reports

## International Virtual Science Symposium



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# **Additional Project Resources: Report Requirements**





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Celebrating 2024 IVSS Reports

2024 IVSS Reports

## 1. Written Report

- Title & Abstract or summary
- Five (5) Sections: Introduction, Methods and materials,
   Results and data, Discussion, Conclusion
- Citations

## 2. Badge Descriptions

 "I am a Data Scientist" badge, at least one (1) additional badge, and a four-star report are required to be eligible for stipend drawing.

## 3. Presentation

- Link to Video or ArcGIS StoryMap OR
- Presentation poster (PPT or PDF)

## 4. Report Cover Image

- Image to be displayed with the report
- 5. Photo Release Form









# **Additional Project Resources: Badges**



## International Virtual Science Symposium

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## **Badge for All IVSS Projects**



#### I AM A STUDENT RESEARCHER

All students who submit a report to the IVSS receive an "I am a Student Researcher" badge. As such, students can earn up to four badges total.

- Students can earn up to 3 badges in addition to the "I am a Student Researcher" badge.
- Reports should describe how badges were earned

## Highlight Badge for 2025 IVSS Theme



### I AM A DATA SCIENTIST

The report includes in-depth analysis of data downloaded from the GLOBE database as well as the students' own data sources, if new data was collected. Students discuss limitations of these data: make inferences about past, present or future events; or use data to answer questions or solve problems in the represented system.

Note: To be entered into the Earth Day stipend drawing the "I am a Data Scientist" badge must be met, in addition to at least one of the Optional Badges listed below.

**Required Components** 











# "I am a Data Scientist" Badge Requirements

Reports must include analysis of data downloaded from the GLOBE database, including the following:

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## Data Tables

- Organized, properly labeled, and contain all data retrieved from the GLOBE database
- Raw data included as a separate page labeled "Appendix" for review

## Data Analysis

- Graphs are properly labeled and appropriate for the data collected
- Statistical/mathematical analysis clearly communicated

## Discussion of Analysis and Conclusions

- Data analysis is described and claims reference data
- Compare results with published or expected results















# "I am a Data Scientist" Badge Example: **2024 IVSS Stipend Recipients from Bhutan**

A comprehensive investigation on Carbon Storage in the vegetation of our schoolyard and determining the Carbon Footprint of the school through the measurement of carbon using GLOBE's Carbon Cycle Protocols.

Organization(s): Pelrithang Higher Secondary School

Country: Bhutan

Student(s): Sangay Choden Yeshey Wangchuk Kalpana Mongar

Usha Pvakurel Shankar Ghimrev

Grade Level: Middle School (grades 6-8, ages 11-14)

GLOBE Educator(s): Arun Kumar Chhetri

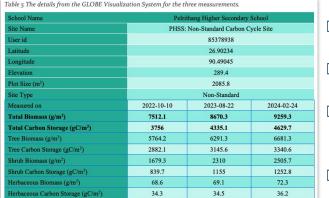
Contributors: Sahapati Gurung (Assistant Focal Teacher) Report Type(s): International Virtual Science Symposium Report

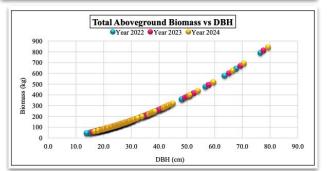
Protocols: Carbon Cycle



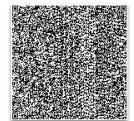
#### I AM A DATA SCIENTIST

This research involves a thorough measurement of carbon stored in the trees, shrubs and herbaceous of our schoolvard. We have tried to provide an in-depth analysis of the data collected over a period of three years. We also analyzed net primary productivity (NPP) and the Carbon Footprint.





- Data tables with **GLOBE** data
- Graphs and data analysis
- Data entered and retrieved from the **GLOBE** database
  - Badge explanations



Scan to view this project example!











# Additional Project Resources: How Projects are Judged



International Virtual Science Symposium

Report Requirements

Badges

How Projects Are Judged

Teacher Resources

Student Resources

Stipend Recipients

ludge Resources and Guidelines

**Regional Statistics** 

Celebrating 2024 IVSS Reports

2024 IVSS Reports

- Rubrics by grade level/age
  - Include details on what each project element should include

Students are encouraged to review the rubric information to support the writing and research process.











# Additional Project Resources: How Projects are Judged



## International Virtual **Science Symposium**

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Celebrating 2024 IVSS Reports

2024 IVSS Reports

## 2023 - 2025

Grades 9-16 (Ages 14-18+)

## Four Stars (Exceptional) Three Stars (Good)

- · The report is well organized, neat and well presented.
- · The writing is clear and concise.
- · The report contains the five elements required for acceptance, clearly labeled, and includes an in-depth discussion of each.
- · Report demonstrates the ability to draw insightful conclusions

- · Report contains all of the elements and most of the criteria listed below however some
- minor elements are unclear or missing. · Report makes clear connections among
- presented. · Report includes some discussion of topics addressed.

topics and ideas

- The report is well organized, neat and well presented.
- · The writing is clear.
- · The report contains the five elements required for acceptance, clearly labeled.

## Two Stars (Needs Improvement)

One Star (Insufficient)

- · Report contains the five elements required for acceptance. however some major elements are missing.
- · The report is somewhat organized.
- · The report is missing one or more of the five elements required for acceptance, may or may not be clearly labeled, and could use some more work in certain areas.

· Report submitted. but is missing significant information or does not contain all five elements required for acceptance in detail.









# Additional Project Resources: How Projects are Judged



## International Virtual **Science Symposium**

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Project elements and criteria for High School and Undergraduate, ages 14-18+

\* required element

#### 1. Title\*

- · Concise (less than 15 words)
- Summarizes paper's content

#### 2. Abstract\*

- · Concise (less than 300 words)
- Context of research
- · Research guestions
- · Objectives set
- · Brief methods description
- Results
- Conclusions
- · Recommendations for a way forward
- . Key words that emphasize key ideas in the paper (3-5 words)

#### 3. Research Questions\*

- · Include why they are important and are of scientific interest
- Concern some aspect of Earth's environment (local or global issue)
- Provide significant insight into both the topic of investigation and the research process
- . Answering them requires an advanced understanding of the subject matter
- · Require a thoughtful research plan
- Are answerable through scientific research appropriate to the scope of the report

#### 4. Introduction & Review of Literature

- Thorough (250-500 words)
- · Description of the problem
- · State of the science
- Importance
- Community relevance
- Citations in text (at least 3-5 references, including one primary source in a peer-reviewed journal, Do not include wikis or Q&A sites such as answers.com.
  - o Tip: Check out the The Purdue "OWL" for guidance and resources

#### 5. Research Methods\*

- · There is a direct link provided between the datasets and research question(s)
- . Study site: A map and description of the study site. It should mention area of study, climatic characteristics and basic aspects of land cover
- Data collection: A description of GLOBE protocols used to answer the research question as well as where and how data was gathered in the field (sampling method: Where, how many samples were
- · Print screen of data entry in the Web page of GLOBE.
- · Data analysis: Mention what kind of mathematical calculation was applied to analyze the data
- The data presented are sufficient to answer the research question(s)

#### 6. Results

- Tables and graphics applying statistical analysis of data to show mean, dispersion, or grouping data.
- · Data support the conclusions
- · Print screen of GLOBE Visualization page

### 7. Discussion

- · Interpretation of results
- · Possible sources of error
- Comparison with similar studies
- Discuss whether results support the hypothesis or not, and why

#### 8. Conclusion\*

- · Gives a thorough and insightful explanation as to how the conclusion was reached
- · Put findings in context, why it's important/relevant, impact, with regard to the science
- What improvements in methods
- What follow-on research/actions to be taken, future protocols that could be added
- · Impact of working with a project mentor

#### 9. Bibliography/Citations

- · Materials correctly cited
- · GLOBE materials used
- · Sources beyond those powered by GLOBE





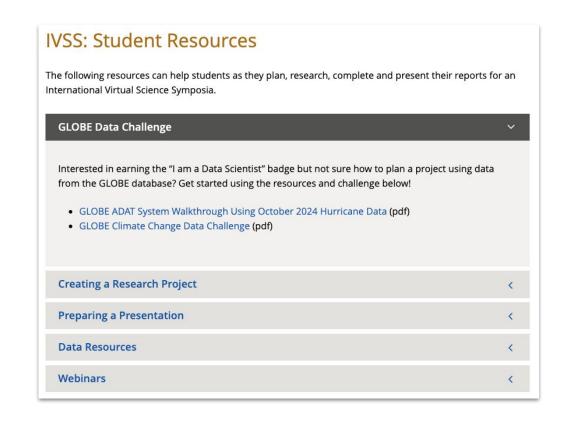




# **Additional Project Resources: Student Resources**











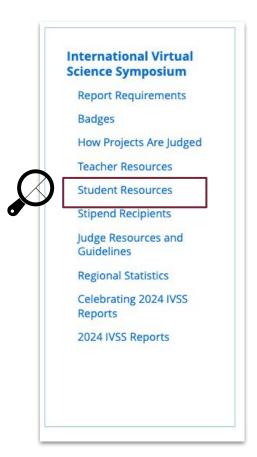


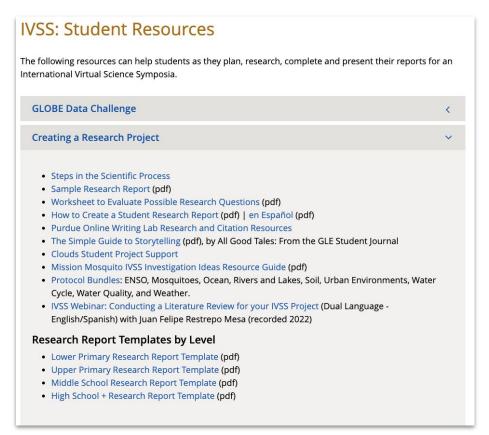




# **Additional Project Resources: Student Resources**









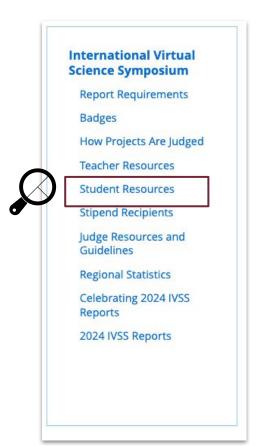


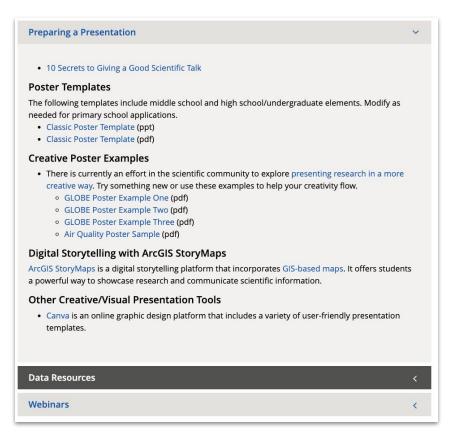




# Additional Project Resources: Student Resources















# **Important Reminders**



- Photo Release Forms
  - Required for everyone who appears in a photo or video!
- Last day to submit IVSS projects is 5 March!
- Stipend drawing in April
  - Qualified projects: 4-star rubric rating, earn the "I am a Data Scientist" badge and one additional badge
  - Stipend recipients will be invited to the 2025 GLOBE Annual Meeting Student Research Experience
  - Stipend can be used to offset the cost of attending the Annual Meeting Student Research Experience, held in the Washington, D.C.-area in July 2025.





Above images: Students from Shree Swaminarayan Academy in Kenya investigating the impact of mulching on soils.









# **2024 IVSS Stipend Recipients**

**Africa** 

Title: Impact of Industrial Emissions on Climate

Teachers: Maureen Achieng Okayo, Richard Muema, Beatrix Shiro

Ovange

School: Shree Swaminnarayan Academy

Location: Kenya

## **Asia and Pacific**

<u>Title:</u> A comprehensive investigation on Carbon Storage in the vegetation of our schoolyard and determining the Carbon Footprint of

the school through the measurement of carbon using GLOBE's Carbon Cycle protocols

Teacher: Arun Kumar Chhetri

School: Pelrithang Higher Secondary School

Location: Bhutan

## **Europe and Eurasia**

<u>Title:</u> Monitoring and protection Marmont alley

Teacher: Snježana Marković-Zoraja

School: OS Dubovac Location: Croatia

> Visit the IVSS Stipend Recipients page to explore these projects!

## Latin America and Caribbean

Title: Reducing Our Carbon Footprint: Rochester Scl Strategies to Reduce Emissions

Teacher: Maria Del Pilar Tunarroza

School: Rochester School

Location: Colombia

## **Near East and North Africa**

<u>Title:</u> The effect of soil type on the growth of rose flowers

<u>Teacher:</u> Hifaa Rashid AlKaabi School: Alshaffa bint Abdullah

Location: Oman

## North America

<u>Title:</u> A Random Forest Analysis of Remote Sensing Driven

Mosquito Habitat Prediction in West Africa

**Teacher:** Cassie Soeffing

<u>School:</u> Institute for Global Environmental Strategies (IGES)

GLOBE v-School

Location: USA

<u>Title:</u> Water Temperature and pH Measurements on Gulkana Glacier and Phelan Creek, Alaska

<u>Teacher:</u> Christina Buffington

School: Department of Natural Resources and Environment,

Fairbanks, Alaska Location: USA











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Visit the IVSS Page to Learn More and Access Webinar

**Recordings!** 

Report requirements, student resources, and more!

## Recorded IVSS webinars:

- **IVSS Informational Webinar**
- Accessing Data from the GLOBE Database
- Resources to Support Student Research from GLOBF Partners and NASA Scientists
- Cleaning GLOBE Data for Student Research and Analysis
- 2025 IVSS Badges Overview



https://www.globe.gov/news-events/meetings\_symposia/virtual-conferences

















# Thank you! Questions?