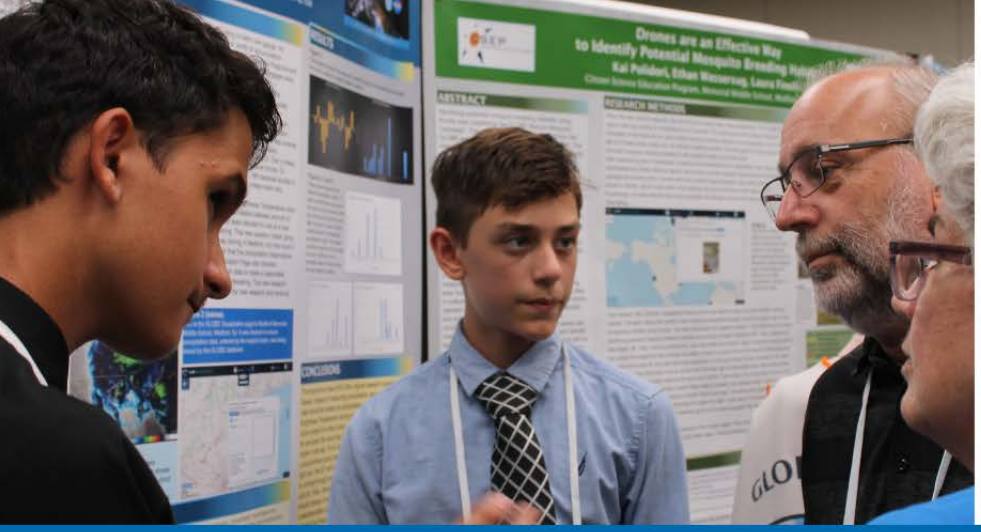


GLOBEPROGRAM®
A Worldwide Science & Education Program

2024–25

State of GLOBE

A Report to the GLOBE Community

Sponsored by: NASA Supported by: NSF NOAA

Introduction

The GLOBE Program is excited to present the "State of GLOBE Report"—a new report to the GLOBE community summarizing the activities of the past year (May 1, 2024–April 30, 2025).

This past year has brought significant change within the GLOBE community, including the GLOBE Implementation Office (GIO) itself. The new GIO team and leadership are honored to continue the legacy of those who came before us and are energized by the opportunity to serve this remarkable program. While some of our faces may be new, our dedication to supporting and growing the GLOBE Program is as strong as ever. And we were delighted to celebrate 30 years of the GLOBE Program in April 2025 with a wonderful celebration highlighting GLOBE's impact across the decades and the planet.

We are immensely grateful for each of you—the learners and educators who take time to engage in GLOBE and use GLOBE data to take action in their communities; the volunteer observers who help monitor the conditions of clouds, water, and plants; the scientists who engage with GLOBE citizen scientists and develop research projects that GLOBE can contribute to; and the country coordinators, U.S. partners, and Regional Coordination Offices (RCOs) who support GLOBE citizen science.

Due to the transition of the GIO, an annual survey—which is typically the focus of the GIO report—was not conducted this year, as we engaged with the community in several ways to get input on where the GIO should focus its efforts and what is most needed in the community. Input was gathered at the 2024 Annual Meeting through several surveys from the GLOBE Working Groups, during Regional Meetings, and through a "listening tour" conducted with RCOs and a sample of country coordinators.

This first-ever “State of GLOBE Report” provides a look at the initiatives and activities of the GLOBE Program from May 1, 2024, to April 30, 2025, including those led by the GIO and by the Data and Information Systems (DIS) team, and highlights from each GLOBE region. You can learn more in the following sections:

Contents

Introduction to the New GIO

The new GIO shared its shared core values, goals, and initial plans for the GLOBE Program at the 2024 Annual Meeting in Fredonia, New York (USA). Over the past year, we have striven to be open and transparent with the GLOBE community.

At the 2024 Annual Meeting, the new GIO team presented the core values and goals that guide our work across the GIO.

The core values of the GIO are:

- Respecting and honoring the legacy, contributions, and innovations of the GLOBE Program
- Listening to and learning from the GLOBE community
- Being receptive to new ideas
- Transparency
- Commitment to open science
- Commitment to the GLOBE community

The ultimate goal of the GIO is to advance Earth system science and STEM education. We seek to do so by:

- Being responsive to the GLOBE community
- Integrating the traditional school-based GLOBE Program model with the GLOBE Observer program model and developing a community of GLOBE citizen scientists of all ages
- Advancing Earth system science
- Fostering the use of GLOBE observations to benefit humanity, including supporting local action based on scientific research

The main objectives of the GIO for this year were to:

- Provide opportunities for continuous engagement ("K–gray")
- Build a GLOBE International STEM Network (GISN) that is representative of the world
- Foster 21st century workforce skills in computational, data, and environmental science literacy
- Reduce barriers for use of GLOBE data in research
- Forge deeper connections between the GLOBE Program and other science research organizations and activities
- Launch a new communications plan
- Support the GLOBE Working Groups and align their efforts with those of the GLOBE Program Office, GIO, and GLOBE regions
- Assess and support regional and country engagement by the RCOs
- Expand the program's reach through partnerships—both renewing past partnerships and establishing new ones
- Engage supportive communities, including GLOBE alumni

This report includes updates on the following elements of the GIO work:

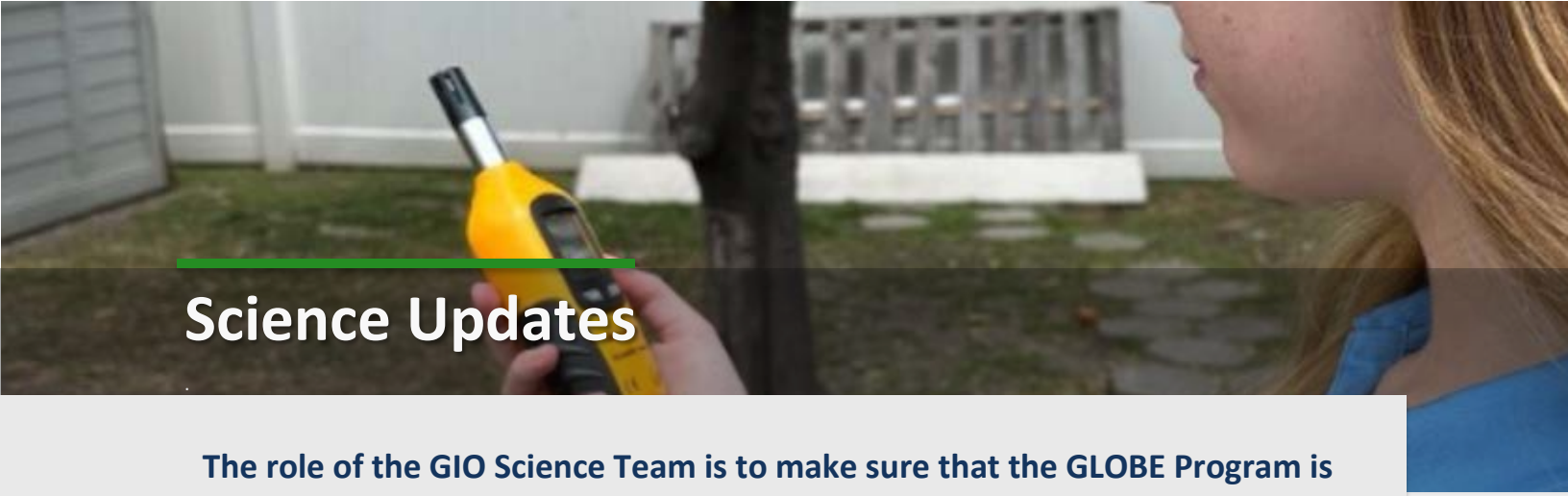
- Science
- Training, Education, and Public Engagement
- Community Engagement and Support

Our plans for the future are described in the section titled GIO Plans for 2025–2026 and Beyond.

The GIO is composed of two groups:

- Community Engagement and Support (CES) team
- Science and Training, Education, and Public Engagement (STEPE) Team, which covers both Science and TEPE program elements

You can learn more about the new GIO on the GLOBE website.



Science Updates

The role of the GIO Science Team is to make sure that the GLOBE Program is based on strong science and helps advance our understanding of the earth. The team also connects scientists, educators, and citizen scientists to improve the program and help society.

The GIO Science team is proud to share several significant accomplishments over this year, many of which surpassed the team's own expectations. In 2024–25, the GIO Science team has focused on providing opportunities for continuous engagement for GLOBE citizen scientists of all ages ("K–gray"), ensuring that the GISN is representative of the world and that its STEM professionals are supporting GLOBE's mission, helping to ensure that GLOBE data are used in research, and building opportunities to connect the GLOBE Program with science research organizations and their research activities.

Significant outcomes for this year include the following:

- **Increased GISN participation** to better represent the global reach of the program. Specifically, our efforts resulted in **a 33% increase in new members** within the network for our first year, far surpassing the original target of 10%.
- Established deeper **connections between GLOBE and NASA science** at multiple levels, for example:
    - We are working with Dr. Di Yang, University of Florida, whose dengue risk model project is integrating GLOBE data with NASA satellite-derived data to develop precise models that predict the distribution of mosquito species.
    - We are collaborating with Dr. Erika Podest and Dr. Kyle MacDonald to outline ways that GLOBE can provide ground validation of data for the upcoming NISAR mission (a joint NASA–ISRO mission set to launch in 2025). Podest and MacDonald developed descriptions of how GLOBE could contribute to the mission, and the GLOBE Observer landcover app is being updated to support NISAR.

- Advanced data documentation, quality, and analysis:
    - Initiated a **systematic data quality review** of the GLOBE 30-year database and developed a road map for ongoing documentation and analysis. By doing this analysis and updating the data system (e.g., protocol instructions, site descriptions, data entry requirements), scientists will be better able to use GLOBE data in their research. Also, more GLOBE data could be made available through other databases, such as NOAA MADIS.
    - Connected GLOBE data analysis to **opportunities for learners to develop computational and data literacy**, supporting our workforce development goals. This included designing a new data internship, "Hack the GLOBE," in collaboration with the NASA Student Enhancement in Earth Sciences program.
    - **Significantly increased International Virtual Science Symposium (IVSS) participation:** Students embraced the theme "30 Years of GLOBE: Understanding the Past, Present, and Future," with 57% earning "I am a Data Scientist" badges for integrating GLOBE data and data analysis into their 2025 IVSS projects. In 2025, there was a 30% increase in field data collection, a 21% increase in GLOBE database use, and a 50% increase in quantitative data analysis from 2021.
- Conducted successful 2025 data campaigns, for example:
    - The **2024–2025 annual campaign** (30 Years of GLOBE), which included monthly webinars and a community challenge to develop a campaign logo
    - An **intensive observation period—Snow View** in collaboration with the GLOBE Oregon partner and critical partners at the University of Minnesota Polar Geospatial Center and the University of Colorado Snow and Ice Data Center
    - An **air temperature data challenge** in honor of GLOBE's 30th anniversary
- Published many community-submitted resources:
    - Developed a process and training to upload these resources on the GLOBE website as 508-compliant PDFs.
    - Began to upload the backlog of resources in this format to make them available to the GLOBE community. As of May, six new resources are public-facing, and we are on track for publishing at least 50% of the submitted resources in 2025.
- **Benchmarked GLOBE publications:** We adopted a consistent categorization of the GLOBE publications database, which is being applied to publications from mid-2021 to the present. We also initiated a bibliographic review to identify any missing GLOBE publications, using major scholarly indices.

Training, Education, and Public Engagement

GLOBE's primary goal is to advance Earth system science and its applications. The GIO TEPE team leads efforts to teach people about Earth and the environment through hands-on learning and public engagement activities. In addition, the team is finding creative ways to improve GLOBE's education and outreach to support the program's science, workforce development, and learning goals.

The GIO TEPE team focused on several key functions this year, including the 2025 IVSS, a review and update of the Teacher's Guide, and online training for the GLOBE Program. The previous eTraining slide decks were reviewed and updated, and new eTraining modules are being developed to match the content of the revised Teacher's Guide. The TEPE team is also reviewing survey data from the GLOBE community to better inform the GLOBE trainer and mentor trainer process, with the goal of increasing the numbers of each around the world.

International Virtual Science Symposium (IVSS)

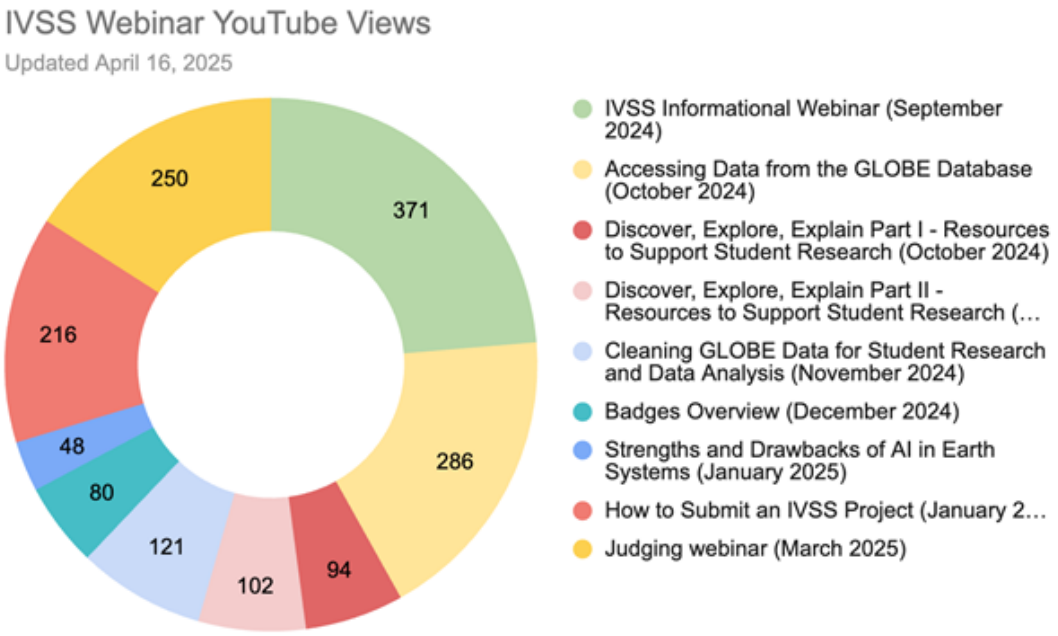
The preparation and implementation of the 2025 IVSS was a major focus of STEPE activities over the past year. **Participation in the IVSS increased by 40% in 2025**, and students embraced the theme of "30 Years of GLOBE: Understanding the Past, Present, and Future" by incorporating GLOBE data and data analysis into their 2025 IVSS projects.

Milestones and products for the 2025 IVSS include the following:

- The 2025 IVSS theme was identified at the GLOBE Annual Meeting in July 2024. The 2025 theme, "30 Years of GLOBE: Understanding the Past, Present, and Future," included a focus on data literacy.
- A new Earth System Scientist badge was added to the collection of eight badges that students can earn to showcase the scientific and engineering practices in their IVSS projects. Updates were made to the 2024 badges, with the "I am a Data Scientist" badge being featured for 2025 to encourage use of the GLOBE database and data analysis.
- The 2025 IVSS webinar series focused on data literacy and accessing data from the GLOBE database for student research. The IVSS webinars had a large viewership, as

shown in **Figure 1**. The IVSS Informational Webinar had the most views (a 70% increase from 2024), followed by the Accessing Data from the GLOBE Database webinar.

Figure 1. IVSS webinar YouTube views as of April 16, 2025



- In response to a request from the community, the IVSS student research report submission tool opened in early December 2024.
- Volunteer judge recruitment began in November 2024 and closed at the end of January 2025. Judges were recruited through the GISN, RCOs and country coordinators, the GLOBE website, and GIO social media and communications outlets.
- Judges were matched to projects based on the Earth system sphere and protocols used in the projects. The number of volunteer judges increased by 49% in 2025, with 388 scientists, STEM professionals, and educators from all six GLOBE regions providing feedback on IVSS projects in seven languages.
- Projects written in English were scored by four judges, due to a large number of English-speaking judges, while most projects written in languages other than English were scored by three judges. Some projects written in Arabic and Portuguese were scored by two judges, due to a limited number of judges available to score the large number of projects in those languages (84 and 33, respectively).
- Approximately 90% of the judges who responded to a preparation survey at the conclusion of the training webinar (*n* = 80) indicated positive agreement with

understanding the IVSS scoring expectations, how to access projects, use of scoring forms, and confidence in their ability to provide useful feedback to students.

- Automations were used to improve the efficiency of several IVSS processes in 2025, including matching judges to projects based on areas of specialization, creating scoring sheets, creating and sending personalized educator and judge certificates, and compiling and sending project feedback to educators. Personalized certificates of appreciation were sent to 535 educators and volunteer judges, and personalized project feedback was sent to 366 research teams.
- A survey was sent to the judges in April 2025 at the conclusion of the judging period. All respondents (*n* = 86) indicated that they would be interested in serving as a judge in future IVSS events. Two comments illustrate the impact of this experience:
    - "Being part of the judging process—especially with IVSS—has been a truly special experience for me, and I've had the pleasure of doing it more than once. Each time, my excitement and passion for supporting this initiative have only grown stronger. What really stands out to me is the students—their energy, creativity, and dedication to their research. It's inspiring to see how seriously they approach the scientific method, and how confidently they explore ideas, whether simple or boldly ambitious. Their work reflects not just knowledge, but [also] heart."
    - "Participating as a judge in IVSS was a very positive experience. The projects showed creativity, dedication, and strong interest from students in environmental and scientific topics. It was impressive how many projects connected local issues with global challenges, applying scientific protocols carefully. It became clear how initiatives like IVSS help inspire students' interest in science and support the development of young people who are more aware and prepared to think about solutions for the future."
- One IVSS team from each GLOBE region, randomly selected from a drawing, was invited to attend the 2025 Annual Meeting Student Research Experience. To qualify for the drawing, teams needed to earn the highest project rating of four stars and two badges, including the "I am a Data Scientist" badge.
- In response to a request by the community, the 2026 IVSS theme was announced on GLOBE's 30th anniversary: "GLOBE Data Detectives: Using Data to Explore Change in Your Local Environment." This theme will also have an emphasis on data literacy, including comparing GLOBE data to NASA satellite mission data.

Some key results from the 2025 IVSS:

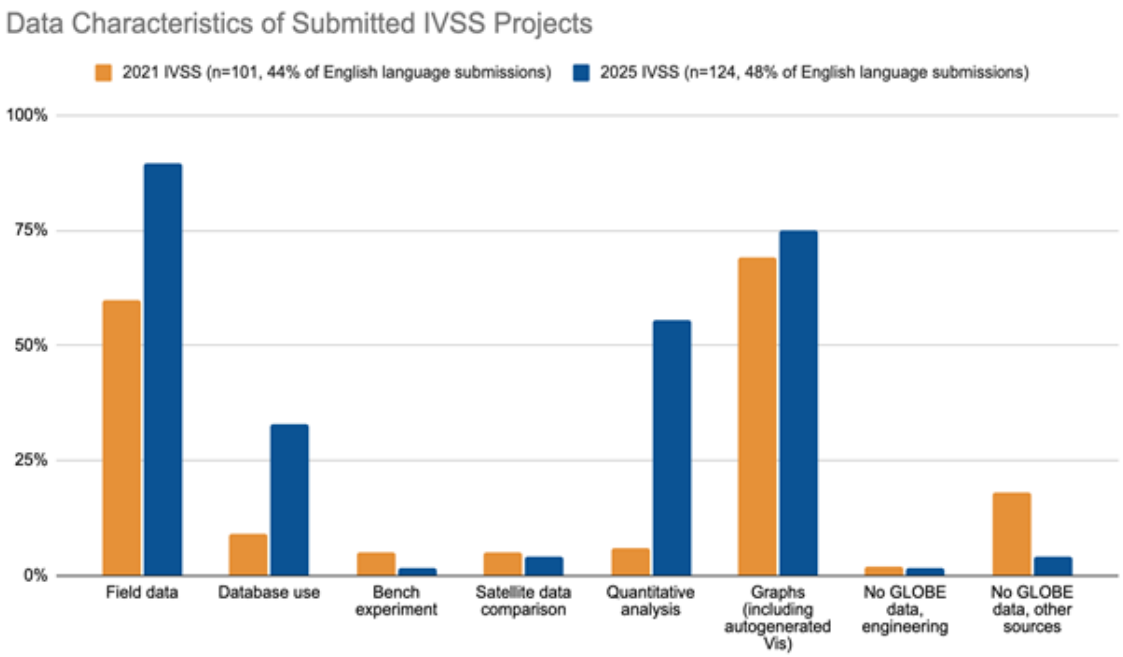
- 404 projects were submitted in 2025, a 40% increase from 2024

- 366 of the submitted projects met the judging criteria and were scored (see **Table 1** for a summary of scores by region)
- 207 projects earned the "I am a Data Scientist" badge featured for the 2025 IVSS theme
- 176 projects earned a top rating of four stars (see **Table 1**)
- 125 projects were eligible for the drawing for an invitation to the 2025 Annual Meeting Student Research Experience
- The STEPE team created an IVSS data dashboard, which includes all IVSS projects sorted by country and by protocol, with judge and webinar data and data counts and graphs
- The focus on data literacy in the IVSS webinars resulted in an increase in the application of data literacy skills, including a 30% increase in field data collection, a 21% increase in GLOBE database use, and a 50% increase in quantitative data analysis since 2021 (see **Figure 2**)
- The biggest area for improvement is the comparison of ground-based data to NASA satellite mission data, which will be a focus of the 2026 IVSS.

Table 1. Summary of IVSS scores by GLOBE region

Region	Total Projects	4 stars	3 stars	2 stars	1 star	Stipend Eligible
Africa	7	2	5	0	0	1
Asia and Pacific	121	57	60	4	0	42
Europe and Eurasia	43	25	16	2	0	19
Latin America and Caribbean	57	30	20	7	0	25
Near East and North Africa	77	35	37	5	0	21
North America	61	27	31	3	0	17
Total	**366**	**176**	**169**	**21**	**0**	**125**

Figure 2. Data characteristics of submitted IVSS projects, 2021 vs. 2025



Field Measurement Campaigns and Intensive Observation Periods

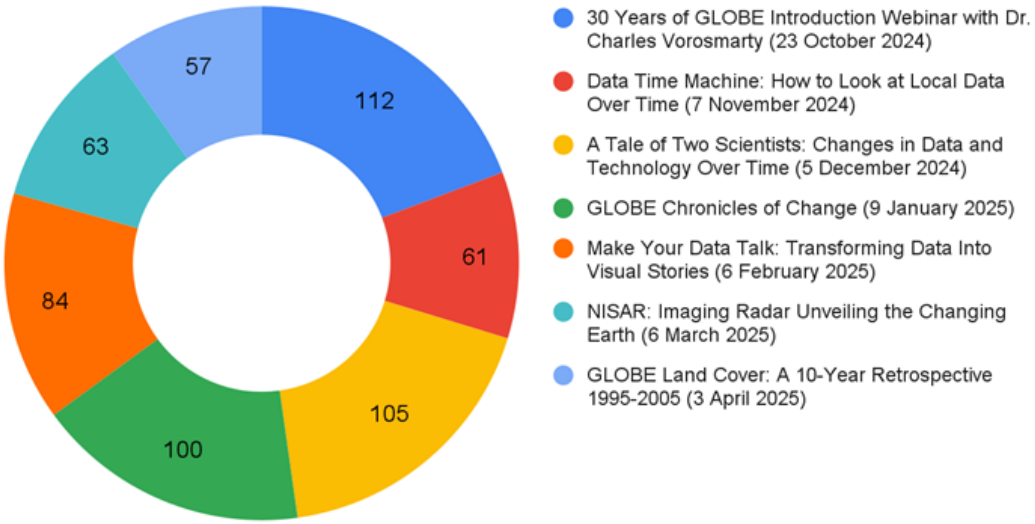
The GLOBE Program encourages participants to conduct place- and problem-based research through monitoring environmental conditions of significance in their local communities. GLOBE data campaigns are identified by the program to encourage broader (country, region, GLOBE) community interaction and engagement in research projects. Identification of a program-wide data campaign topic enables the GIO to develop instructional webinars to ensure accurate application of protocols and to support broader understanding of the scientific context of the research by connecting NASA subject-matter experts to the community in a series of webinars. Attention is paid to connecting the annual GLOBE campaign theme with the IVSS, so educators can synergize classroom education efforts and take advantage of webinars and build research excitement among the students.

GLOBE campaigns provide an important context for submitted observational data entry patterns to be examined. The 2024–2025 annual campaign theme, in recognition of GLOBE's 30th anniversary, was "30 Years of GLOBE: Understanding the Past, Present, and Future." The

campaign launched in August 2024 and continues through July 2025. The STEPE team developed a web-based campaign infrastructure, identified a monthly series of campaign webinars, and hosted a community challenge to create a campaign logo.

Figure 3 shows the preliminary results of the 30-year campaign, which is ongoing to the Annual Meeting in July 2025.

Figure 3. Number of YouTube views per webinar in the 30 Years of GLOBE Campaign series



Figures 4 and **5** illustrate the categories and regions of origin of GLOBE participants. One hundred and forty-three people self-reported as campaign participants to receive an Annual Campaign badge. The majority of these (~70%) identified themselves as GLOBE educators, with the largest percentage from Europe and Eurasia. The actual number of people participating is likely much larger.

Figure 4. Participant categories

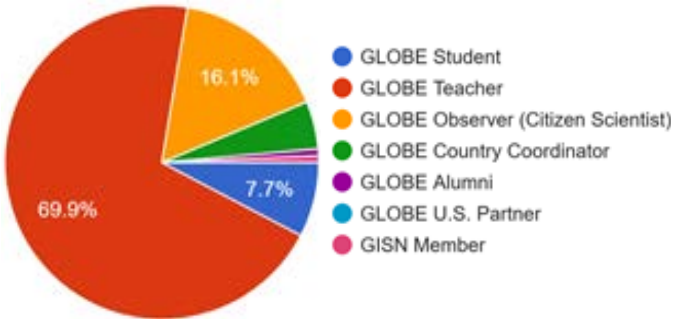
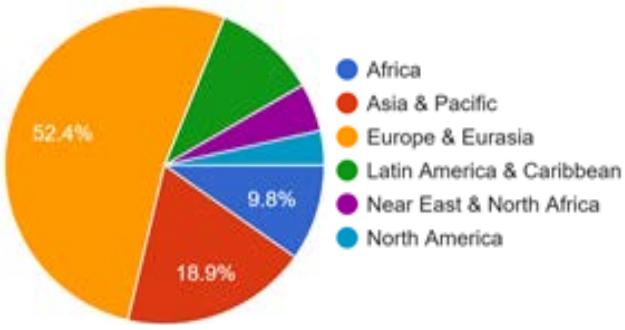


Figure 5. Participants' region of origin



The report on GLOBE community participation is shown in **Figure 6**. Over 80% of the respondents submitted GLOBE data, and more than 50% compared or analyzed GLOBE data. We are encouraged by these figures as indications of promoting data literacy. We were also glad to learn that over 42% of the respondents took action in their communities as an outcome of their participation in the campaign.

Figure 6. Common modes of participation in the 30 Years of Globe Campaign

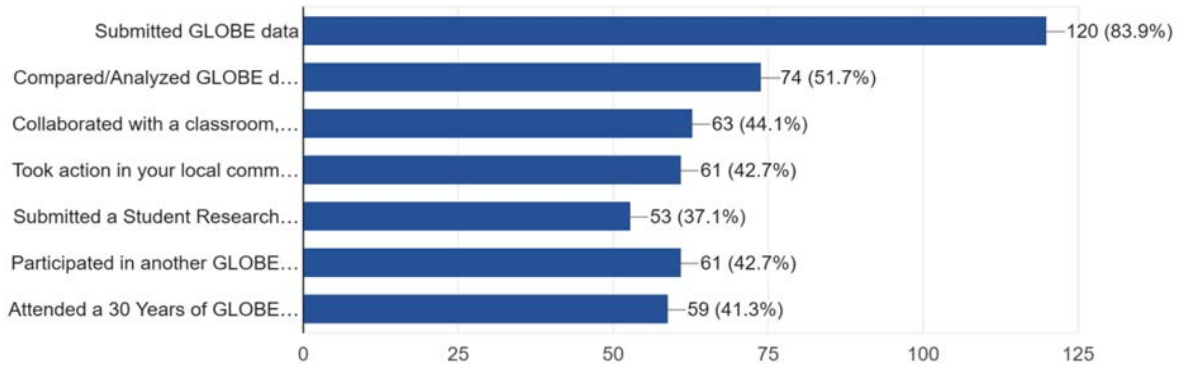


Figure 7 shows the number of observations for hydrosphere, biosphere, and pedosphere data in the six GLOBE regions. The largest total number of observations is from the Near East and North Africa region. Only the Latin America and Caribbean (LAC) and North America regions contributed more biosphere observations.

Figure 7. Data collected by annual campaign participants in the six GLOBE regions for the Biosphere, Hydrosphere, and Pedosphere protocols

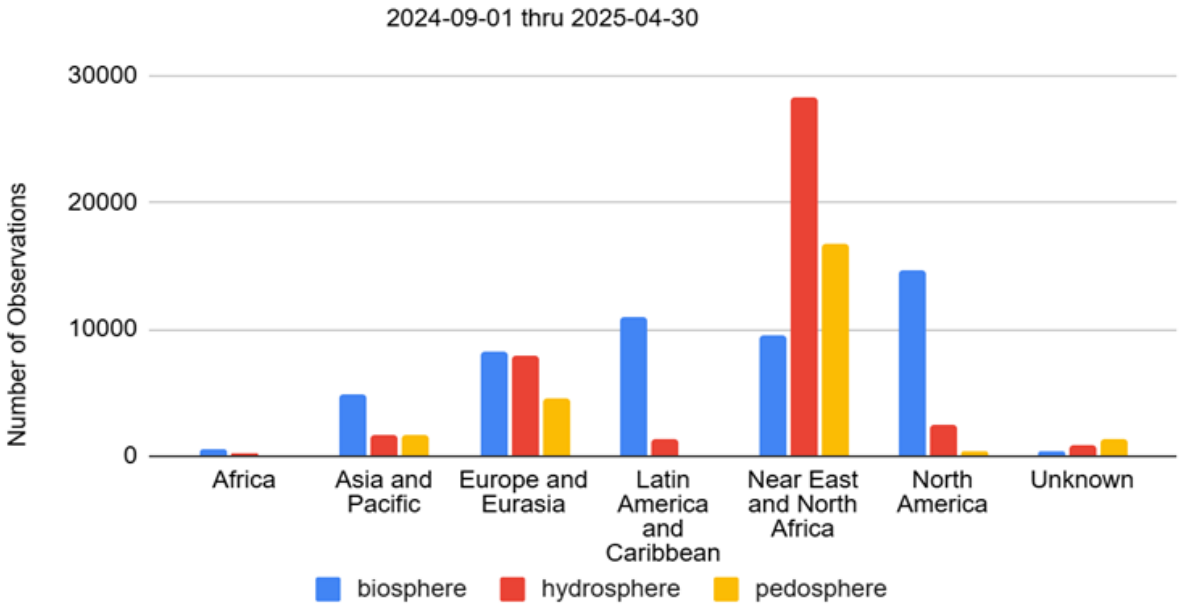
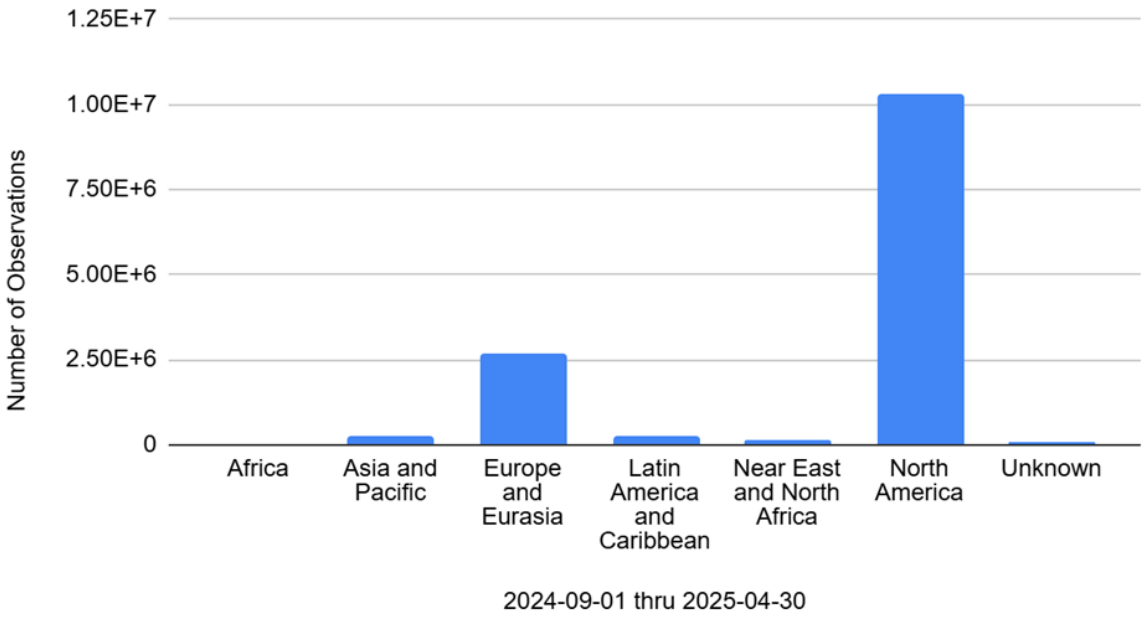


Figure 8 shows the number of observations for the Atmosphere protocol by region. This graph is shown separately from the other spheres since the number of observations for this protocol is much larger, likely due to the contributions from automated stations.

Figure 8. Data collected by annual campaign participants in the six GLOBE regions for the Atmosphere protocols



Education and Training Materials

In the second half of 2024, the TEPE team conducted a systematic evaluation of the GLOBE Biosphere materials, including the protocols, learning activities, introductory materials, and eTraining modules. Through an iterative process, integrating feedback from the GLOBE community, the team designed a rubric to systematically evaluate all GLOBE sphere protocol materials and learning activities, beginning with the Biosphere protocols, based on three main criteria:

- Alignment with GLOBE program objectives
- Effectiveness in different types of classroom settings, and usability of information for educators
- Scientific content

In early 2025, two additional strands were added to this rubric: alignment to workforce development, and alignment to appropriate and updated scientific content and procedures.

Each of the 17 Biosphere protocols was evaluated using the rubric, culminating in a set of final recommendations and suggestions. A SWOT (Strengths, Weaknesses, Opportunities, and

Threats) analysis was completed for each protocol, synthesizing the findings from the rubric and providing suggestions for improved alignment with each of the criteria provided.

In addition, the team conducted an evaluation of each of the 12 eTraining modules across two formats: the slides currently in use, and the Articulate Rise digital eTraining modules that were taken offline in 2024. The eTraining modules were evaluated across the same set of criteria as the protocols, incorporating the community-derived feedback generated from a range of GLOBE educators during a Community Workshop series. Using the evaluations, a SWOT analysis was completed for each set of eTraining modules.

Based on the evaluations of the Biosphere Teacher's Guide, including the protocols, learning activities, and eTraining modules, the team made a final set of recommendations. These recommendations are being applied first to the Carbon Cycle protocols as a pilot.

As the educational materials are being reviewed and updated, the TEPE team is working closely with the GIO Science team to update the protocols as needed. In particular, we are:

- Creating a more robust set of interactive introductory materials and learning experiences that include (1) examples of how the protocols are used in practice, (2) case studies of facilitators using the protocols in their classrooms, (3) a framework for designing authentic, original student research aligned with course standards that apply the protocols, and (4) examples of how facilitators can apply this learning in both formal and informal learning environments, across scientific disciplines and age ranges, and across different regions
- Expanding the connection between the Teacher's Guide and other NASA data resources, including My NASA Data, GIS, and remote sensing tools; and providing training on ArcGIS, Google Earth Engine, NASA Earth Observatory data, and other platforms
- Reaching out to subject-matter experts to learn whether the science or technology has changed and if the protocols need updating

Finally, the STEPE team conducted a review of Learning Management System options for the eTraining modules. After considering cost, ease of use, and the process of connecting the eTraining with the Liferay trainer databases, Mighty Networks was chosen. The eTraining pages in Mighty Networks are 508-compliant, which is critical for the GLOBE Program. The first modules from the Biosphere chapter will be available at the 2025 Annual Meeting.

Community Engagement and Support

The GIO's Community Engagement and Support Team is responsible for initiating, sustaining, and broadening engagement of new and existing members of the GLOBE community. This element includes communication, international collaboration, and convening the GLOBE Working Groups and large meetings to share news, best practices, lessons learned, and successes in establishing new linkages.

Communications

The GIO presented a comprehensive communications plan for 2025 to the GLOBE Program Office in August 2024. The three main communications goals for this year are as follows:

- **Goal 1:** Strengthen GLOBE community connections and support by anticipating and responding to needs, promoting and sharing best practices, and spotlighting inspiring GLOBE community stories
- **Goal 2:** Simplify content and processes, where possible, to increase access to, engagement in, and understanding of our work
- **Goal 3:** Amplify the visibility and awareness of the GLOBE Program and its impacts on STEM education and research

This plan will be updated and refined each year based on analytics and statistics, community input, and NASA and sponsor priorities.

This past year, the GIO communications team has worked closely with the RCOs and their liaisons to promote events, news, and Stars Stories (stories featuring exemplars of GLOBE in action) from the six GLOBE regions. Between May 2024 and April 2025, more than 200 news articles and Stars Stories highlighting the work in 72 countries were published on the GLOBE website. We redesigned and reorganized the monthly News Brief and have seen an increase in open rates from previous years. To support the 30th anniversary, we worked with a designer to create a "30 Years of GLOBE" logo. Additionally, the GLOBE Program logos were updated with a

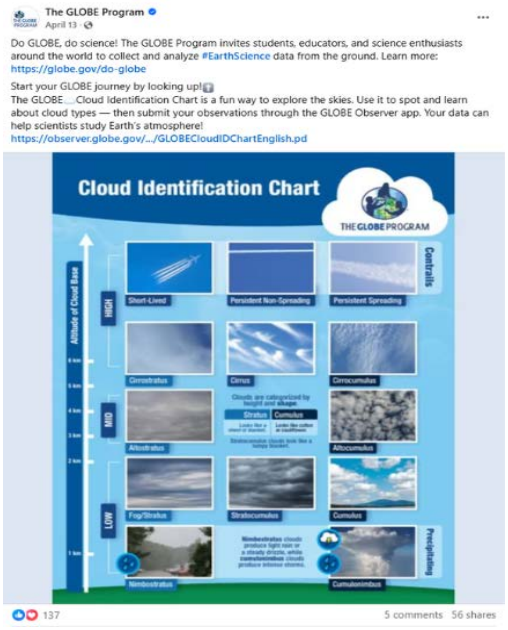
slight but important change to better reflect the program's registered trademark: The word "The" has been removed from all logos (see the GLOBE Logos section).

Recognizing the need for compelling event and outreach materials, we redesigned our fact sheets, and we worked with the U.S. Office and GLOBE Observer teams to reuse their successful handouts (including the Cloud Identification Chart and the GLOBE Science Process) and share them more broadly with the community. You can find these materials in the Support section of the GLOBE website.

Highlights from Social Media

The GLOBE Program has a vibrant social media community. GLOBE's Facebook has more than 107K followers, X has more than 11K followers, Instagram has almost 6K followers, and YouTube has more than 4K followers.

This past year, our most-liked post encouraged people to "Do GLOBE," sharing the GLOBE Cloud Identification Chart. A post encouraging participation in the GISN was a close second, and a post about one of our 30 Years of GLOBE Campaign webinars on transforming data into visual stories was third. Thank you to everyone who followed and engaged with GLOBE on social media and who supported community members through likes and comments.



Collaboration with Wild Hope

Wild Hope spotlights changemakers who are restoring and protecting the natural world in short videos. To accompany their episode titled "Mission Impossible," which looks at a real-world case study on turning carbon-emitting cattle ranches into carbon-capturing forests that also promote biodiversity, Wild Hope encouraged their Instagram followers to join GLOBE and observe trees!

Streamlining and Updating Website Content

While much of the planned work for 2024–25 on this effort needed to wait until the planned website update (see Technology Updates), the CES team did work with the STEPE and DIS teams to streamline and update the Frequently Asked Questions (FAQs), with the goals of helping users locate information more efficiently on the GLOBE website and decreasing help desk tickets. The FAQs have a new main link under Support in the mega menu. FAQs were sorted into three main categories (technical, community, and data entry). The overall number of published FAQs were decreased to enhance readability, and the goal is to maintain the three categories with 15–20 FAQs per category.

Content updates were also made to remove outdated content or identify projects as no longer active and to align with the priorities of the GLOBE Program Office at NASA and the new U.S. federal administration. A number of enhancements to assist with usability are planned.

Regional Coordination and Support

Over the past year, the GIO focused on strengthening its coordination with the RCOs:

- The GIO set up the role of RCO liaisons and assigned liaisons for each region to help improve communication flow, provide better support, and respond effectively and efficiently to the needs of RCOs. GIO liaisons attend relevant regional meetings and join communications and/or social media groups for each region.
- Regular check-ins by GIO liaisons assigned to each region have improved communication and information flow between the GIO and RCOs. We also set up a WhatsApp group with all RCOs and GIO liaisons to enhance communications.
- We improved our internal systems to better track regional updates.
- We held a four-day virtual retreat for all RCOs to (1) enhance their skills and knowledge to advance Earth system science, (2) facilitate cross-regional collaboration by reflecting and sharing insights with one another, (3) foster connections among RCOs, and (4) strengthen their engagement with the GIO. We encouraged each region to invite two or

three country coordinators to participate in selected sessions to further facilitate cross-regional collaboration. The Working Group chairs attended one day of the retreat and shared updates and plans to coordinate with RCOs in the coming year.

- To further support the work of the RCOs, we developed dedicated resources, such as the RCO Roles and Responsibilities guide, which outlines the purpose of the RCOs' role and provides sample activities that align with GLOBE's goals. In response to feedback we received from RCOs, we created a funding pitch deck and a planning template to support fundraising and outreach efforts for RCOs.
- The retreat led to the development of various documents to facilitate cross-learning, including a tracker to document campaigns across the regions and encourage sharing resources and expertise, a compilation of scientists and scientific organizations across regions to promote the use of GLOBE data in Earth science research, and ways in which regions are engaging with GLOBE alumni.

Looking ahead, we plan to keep refining these tools to support the RCOs, strengthen collaboration, and more effectively monitor our activities across regions. We plan to build a robust learning community among the RCOs, which will include a combination of asynchronous engagement and regular virtual learning opportunities to build their skills and continue sharing and learning from one another.

Country Engagement and Re-engagement

In our effort to re-engage countries with the GLOBE Program, several regions have made notable progress. Montenegro officially joined GLOBE in 2024 and has already expanded the program to five schools across the country. In the Asia Pacific region, the RCO is collaborating with the GIO to re-engage Japan and Bhutan, although funding challenges remain a key barrier. Meanwhile, in the LAC region, Guatemala and Costa Rica have been successfully re-engaged, and the RCO and GIO are working to bring Mexico and the Bahamas back into the program.

Aligning RCO Activities with Scientific Research

As part of our continued effort to align GLOBE activities with scientific research, the GLOBE regions are leading initiatives that connect students to real-world Earth science. In the LAC region, the Trees Within LAC Campaign engages students in identifying local tree species and tracking their changes over time using GLOBE protocols, contributing valuable data on

phenophases as indicators of climate trends. In North America, the Phenology Campaign (February–June 2025) invites students to observe plant green-up (when plants become green, particularly in the spring, as new growth emerges) and green-down (when leaves gradually change color and fall), interact with scientists, and present their findings. In the Asia and Pacific region, the fifth World Wetland Day Symposium held in January 2025 brought together participants from eight GLOBE countries to share student-led research and emphasize the importance of scientific collaboration, citizen science, and community conservation.

Strengthening Partnerships

The GIO and RCOs continued to deepen the program's collaborations with key partners to expand GLOBE's impact and support environmental science education. Through an ongoing partnership with YLACES, several countries implemented local GLOBE training and research efforts: GLOBE Kenya hosted a successful teacher training workshop in October 2024; GLOBE Nepal used YLACES funding to acquire equipment for protocol trainings in November 2024 and January 2025; and GLOBE Rwanda carried out an environmental monitoring campaign in March 2025. Additionally, the GIO is working with the NISAR mission to identify ways that GLOBE citizen scientists can provide useful surface-based observations across GLOBE countries to inform researchers. Recently, GLOBE Europe and Eurasia led a Rainfall and Flooding Campaign from January to February 2025, where more than 100 schools across five countries collected and shared daily rainfall data through the GLOBE Observer app.

Engaging Supportive Communities

One of the key functions of the CES team is to engage and re-engage supportive communities, including the GLOBE alumni. Toward this end, we connected with a member of the former GIO team (at UCAR), Sheila Yule, to better understand her efforts to revitalize and support the GLOBE alumni network. After reviewing her recommendations, we reviewed the history of GLOBE alumni and sought input from the GLOBE community, who provided the following feedback:

- We need to intentionally involve alumni in all aspects of GLOBE, such as Working Groups and meeting planning.
- We need to be able to define "alumni" and understand stories from alums, how they have maintained involvement, and when and where there are opportunities for engagement.
- We need a list and/or map of all GLOBE alumni.

We reviewed and identified key features of alumni networks for similar programs. Based on these activities and the initial input, we drafted a proposed “tiers of engagement” model for a new GLOBE alumni network.

At an April 2025 retreat of the RCOs, which included select country coordinators and Working Group members with knowledge of the engagement of GLOBE alumni, we held a working session on alumni engagement and gathered these stakeholders’ input on our ideas and recommendations. The first step is to organize a short-term Alumni Network Task Force, which will work with the GIO in 2025.

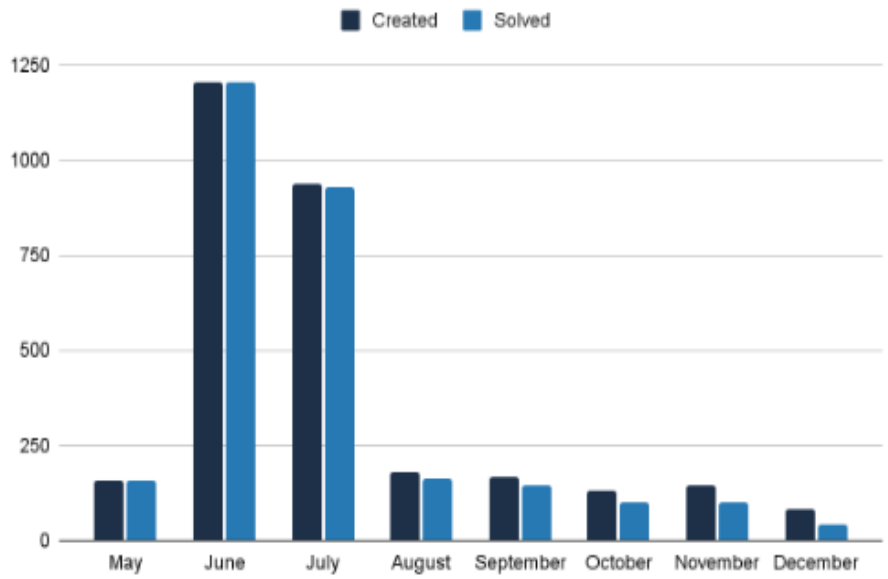
More details about our plans for moving forward will be presented to the GLOBE community in conjunction with the Task Force in one of the 2025 Annual Meeting follow-up sessions (tentatively slated for September 2025).

Being Responsive to the GLOBE Community

We began our work with the GLOBE help desk by soliciting feedback from the community at the GLOBE Annual Meeting 2024. Respondents indicated that the community would appreciate more timely and helpful responses from the help desk. In response, we set up a system to be more responsive, especially during the transition period, which began almost immediately upon our award beginning.

Figure 9 shows the volume of help desk tickets created and solved monthly from May through December 2024.

Figure 9. Help desk tickets by month (May–December 2024)



The high number of tickets in June and July aligns with both a typically busy time (the Annual Meeting) and the transition in the GIO. The Annual Meeting generates a significant number of tickets related to registration, troubleshooting, and real-time support for participants. As part of the GIO transition, we made a concentrated effort to catch up on pending issues. The lower percentage of solved tickets later in 2024 was primarily due to tickets that lingered in the system for several reasons:

- **Complex resolutions:** These often require additional support from the DIS team or others, extending the resolution timeline.
- **Unresponsive users:** Sometimes, despite our follow-up, we don't hear back from users, which keeps those tickets open.

While we strove to follow up diligently, these factors impacted our overall closure rate. To improve, we began exploring ways to structure follow-ups more effectively and set clear criteria for closing tickets after multiple requests with no response. In the first period of 2025, ticket resolution outpaced incoming volume in both January and February, indicating continued progress clearing out older tickets and maintaining strong follow-up. Beginning in March, created and solved tickets were nearly even, suggesting that the help desk is now operating in a more balanced real-time flow, with most responses handled as they come in.

We had an overall satisfaction score of 83.9% from users, with almost 20% of those who contacted the help desk completing the survey. We also received community feedback through help desk requests, which were conveyed to and solved alongside other teams, primarily the DIS team. Some of the feedback and resulting actions we took or plan to take are as follows:

- **Schools with a Many Measurements page:** Based on user feedback and internal discussions, we identified areas for improvement in how the measurements were calculated to ensure accuracy and highlight authentic student-led data collection. The update excludes measurements from weather stations to ensure that data collected by schools, informal organizations, and other GLOBE participants who are making the observations directly are highlighted. The update provides a more valuable and engaging experience for GLOBE citizen scientists and researchers and offers an accurate reflection of hands-on data collection efforts.
- **GLOBE Countries and Community Members Map page:** We worked with the DIS team to address issues with the "Regional Offices" view on the main map page with an embeddable "Community Map" widget. We added additional pins to the map and incorporated clarifying language to assist users. However, the planned embedded map feature is on hold until after the website update. This response shows how the global community drives the evolution of GLOBE's digital tools and demonstrates proactive engagement from schools.

- **Community forums updates:** Participants now receive automatic email alerts when someone replies to their posts or comments, threads are now visually grouped and tagged, and layout improvements were made. These updates reduced friction in peer-to-peer support and expanded visibility for regional collaboration and resource-sharing.
- Community-driven enhancements to GLOBE protocols (in collaboration with the DIS and STEPE teams):
    - **Salinity correction for fresh water:** Special ecological contexts of different regions are now highlighted to ensure that GLOBE's vast dataset of planet phenology and other biotic measurements is as detailed and correct as possible.
    - **Adding additional vegetation:** Partners across GLOBE requested several additions, which demonstrates GLOBE's commitment to being both universally relevant and regionally specific.
    - **Examining genus and species requirements for Biosphere green-up data entry:** We addressed the ongoing community dialogue regarding discrepancies between the app and web data entry forms to harmonize collection across platforms.
    - **Adding solar noon times to the GLOBE Observer app:** For critical events like solar eclipses, where timing relative to the sun is paramount, the app provides guidance and relevant timing info. This shows a balance of scientific rigor with user accessibility and practicalities of the app.

Our plans include developing a help desk bot that will be able to respond to and resolve basic (Tier 1) tickets and requests immediately, at any time of day. These basic tickets focus on such issues as password resets and finding information on the website and do not require more complex support from our help desk staff.

Working Group Updates

The GIO supports the implementation of the GLOBE Working Groups, an important set of volunteer advisors for the GLOBE Program. GIO liaisons work with these volunteers to align their activities to program priorities. Thank you to these GLOBE community members!

The GLOBE Program currently has four Working Groups—Education, Evaluation, Science, and Technology—composed of members from all six GLOBE regions and a GIO liaison, who work together to represent the needs of the GLOBE community.

GIO Goals and Activities

The GIO had the following goals for the GLOBE Working Groups:

- Clarify the purpose and functions for each Working Group as written into the Terms of Reference
- Align the priorities of Working Groups with the GIO goals and objectives to ensure that Working Group activities and recommendations build on the successes of the community and address challenges reported from all regions
- Establish clear work plans for each Working Group that are aligned with the established priorities and include milestones for achievement throughout the year
- Strengthen communication between:
  - Working Groups and the GLOBE community
  - Working Groups and the RCOs
- Support cross-Working Group sharing to enable Working Groups to build on one another's priorities and progress

- Build on the previously established process for selecting new Working Group members to strengthen recruitment and ensure that Working Group members represent the diverse perspectives of the GLOBE community
- Eliminate redundancies in Working Group tasks, such as too-frequent surveys to collect information from GLOBE community

Essential to the function of all Working Groups is communication with the GLOBE community and RCOs. During the 2024 Annual Meeting, each Working Group held a breakout "listening session" focused on questions and topics relevant to the group's focus. In addition, Working Group members attend Regional Meetings and collect information from across their regional networks. This year, the Education and Science Working Groups collected additional information through a GLOBE community survey, deployed in early 2025. Based on the survey and through feedback from Working Group chairs, RCOs, and other community members, we learned that the Working Groups and the GLOBE community need the following:

- Additional opportunities for all Working Group members to collaborate, connect, and build on one another's work
- Efforts to ensure that Working Group meetings provide meaningful opportunities for members to reflect on and strengthen their collective work
- More frequent updates and coordination between Working Group members and RCOs
- Fewer surveys but more authentic opportunities to hear from the GLOBE community

In response, the GIO has taken the following steps:

- Updated the Working Group Terms of Reference to ensure greater clarity in roles, scope, terms, and structures of the Working Groups, and provided these updates to all Working Group members.
- Implemented a second (mid-year) meeting for all Working Group members, which occurred January 31, 2025. During this meeting, new Working Group members were introduced; other members provided updates on work plans and priorities and discussed opportunities to collect information from and engage the GLOBE community; and the Education Working Group presented and led a discussion on the development of standards for educator training.
- Continued regular meetings of Working Group chairs and liaisons to facilitate cross-Working Group sharing.
- Created and deployed a survey, which was initially drafted by the Education Working Group and Instrumentation Subcommittee to gain feedback from the GLOBE community on (1) the trainer and mentor trainer process and (2) the use of instrumentation for the Atmosphere and Hydrology protocols. The resulting data were shared with the

Education Working Group and Instrumentation Subcommittee for analysis and discussion of implications.

- Invited Working Group members to attend the RCO retreat in April 2025 and provide updates to the RCOs.
- Strengthened communication with the RCOs by including guidance for RCOS, including a recommendation for holding regular meetings with all Working Group members from their region. As a result of increased emphasis on connections with Working Groups, some RCOs included a presentation from Working Group members to their region during Regional Meetings.
- Received quarterly updates to the *News Brief* from Working Group chairs to keep the community updated on Working Group progress.

Our plans for supporting the Working Groups include the following:

- A meeting of all Working Group members is scheduled to follow the 2025 Annual Meeting. This meeting will include a report to the RCOs and a discussion of how to sustain the essential functions of GLOBE and RCO activities.
- During their July and August 2025 meetings, Working Group members will plan priorities and create work plans for the next year.
- Working Group chairs and liaisons will plan for future survey data collection and consider additional means for gathering information from the GLOBE community.
- Working Groups will report to the GLOBE community in August 2025. This community-wide session will include an opportunity for Working Group members to update the GLOBE community on their recommendations and priorities and to hear the community's perspectives on successes, opportunities, and challenges.

Working Groups Priorities and Progress

Following the 2024 Annual Meeting, each Working Group established priorities and a work plan for the coming year. Table 2 outlines the priorities and accomplishments of each Working Group.

Table 2. Priorities and accomplishments of each Working Group

Working Group	Priorities and Accomplishments
Education	• Reviewed training standards to make recommendations for minimum requirements for GLOBE educators and trainings • Created a training template for use in the new Learning Management System • Synthesized the number of mentor trainers in each region and analyzed survey data to make recommendations for improving the trainer and mentor trainer process
Evaluation	• Comprises new members as of January 2025 • Assembled reports of evaluation activities from each region to explore gaps and needs for evaluation and documentation of GLOBE impact
Science	• Understand the variation in instrumentation use, availability, and access • Review GLOBE training materials, including eTraining • Updated protocols, including the Biosphere protocols, to strengthen connections to the Carbon Cycle protocol
Technology	• Understand the variation and limitations in GLOBE data entry • Review protocols in GLOBE Observer • Expanding badging opportunities on the GLOBE website • Compile list of GLOBE protocol training videos to support trainings • Coordinate with the DIS team on priorities, including making recommendations for Liferay upgrades

Working Group Progress Updates

In April 2025, the GLOBE Working Groups shared updates on progress and priorities in the April News Brief. These updates are provided below. Moving forward, the Working Group chairs will provide these updates to the community quarterly.

Education Working Group

The Education Working Group has set a goal of supporting efforts to increase the number of trainers and mentor trainers. This has included making recommendations to the GIO for increasing the number of trained country coordinators. In addition, the group has reviewed trainer standards and is working on making recommendations for minimum content and competency standards for educators and trainings in all four GLOBE spheres. Finally, this Working Group is reviewing learning resources that provide supplemental activities that can be used with GLOBE protocols.

Evaluation Working Group

The Evaluation Working Group has recently re-formed with newly appointed members from all regions. The group is currently working on refining its mission, vision, and priorities. Members have discussed priorities that include (1) documenting and understanding the variety of evaluation activities and (2) determining goals and plans for RCOs to advise on evaluation efforts.

Science Working Group

The Science Working Group is focused on several efforts:

- Identifying the available, attainable, calibrated, and updated scientific instruments used in GLOBE protocols in every region. The Instrumentation section of the 2025 Working Group Survey will gather more information and help address the needs of the GLOBE community.
- In conjunction with the GIO, gathering feedback and input from the community through workshops on the Teacher's Guide on Biosphere protocols and collaborating with other Working Groups on Teacher Training Modules—efforts that are aligned with our dedication to maintaining the scientific integrity of the GLOBE protocols and educational materials.
- Assisting with a webinar series on such topics as artificial intelligence and the IVSS, and welcoming new ideas on protocols and possible regional collaborations.

This group recently completed its team as they welcomed new Working Group representatives from the North America and LAC regions.

Technology Working Group

The Technology Working Group is focused on three efforts:

- **Understanding the challenges related to uploading and submitting data:** During recent Regional Meetings, the Working Group shared a survey to gather insights on the volume of unsubmitted data. The group is currently working to understand the extent of this issue throughout all regions.
- **Pedosphere protocol and GLOBE Observer app updates:** Working Group members are testing and providing feedback on recently updated Pedosphere protocols in the GLOBE Observer app. Some app issues, including data-sending errors and iPhone crashes, have been reported, and troubleshooting is underway.
- **Technology and database priorities for 2024–25:** The Working Group is advising on improvements to Liferay upgrades, ADAT refinements, database automation, and updates for the GLOBE Observer app.

GISN Updates

The GISN is the bridge connecting the researchers of today with those of tomorrow. Comprising an international coalition of STEM professionals, members of the GISN work to promote Earth science and can act as student mentors for research projects, volunteer as judges for school and virtual science fairs, or otherwise form meaningful relationships with students, educators, and other STEM professionals.

The STEPE Team sought to increase GISN membership to better reflect the GLOBE community. Specifically, the team set the goal of growing the GISN by 10%, or 29 members, a year. This effort was highly successful: More than 45 new members were recruited, a 33% increase from the previous year, with the greatest increases being observed in the Africa and LAC regions, as shown in **Figure 11** and **Table 2**.

Figure 11. GISN membership increase by region, 2023–24 and 2024–25

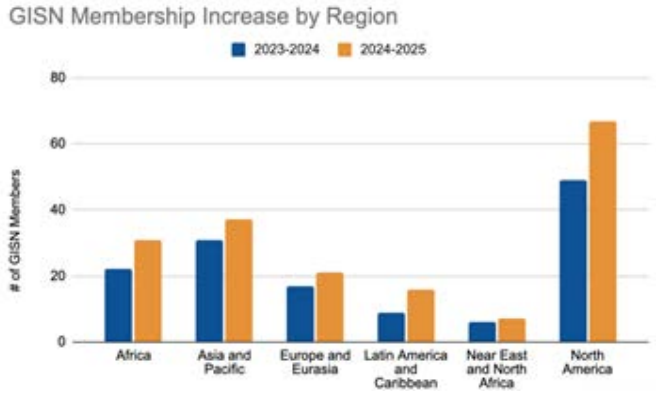


Table 2. Comparison of 2023–24 and 2024–25 GISN membership by region

	2023–24	2024–25	% Increase
Africa	22	31	40.91%
Asia and Pacific	31	37	19.35%
Europe and Eurasia	17	21	23.53%
Latin America and Caribbean	9	16	77.78%
Near East and North Africa	6	7	16.67%
North America	49	67	36.73%
Total	134	179	33.58%

Connecting NASA science to scientific researchers who are volunteering their scientific expertise is a critical factor supporting the robust use of GLOBE data by the scientific community. The GISN has been an under-resourced and underused facet of the GLOBE Program. Linking GLOBE participants with scientists and active research opportunities is key to fostering enthusiasm, ensuring adherence to protocols, and maintaining data quality. The STEPE team's goal this year was to move beyond the GISN's usual role of providing judges for IVSS projects and to re-energize the GISN by increasing the numbers of GISN members, expanding its international representation, and stimulating active engagement of the community. Our strategies included recasting the incentivizing of participation through professional development and recognition opportunities, broadening the definition of GISN members to include Earth science-adjacent professional disciplines, and creating programmatic support to better connect IVSS members with GLOBE community members.

The first step was incentivization. GISN meetings were redefined to support professional development and collaborative research. We shifted the messaging and focus from "GISN Social Hour" to "GISN Science Networking Hour." The average number of participants in the monthly webinars increased from an average of 6 in 2023–24 to over 30 by January 2025.

In January 2025, the Science Working Group approved actions to recharge the GISN community, which included changing the messaging on the website to be inclusive of STEM professionals with backgrounds complementary to Earth system science who can support multidisciplinary and transdisciplinary science and the development of science skills (for instance, statisticians, social scientists working with natural hazards, and data scientists).

The GLOBE website indicates that GISN members can volunteer to be an IVSS judge or a scientist mentor for students. The Science Working Group supports creation of a low-barrier entrée to GLOBE classroom science for GISN members through a GISN speakers bureau, "GISN in the Classroom." With support of the Science Working Group, we plan to develop a virtual (or face to face, where possible) "GISN in the Classroom" project that coordinates between educators who want presentations or mentoring on specific topics and a clearinghouse that connects GISN volunteers to these opportunities. GISN members retain their membership by participating in one outreach event a year, and opportunities to present to a class or mentor a classroom team will be co-facilitated by the STEPE team and the Science Working Group.

GLOBE Technology Updates

The GLOBE DIS team comprises all the technology and applications that support the GLOBE Program. The DIS team maintains the websites for GLOBE and the GLOBE Observer, data submission and retrieval tools, and the GLOBE Observer app.

The DIS team not only ensures that the GLOBE community has the mobile and web applications they need to "Do GLOBE" but also keeps the systems secure and accessible. You can learn more about the DIS team on the GLOBE website. We are grateful for all that they do!

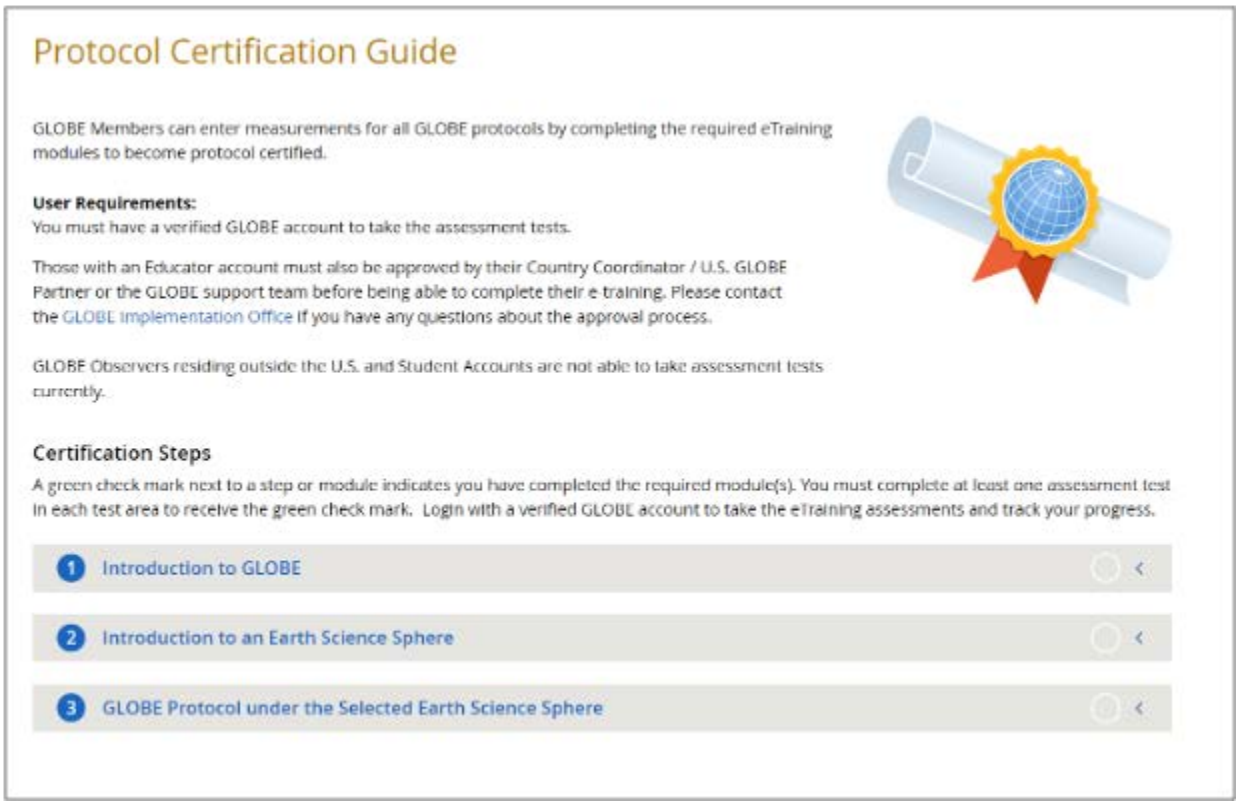
GLOBE Website

This year, the DIS team started a major upgrade of the GLOBE website and associated software infrastructure. The upgrade is expected to launch July 2025 and will provide improved performance and new capabilities for menu management, logging and content management, site searching, and editing and versioning.

In addition, the DIS team made significant improvements to website security, aligning with NASA IT policies, for example:

- Implementation of new passport rules to improve security posture.
- Implementation of Amazon's Web Application Firewall (WAF) to block ongoing scans and hack attempts. The GLOBE website has been an ongoing target of millions of malicious scanning and infiltration attempts. Implementing the WAF moves a significant component of filtering outside the environment, offloading servers and improving our overall security stance. In the first 3 days it was in place, over 1.5 million requests were rejected.
- Institution of multiple process improvements to system security monitoring, including fast identification of critical software patches and automated testing to quickly determine when patches are ready to go live.

Finally, the team created an eTraining certification guide to help users navigate through the GLOBE training process.



GLOBE Data Entry

The DIS team created a separate data entry and database capability to provide redundancy, debug support, provide rapid data ingest, and near real-time availability of data for prototyping new protocols and/or engagement with other NASA data collection projects.

The team also supported Increased GLOBE atmospheric data by:

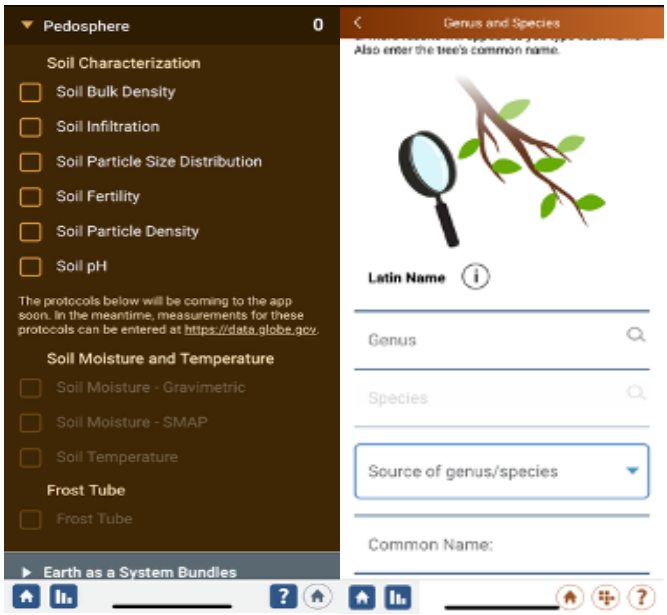
- Engaging with the UCAR 3D PAWS program and beginning to ingest multiple years of Kenyan weather station data from 20 weather stations covering ~25 sites. This effort is ongoing and will result in about 15 million measurements from 20 weather stations.
- Assisting users with migrating from email data entry of Davis weather station data to automated entry in the GLOBE database.

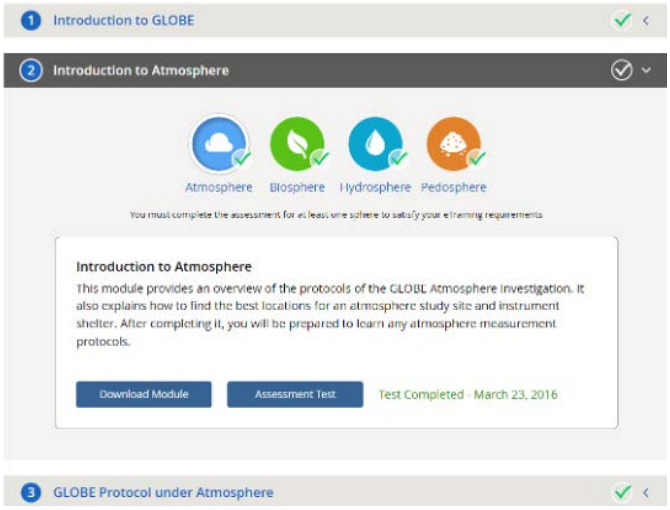
GLOBE Observer App

This year, several exciting enhancements were made to the GLOBE Observer app, including:

- New Achievements notifications to inform users of their achievement status

- Improvements in accessibility (Section 508 compliance) with an app reader
- A new site creation process
- Updates to all communications and help options to align with the new GIO
- Release of Soil Characterization protocols in the GLOBE Observer Data Entry: Pedosphere module (the Soil Moisture, Soil Temperature, and Frost Tube protocols are nearing completion)
- A new capability to specify tree genus and species
- 30K genus and species added to support the LAC region's Trees Within LAC Campaign
- The ability to include genus, species, and common name to tree height measurements in GLOBE Observer
- Updates to the app core to meet Google Play requirements (and updates to all Google API calls to bring the app up to Google's latest API requirements)
- "Deep Linking" capability added to the app to facilitate future engagement with other data collection efforts





Support to the GLOBE Program Office (NASA)

To help the GLOBE program manager at NASA gain insight into participation across various demographic groups and uses of GLOBE data, the DIS team created multiple metrics dashboards.

Highlights from the GLOBE Regions

The 127 participating countries in the GLOBE Program are divided into six geographic regions. Each region is supported by a Regional Coordination Office (RCO) that provides technical assistance and logistical coordination for the region, under the direction of the GIO.

Highlights from Africa

Workshops and Events

Dr. John Francis trained educators on GLOBE protocols at a Teacher Training Workshop in Banyandi Cultural Trust in Kasese, Uganda from March 29–31, 2025.In March 2025, the RCO met with U.S. Embassy staff in Namibia, strengthening ties with the University of Namibia and initiating discussions to revive and re-engage the GLOBE Program in the country.

On April 28–30, a GLOBE training workshop was conducted in Seychelles, at the Ministry of Education. Discussion topics included mosquitoes in Africa. Henry Jardine, U.S. ambassador, Mauritius and Seychelles; Caleb Goddard, chief political/economic officer in Mauritius and acting charge d'Affaires for Seychelles; and Myra Labiche, public engagement specialist, U.S. Embassy to Seychelles, attended the workshop and participated in data collection.

In 2024, GLOBE Africa presented on GLOBE's STEM curriculum at an AI conference for educators at the National University of Science and Technology, Bulawayo, Zimbabwe.

Regional Campaign: December Data Push

GLOBE Africa encouraged students to stay involved in the program while schools were out in December. Students competed to see which country could upload the most data points during

the month. This effort was very successful: 1,759 new data points were added to GLOBE's data system, and Ghana was the top non-automated data contributor.

Community Highlights

Ylliass Destin Lawani, country coordinator from Benin, was accepted into the UN Institute for Training and Research Global Diplomacy Fellowship program.

Dr. John Francis from Planetwalk teamed up with GLOBE Africa for Planetwalk in South Africa (see highlights).

Students in Senegal used soil protocols to help local farmers.

GLOBE schools participated in the 18th Annual GLOBE Project Exhibition Competition in Nigeria on January 16–18.

YLACES funding supported students and educators in deepening their understanding of land-use change and its impacts in Kenya.

Students in Rwanda participated in environmental monitoring, using GLOBE protocols to measure water quality, soil pH, soil moisture, and light intensity, supported by a YLACES grant.

A GLOBE South Africa student shared her perspectives on participating in GLOBE tree, clouds, and land cover observations.

Highlights from Asia and Pacific

Meetings and Events

ECCA (Environmental Camps for Conservation Awareness) has been implementing the **GLOBE Program in Nepal** since 2000. During November 2024 and January 2025, college students working with ECCA trained educators and school students in GLOBE protocols in seven schools in Jhapa district and four schools in Dhankuta district. These

students, who had participated in GLOBE in the past, trained participants in peer groups on one of three GLOBE protocols: Pedosphere, Atmosphere, or Hydrosphere. Afterward, peer groups shared their new knowledge across groups in a form of collaborative learning. Additionally, ECCA distributed mobile macro lenses to three new schools and replaced damaged lenses in existing GLOBE schools for the GLOBE Mosquito Habitat Mapper protocol. This year, around 100 students and 22 educators benefited from the training programs. The peer learning generated three GLOBE trainers and 28 youth learners.

The 5th GLOBE Asia-Pacific Virtual Wetland Symposium, held January 31 was a dynamic platform that brought together students, educators, and environmental advocates from across the region to showcase scientific research, innovative solutions, and efforts for protecting wetlands. Eighty-two attendees from eight GLOBE countries (India, Maldives, Mongolia, Nepal, the Philippines, Sri Lanka, Taiwan, and Thailand) participated in the event, which highlighted the critical role of wetlands in sustaining biodiversity, maintaining water quality, and mitigating environmental impacts. The symposium showcased cutting-edge student research and reinforced the importance of scientific collaboration, citizen science, and community-driven conservation efforts. Students applied GLOBE protocols to collect real-world environmental data, analyze trends, and propose actionable solutions.

GLOBE Thailand conducted a 2-day workshop (March 15–16) on multiple GLOBE protocols at Kanchanaburi Rajabhat University in Thailand that welcomed 51 participants. In this immersive training, participants engaged in field-based and classroom activities covering:

- **Biosphere:** Biometry techniques, including tree height measurement and land cover classification
- **Atmosphere:** Observations of air temperature, relative humidity, surface temperature, and clouds
- **Hydrosphere:** Studies on mosquito habitats, water conductivity, pH levels, water temperature, and transparency

This event strengthened participants' capacity to implement GLOBE protocols and fostered a deeper understanding of Earth system science in Thai education.

GLOBE Thailand also held a 1-day workshop at Srinakharinwirot University on March 15 that brought together 20 participants for focused training on protocols related to atmospheric and hydrospheric science. Training topics included:

- **Atmosphere:** Air temperature, relative humidity, precipitation, surface temperature, cloud cover, water vapor, and wind
- **Hydrosphere:** Conductivity, dissolved oxygen, pH, water temperature, and transparency

The workshop emphasized data collection techniques and the integration of real-world science into classroom instruction.

On March 21, students and educators from the GLOBE Asia and Pacific community made impactful contributions to the Rivers in Spring event, organized by the GLOBE Europe and Eurasia region. This event served as a platform for young researchers to present their scientific investigations on water systems, with a special focus on the issue of microplastic pollution and water quality. The following research papers from Taiwan and Thailand were presented, demonstrating the students' deep engagement with local environmental issues and their application of scientific methods to address global concerns:

- **Microplastic Activities at School (2021–2024)—Taiwan:** Presented by Neil Chen (GLOBE educator) and Chiu Kuang-wei (student) from New Taipei Municipal Hsin Tien Senior High School. This long-term project examined the presence and sources of microplastics in school environments and explored mitigation strategies through community education and behavioral change.
- **Investigation and Analysis of Water Quality in Xinglong Park—Taiwan:** Presented by Chiu Yi Chen (GLOBE educator) and Wang Pei-Ting (student) from Wan Fang High School, Taipei. This research focused on monitoring the water quality of a local urban park, using field sampling and data analysis to assess ecosystem health and raise public awareness.
- **The Price of Beauty: A Study on Microplastic Contamination—Taiwan:** Presented by Shujung Wang (GLOBE educator) and three GLOBE students from Taipei Minlun High School. This study explored how cosmetic and personal care product use contributes to microplastic pollution, linking consumer behavior to environmental impact and advocating for informed choices.
- **Study of Microplastic Contamination in Soil, Seawater, and Seagrass—Thailand:** Conducted in the Sikao District of Trang Province, this interdisciplinary research assessed microplastic contamination across diverse coastal ecosystems, highlighting the ecological risks facing seagrass habitats and the need for sustainable conservation strategies.

GLOBE Philippines hosted the second part of its Soil Mapping and GLOBE Protocol Workshop at Hanawan National High School on April 25–27, engaging students and educators from the Schools Division of Masbate and the Schools Division of Catanduanes. This hands-on workshop

focused on key GLOBE protocols related to soil and environmental monitoring, equipping participants with the knowledge and skills to conduct field investigations using standardized methods. The workshop also included practical sessions on the use of scientific equipment and instruments, which were generously donated by GLOBE Teacher Joan Callope through support from a YLACES grant. The workshop strengthened local capacity in environmental science education and fostered cross-school collaboration and inquiry-based learning.

Regional Campaign: Soil in Schools

GLOBE Asia and Pacific's Soil in Schools Campaign ran from September 1 through October 16, 2024. This campaign was a region-wide initiative designed to engage students in the study of soil's critical role in ecosystems. Through experiential learning, participants deepened their understanding of soil science and contributed valuable data to the global scientific community.

Key campaign activities and achievements:

- **Expert webinars (September 3, 5, 10, and 18):** A series of live sessions led by soil science experts covered topics such as soil composition, temperature, moisture, and the ecological importance of each. These webinars drew broad participation and promoted knowledge exchange across countries.
- **Widespread participation:** A total of 134 registrants from countries including Bhutan, Sri Lanka, Nepal, Mongolia, Taiwan, and the Philippines actively engaged in the campaign.
- **On-site soil observations (September 12–30):** Students conducted field investigations at their schools, analyzing soil texture, structure, and composition, and documented their findings using GLOBE protocols.
- **Global data submission (September 18–30):** Participants uploaded their soil data via the GLOBE Data Entry App, contributing observations on temperature, moisture, and other variables to the international GLOBE database, thus supporting collaborative environmental research.

Community Highlights

The GLOBE community continues to demonstrate exceptional dedication to environmental research and education through hands-on investigations and collaborative activities across the region. Recent initiatives by students and educators underscore the power of youth-led science and community engagement in addressing ecological needs.

Students in **Suriname** have been examining the impact of urban development on the water quality of the Suriname River. Their research highlights how increasing urbanization contributes to environmental degradation, offering valuable insights into the need for sustainable urban planning and water management.

In **Taiwan**, student researchers observed the presence of microplastics in the Xinian River. Their investigation culminated in the proposal of three innovative solutions aimed at mitigating plastic pollution and raising public awareness. This project exemplifies the proactive role that youth can play in addressing global environmental challenges.

On April 24, 2025, **GLOBE Philippines** celebrated alumnus Lyn Escarcha, whose research on urban heat and greenhouse gas trends in Filipino cities was accepted by the ASEAN Youth in Climate Action and Disaster Resilience Conference.

GLOBE Nepal students were invited to a special event where they were able to share their GLOBE experiences with Prince Edward, Duke of Edinburgh. The students, joined by their principal, Subarna Bhattarai, presented information about their research activities on mosquito habitats, clouds, land cover, and trees. The royal guests were impressed by the different GLOBE activities and observations that students had carried out and were interested in how the team was helping the community through these learned skills.

Highlights from Europe and Eurasia

Regional Meeting

The 2024 GLOBE Europe and Eurasia Regional Meeting was held in Ljubljana, Slovenia, on November 11–15. More than 100 participants from Europe and Eurasia and other GLOBE regions—including country coordinators, trainers, scientists, educators, education experts, GLOBE alumni, and U.S. Embassy representatives—gathered to celebrate, learn, build partnerships, and make plans for GLOBE in their schools, countries, and the region. During the first two days of the meeting, Europe and Eurasia country coordinators provided updates on GLOBE's implementation in their countries, shared plans for the coming school year, and highlighted opportunities for international involvement in upcoming activities and events. The final three days of the meeting engaged the broader GLOBE community and included training sessions, field workshops, excursions, school visits, and the science education GLOBE Market—

an ideas exchange where participants shared activities and projects they'd used to engage students in the program.

Events

On February 4–5, the Best of GLOBE Europe and Eurasia virtual event showcased students' research and its impacts on local communities. The event was attended by 250 participants from 29 countries and highlighted 30 research contributions from nine countries. Scientific experts from NASA and other institutions asked questions about and provided feedback on students' projects. The Europe and Eurasia RCO selected winners from across several categories to receive either GLOBE educational materials or a scholarship for the team to attend the regional GLOBE conference in May.

The 2025 GLOBE Student Conference, held May 22–23 in the Czech Republic, welcomed participants from Ireland, Slovenia, Slovakia, Ukraine, and Montenegro. The program featured presentations of student research, a market of student activities, scientist-led workshops, and opportunities to network and to initiate inter-school collaborations.

Regional Campaigns

The RCOs and Europe and Eurasia countries organized a wide variety of international collaborative campaigns, including the following.

Autumn Tree (Phenology) Campaign (September–November 2024)

The Europe and Eurasia RCO organized an international campaign involving more than 5,000 schools (300 school teams) from 26 countries who gathered more than 3,000 tree green-down observations. Students also had the opportunity to learn to measure tree height, connect autumnal changes to the global carbon cycle, and participate in the 2024 Tree Reporters Challenge by conducting and sharing an "interview" with a local tree. Students presented their findings during a webinar for the international community.

Rainfall and Flooding: How Spongy Is Your School? (January–February 2025)

GLOBE Ireland organized an international campaign and was joined by schools from Malta, Slovenia, Ukraine, and Croatia to measure precipitation over a 4-week period and then share and compare their results. In addition to collecting rainfall data, participating schools also had the opportunity to map puddles, land cover, and surface types around their schools; identify nature-based solutions to build rainfall resilience; and design a "spongey school solutions" project to help make their own schools more rainfall-resilient. The campaign featured a webinar with scientific experts and a student-sharing webinar where students shared their findings and their nature-based solutions.

How Cool Is Your School? Surface Temperature and Climate Resilience (March–April 2025)
GLOBE Ireland organized an international and cross-regional campaign involving students and schools from Malta, South Africa, Mauritius, and Ghana. Participating schools measured the surface temperature of bare soil, short grass, and asphalt as part of their investigation of the urban heat island effect. The campaign culminated with a virtual event featuring presentations from scientific experts, a showcase of students' investigations and findings, and a discussion of surprising differences in their results.

River Ecosystem Campaign (March 26–May 2, 2025)
GLOBE Ireland organized a collaborative campaign where participating schools assessed the character and health of river ecosystems by collecting data on water temperature, water pH, and nitrate and phosphate concentrations from a local river. Findings from over 50 river surveys were submitted from a variety of locations (e.g., rural, urban) in Ireland. Students presented their findings at a virtual event during which science experts offered questions and feedback on their research.

Spring Tree Campaign (March–June 2025)
The Europe and Eurasia RCO organized this international campaign involving more than 280 schools. Participating schools chose one of seven tree species to follow over the course of the spring campaign, collecting green-up observations, creating time-lapse videos of trees using GrowApp, connecting and collaborating with other schools around student projects and research, and discovering how trees play a vital role in the carbon cycle. The campaign featured a scientist-led webinar offering background information on why phenology is important and a webinar showcasing students' research.

Air Quality Campaign (October 2024–April 2025) GLOBE Ireland
The Air Quality Campaign included over 200 schools. In April, GLOBE Ireland hosted a GLOBE Air Quality student-sharing webinar.

Community Highlights

In addition to collaborative observation campaigns, Europe and Eurasia countries worked together on a variety of other projects and initiatives.

Students in **Malta and Latvia** participated in year-long collaboration on climate cloud observations.

GLOBE Italy hosted a Global Water Celebration, Rivers in Spring 2025, bringing together thousands from Mantua (Mantova) and around the world. Students, educators, and scientists gathered virtually and in person to celebrate World Water Day with a special focus on glacier preservation.

Europe and Eurasia's Air Quality Collaboration Group, with representation from **Ireland**, **the Netherlands**, **Malta**, and **France**, planned a series of shared air-quality resources and learning opportunities, including a virtual student-led air quality research webinar held in April 2025.

Schools in **Italy and Croatia** collaborated throughout the 2024–2025 school year through shared experiences via the GLOBE Program and cultural exchange.

The GLOBE Program grew as **Montenegro** joined GLOBE in June 2024 as 127th GLOBE country.

Impact on Local Communities

Students in the **Czech Republic** found significant pollution in their local stream and created an interactive map of local pollution sources. The students started community information campaigns based on their research findings.

At a Youth Climate Conference in **Israel**, GLOBE was among 35 student-led initiatives selected for presentation. These students have been invited to present their findings on urban heat islands to the President of Israel.

Students in **Croatia** were inspired to advocate for more trees after the GLOBE Phenology Campaign.

Other Significant Achievements

Students in **Israel** conducted approximately 300 cloud observations at once, setting a record for the largest simultaneous cloud observation in the Middle East.

Students in Estonia developed a board game to promote GLOBE and science research.

Additional Updates

The Europe and Eurasia RCO is gathering information on Earth system science collaborations and connections, including reflections from scientist collaborators, examples of successful school projects involving scientists, and models for engaging Earth system scientists.

Highlights from Latin America and Caribbean

Regional Meeting

In October 2024, the Latin America and Caribbean Regional Meeting was held in Santo Domingo, Dominican Republic. The meeting was attended by country coordinators, deputy country coordinators, educators, students, trainers, and scientists from nine countries. The agenda for adult attendees included a series of presentations, including country coordinators presenting on regional best practices, and a training session on mosquitoes—the main theme of the meeting. Attendees learned more about the new Implementation Office, took part in a NASA capacity-building project, heard about different mosquito-related projects and observations, and participated in a team data-collection challenge for an ultimate prize.

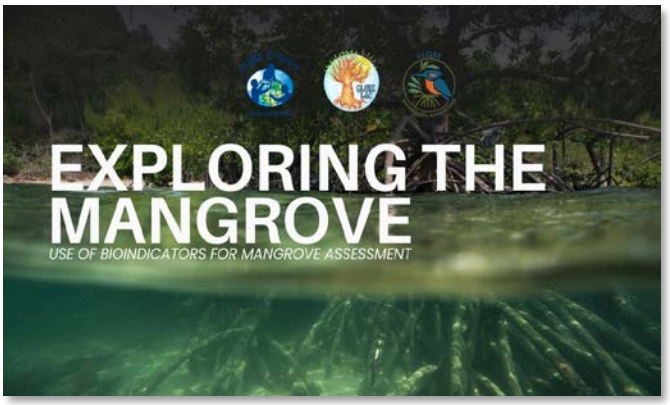
Students from Uruguay, Argentina, Colombia, and Guatemala enjoyed a different agenda, including educational, recreational, and cultural activities oriented toward GLOBE. Students also participated in the whole-group data challenge, and their team won for collecting the most data. Students from Uruguay had the opportunity to present a project they had worked on diligently for months alongside their sixth-year classmates, focused on the role of trees in carbon sequestration and how they contribute to reducing the school's carbon footprint. This project was submitted to the IVSS and became one of the few selected to receive the stipend

granted by the Regional Office, which covered the travel expenses for one educator and one student to attend the Regional Meeting.

Regional Campaign: Trees Within LAC

The third year of the Trees Within LAC Campaign began in January 2025 with a focus on three key themes: Urban Heat Islands, Mangroves, and Mosquitoes. The campaign will run until December 2025 and features four Intensive Observation Periods (IOPs) focused on tree measurement, with the first running from January to February to align to the academic calendar in the region and encourage participation from the education community. Participants also have the option to complement these data with other campaign protocols based on their research interests. For the first IOP, 67,536 total data points were collected.

The Trees Within LAC Campaign included the launch of the "Draw Your Cloud" contest for primary and secondary school students—an effort to increase student engagement by linking earth system science and art. At least 16 educators participated in the initiative, guiding and encouraging their students throughout the process. A total of 160 drawings were submitted by students from seven Latin American countries. The campaign also includes the GLOBE 2025 calendar, which was designed to highlight, month by month, photographs of trees captured by children and young people, along with relevant environmental dates.



A number of webinars have also been held as part of the Trees Within LAC Campaign. In February, a webinar on urban heat islands launched the third year of the campaign. Sixty educators from 14 countries participated in the webinar. The March webinar titled "Science and Community: Monitoring Mosquito Habitats and Their Impact on Health" featured Dr. Rusty Low, GIO Deputy Director, Science. In April, the webinar "Exploring the Mangrove: Use of Bio Indicators for Mangrove Assessment" featured a presentation from Dr. Maria del Milagro Carvajal Oses, a marine biologist from the Marine Biology Station in Costa Rica. A webinar titled "Monitoring Tree Flowering in Latin America" is planned for May featuring Dr. Yoseline Angel, a scientist and engineer who specializes in remote sensing and geosciences. And a June campaign webinar will focus on inspiring research to support connections to Earth system sciences.

Three subcommittees were formed within the Trees Within LAC Campaign: Urban Heat Islands, Mangroves, and Mosquitoes. Twenty-four members were selected to be part of the

subcommittees based on the applicants' expertise in the subject, with an effort to ensure geographical diversity within each subgroup.

The proposed activities for these subcommittees include organizing three webinars and a workshop consisting of six virtual sessions divided by spheres. The Urban Heat Island Subcommittee held three virtual workshops covering multiple GLOBE protocols. The Mangrove Subcommittee organized a webinar on mangroves in April.

Community Highlights

This year, 57 student research projects were submitted by the region to the IVSS. Students from **Argentina**, **Brazil**, **Chile**, **Colombia**, **Guatemala**, **Peru**, **Suriname**, and **Uruguay** participated in this symposium.

The project "Butterflies and the Environmental Variables" started at the beginning of the COVID pandemic and has since expanded to six schools in three GLOBE countries: **Uruguay**, **Peru**, and **Argentina**. Through this project, students learn about butterflies using the GLOBE Land Cover and (modified) Phenology protocols.

The RCO, students, and educators from Latin America participated in the international event Rivers in Spring to celebrate World Water Day, organized by GLOBE Italy in collaboration with the GLOBE Europe and Eurasia RCO. This virtual event brought together innovative projects focused on water conservation and the impact of climate change on aquatic ecosystems.

The LAC RCO's Mariana Savino and **GLOBE Paraguay** Country Coordinator Elida Moreno were accepted into the Global Diplomacy Initiative Fellowship program at the United Nations Institute for Training and Research.

An educator and trainer from **GLOBE Argentina** created *El Jacarandá de la Abuela Aranda* (*Grandma Aranda's Jacaranda*), a book that combines art, science, and emotions to connect with students and help them participate in the study of trees.

In an effort to engage students in practical activities that go beyond the classroom, students in Pinheiro, **Brazil**, had the opportunity to participate in a transformative GLOBE project connecting science with local challenges, such as climate change and public health. Students were trained using the GLOBE Observer data collection app.

Students in southeastern **Brazil** embarked on an environmental awareness project in collaboration with the GLOBE Program to understand the role of local trees in regulating

climate. The students were trained to use the GLOBE Observer app and platform to collect data on trees in their community. This project aimed to transform the school environment into a living laboratory for citizen science, promoting both environmental responsibility and deeper awareness.

Two primary schools in **Chile** participated in GLOBE research on rainwater filtration as part of the water scarcity campaign and engaged in monitoring a lentic water body and collaborating on a rainwater campaign.

As part of the 30th anniversary of the GLOBE Program, celebrated on April 22, **Ecuador** took a key step toward strengthening its participation in the network with the signing of a new cooperation agreement between OIKOS and the University of Tourism Specialties of Ecuador. Thanks to this agreement, the program will begin to be implemented within the Faculty of Environmental Management and Natural Resources, integrating citizen science and environmental education into university training.

Students from the STEAM Program **Guatemala** researched forest cover and the prevalence of dengue, which they presented at the GLOBE LAC Regional Meeting in October 2024. These students also developed a low-cost mosquito repellent based on their research.

GLOBE Paraguay organized and led a GLOBE training workshop for educators to introduce them to the educational resources available through the GLOBE Program. This workshop empowered 18 educators with the knowledge and tools needed to effectively integrate GLOBE into their classrooms across the country.

The LAC RCO visited **Uruguay** to celebrate the country's 30th anniversary in the GLOBE Program. During the visit, the RCO worked alongside the national coordinator of GLOBE Uruguay on activities with schools in Canelones. At the Adventist Institute of Uruguay, practical sessions of the Atmosphere protocol were conducted with educators and 17 students from fourth and fifth grade.

Highlights from Near East and North Africa

The GLOBE Program in the Near East and North Africa region continues to solidify its role as a leading platform for inquiry-based environmental education in the region, actively engaging students and educators in hands-on scientific investigations tied to real-world environmental challenges. The RCO remains committed to building the capacity of students, educators, and country coordinators in response to regional priorities, while fostering strong educational and community partnerships to ensure long-term sustainability.

Regional Meeting

The 2024 Near East and North Africa Regional Meeting was held November 13–16, 2024, in Abu Dhabi, United Arab Emirates, with wide participation from country coordinators, educators, students, and supporting partners. The meeting, held in collaboration with the U.S. Embassy and the GIO, marked a pivotal moment for regional capacity building.

Key Outcomes

- **Student empowerment:** Students from Jordan, Oman, Bahrain, and Egypt received training on how to integrate GLOBE protocols into classroom instruction and national curricula through project-based learning approaches.
- **Teacher advancement:** Sixteen educators earned certification as GLOBE trainers, following the implementation of a professional development strategy aimed at expanding local training capacity.
- **Coordinator development:** Building on previous efforts, regional coordinators completed a training in international project management (PMP 2024), equipping them with tools for more effective implementation and scaling of GLOBE initiatives.
- **Strategic progress:** The meeting underscored a qualitative leap in regional collaboration and planning for sustainability, and was recognized for its logistical and strategic success by partners that included the U.S. Embassy in Abu Dhabi and the GIO office.

Strategic Priorities

- Launch and implement a four-year regional strategic plan focused on sustainability and program continuity.
- Expand the integration of GLOBE protocols within national curricula across multiple countries.
- Build and strengthen a regional network of GLOBE-certified trainers and student research facilitators.
- Increase participation of girls and students in rural and underserved communities.
- Organize high-impact environmental events addressing water quality, climate change, and soil health.
- Promote regional participation in global initiatives such as Earth Day and the IVSS.
- Sustain and grow strategic partnerships with the U.S. Embassy and academic institutions to enhance local implementation and professional development.

Regional Campaigns

In **Jordan**, the country coordinator launched a yearlong environmental campaign in the beginning of school year 2025: Better Environment for a Better Future. A GLOBE school launched the campaign and invited other schools in the area to join. The campaign included GLOBE workshops and a poster competition. Dr. Dia'a Rossan, a hydrology scientist from Hashemite University, participated as an expert and judging committee member.

Oman hosted its annual Oman Water Week Campaign across the country, with participation from experts and scientists from the Ministries of Education and Environment and representatives from UNESCO. The campaign included a 3-day exhibit where GLOBE students participated with hydrology researchers.

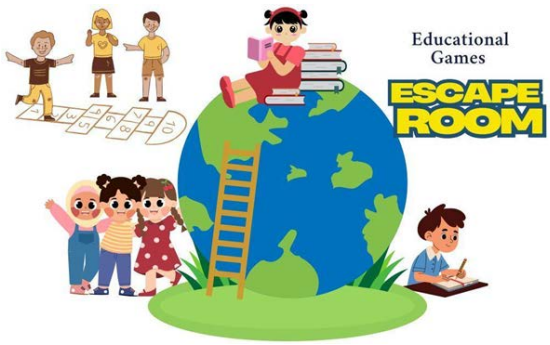
Community Highlights

GLOBE Oman used GLOBE protocols (Trees and Air Temperature) at the summit of Jebel Shams, the highest peak in the Arabian Gulf. See other examples of how they have creatively used GLOBE protocols to study local plants, rainfall, and water sources. Students from Oman also created a video showing GLOBE students applying Land Cover protocols at Muscat Schools.

In the **Kingdom of Bahrain**, the Regional Office took part in Bahrain's annual Green March celebration for GLOBE schools. The event was attended by representatives from the U.S. Embassy and highlighted students' engagement with GLOBE protocols.

A celebration was held in Alexandria, **Arab Republic of Egypt**, under the auspices of the Ministry of Education, with participation from the U.S. Embassy and STEM schools active in the GLOBE Program. Six countries—Jordan, Oman, Kuwait, Bahrain, Egypt, and Qatar—were recognized for their outstanding contributions during the "GLOBE Stars" recognition ceremony.

An in-depth training was organized with participation from **Jordan**, **Oman**, **Kuwait**, and **Egypt**. Twelve participants received targeted instruction on navigating and using the GLOBE website and tools. The session was attended by Mr. Eslam Khair from the GIO, who contributed invaluable support and expertise.



Mrs. Reem Dahnous from **GLOBE Jordan** created a PowerPoint presentation on the GLOBE Games that all country coordinators are encouraged to implement as part of "Learning Through Playing."

Highlights from North America

Regional Meeting

The 2024 North American Regional Meeting was held virtually over three days, October 15–17, for three hours each day. Ninety meeting participants attended from across the United States and Canada. Amy Chen, the GLOBE program officer at NASA, and Rebecca Lewis and Becky Boger, directors of the GIO opened the meeting with welcomes, highlights, and updates on GLOBE activities.

Each day of the meeting had a slightly different focus. Day 1 focused on skill-building, with workshop participants choosing from a selection of interactive workshop sessions on GLOBE's website features and NASA connections. Day 2 featured seven lightning talks from GLOBE partners and time to meet in affinity groups. Day 3 focused on professional learning, with sessions on grant writing and marketing.

The planning committee members for the 2024 Regional Meeting were thoughtful about incorporating ways to keep participants engaged and connected in a virtual setting. One method used was frequent breakout sessions; participants were in breakout rooms a minimum of two times during each three-hour day. Another technique was gamifying GLOBE: Participants were able to win raffle tickets by completing tasks or participating in GLOBE-themed games.

Events

In the spring of 2024, 264 middle and high school students from around the United States came together at five GLOBE U.S. Regional Student Research Symposia to share the results of research conducted in their local communities, get feedback from STEM professional reviewers, engage in peer review, and participate in experiential learning activities. Events took place at the INFINITY Science Center (Mississippi), All Saints' Episcopal School (Texas), Berks Nature (Pennsylvania), the Toledo Zoo and Aquarium (Ohio), and the NASA Jet Propulsion Laboratory (California). In all, students presented 95 research projects.

The U.S. GLOBE Watercoolers are virtual learning, discussion, and networking opportunities for GLOBE educators and partners that model the idea that informal gatherings around water

coolers at work can lead to valuable exchanges of information and new collaborations. From May 2024 to April 2025, the GLOBE U.S. Coordination Office held 12 virtual Watercoolers with 75 unique attendees. Watercoolers covered a broad range of topics, including Nature Notes, GLOBE library resources, STELLA open-source tools, and Elementary GLOBE resources.

Regional Campaign: North American Phenology Campaign

In collaboration with GLOBE Canada, the GLOBE U.S. Coordination Office encourages educators, students, and citizen scientists to make leaf green-down and green-up observations through the North American Phenology Campaign. The campaign is based largely on the successful European GLOBE Phenology Campaign. In fall 2024, observers measured leaf green-down using the GLOBE Color Guide and GLOBE Observer app and entered 1,695 measurements into the GLOBE database. As of May 2025, observers measured leaf budburst and green-up and entered 764 measurements into the GLOBE database.

Community Highlights

GLOBE was adopted at two National Estuarine Research Reserves in California: the San Francisco National Estuarine Research Reserve and the Elkhorn Slough National Estuarine Research Reserve.

A GLOBE educator and students from Beloit Memorial High School (Wisconsin) collaborated with community members and scientists on a Thriving Earth Exchange project titled "Investigating the Potential Air Quality Impacts of Natural Gas Plant Emissions on Community Health in Beloit, Wisconsin."

GLOBE educator Jennifer Schmitt, North Collins Jr./Sr. High School (New York), encouraged student research with frost tube and snowfall measurement data collection.

A team of GLOBE trainers and partners led six professional development sessions at the Massachusetts K–12 Climate Change Challenge kick-off event.

Students from Altmar-Parish-Williamstown Jr./Sr. High School (New York) used GLOBE protocols to enhance data collection and expand their existing water quality research project.

The Alabama Math, Science, and Technology Initiative has been working to rebuild their GLOBE training team and provide sustainability for the partnership. Through three hydrology workshops funded through the GLOBE U.S. Coordination Office mini-grant program, five specialists are now certified GLOBE trainers, and 31 Alabama science teachers and six specialists are certified GLOBE educators.

In the fall of 2024, 336 of the 360 K–5 students at Pearl Creek Elementary in Fairbanks, Alaska, collected over 660 green-down measurements for the North American Phenology Campaign. The students shared their green-down findings at the 2023 regional Student Research Symposium and 2024 GLOBE Annual Meeting.

Dr. Elena Sparrow, University of Alaska Fairbanks, was awarded the Youth Environmental Science Medal in recognition of her significant contribution to YLACES.

Dr. Yoseline Angel, a scientist at the University of Maryland-College Park and NASA's Goddard Space Flight Center, leads NASA research on wildflower and tree flower blooms and has requested GLOBE land cover observations to help her identify blooms in satellite data.

The University of New Hampshire Leitzel Center GLOBE Partnership released two implementation guides to go along with the Earth Around Us Water Tent: one for grades K–2 and one for grades 3–8. These guides provide activities and resources to prepare students for a visit with the water tent. The Earth Around Us Tent Program, developed with support from the USDA Forest Service, is a traveling educational lending

program that combines hands-on science activities centered around an Elementary GLOBE storybook and a pop-up tent with immersive murals depicting students' observations of their local ecosystems.

Connect Charter School, a Canadian charter school, has incorporated GLOBE into their curriculum by holding "GLOBE THRIVE" days that get students outside and connected to their environment by making environmental measurements.

Additional Updates

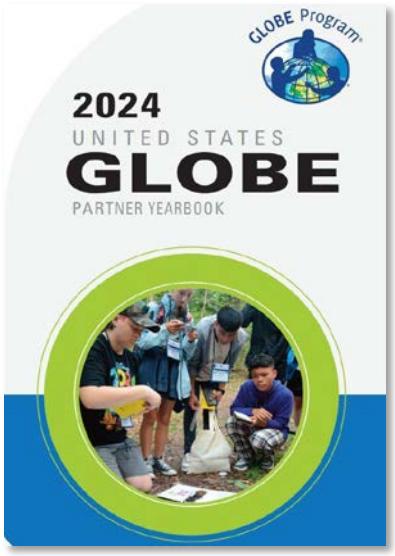
The GLOBE U.S. Country Coordination Office **launched a new Partner Onboarding and Sustainability workshop series**. The six-session series is designed for GLOBE partners in the U.S. and Canada to learn content and build skills applicable to a wide audience of GLOBE partners. New partners are paired with a mentor partner who follows up, provides guidance, and answers questions during onboarding. The virtual workshop series is supported by a "GLOBE Partner User Guide" Padlet.

The GLOBE U.S. Coordination Office created a **new** **GLOBE Program Equipment and Supplies List** to support GLOBE members in obtaining materials that meet GLOBE specifications. The spreadsheet is arranged by sphere and includes the equipment specifications and costs from various vendors.

The GLOBE U.S. Coordination Office **awarded mini grants to partnerships for small-scale activities** that help achieve strategic objectives and contribute to the evaluation of U.S. GLOBE's impact. The pilot program wrapped up September 2024 with nine projects and over 4,300 students, 183 educators, 103 schools, and 79 others (volunteers, faculty members, Camp Directors, science specialists) impacted by the activities. Project abstracts are available through a Padlet map on the GLOBE website. A new round of funding will be available to U.S. partners in the coming year.

The **GLOBE U.S. Evaluators Community of Practice** provides a forum for GLOBE evaluators to connect and share resources, experiences, and best practices for evaluating the outcomes of GLOBE activities. It also allows the GIO, GLOBE Program Office, and GLOBE U.S. Coordination Office to share relevant information with a network of GLOBE evaluators and solicit their feedback on evaluation initiatives. The GLOBE U.S. Country Coordination Office external evaluator is the group coordinator, who hosts monthly meetings, develops an engaging learning

agenda in collaboration with members, schedules and prepares guest speakers, and facilitates group discussions.



Every year, the GLOBE U.S. Coordination Office creates a **U.S. GLOBE Partnership Yearbook**. Partners submit their activities, audiences reached, areas of expertise, and annual GLOBE accomplishments. The submissions are compiled, along with summaries of news stories and U.S. GLOBE activities, and are available on the United States webpage.

New materials are available for GLOBE community members who want to share GLOBE work at conferences or GLOBE trainings. These materials include phenology rulers that have a ruler for measuring green-up on the front and the green-down color guide on the back, and postcards with the GLOBE Science Process image and information about the Student Research Symposia and the IVSS.

The GLOBE U.S. Coordination Office worked in partnership with the USDA Forest Service to **highlight connections between Natural Inquirer readers for students and GLOBE protocols**, learning activities, and storybooks. In total, 26 blog posts have been posted to the U.S. GLOBE Teaching Resources page.

GLOBE Canada has **developed Place-Based Basics**, a website resource for Canadian GLOBE educators on place-based learning.

GLOBE Country Coordinator Kevin O'Connor hosted Dennis Joel, assistant GLOBE country coordinator from Tanzania, to discuss collaboration around mosquito and solid precipitation protocols.

GIO Plans for 2025–2026 and Beyond

To align with the priorities of the U.S. federal government and NASA, the GIO will focus its efforts moving forward on advancing Earth system science through collaborations with NASA and other science efforts and highlighting how GLOBE participants are supporting NASA missions and citizen science projects. In addition, the GIO will support training for protocols and alignment with workforce development efforts.

As we celebrate the 30th anniversary of this extraordinary program, we would like to reflect with gratitude and pride on its legacy of excellence in science and STEM education. For three decades, the GLOBE community has embodied the spirit of inquiry and exploration, fostering deeper public engagement with the natural world and contributing meaningfully to scientific research. From its inception, the GLOBE Program has stood as a beacon for participatory science, robust inquiry, and a shared commitment to understanding Earth systems.

As a proud part of NASA's Science Mission Directorate, we continue to expand that legacy. The GIO's work is grounded in the Directorate's core priority: advancing cutting-edge scientific research. We are building strong connections to NASA missions and seeking other opportunities to empower the public through citizen science.

Looking to the future, the GIO will focus its efforts on Earth science research priorities from NASA and researchers contributing to NASA's work. We are investing in the growth of a diverse and capable scientific workforce, supporting training and learning, and working closely with our partners to enhance community experiences. Our goal is not only to sustain this thriving community but also to elevate it—supporting participation across all levels of the GLOBE Program.

Thank you for being part of this incredible journey. Here's to 30 years of impact—and to a future filled with new questions, deeper connections, and scientific discovery.