



# Europe and Eurasia 2024 Country Reports



GLOBE Program  
Europe and Eurasia Region Coordination Office

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# The GLOBE Program Europe and Eurasia Region Coordination Office

The GLOBE Program network is represented by Region Coordination Office (RCO) in each of the world's region. The Europe and Eurasia RCO fosters the program in 45 countries with over 5650 schools and 50 371 citizen scientists. The office is located in Prague, Czech Republic and hosted by TEREZA, Educational Centre.

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Special thanks for the cooperation in the year 2024 belong to

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- Marcella van Steenbergen (Deputy Country Coordinator, Netherlands)
- Ramona Mercieca (Deputy Country Coordinator, Malta)
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# Content

- Europe and Eurasia Region Meetings ..... 3
- Belgium..... 4
- Croatia ..... 5
- Cyprus..... 9
- Czech Republic..... 11
- Estonia ..... 14
- France ..... 17
- Georgia ..... 19
- Germany ..... 21
- Greece ..... 25
- Ireland ..... 27
- Italy ..... 32
- Kyrgyz Republic ..... 35
- Latvia ..... 38
- Lithuania..... 41
- Malta ..... 43
- Montenegro ..... 46
- Netherlands..... 48
- Republic of North Macedonia ..... 51
- Slovakia..... 54
- Slovenia ..... 57
- Switzerland ..... 60
- Ukraine ..... 63

# Europe and Eurasia Region Meetings

## **2024 GLOBE Regional Meeting for Europe and Eurasia**

November 11 – 15, 2024, Ljubljana, Slovenia

### **Online meetings of Country Coordinators and Deputy Country Coordinators**

#### **Meeting No. 1, January 17, 2024**

Focus on: How to motivate teachers and students to report data to the GLOBE database

#### **Meeting No. 2, March 19, 2024**

Focus on: Reflections on the 2024 GLOBE Virtual Student Conference

#### **Meeting No. 3, May 2, 2024**

Focus on topics: Change of GLOBE Implementation Office, Earth Day activities, events in coming months.

#### **Meeting No. 4, June 19, 2024**

Focus on: 2024 GLOBE Europe and Eurasia Regional Meeting, Slovenia

#### **Meeting No. 5, September 4, 2024**

Focus on topics: 2024 GLOBE Europe and Eurasia Regional Meeting, Slovenia, inspiration from the 2024 GLOBE Annual Meeting, plans for the 2025 Virtual Student Conference, events for the next period.

#### **Meeting No. 6, October 24, 2024**

Focus on: 2024 GLOBE Europe and Eurasia Regional Meeting, Slovenia

# Belgium

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## Cooperating Organizations/Individuals:

Science College Overbach, Germany

## GLOBE Schools (what types, how many):

4 secondary schools. Some schools in Belgium use GLOBE materials without being part of the GLOBE school network and often without reporting data. Some schools take part in the European Phenology Campaigns (both autumn and spring), others are testing the Microplastic Monitoring Protocol draft.

## GLOBE Areas you and schools focus on:

The focus for GLOBE data was on Hydrology and Atmosphere protocols.

## Number of Schools Reporting Data over Past Year:

## Program Implementation, International Cooperation in GLOBE Network, and Activities over Past Year (categorized by GLOBE Strategic Plan 2018-2023 Goals):

### 1. Education

We presented the GLOBE Program at our science fair and distribution of research materials.  
We were training new teachers online.

### 2. Science

We do not have universities in the German speaking Community. We hope to work together with GLOBE Germany on that part.

### 3. Community

Extension of the collaboration with GLOBE Germany. We are planning a teacher training for all German speaking countries and certify new trainers with the help of GLOBE Switzerland.

### 4. Technology

### 5. Communications

All GLOBE-related communications are transmitted by email and Newsletter to all the secondary science teachers in order to support GLOBE educators and their students. The newsletter contains the most important information from the international program and points out activities, campaigns and training opportunities.

## Plans and Ideas for Next Year:

- To start with 1 school at least in the autumn and/or spring phenology campaigns
- To present the GLOBE program at the "Ideas Exchange" on 8<sup>th</sup> of October 2025 in Eupen
- To finally organize a GLOBE training
- To launch a project for primary schools about Clouds.



# Croatia

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## **Organization and Number of Staff:**

Several very important GLOBE activities are regularly conducted by Education & Teacher Training Agency (ETTA), such as teacher training, organized twice each year; Annual GLOBE Conference (GLOBE Competition and Science Fair; coordination of Regional GLOBE centers with the meeting of Regional GLOBE leaders once each year). There is 1 person in ETTA who is in charge for those activities. Therefore, ETTA also engages external specialists and school teachers to help with the above listed activities. They come from different organizations and get a contract for the period of mostly 6 months. Totally there could be about 35 external associates involved per year that get hired for a certain job

## **Funding by:**

All activities conducted by ETTA are funded by ETTA, a governmental organization in the field of education that is in charge of teachers' professional development and school quality insurance.

## **Cooperating Organizations/Individuals:**

The Ministry of Science and Education should be responsible for GLOBE sustainability, since that organization signed the GLOBE Agreement in 1995 and appointed the Country coordinator, and the Deputy country coordinator. However, the Ministry is not directly involved in the implementation of the GLOBE program. The Croatian Meteorological and Hydrological Service and the Faculty of Sciences in Zagreb/ Department for Biology also cooperate in GLOBE activities. The US Embassy in Zagreb gives steady support for the GLOBE activities.

OIKON – the Institute for Applied Ecology also supported GLOBE activities once last year.

## **GLOBE Schools (what types, how many):**

The latest School Status Report indicates: Out of 432 schools and 617 educators, there were 16,300,356 total observations conducted; Yet only 42 schools are currently reporting (in the past 3 months) and 200 schools were reporting in the past. Many teachers have passed GLOBE training, but they have no obligation to start reporting. We do not know if teachers from those schools use GLOBE materials, since they don't report.

The number of actively reporting schools corresponds with the number of most active schools which get invited to the Annual GLOBE Competition and Science Fair. There are 2/3 of primary schools (students' age 6 – 14) and 1/3 of secondary schools (students' age 15 – 18). Most of the schools are public, and just one or two of them are private. There are some 30 kindergartens involved in GLOBE, but most of them have not been reporting the data yet, and if they do, that is almost always related to the Phenology campaign. Some of them use GLOBE Observer for cloud photographing.

### **GLOBE Areas you and schools focus on:**

The most popular area is Phenology, followed by Atmosphere. We cover all GLOBE areas on each training and it is clear that school projects come from different research areas. Recently we have focused on the Carbon cycle, which resulted with several school projects in that area – several even received national and international recognitions.

### **Number of Schools Reporting Data over Past Year:**

About 80 schools in total.

### **Program Implementation, International Cooperation in GLOBE Network, and Activities over Past Year (categorized by GLOBE Strategic Plan 2018-2023 Goals):**

#### **1. Education**

Two in-person training sessions were organized at the national level. One of them was for new teachers as initial training, and the second was a follow-up for already trained teachers.

Teachers also use E-training on [www.globe.gov](http://www.globe.gov), and meetings are organized by our regional centers— usually two meetings or training sessions per year. Regional meetings and training typically focus on the exchange of experiences and reports from teachers who participated in international GLOBE activities. Many teachers participated in international webinars and conferences.

#### **2. Science**

Scientists are involved in the evaluation of students' research projects as judges. They serve as mentors to selected school teams during the development of the research projects. At the National Conference, scientists and teachers are members of the judging committee that selects the best projects for recognition.

#### **3. Community**

GLOBE teachers are the best promoters of GLOBE in their communities, together with the students. They have developed skills to attract the attention of local media and often receive support from the local community, including some funding. Oš Dubovac from Karlovac was successful in gathering support from the local community for their journey to the USA to participate in the GLOBE Annual Meeting 2024. GLOBE kindergartens organized themselves into the subgroup GLOBE Elementary K4. They cooperate with STEM activities in the Scientix program, with CARNET (Croatian Academic Research Network), and other organizations that organize the Science Picnic, spreading the word about the GLOBE program. An exhibition of cloud photographs is being hosted by other organizations in the country and in several other participating countries.

#### **4. Technology**

In cooperation with the US Embassy, Faculty of Sciences, and the OIKON Institute, we organized a competition entitled "My Place Today and Yesterday" on the occasion of Earth Day 2024. The idea was to promote technologies that were not widely used previously. The instruction for schools was to illustrate environmental changes by comparing available satellite images from different years. The required was a Story Map. The US Embassy appointed scientists to the judging committee, which was voluntary work, and everything was done online. The Story Maps were published on the Croatian GLOBE website ([globe.hr](http://globe.hr)), and the judges selected the best entries to be presented in person on the occasion of Earth Day. The committee had just one online meeting, and the assessment system was simple and transparent. As a result, there were no disagreements about the four school teams selected to be the winners.

## 5. **Communications**

Information for new schools and teachers is available through ETTA's Catalogue of Workshops and Catalogue of Extracurricular Activities, as well as through word of mouth from involved teachers. All important information is distributed via regional centers, the website [<http://globe.hr>](<http://globe.hr>), or the GLOBE Facebook page "GLOBE Hrvatska".

### **Plans and Ideas for Next Year:**

We plan to establish a new CC, appointed by the Ministry of Science and Education, as well as introduce some innovations in the procedures for the annual conference.

The plans for the 30th GLOBE Anniversary are still in development, but it will be a major event as it is a significant anniversary.

We aim to strengthen the connection between GLOBE and education for sustainability. In line with this, we have prepared a GLOBE-based program for schools for "Outdoor Activities". We will offer this program to several counties (local governments), which may fund it and organize school visits if they find it of interest.



GLOBE competition 2024 – students are completing the tasks in teams.



GLOBE Competition and Science Fair 2024. – closing ceremony.



Competition "My place today and yesterday" – the winners and judges with representatives of US Embassy.





Competition “My place today and yesterday” - Story maps showcase the changes in the area by comparing satellite images.



The US ambassador visited OŠ Josipa Pupačića, Omiš, one of the most active Croatian GLOBE schools.

# Cyprus

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## **Organization and Number of Staff:**

### **Funding by:**

Government

### **Cooperating Organizations/Individuals:**

Cyprus Open University and Cyprus Institute

### **GLOBE Schools (what types, how many):**

14 active secondary schools (10 Lyceums and 4 Gymnasiums)

### **GLOBE Areas you and schools focus on:**

Atmosphere, Biosphere and Climate change

### **Number of Schools Reporting Data over Past Year:**

14

## **Program Implementation, International Cooperation in GLOBE Network, and Activities over Past Year (categorized by GLOBE Strategic Plan 2018-2023 Goals):**

### **1. Education**

14 schools are implementing the GLOBE Program. Every school has a GLOBE team that includes one or two GLOBE teachers and more than five students. Communication with colleagues was done mostly via MS TEAMS and phone.

### **2. Science**

GLOBE schools collaborate with the Cyprus Open University and some collect data from Department of Labour inspection about air quality.

### **3. Community**

We strongly suggest that each GLOBE school should have tight collaboration with parent's associations and inform them about GLOBE activities. We also recommend that each school

should recommend non-GLOBE teachers, parents and local community to download GLOBE Observer app and become a GLOBE observer.

**4. Technology**

We are trying to recruit new GLOBE teachers by e-protocols and e-learning. We are also trying to recruit new students.

**5. Communications**

Each school year we release an invitation through our ministry which reaches all secondary school in Cyprus and we ask old GLOBE schools to continue working and new teachers to get trained. We also have an MS TEAMS teacher group for direct communication between the CC and participating schools.

**Plans and Ideas for Next Year:**

To get more teachers e-trained and ask participating schools to collaborate regionally on climate change Projects. We are also in conduct with Cyprus Institute to install scientific collaboration between researchers and Globe schools.

# Czech Republic

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## **Organization and Number of Staff:**

TEREZA Educational Centre is a professional non-governmental non-profit organization fostering environmental and science education in the Czech Republic. We play a significant role in the international Global Learning and Observations to Benefit the Environment (GLOBE) Program network since 1995. TEREZA has over 20 employees. There are currently four people working for GLOBE country coordination office plus three people working for RCO for Europe and Eurasia.

## **Funding by:**

- Grants: State Environmental Fund of the Czech Republic, Ministry of Education, Youth and Sports, Ministry of the Environment, Prague City Hall, U.S. Embassy Prague.
- Fundraising: Donations by SC Johnson and Bonatrans groups.
- Own resources: schools pay €80,- per school per year; other paid services: IBSE workshops, online courses, selling publications.

## **Cooperating Organizations/Individuals:**

Apart from the GLOBE Program network, TEREZA is a member of Foundation for Environmental Education (FEE). Within the GLOBE Program we collaborate with various organizations, U.S. Embassy in the Czech Republic, Czech Hydrometeorological Institute, Faculty of Science Charles University, Institute of Botany of the CAS, and others. We also maintain close cooperation with 14 members of the Czech GLOBE Scientific Board and around 20 GLOBE mentor-teachers.

### **GLOBE Schools (what types, how many):**

110 registered schools, about 2/3 elementary schools and 1/3 high schools or leisure-time centers.

### **GLOBE Areas you and schools focus on:**

Czech schools are focused on all essential GLOBE areas (Atmosphere, Hydrology, Soil, Phenology, Biometry and Land Cover). During the reporting period, our schools were actively involved in the European Phenology Campaign. During Autumn 2023 we launched our own Soil Challenge focused on school investigations of soil in the connection with climate change issues.

### **Number of Schools Reporting Data over Past Year:**

Around 10 school are reporting data regularly.

### **Program Implementation, International Cooperation in GLOBE Network, and Activities over Past Year (categorized by GLOBE Strategic Plan 2018-2023 Goals):**

#### **1. Education**

In Autumn 2023 we organized „Soil is not Dirt“ Pedology Challenge focusing on soil research in combination with GLOBE measurements and climate change. In spring 2024 we organized „Spring Climate Challenge“ focused on school investigations of climate change in the connection with GLOBE measuring methods, e.g. connections between spring phenology observations and climate change. As a challenge output we published a Czech textbook called „Climate Adventures“ consisting of IBSE teaching activities for teachers and worksheets for students.

#### **2. Science**

We collaborate with Czech GLOBE Scientific Board (14 active members) who are helpful in developing and editing methodical materials, giving trainings, webinars, and others. Together with these experts (esp. Faculty of Sciences, Charles University in Prague) we realized several webinars and workshops for teachers on microplastics investigations (Oct 2023-Dec2023), one planning meeting of GLOBE Scientific Board (Jan 2024) and one two-days' workshop for teachers on the use of Remote Sensing within the IBSE activities of the GLOBE program (Mar 2024).

#### **3. Community**

On the Earth Day 2024 we organized 2024 GLOBE Student Conference with participants from Czech Republic, Slovenia, Ireland, Georgia, North Macedonia, and Ukraine. The event happened under the auspices of US Embassy in Prague, and GLOBE Implementation Office's Director for Program Strategy and Community Engagement Dr. Tony Murphy met and opened the conference. About 40 school projects were presented at the conference. A Student Science Fair was followed with ample time for Dr. Murphy and other experts to interact and ask questions about the students' projects.

#### **4. Technology**

Around 10 Czech schools used microplastics filter kits for their school microplastics investigations successfully. During the spring period we purchased 15 smart air quality sensors (Atmotubes) in order to get familiar with them and begin to work on the air quality challenge for schools for the next monitoring period - together with experts and colleagues from the GLOBE Slovakia. In Aug 2024 we launched “We start with IBSE” – a brand-new video course for teachers who have no experience with IBSE.

#### **5. Communications**

We started to use the program's Facebook page and the associated Facebook group in the last project period with the aim of reaching a wider audience and creating a community of people who share an interest in STEM and IBSE projects in schools and beyond. We managed to achieve this goal, as our FB group currently has 5775 members, for whom we provide a platform for sharing articles, videos and other tips for IBSE teaching and exploring nature with children. We published two articles awarded as



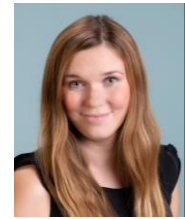
GLOBE Stars on the website [www.globe.gov](http://www.globe.gov) - “GLOBE Czech Republic Holds Student Conference in Mělník”, and “GLOBE Czech Republic Students Plant a Tiny Forest at their School for Research” both available in the section Stars and STEM Stories.

### **Plans and Ideas for Next Year:**

- To organize a “Water IBSE challenge” for schools in Spring 2025.
- To organize a two-days long 2025 GLOBE Students Conference in Židlochovice on May 22.-23. 2025.
- To enlarge our database of inquiry-based lessons and hands-on activities adequate for different school subjects.
- To support school investigations on the topic of air quality, especially aimed at PM10 and PM2,5.
- To continue with microplastics investigations at schools.
- To support the promotion and visibility of the program (through infographics, videos, articles, presentations).
- To submit and launch a new Erasmus+ project with partners from other GLOBE countries.
- To represent the Czech Republic at as many meetings of the Europe and Eurasia Region as possible.

# Estonia

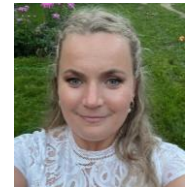
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## **Organization and Number of Staff:**

- MTÜ GLOBE Eesti, 3 members of the Board, Project Manager
- Tech support
- Accountant
- Ministry of Education and Research GPO - Liia Varend
- Team of volunteers (15 people)

## **Funding by:**

- Republic of Estonia Ministry of Education and Research
- U.S. Embassy in Tallinn, Estonia
- Schools, Local municipalities
- Private sponsors

## **Cooperating Organizations/Individuals:**

- Republic of Estonia Ministry of Education and Research
- U.S. Embassy in Tallinn, Estonia
- University of Tartu
- Tallinn University
- AHHA Science Centre

## **GLOBE Schools (what types, how many):**

- 90 public schools have joined the GLOBE program
- 70 schools have reported data
- 25 schools have reported data during last 12 months
- 50 schools involved in different activities during the year 2023

## **GLOBE Areas you and schools focus on:**

### **Measurements**

- Atmosphere: Air Temperatures, Barometric Pressures, Cloud Observations, Precipitations, Relative Humidities, Snowpacks, Surface Temperatures
- Earth as a System: Green Up/Green Down
- Hydrology: Alkalinities, Conductivities, Dissolved Oxygens, Nitrates, Salinities, Transparencies, Water pH, Water Temperatures
- Land Cover: Biometry Trees, Graminoid Biomasses, MUC, Photos, Vegetation Covers
- Soil: Fertilities, Layer Descriptions, Soil Moisture via Sensors, Soil pH, Soil Temperatures

### **Student research projects - GLOBE IVSS**

### **GLOBE Alumni involvement - as teachers, trainers, scientists**

### **GLOBE trainings for teachers and pre-service teachers**

### **Number of Schools Reporting Data over Past Year:**

25

### **Program Implementation, International Cooperation in GLOBE Network, and Activities over Past Year (categorized by GLOBE Strategic Plan 2018-2023 Goals):**

#### **1. Education**

**EG1.** GLOBE materials are part of curricula in Estonia (science, geography, biology, physics, maths)

**EG2.** We have 15 trainers in Estonia. Our trainers speak Estonian, Russian and English. We have two mentor trainers who speak Estonian, English and Russian.

**EG3.** 9 research projects in GELE Estonia (110 participants involved), 9 research projects submitted to GLOBE IVSS 2023

**EG4.** Stories in school blogs, local newspapers.

#### **2. Science**

**SG1.** 12 scientists and STEM professionals were involved in GLOBE Estonia Learning Expedition and 6 research projects were supervised by scientists.

**SG2.** Schools from different regions participate in the GLOBE program. The network covers Estonia. 6 schools have received honor rolls.

**SG4.** 8 research projects in GLOBE IVSS 2024

#### **3. Community**

**CG1.** New GLOBE schools joined the network.

**CG2.** More than 20 schools participated in GLOBE Estonia Learning Expedition, including schools from other GLOBE countries in Europe. Teams were formed of students from different schools.

8 presentations were made based on the data collected. Some research projects will be sent to GLOBE IVSS.

**CG3.** Hiking/learning Days - project with the aim of engaging Ukrainian students enrolled in Estonian schools to learn about Estonian nature and to support their integration.

**CG4.** Visit from Astronaut Nicole Aunapu Mann, initiated by our GLOBE students by sending a message to her into space. She visited Estonian GLOBE students and teachers across the country. A movie was created about her visit.

#### **4. Technology**

**TG1.** 25 schools are reporting data, 4 schools received honor rolls throughout the year.

**TG2.** The GLOBE website is used by GLOBE schools (data sheets, materials)

**TG3.** The GLOBE Observer App was used during the GLOBE Estonia Learning Expedition and Collaboration Days, apps are used in schools.

**5. Communications**

**CMG1.** GLOBE Facebook and Instagram have been introduced to GLOBE Schools. GLOBE Estonia has a Youtube channel.

**CMG2.** GLOBE Estonian trainers Laura Altin and Marie Johanna Univer conducted a training in Lithuania, GLOBE news are available on the website

**CMG3.** Stories in Estonian Media. Movie about the NASA astronaut's visit in the Estonian TV (EBU)

**Plans and Ideas for Next Year:**

- GLOBE Estonia Learning Expedition August 16<sup>th</sup> to 19<sup>th</sup> 2025
- Participating in GLOBE IVSS
- GLOBE Research projects support program
- GLOBE Earth Day celebration
- GLOBE Board Game development with Students and implementation
- Hiking/Learning Days for students continues
- GLOBE teacher training program (pre-service and active teachers)
- GLOBE 30<sup>th</sup> anniversary - celebration

# France

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## **Organization and Number of Staff:**

3

## **Funding by:**

CNES

## **Cooperating Organizations/Individuals:**

Ministry of National Education and Youth

## **GLOBE Schools (what types, how many):**

Around 40 primary and secondary schools (students aged 6 - 18)

## **GLOBE Areas you and schools focus on:**

Atmosphere and Hydrology

## **Number of Schools Reporting Data over Past Year:**

Around 40 schools, but not really on GLOBE data entry.

## **Program Implementation, International Cooperation in GLOBE Network, and Activities over Past Year (categorized by GLOBE Strategic Plan 2018-2023 Goals):**

### **1. Education**

Raising awareness on air quality and on hydrology especially continental waters - lakes and rivers.  
Satellite data were used in both GLOBE areas.

### **2. Science**

- To carry on with the NO<sub>2</sub> campaign
- To carry on with the measurement of atmospheric aerosols with the Calitoo tool



- To enroll GLOBE France teachers in Air quality-training once a year
- To carry on with school projects in the field of Hydrology

**3. Community**

- To take part in the Air Quality working group inside Globe EE and to organize an European pilot event to share AQ measurements and results.

**4. Technology**

**5. Communications**

- Exchange between Irish and French schools.
- An ERASMUS project on air quality involving European GLOBE schools (Finland/France)

**Plans and Ideas for Next Year:**

- To carry on activities on air quality and aerosols as well as in the field of hydrology.
- To continue EE cooperation on air Quality

# Georgia

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## **Organization and Number of Staff:**

CENN, 60 employees

## **Funding by:**

Austrian Development Cooperation within the scope of the GREEN Caucasus Project

## **Cooperating Organizations/Individuals:**

Ministry of Education, Science and Youth of Georgia

## **GLOBE Schools (what types, how many):**

Both public and private schools have been involved in the program in 2024, 16 schools altogether across Georgia

## **GLOBE Areas you and schools focus on:**

Georgian schools are focusing on the Atmosphere (Cloud Protocol) and Biosphere (Green Up and Green Down Protocols)

## **Number of Schools Reporting Data over Past Year:**

4 (four) schools actively continue to upload data gathered from their observations over the past year. Additionally, Georgian schools have engaged on an international level by joining the European Phenology Campaign and participating in the 2024 Europe and Eurasia Virtual Student Conference, where they presented their GLOBE Project.

## **Program Implementation, International Cooperation in GLOBE Network, and Activities over Past Year (categorized by GLOBE Strategic Plan 2018-2023 Goals):**

### **1. Education**

**Exploring the Green Up and Green Down Protocol:** To aid Georgian teachers and students in adopting these protocols, a dedicated workshop was held with support of the GLOBE team from the Czech Republic. Following the workshop, CENN enhanced accessibility by offering Georgian-language translations of both protocols, encouraging greater engagement with the GLOBE program in schools.

During the Green Camp held in August and September, organized by CENN with funding from the Austrian Development Cooperation, two informative sessions were conducted. These sessions focused on introducing the GLOBE Program and its Green Up and Green Down activities to the participating teachers. The workshops provided a detailed overview of the GLOBE Program, including step-by-step guidance on how to register and navigate the platform effectively.

During the Green Camp in August, Khatuna Kapanadze from Gelati Public School presented her work with the Cloud Protocols, offering detailed instructions on their implementation. She shared her school's experiences and provided practical tips in order to support fellow educators with the knowledge on how to integrate Cloud Protocols into their classrooms effectively.

## **2. Science**

According to the guidelines, students' cloud observation data is being uploaded to the portal, contributing to a global database of scientific information. This data exchange includes local situational data shared at an international level.

Schools received training about the Green Down and Green Up protocols during a dedicated workshop attended by 29 teachers from all over Georgia. Following the training, they began preparing to implement these protocols in their educational activities. Teachers and students actively participate in online webinars led by scientists and organized by various GLOBE country teams.

In September, Gelati Public School participated in the Iliani Science Picnic, Georgia's only annual outdoor event dedicated to promoting science. During the event, the school's teachers and students showcased their work within the GLOBE Program, engaging visitors with information about the initiative and their activities related to the Cloud Protocols.

## **3. Community**

Georgian schools have been actively engaged in the international arena by participating in European Phenology Campaigns, with 55 teachers joining the Spring Tree Campaign and 27 teachers participating in the Autumn Tree Campaign.

GLOBE educators also share their knowledge and expertise with the broader community through events like the Science Picnic and the Green Camp.

## **4. Technology**

## **5. Communications**

Regular communication with GLOBE teachers is maintained by coordinators and deputy coordinators through email and social media. Outreach is also provided to teachers who have completed training and created their accounts on the official program website, ensuring they receive ongoing support and assistance as needed.

## **Plans and Ideas for Next Year:**

- Strengthening community engagement and improve communication.
- Conducting additional workshops on:
  - Introduction to GLOBE, including how to register and use the platform.
  - Green Up and Green Down Protocols (at least 2 sessions).
  - Cloud Protocols (at least 1 session).
- Reaching out to universities and professors to establish partnerships.

# Germany

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**Deputy CC**  
**Organisation:** GLOBE Workgroup Westphalia



## **Organization and Number of Staff:**

There are no employees assigned to the GLOBE project at our organization, the Science College. We are cooperating closely with the Workgroup GLOBE Westphalia. The members of the Workgroup besides Anna Heyne-Mudrich are:

- Thomas Beer (GLOBE trainer)
- Sonja Drzensla (GLOBE trainer)
- Matthias Schmidt

## **Funding by:**

No funding at the moment

## **Cooperating Organizations/Individuals:**

There are no employees assigned to the GLOBE project at our organization, the Science College. Partners for cooperation and information: Natur- und Umweltschutzakademie NRW, Natur- und Umweltschutzbund Deutschland, ESERO, Klimawoche Bielefeld, Westfälische Kinderdorfvereinigung, Paderborn

## **GLOBE Schools (what types, how many):**

There are many registered schools - both secondary schools and higher education institutions - but I am currently gaining an overview of which of these are still actively working on GLOBE projects and are entering data, or how much they are interested in general in GLOBE.

## **GLOBE Areas you and schools focus on:**

Hydrosphere and Atmosphere

## **Number of Schools Reporting Data over Past Year:**

Around 5 schools are reporting regularly

## **Program Implementation, International Cooperation in GLOBE Network, and Activities over Past Year (categorized by GLOBE Strategic Plan 2018-2023 Goals):**

## **1. Education**

Since we are currently in the process of building the network, we have not yet been able to have any additional individuals complete the training. Anna Heyne-Mudrich is now officially recognized as a Mentor Trainer.

We had a holiday camp where 20 teenagers aged 13-16 spent a week working on the topic of the hydrosphere. They applied the protocols and investigated the surrounding bodies of water.

In August 2023 GLOBE Westphalia organized a teacher training for six teachers at the "Gesamtschule Bad Lippspringe". In September 2023 GLOBE Westphalia and GLOBE trainers Thomas Beer and Sonja Drzensla organized a workshop for pupils about the GLOBE hydrology protocol during the Climate Conference in Bad Lippspringe. The training was offered to different groups of students of all ages. In March 2024, GLOBE Westphalia was our partner in the planting activity in Bad Lippspringe. The Gesamtschule Bad Lippspringe built up a new phenological garden next to the school building, so that students can carry out observations during the lessons or in free clubs

## **2. Science**

We are continuously working on our national GLOBE offerings in collaboration with partners from the field of science and teacher education. The Research Centre Jülich, as well as RWTH Aachen and FH Aachen are long-standing partners and cover various areas of GLOBE with their broad expertise. In particular, the Department of Biology Education at RWTH Aachen has taken an interest in our work, and we are planning joint projects. GLOBE Westphalia is working on a new development of didactics on Geography following a most interesting blog "doing geo and ethics". We will try to include the new didactical ideas into the proposal of our project about "Tributary Rivers".

## **3. Community**

Anna Heyne-Mudrich and Annika Loevenich attended the GLOBE meeting in Riga and will also participate in the upcoming meeting in Ljubljana in November. Through many productive discussions, Annika Loevenich expanded her knowledge related to working at GLOBE as a Country Coordinator (CC) GLOBE Westphalia was honoured to take part in the opening ceremony of the new buildings of the "Gesamtschule Bad Lippspringe" in June 2024. The focus of this school is the "natural heritage" in our area and across Germany including cooperation with the GLOBE program on the different levels. Some work results are posted on the homepage "GLOBE-deutschland.de".

## **4. Technology**

During a holiday camp, we partially built the measuring devices ourselves, in order to determine values related to the topic of water. We also used existing equipment.

## **5. Communications**

As we are currently focused on expanding the network, we are attending many networking events to present GLOBE. We are also reaching out to foundations and other sponsors to both secure long-term financial support and increase the visibility of the GLOBE program. We regularly incorporate the content of the GLOBE protocols into activities carried out at school events and holiday programs.

## **Plans and Ideas for Next Year:**

Next year, we will continue working on securing funding for our GLOBE activities, so that we can implement more extensive projects within the GLOBE program. We will also continue organizing holiday camps focused on the GLOBE program. As soon as we have financial support, we will organize training sessions for interested students and teachers to expand our pool of active trainers. In the East Westphalia-Lippe region, a project on the renaturation of tributaries and its effects on the surrounding area is planned under the leadership of Anna Heyne-Mudrich. This project shall combine scientific and ethical aspects and integrating the new didactical concept of the University of Münster.

Preparations have been started and the group chose basic points for the intense occupation with their river „Lippe“: Bad Lippspringe and Lippstadt.



The group visited the areas of interest and researched historical and economic aspects, as well as actual development plans...historical aspects of water problems and new developments of nature restoration and land recultivation. The group will deepen their experience during the upcoming years, in order to offer a new project on tributary rivers in other areas in Europe.

Teacher Training, August 2023



Planting of the new phenological garden, March 2024



The very new school in a traditional building, June 2024



Climate Conference at the Congress Hall in Bad Lipspringe, September 2023



Preparatory visit in the area of Lippstadt in August 2024



The rewilding and the ring around the Lippe river and the new way of the "Lippe" outside the lake in June 2024



# Greece

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## **Organization and Number of Staff:**

National and Kapodistrian University of Athens - 4 staff members

## **Funding by:**

National and Kapodistrian University of Athens

## **Cooperating Organizations/Individuals:**

Foundation for Research and Technology, National Observatory of Athens

## **GLOBE Schools (what types, how many):**

Primary and secondary education + schools through teachers' accounts: 52

## **GLOBE Areas you and schools focus on:**

Atmosphere, Hydrology, Urban environment, Earth as a System, Climate Change

## **Number of Schools Reporting Data over Past Year:**

5

## **Program Implementation, International Cooperation in GLOBE Network, and Activities over Past Year (categorized by GLOBE Strategic Plan 2018-2023 Goals):**

### **1. Education**

Educational material on climate change and its link to the natural and man-made environment. Integration of GLOBE to the Climate Academy – An open school for the society (a virtual forum for awareness raising of the young generation on climate change impacts as well as on climate change mitigation and adaptation).

### **2. Science**

Science-based applications on Climate Change: Expert system on Climate Change Impacts, Sentinel -2 satellite-based application for monitoring and impact assessment.

### **3. Community**

Local community events; seminars for schools, +66 GLOBE observers, +8 accounts, carbon footprint application for students and young people in general.

**4. Technology**

Integration of Earth Observation based Land Use/Land Cover change module, Expert system for the assessment of climate change impacts for future climatic periods.

**5. Communications**

Climate Stories via the Digital Platform of the Climate Academy

**Plans and Ideas for Next Year:**

- Finalizing the deactivation process for schools that consistently do not contribute to GLOBE activities.
- New topic: Climate Change and Cities; hands on material on climate change adaptation for cities

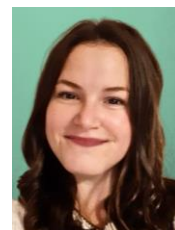


# Ireland

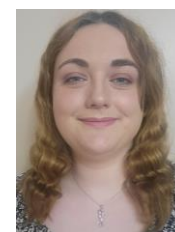
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## **Organization and Number of Staff:**

The GLOBE Program in Ireland is coordinated by An Taisce – the National Trust for Ireland. As of August 2024, the GLOBE team in Ireland is comprised of 4 full-time staff; Country Coordinator, Aileen Bright and Deputy Coordinators Toshka van Eyk (joined in March 2024), Orlaith Condon (joined in June 2024) and Lydia Johnson (joined in August 2024). We said farewell and best wishes to Sabrina Moore in December 2023 and Maya Gryستن Fields in June 2024.

## **Funding by:**

The GLOBE programme in Ireland is funded by Ireland’s Environmental Protection Agency (EPA).

## **Cooperating Organizations/Individuals:**

GLOBE Ireland partners with the Environmental Protection Agency, working closely with the EPA citizen science and air quality teams. GLOBE Ireland also collaborates with local authorities around the country, national teacher organizations, scientists, and relevant subject matter experts in Ireland.

## **GLOBE Schools (what types, how many):**

The GLOBE program in Ireland works with Primary schools (ages 4-12) and Secondary schools (ages 12-18) across the country. Over 400 schools registered for GLOBE Ireland campaigns/pilot campaigns during the year, highlighting the interest and engagement of schools in citizen-science, outdoor learning, climate-

related investigations, and action-based solutions to environmental challenges. As of October 2024 there are 221 fully trained GLOBE Educators and 1199 GLOBE observers in Ireland.

### **GLOBE Areas you and schools focus on:**

GLOBE Ireland works across the Atmosphere (Weather, Climate, Air Quality), Biosphere (Green-up, Green-down, Tree Height measurements, Landcover), Hydrosphere (Water temperature, pH, nutrient pollution, macroinvertebrate sampling) and Pedosphere.

### **Number of Schools Reporting Data over Past Year:**

50 schools reported data to globe.gov between October 2023 and October 2024 (as of October 10th, 2024). In Ireland, many of the GLOBE schools participate in a non-GLOBE nitrogen dioxide protocol, while data was reported at a national level by over 200 schools using this protocol

## **Program Implementation, International Cooperation in GLOBE Network, and Activities over Past Year (categorized by GLOBE Strategic Plan 2018-2023 Goals):**

### **1. Education**

An objective of the GLOBE Ireland team is to raise awareness and understanding around key environmental topics and themes, particularly air quality, water quality, biodiversity, climate change and sustainability, and how they are interlinked.

During the year, we provided:

- Educational resources to support learning and participation in our campaigns
- Teacher Training:
  - Empowering teacher training that focuses on inquiry-based outdoor learning, where participants can experience the value of connecting with nature and the environment, using GLOBE protocols and relevant environmental themes
  - Online 'Continuous Professional Development' Training using GLOBE protocols and other themes
  - Online training on campaign participation
- Student Engagement and Training
  - Student-focused webinars where subject matter experts and education specialists join to listen to student presentations
  - Student workshops on themes of weather, climate, river ecosystems, tree observations
  - Student presentation webinars and in-person events where students present their projects to an audience and get feedback.
  - International collaboration by linking up schools from different countries

### **2. Science**

In 2023-2024, GLOBE Ireland coordinated citizen science campaigns on air quality, phenology (autumn 2023), weather and climate, and Rivers Ecosystems (water quality, river system habitats and biodiversity). The team developed new collaborations with experts, scientists, and local authorities to deliver fulfilling, relevant, and meaningful citizen-science experiences to teachers and students across Ireland.

### **3. Community**

The GLOBE Ireland community continues to grow due to many factors, primarily due to an increase in staff members which allows for more time spent promoting GLOBE, developing and coordinating campaigns, and building relationships with teachers. As a result, there are more opportunities for schools to engage with different GLOBE spheres and themes, resulting in an expansion of our teacher network to 1,200 teachers. There is also a growing appetite for citizen-science in Ireland. Newly

established or rekindled collaborations with universities, Green Schools (eco schools) teams, local authorities, and local experts have all helped the team create meaningful citizen-science experiences.

In May 2024, GLOBE Ireland held an in-person student sharing and prize-giving event in Dublin's Richmond Barracks. The winners of the GLOBE Ireland annual project competition were invited to attend and present their work. A sample of winning projects submitted can be viewed here: [GLOBE Linktree](#). A total of ~120 guests attended the event, of which 78 were students. These students and their teachers represented 17 schools across Ireland. It was an inspiring morning of student presentations followed by an award ceremony. The event was also attended by the Director General of the Irish Environmental Protection Agency (EPA), Laura Burke and senior EPA managers, local authority's LAWPRO (Local Authority Waters Programme) representatives, Department of Environment Climate and Communications Air Quality unit, Assistant Principal Officer, Dr Irene Cadogan and atmospheric chemist, Dr Mary Curley from the state meteorological agency, Met Eireann.

GLOBE Ireland has facilitated multiple successful and rewarding international collaborations between Irish GLOBE schools and GLOBE France, GLOBE Malta, and GLOBE Netherlands schools over the past year.

#### **4. Technology**

We encouraged participants to use the GLOBE Observer App and GLOBE website to add observations and collected data to the GLOBE database. We also use ArcGIS dashboards and maps for gathering and sharing non-GLOBE protocol observations.

#### **5. Communications**

The GLOBE program in Ireland regularly communicates with schools via newsletters, social media, webinars, email and campaign-specific WhatsApp groups. Our social media audience continues to grow across Twitter, Facebook, and Instagram platforms. We use communication platforms to recruit new schools, promote GLOBE campaigns, connect with campaign participants and encourage collaboration between GLOBE Ireland and the greater GLOBE community.

### **Plans and Ideas for Next Year:**

The GLOBE Ireland team is planning to:

- Coordinate a national air quality campaign (focused on nitrogen dioxide) in the autumn '24 (September to November)
- Develop and coordinate a pilot campaign on air quality (focused on particulate matter) in Limerick, November '24 to February '25
- Further development of GLOBE campaigns based on successful pilot outcomes on River Ecosystem (water quality, biodiversity), Rainfall and Flooding (Spongy School), and Surface Temperature, Landcover and Climate Resilience (Cool School) campaigns
- Strengthening and expansion of the network of students, teachers and teaching organisations in Ireland.
- Provision of teacher training programmes (in-person and online) on GLOBE
- Engagement of GLOBE Ireland within the international GLOBE community
- Provide procurement and logistical support to EPA Clean Air Together Project

In addition to EPA deliverables the team plans to:

- Update secondary school (JC/Transition Year) resources
- Gradually update all campaign resources in line with new GLOBE Ireland branding
- Encourage longer-term monitoring in schools (beyond campaign specific dates)
- Pilot 'Student Champion' project to foster connections between GLOBE Ireland students and the greater GLOBE community and encourage students to participate in the GLOBE International Virtual Symposium and other student exhibitions/conferences, for example BT Young Scientist.



Some Photos from Last Year







# GLOBE IRELAND 23/24



Worm compost  
Will help make BETNS  
A Green School

# Italy

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## **Organization and Number of Staff:**

ASSOCIAZIONE GLOBE ITALIA APS, 2 Country Coordinators, 1 Deputy Country Coordinator and 5 Staff

## **Funding by:**

Calls for European, National, Regional funds, Private funds, Municipalities and schools' own budget.

## **Cooperating Organizations/Individuals:**

- LABTER-CREA (Mantova): Responsible for coordination, information sharing, communication, and event promotion and management.
- IISS Malignani – BASSA FRIULANA (Cervignano del Friuli): Focuses on testing and promoting the use of GLOBE protocols within school projects, as well as event promotion and management.
- Universities, Associations, Research Centers, and Local Authorities: Serve as partners in various projects.

## **GLOBE Schools (what types, how many):**

Comprehensive schools, including primary and junior high schools (48) and senior high schools (78).

## **GLOBE Areas you and schools focus on:**

Hydrosphere, Atmosphere, Soil, Biosphere - Earth as a System

## **Number of Schools Reporting Data over Past Year:**

14 junior high schools and 8 senior high schools

## **Program Implementation, International Cooperation in GLOBE Network, and Activities over Past Year (categorized by GLOBE Strategic Plan 2018-2023 Goals):**

### **1. Education**

#### **“School Generation on the move with GLOBE” Project (Dec. 2023 - June 2024)**

Focused on educating teachers from 30 schools across six Italian regions ((Friuli Venezia Giulia, Lombardy, Tuscany, Campania, Sicily and Sardinia) on the philosophy, methodologies, and scientific practices of GLOBE, under the "Sustainability and Ecological Transition" area, designated by the Italian Ministry of Education. The Project included an **online training course for teachers** (#connect science school citizens - SOFIA platform n. 83376-ed.123070), online **webinars for students**, **support in between** to teachers, **local events and a national event**. Over 140 teachers were certified as GLOBE Educators, and 121 classes involving 2,000 students participated.

#### **“READ THE HORIZON, WRITE THE FUTURE” – edition ‘23-24**

A new edition of the project of ISIS BASSA FRIULANA - managed by ASSOCIAZIONE GLOBE ITALIA, this project involved a network of 7 schools in the Friuli Venezia Giulia region to develop STEM by enhancing focus on climate change, innovative pedagogical approaches, and use of technologies in teaching with GLOBE. The project involved 50+ classes, nearly 1,000 students, and a three days summer school on microplastics.

#### **“OCEAN MATTERS: Saving our Oceans” Project – teacher training June, July 2024**

In this second edition of the project, supported by the US Consulate General Chennai, webinars for teachers of three Indian cities (Cochi, Puduchery and Chennai) were organized in the period of June-July 2024. To help teachers with uploading data, TERI is developing specific tutorials in collaboration with the MMP Team. The collaboration with TERI is very rewarding.

### **2. Science**

#### **Research projects with schools:**

##### **#SPES – Science, Cultural Heritage, Education, Society – Earth Day (April 22-23, 2024)**

Celebrated in Aquileia (a UNESCO site) in the Friuli Venezia Giulia region, this 13th edition featured 60 exhibits and labs, mostly based on GLOBE protocols and included a **science learning expedition** in local river and lagoon areas. This event is recognized as a **GLOBE STAR event**.

##### **MINCIO Project 34<sup>th</sup> edition**

The 34<sup>th</sup> edition of the Project took place with a significant increase in numbers: 22 classes, 452 students and 18 monitored stations along Mantua Lakes and its tributaries. We gathered data on surface water parameters, E. coli levels, and AMPA (a metabolite of Glyphosate) and created a comprehensive report for the municipality, thus significantly contributing to the understanding of the local surface water situation.

##### **Microplastics Monitoring Campaign, March-May 2024.**

The campaign Engaged 54 teachers from 24 schools (7 from Croatia, 1 from Ukraine, 2 from Taiwan, 44 from Italy).15 of them are part of the school network investigating the Mincio River and its tributaries. Many **Dutch Teachers** took part in the campaign managed by GLOBE Netherlands. Schools gathered extensive data on the situation of their water bodies and created posters, videos images, reports etc. shared on Deakin University’s cloud platform.

##### **RIO SCHOOL Project 6<sup>th</sup> Edition**

Two high schools conducted chemical and bacteriological monitoring of the RIO canal in Mantova, with expanded research on historical and architectural aspects to revive the canal’s cultural significance.

### **3. Community**

#### **SLE-GO Science Learning Expedition Gorizia-Nova Gorica, 2023, November 11<sup>th</sup>**

A science learning expedition in the cross-border area of Italy and Slovenia involving schools, scientists,



and the public.

#### [Rivers in Spring – International World Water Day \(March 22, 2024\):](#)

The event at the Lakes of Mantua was attended by 3000 participants, included [a national online live broadcast](#) in Italian and [a live international online event managed by Alessandra Sutti and Stuart Robottom of DEAKIN University, Australia](#). This in-person event is co-designed and co-managed together with public bodies, research centers, universities, parks, water control and management agencies, companies and many environmental associations. The *Rivers in Spring (Fiumi di Primavera)* is an event implemented as part of the [Mincio River Contract](#). The event is scheduled as a [GLOBE STAR](#) event.

#### [MINCIO Project and the Mincio River Contract](#)

The Mincio Project Report on the quality of the river is integrated into the Mincio River Contract, a planned negotiation for the redevelopment of the river and its territory. Schools take on a political role. The Mincio River Contract involves more than 60 public and private stakeholders.

#### [GLOBE at the Suzzara Science Festival \(October 21-27, 2024\)](#)

Associazione GLOBE Italia APS and LABTER-CREA are part of the Scientific Committee of the Science Festival in Suzzara. For the 9<sup>th</sup> edition of the Festival, the GLOBE Italy Team suggested several activities including a meeting for middle school teachers entitled *Clouds, Trees, Climate and Carbon Storage: doing citizen science with GLOBE Observer Apps*.

#### [GLOBE E-E RCO Meetings](#)

Globe Italy took part regularly in GLOBE E-E meetings.

#### **4. Technology**

During the national “School Generation on the move with GLOBE” project, a great effort has been made to increase the interest of teachers and students in the GLOBE data entry and GLOBE data visualization system. Teachers showed great interest in creating students’ teams, which are efficient in data- and research project-management.

There was a significant increase in Italian GLOBE Observers to 5,554.

#### **5. Communications**

GLOBE ITALY communicates through its website [www.globeitalia.it](http://www.globeitalia.it), newsletter, and social media (YouTube, Facebook, Instagram), for disseminating news and connecting schools and citizens. The 2024 editions of WWD and EARTH DAY are available on GLOBE YouTube and Facebook. Many newspaper articles and local TV have covered this year’s events. The links to press review and social media can be found on the Association’s website.

### **Plans and Ideas for Next Year:**

We plan to realize the following activities:

- 35<sup>th</sup> edition of Mincio Project – Spring 2025
- 25<sup>th</sup> edition of Rivers in Spring, WWD in Mantova – 21<sup>st</sup> March 2025. In-person EVENT with a national and international streaming session
- 7<sup>th</sup> edition of RIO School Project
- 4<sup>th</sup> edition of Microplastics Monitoring of Mincio River, some of its tributaries and the Po River
- 14<sup>th</sup> edition of Earth Day in Friuli Venezia Giulia – 15<sup>th</sup> April 2025. In-person EVENT
- 3<sup>rd</sup> edition of *Read the horizon, write the future* project – School year 24-25

We plan to support the GLOBE school network with a new edition of the teacher **training course “#connect science school citizens”**. Registrations are available on SOFIA ministerial platform (October 2024-June 2025) We will organize a special **blended (in-person and online) training course** for teachers in Sicily (supported by the U.S. Embassy). Focus: GLOBE Protocols and Microplastics Monitoring Protocol.

**Microplastics Monitoring Campaign 2025:** GLOBE schools will be invited to use the microplastics protocol mentioned before, along with the traditional GLOBE Hydrology measurements. The Campaign will be extended to Latina America and North America.

**A new exhibition, *The Torments of Poseidon: Microplastics in the Hydrosphere***, will feature scientific and artistic contributions and will open in multiple locations across Friuli Venezia Giulia and Mantova in Spring 2025.

# Kyrgyz Republic

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## **Organization and Number of Staff:**

GLOBE Kyrgyz / 3 staff

## **Funding by:**

At the expense of various sponsors

## **Cooperating Organizations/Individuals:**

- NABU in the Kyrgyz Republic
- Kyrgyz National University
- Embassy of the United States in Kyrgyz Republic
- Peace Corps in Kyrgyzstan
- Osh State University
- American University of Central Asia
- Ala-Too International University

## **GLOBE Schools (what types, how many):**

60 Secondary Schools

## **GLOBE Areas you and schools focus on:**

Atmosphere, Hydrosphere, Biosphere

## **Number of Schools Reporting Data over Past Year:**

11 schools

## **Program Implementation, International Cooperation in GLOBE Network, and Activities over Past Year (categorized by GLOBE Strategic Plan 2018-2023 Goals):**

### **1. Education**

1.1. As our tradition, we held five online seminars for teachers and students. Scientists were invited as speakers. The GLOBE program has always become a bridge between students, teachers and scientists.

**1.2. We organized GLOBE Training with the help of GLOBE regional office on 2-4 November 2023.**

The training was conducted by GLOBE trainer Vladimir Ribicic from Croatia and Murataly Duishonakunov, coordinator of the GLOBE program in the Kyrgyz Republic. This training was attended by 20 teachers and 20 students altogether. It was my idea to conduct the training together with teachers and students. The students also showed excellent interest and quickly learned the materials.

Below some photos from the training:





### 1.3. Active schools conduct measurements in the field of Atmosphere and Biosphere.

Some photos from school activities:



#### 2. **Science**

We haven't conducted any serious scientific work yet. But every time we discuss the importance of the science part of the GLOBE program

#### 3. **Community**

At present, the number of GLOBE schools is 60 that have undergone training. The GLOBE community is growing for the better every year. Our community consists not only of teachers and students, but also of scientists. Nowadays, many scientists are open to collaboration between school teachers and students. The American Embassy and the Peace Corps are also interested in GLOBE's activities.

#### 4. **Technology**

n/a

#### 5. **Communications**

The main communication is between GLOBE schools and scientists from different fields from Kyrgyzstan. Also, GLOBE schools share information among all schools who are not members of the GLOBE program as well.

#### **Plans and Ideas for Next Year:**

- GLOBE Training and Seminars.
- Regular online seminars for teachers and students.
- GLOBE Student exhibition for Earth Day 2025.
- Organize a GLOBE summer school. This school will involve scientists, teachers and students.
- Organize an English course with an environmental focus.

# Republic of Latvia

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## **Organisation and Number of Staff:**

Children's Environmental School is a non-governmental organisation (NGO) for the environment and education. The GLOBE coordination team includes 1 Country Coordinator, 1 Deputy CC, 5 trainers, and 1 event organiser for large events.

## **Funding by:**

Coordination of the GLOBE Program is funded by the Ministry of Education and Science based on a delegation agreement. Additional activities are supported by grant projects from different foundations and private donations. Respective municipalities support school participation.

## **Cooperating Organisations/Individuals:**

Embassy of the United States of America, University of Latvia, Ministry of Education and Science, municipalities.

## **GLOBE Schools (what types, how many):**

In Latvia, there are 44 public schools registered in the GLOBE database, 21 are reporting (within the past 3 months) or have reported data. There are 44 fully trained GLOBE educators.

## **GLOBE Areas you and schools focus on:**

The number of schools that are reporting or reported in the past in each GLOBE area:

- Atmosphere: 22
- Earth as a System: 13
- Hydrology: 11
- Land Cover: 7
- Soil: 6

Most schools focus on more than one area; some have tried all areas; some focus on just one - Atmosphere, or two - usually Atmosphere and Hydrology. The Atmosphere is the most popular area to start with for new schools, as it is or is perceived as the most uncomplicated.

## **Number of Schools Reporting Data over the Past Year:**

3

## **Program Implementation, International Cooperation in GLOBE Network, and Activities over Past Year (categorised by GLOBE Strategic Plan 2018-2023 Goals):**

In 2024, schools are busy with adjusting to the educational reforms, and most of the active teachers (including those doing GLOBE) are involved in the development of new teaching materials required by the new curriculum. As a result, teachers are overworked and not enthusiastically responsive to GLOBE activities. Most Latvian GLOBE teachers are also experienced and already trained in all protocols, thus setting a challenge to find something new they may be interested in.

Taking all that into account, this year we have focused on developing supporting materials aimed at helping teachers to integrate GLOBE into their everyday curriculum, as described in the detail in the following subsections.

### **1. Education**

We invited schools to participate in GLOBE campaigns and related webinars, including the European Phenology Campaign and the Earth Day 2024 event.

### **2. Science**

We invited students to participate in International Virtual Science Symposia 2024 and to attend GLOBE Student Virtual Conference 2024, as well as GLOBE Learning Expedition in Estonia.

We used the US Embassy small-grant funding for translation of Carbon Cycle protocols and learning activities, and for the review and update of the GLOBE protocols we translated at the beginning of our participation in the GLOBE program.

### **3. Community**

We hosted GLOBE Europe and Eurasia Regional Meeting in Riga, Latvia, October 16<sup>th</sup> till 20<sup>th</sup>, in an excellent cooperation with the GLOBE Implementation Office (GIO), Regional Coordination Office (RCO), the Embassy of the United States of America in Latvia and the Ministry of Education and Science of the Republic of Latvia. Five Latvian teachers participated; two of which were supported by the RCO and three by GLOBE Latvia from raised private donations.

The country coordinator also participated in Europe and Eurasia Region monthly meetings for country coordinators.

### **4. Technology**

Since Latvian translation of the GLOBE Observer app was added to the October 2023 update, we revised the translation and translated the new content that was added to the app after we had completed and submitted our first translation.

### **5. Communications**

We sent monthly newsletters to GLOBE teachers, informing them about relevant and actual GLOBE news and events.

We published information about GLOBE activities on our website and social media pages and accounts. We promoted GLOBE program activities and experience at the largest national conference for science teachers in Latvia, organised by the University of Latvia.

## **Plans and Ideas for Next Year:**

There is much uncertainty about 2025 due to schools trying to adapt to ongoing educational reforms. Nonetheless:

### **1. Education**

- We will develop a new GLOBE teacher training program and get it certified by the Latvian education system authorities. It will incentivise teachers to participate in our workshops by allowing them to add it to their mandatory professional development.

- We will encourage schools to use GLOBE in teaching their regular curriculum.
- We will continue to invite and encourage schools to participate in GLOBE campaigns and try to implement some of them in Latvian language, in order to reach schools that cannot participate in international events because of the language barrier.

## **2. Science**

- We will continue to translate GLOBE materials into Latvian. In 2025, we will work on the Carbon Cycle protocols and learning activities. We will organise a teacher training workshop introducing Latvian teachers to the carbon cycle, using materials and results of the Year of Climate and Carbon Campaign.
- We will review and update the GLOBE protocols we had translated at the beginning of our involvement in the GLOBE program. Updated protocols will be published in the Latvian country page on the GLOBE website (globe.gov).

## **3. Community**

The GLOBE Annual meeting will be organised at one of the schools involved in the program in October 2025. During this event, GLOBE Games and workshops about using the GLOBE Carbon Cycle protocols and learning activities will be organised.

## **4. Technology**

We will review and update the Latvian translation of the GLOBE Observer app, including the content that is not currently translated, and promote the use of the app in data collection.

## **5. Communications**

- We will continue to communicate with schools through monthly newsletters.
- We will continue to publish information about GLOBE activities on our website and social media pages.
- We will continue to promote the GLOBE program in public events, like science teacher conferences.

# Lithuania

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## **Organization and Number of Staff:**

LINEŠA is a governmental institution focused on the system of pupils' non-formal education, their guidance in professional choices, and STEAM education. LINEŠA was recently reorganized, connecting smaller non-formal education institutions that previously worked separately in areas such as children's sports, aviation, technical creation activities, and nature education. LINEŠA is a National Agency with around 133 staff members working in various fields, focusing on raising teachers' qualifications, creating and guiding a sustainable school network, providing opportunities for pupils who win national Olympiads to participate in international Olympiads and organizing them in Lithuania, and providing information to other educators in various fields. More information can be found at <https://www.lmnc.lt/informacija/>.

## **Funding by:**

National Funding and occasionally JAV Small GRANTS.

## **Cooperating Organizations/Individuals:**

STEAM centers, of which there are around 10 spread across the country. They are newly built, still in the process of integration into the national education system, and will help us teach and spread knowledge through these partners.

## **GLOBE Schools (what types, how many):**

As of September 2024, new participants have joined GLOBE Lithuania, including around ten new educators from STEAM centers and teachers from basic schools to gymnasiums who attended the training workshop. Up until September 2024, we have approximately 20 more or less active participating schools.

Currently, the participating schools include:

- 10 basic schools
- 30 gymnasiums
- 6 STEAM centers (one in Panevėžys is already teaching kids GLOBE activities)
- 3 kindergartens
- 10 private or non-formal education centers

## **GLOBE Areas you and schools focus on:**

Phenology, Hydrology, and Atmosphere

## **Number of Schools Reporting Data over Past Year:**

35 schools

## **Program Implementation, International Cooperation in GLOBE Network, and Activities over Past Year (categorized by GLOBE Strategic Plan 2018-2023 Goals):**

### **1. Education**

We aim to encourage our teachers to become GLOBE Trainers, which will enable us to prepare new schools for GLOBE activities each year. We believe we can achieve stable growth, with around 15 to 20 new schools annually. The Program is extensive, so we need to invest in our existing network to help them grow and involve a larger community in GLOBE activities. It takes time to build confidence, especially with new activities, and teachers are already very busy. To make it easier, we want multiple teachers to teach GLOBE in schools—IT, math, or language teachers could find it just as useful as other specialists.

### **2. Science**

This program is very effective in promoting science, making it more engaging for students, and allowing them to conduct real scientific work, helping them understand the hard work behind scientific achievements.

### **3. Community**

We encourage GLOBE activities to involve the broader community, using a whole-school approach. Workshops can include multiple classes or even parents. Participants in the Program meet at conferences and camps, where they exchange knowledge and experiences.

### **4. Technology**

The Program encourages the use of a variety of technologies in GLOBE activities. As students gain more knowledge, they begin to explore how other scientific discoveries and research are conducted, and they learn about the various processes happening around them.

### **5. Communications**

The Program helps students explore new areas of their lives. They learn new terminology, new systems, and especially practical methods, such as using mathematics to calculate tree height. Through hands-on learning, they gain confidence to share their knowledge in their community and at conferences.

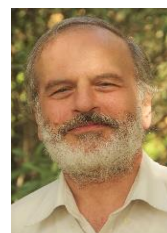
## **Plans and Ideas for Next Year:**

We aim to continue encouraging our teachers to become GLOBE Trainers, which will allow us to prepare new schools for GLOBE activities each year. One of the current challenges is the language barrier for some teachers, making the support of new local GLOBE Trainers crucial for network growth. We believe we can achieve steady growth, with 15 to 20 new schools joining each year. The Program is vast, so we must invest in our current network to help them grow and engage a larger community in GLOBE activities. It takes time to build confidence with new activities, especially as teachers have busy schedules. To make it easier, we want more than just one teacher per school to teach GLOBE—teachers from IT, math, or language departments could find it valuable, as well as other specialists.

A key goal is to increase international participation: Lithuanian schools need to participate internationally, as GLOBE schools have shown excellent results and deserve broader recognition.

# Malta

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## **Organization and Number of Staff:**

Neither of the individuals overseeing GLOBE Malta do this on a full-time basis. The Country Coordinator (CC) is a full-time university professor who manages GLOBE-related tasks outside his regular academic duties. The Deputy Country Coordinator (Deputy CC) is a classroom teacher who is officially allocated three weekdays to actively promote GLOBE in schools and support teachers.

## **Funding by:**

GLOBE Malta operates without dedicated funding. Instead, it receives support from the Directorate for Learning and Assessment Programmes (Ministry for Education, Sport, Youth, Research, and Innovation) and the Centre for Environmental Education & Research (University of Malta). Additional backing comes from the US Embassy, HSBC Bank Malta, and Europe Direct Gozo, which provide scientific equipment and sponsor events for GLOBE Malta.

## **Cooperating Organizations/Individuals:**

A researcher from the Institute of Earth Systems (University of Malta) is actively assisting 10 schools in a project focused on monitoring and recording rainfall data. Europe Direct Gozo supported a year-long soil investigation campaign involving 7 schools by sponsoring Soil Kits and facilitating teacher training on soil investigations. Additionally, the non-governmental organization (NGO) Nature Trust – FEE Malta promotes GLOBE investigations in collaboration with the Eco-Schools and LEAF programmes.

## **GLOBE Schools (what types, how many):**

Total number of schools: 52. The schools are from the State, Church and Independent Sectors and are distributed as follows: Primary schools (5 -11yrs): 30; Middle Schools (11-13yrs): 3; Secondary Schools (13-16yrs): 14; Post-Secondary Schools (16 – 18yrs): 2; University: 1; and Field Study Centres: 2.

## **GLOBE Areas you and schools focus on:**

- **Atmosphere** (Air Temperatures, Barometric Pressures, Cloud Observations, Precipitations, Relative Humidities, Surface Temperatures);
- **Biosphere** (Green Up/Green Down, Biometry Trees, Vegetation Covers);
- **Hydrosphere** (Water Temperature, Water pH, Alkalinity, Conductivity, Transparency, Dissolved Oxygen);
- **Pedosphere** (Soil Temperatures, SMAP Soil Moisture)



## Number of Schools Reporting Data over Past Year:

21

## Program Implementation, International Cooperation in GLOBE Network, and Activities over Past Year (categorized by GLOBE Strategic Plan 2018-2023 Goals):

### 1. Education

GLOBE activities and campaigns are incorporated into various Maltese schools, with students engaging in environmental observations that are aligned with the school curriculum, promoting student engagement in environmental science.

GLOBE Malta students participated in international projects, including collaborations with schools in Ireland and Latvia. This included cloud and rainfall studies, with data being uploaded to the GLOBE database and shared across the GLOBE community.

The GLOBE Malta Deputy CC provided training and support visits to new GLOBE schools across Malta and Gozo. She worked with both students and teachers to help them effectively use the GLOBE Observer app and contribute to data collection.

GLOBE Malta's integration in schools includes campaigns such as the Urban Heat Island Effect, where students collect and analyse surface temperature data. These activities fit into normal classroom schedules, demonstrating practical applications of environmental science in real-world contexts. Fieldwork was a key component of GLOBE activities. Through hands-on experiences students from multiple schools developed skills that are integral to understanding environmental changes and contributing data to GLOBE's global database.

Lectures were conducted to introduce the GLOBE program and its investigative activities to University of Malta undergraduate students enrolled in the BSc Science for Education & Communication and the Masters in Teaching & Learning programs.

### 2. Science

- **European Spring Phenology Campaign 2023:** Between February and June, students from 10 schools observed tree growth from buds to leaves and uploaded their measurements to the GLOBE database.
- **Urban Heat Island Effect Campaign:** During October, December, and March, students from 10 schools investigated the impact of urbanization on Earth's surface temperature by collecting data using infrared thermometers.
- **The GLOBE Soil Project - Exploring the Hidden World:** Students from 7 schools participated in a year-long campaign about soil organised by GLOBE Malta and supported by Europe Direct Gozo. The campaign highlighted the vital role soil plays in sustaining life, offered teacher training opportunities, and consisted of investigations about soil moisture, temperature, and weather parameters.
- **International Soil Day Webinar:** This webinar, organised by GLOBE Malta and supported by Europe Direct Gozo, featured presentations on the importance of soil and the impact of climate change, with insights from experts.
- **Rainfall - International Collaboration:** Students from 8 Maltese schools collaborated with students from Ireland and conducted intensive rainfall observations over four weeks. As a follow-up, a Maltese school organized an online interview with a local meteorologist, covering topics from meteorological phenomena to the daily life of a meteorologist.
- **GLOBE Cloud Project:** Students from two schools, one from Malta and another in Latvia, studied cloud formations using the GLOBE Observer app. They integrated science, arts, mathematics, cooking, and drama into their year-long study. They also organised an online webinar where students from both schools shared their findings and experiences.
- **GLOBE IVSS 2024:** Six research reports from GLOBE Malta were submitted and earned student research badges: (i) *Hot Air, Warm Soil – A Temperature Link* (awarded a 4-star badge); (ii) *Do seasonal differences really affect our soil temperature and soil moisture content?* (awarded a 4-star badge); (iii) *Investigating climate's effect on soil temperature and moisture* (awarded a 4-star badge); (iv) *Investigating Rainfall in Sunny Malta* (awarded a 4-star badge); (v) *Can Changes in Soil*

*Temperature Indicate Variations in Soil Weight?* (awarded a 3-star badge); and (vi) *Air pollution on a small island: A Study on Air Quality* (awarded a 3-star badge).

### **3. Community**

A GLOBE Malta student, Isaac Micallef, from St Michael School St Venera has been selected as one of the new vloggers for 2024-2025.

The GLOBE Malta Deputy CC: (i) attended and presented at various conferences and events, led workshops, and provided training and support to new GLOBE schools; (ii) participated in monthly meetings with GLOBE CCs and Deputy CCs; and (iii) represented Europe and Eurasia at the United Nations General Assembly, sharing how GLOBE Malta was implemented and how it contributes to the country's efforts for sustainability.

The GLOBE Malta Deputy CC was: (i) re-elected to the GLOBE Europe and Eurasia Regional Board; (ii) nominated to the GLOBE Annual Meeting coordination board; and (iii) served as a judge for the International Virtual Science Symposium (IVSS) 2024.

The US Embassy commended GLOBE Malta students' dedication and hard work in engaging with the outdoors and collecting valuable data to enhance our understanding of the environment.

The GLOBE Malta - Europe Direct Gozo Air Quality Campaign was awarded the STEM Community Project Award.

### **4. Technology**

The GLOBE Malta Deputy CC provides personalized support for teachers during their e-Training, familiarizing them with the GLOBE Observer App, and assisting them in inputting and visualizing of data on the GLOBE website.

### **5. Communications**

Communication with GLOBE schools and teachers was maintained through e-mail and one-to-one school-based meetings by the GLOBE Malta Deputy CC.

The work of the GLOBE schools was showcased and promoted through regular updates of the GLOBE Malta Facebook page (with 1.3K followers to date) and the Malta-page on the GLOBE website.

The GLOBE Program and the students' investigations were disseminated through published articles in local newspapers and news portals.

Publication of the storybook *Exploring the Wonders of Soil* written by Yashraj Patil (GLOBE Scientist) as a follow-up to the GLOBE Soil Project - Exploring the Hidden World.

The GLOBE Europe and Eurasia Coordination Office featured GLOBE Malta students in their video commemorating GLOBE 29th Birthday and Earth Day (<https://youtu.be/SXGFG9dexEY>).

The GLOBE Malta Deputy CC engaged with students and visitors at the GLOBE Malta stand, promoting environmental science and data collection during the Foundation for Environmental Education (FEE) Fest 2023.

### **Plans and Ideas for Next Year:**

- To continue engaging in discussions with the Ministry of Education to elevate the current position of the Deputy CC to a full-time role.
- To continue actively exploring opportunities for further collaborative investigations, involving schools from other GLOBE countries

# Montenegro

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## **Organization and Number of Staff:**

62

## **Funding by:**

National budget

## **Cooperating Organizations/Individuals:**

## **GLOBE Schools (what types, how many):**

Two high schools in Montenegro are beginning the implementation of the GLOBE program this year. These schools are the Gymnasium "Panto Mališić" in Berane, located in the northern part of the country, and the Mixed School "Bratstvo Jedinstvo" in Ulcinj, which is in the South. These schools represent a diverse geographic range, highlighting the program's reach across different regions of Montenegro.

## **GLOBE Areas you and schools focus on:**

After the first training, teachers will discuss and familiarize themselves with the various GLOBE activities at the school level. After thoroughly reviewing the program's activities, they will decide which specific areas to focus on. As of now, no final decision has been made.

## **Number of Schools Reporting Data Over Past Year:**

0

## **Program Implementation, International Cooperation in GLOBE Network, and Activities over Past Year (categorized by GLOBE Strategic Plan 2018-2023 Goals):**

1. **Education**
2. **Science**
3. **Community**
4. **Technology**

## 5. Communications

An introductory seminar was held in the schools for the coordination teams of two high schools in Montenegro that are starting the implementation of the GLOBE program this year. The schools were registered on the platform, and the teachers were introduced to the GLOBE website content and the materials that have been translated so far.



### Plans and Ideas for Next Year:

During the next school year, we plan to include primary schools located near these pilot schools. In Montenegro, we will also open Education Technology Labs in several schools. These labs will be equipped with instruments, computers, and other resources, and they will support the implementation of the GLOBE program.

# The Netherlands

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## **Organization and Number of Staff:**

GLOBE Nederland, 6 staff

## **Funding by:**

Grant embassy USA, school memberships, (local)government, water boards, Netherlands Space Organization.

## **Cooperating Organizations/Individuals:**

- Research institutes: National Institute for Public Health and the Environment (RIVM), Wageningen University, National Meteorological Organization (KNMI), University of Amsterdam, Utrecht University, Netherlands Institute of Ecology (NIOO), STOWA.
- Environmental organizations: IVN, Vlinderstichting, Longfonds, Netherlands Space Organization, Pientere Tuinen.

- (Local) governments: Ministries of Environment and of Infrastructure and Water Management, 7 provinces, 25+ municipalities, and 7 water boards.

**GLOBE Schools (what types, how many):**

Approximately 120 secondary schools

**GLOBE Areas you and schools focus on:**

Air quality, (biological) water quality, microplastics, climate, GrowApp, soil literacy, Urban Heat Island Effect (UHIE), and research skills.

**Number of Schools Reporting Data over Past Year:**

We currently hardly work with data on globe.gov, but we work mainly with our own systems that we set up for “GLOBE research”: on air quality, water invertebrates, microplastics, GrowApp, and (a)biotic soil characteristics. This year, we revitalized the Urban Heat Island project, and students are now required to submit data on the globe.gov website. This will lead to more schools submitting data. We are also exploring ways to integrate GLOBE protocols into ongoing projects to encourage more data submission from schools.

**Program Implementation, International Cooperation in GLOBE Network, and Activities over Past Year (categorized by GLOBE Strategic Plan 2018-2023 Goals):**

**1. Education**

- Development of ‘Living Soil’ learning materials on the topic of soil literacy in cooperation with national centers of expertise, teachers and the province of Utrecht. Using ‘Sensoterra’ soil moisture and temperature sensors and protocols developed by citizen science expertise center ‘Pientere Tuinen’, and protocols developed by the Netherlands Institute of Ecology (NIOO), students can research soil characteristics and biodiversity.
- Revitalized the Urban Heat Island project with new learning materials, using the GLOBE protocol for surface temperature. In September and October 2024, we launched a campaign with 5 pilot schools, funded by Utrecht University. We are collaborating with a scientist from Utrecht University on nature-based solutions and are working to connect with UHIE GLOBE campaigns run by Kevin Czajkowski, who is aware of our plans.
- This year, together with several water authorities, Wageningen University and Research, NIOO, the Institute of Nature Protection Education (IVN), the Butterfly Foundation, and the knowledge institute for insects and other invertebrates we launched the "Aquatic Macroinvertebrate of the Year" campaign, featuring the caddisfly larvae. As part of this campaign, we developed new educational materials focused on teaching students about the caddisfly larvae.
- We massively expanded our air quality projects (Sniffer Bike and NO2) reach by joining forces with 30+ local, regional and national government agencies that joined the Dutch Clean Air Accord. Students at over 40 schools can now participate in the air quality projects (using >700 PM sensors and >500 NO2 sensors), and they get to present their findings to local government officials.
- Launched the microplastics project with Hellen Parkhurst secondary school and the Plastic Soup Foundation, funded by the U.S. Embassy. We developed lesson materials for the microplastics protocol from GLOBE Italy and organized two campaigns. We maintain contact with GLOBE Italy and Deakin University Australia to share data and plans.
- Launched the microplastics project with Hellen Parkhurst secondary school and the Plastic Soup Foundation, funded by the U.S. Embassy. We developed lesson materials for the microplastics protocol from GLOBE Italy and organized two campaigns. We maintain contact with GLOBE Italy and Deakin University Australia to share data and plans.
- We organize various online events with teachers and students to train teachers, share information, and offer a platform for teachers to share experience about a specific projects (microplastics, UHIE, NO2, PM). Often, a scientist from our extensive network joins these events.
- We participate in various big events attended by STEM teachers, where we share information about our projects, and we regularly conduct workshops to engage teachers and attendees.

## 2. **Science**

We collaborate with scientists and knowledge centers from the following projects:

- GrowApp: Arnold van Vliet, Wageningen University and Research
- NO2: National Meteorological Institute (KNMI)
- Particulate Matter: National Institute for Public Health and the Environment (RIVM)
- Plastic Soup: University of Amsterdam
- Water invertebrates: Wageningen University (which published a scientific article) and a consortium of partners (environmental organizations, scientists, waterboards)
- Urban Heat Island Effect: Utrecht University
- Living Soil: Netherlands Institute of Ecology (NIOO), RIVM

## 3. **Community**

- Organized a national Science Symposium at Wageningen University, attended by over 100 students and teachers.
- Hosted GLOBE NL Members Day at the University of Amsterdam.
- Participated in the Regional Meeting in Riga with four team members.
- Held several online meetings with GLOBE school coordinators to support GLOBE implementation at schools.
- We are actively connecting local government and secondary school students through our air quality research projects.
- We are collaborating with Ireland on the NO2 project and plan to organize an EE-event on air quality with different counties.

## 4. **Technology**

We are constantly upgrading our website.

## 5. **Communications**

Throughout the year, we appeared in several online and print newspapers, as well as teacher trade magazines, with interviews and project results. An article by the KNMI ranked among the top three most-viewed news articles of the year. We attended various teacher conferences and were invited to numerous government air quality workshops, symposia, and events.

## **Plans and Ideas for Next Year:**

A selection of our plans for the coming year:

- Air quality: We plan to continue and expand cooperation with local and regional governments, develop materials for primary education students, and establish a student exchange program with GLOBE Ireland and (hopefully) other EE members.
- We aim to further develop our soil literacy materials, collaborating with Vereniging NLT (the NLT course development foundation) and founding partners
- Aquatic Macroinvertebrates: Next year, we plan to expand the project to include more water authorities and select a new theme for communication efforts, focusing on the experience and appreciation of water. Additionally, the scientist involved will reassess the calculation of the water quality score to provide a more accurate evaluation.
- UHIE: We will update our lesson materials with ideas from the teachers in the pilot. We also plan to collaborate with a student from Utrecht University researching nature-based solutions.
- We plan to expand the microplastics campaign with more schools participating in the Netherlands and further international cooperation.



# Republic of North Macedonia

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## **Organization and Number of Staff:**

Ministry of Environment and Physical Planning, Staff - CC and DCC

## **Funding by:**

Ministry of Environment and Physical Planning

## **Cooperating Organizations/Individuals:**

Ministry of Education and Science, Faculty of Civil Engineering, Faculty of Forestry (University "St. Cyril and Methodius, Skopje)

## **GLOBE Schools (what types, how many):**

Until now, we have included 61 schools, 16 secondary schools and 44 primary schools, 1 kindergarten and 103 globe observers.

## **GLOBE Areas you and schools focus on:**

Atmosphere, Biosphere, Hydrosphere, Pedosphere and GLOBE at night.

## **Number of Schools Reporting Data over Past Year:**

21 schools

## **Program Implementation, International Cooperation in GLOBE Network, and Activities over Past Year (categorized by GLOBE Strategic Plan 2018-2023 Goals):**

### **1. Education**

This year, we are organizing a three-day introductory training on the GLOBE protocols for new teachers, with 54 newly registered participants. This training will run from May 20–22, 2024.

From an educational point of view, this year we had the GLOBE program approved as a teaching program in the sixth grade with the [Constellations and Light Pollution](#) educational curriculum. This program is available online for any teacher that wants to implement it.

### Participation at national events

On March 29, 2024, at the invitation of Eco-Logic, the National Coordinator along with two GLOBE trainers from Orde Chopela Secondary School, presented the work of the GLOBE Program through practical examples in Kočani at the panel discussion "Why citizen science in education?"

### Participation at international events

On March 6–7, the following GLOBE schools presented their work the Virtual Student Conference for the GLOBE Europe and Eurasia region: OU "Steve Naumov" - Bitola, OU "Petar Pop Arsov" - Skopje, OU "St. Cyril and Methodius" - Bitola, OOU "Dimitar Miladinov" - Skopje, SOU "Goce Delchev" Valandovo and SOU "Naum Naumovski Borce" - Probishtip.

We are particularly proud of OU "St. Kiril i Metodij" - Bitola, which won an award for their video story, and Secondary School "Goce Delchev" - Valandovo, which received an award in the "Song" category. Both schools were awarded cash prizes for their participation.



On April 22, students from elementary school St. Cyril and Methodius in Bitola attended the GLOBE conference in Melnik, Czech Republic, in celebration of Earth Day. They had the honor of presenting their project to Dr. Tony Murphy, Director of the GLOBE Office, receiving high praise. Special thanks go to mentors Kristina Polizovska and Elizabeta Karovska. This opportunity was made possible with the support of the Ministry of Environment and Spatial Planning.



The benefits that we are seeing are numerous as this program is implemented in competitions, presentations, experiments where teachers and their students apply for. Teachers are integrating GLOBE data into other projects in collaboration with international schools through the ERASMUS+ program.

## **2. Science**

New equipment, instruments and chemicals are obtained with support from the Ministry of Environment and Physical Planning and additional funding from the U.S. Embassy. This equipment is essential for the effective implementation of GLOBE activities and trainings.

## **3. Community**

On March 21, 2024, UNICEF MK and the Ministry of Environment and Physical Planning organized an event on Climate Change Education. GLOBE students from SOU "Orde Chopela" Prilep, SOU "Goce

Delchev" Valandovo, OOU "Dimitar Miladinov" - Skopje, and OOU "Goce Delchev" from Dolni Disan, presented protocols for pedosphere, hydrosphere, atmosphere and biosphere. Various environmental organizations also participated, showcasing tools and practices for experiential learning.



*Education for Climate Change - event*

#### **4. Technology**

Students frequently use mobile phones and applications in their research to develop skills in communication, archiving, photography, tracking changes, and calculations. Additionally, the Turn on the Night Kit from Laser Classroom supports protocol implementation.

#### **5. Communications**

GLOBE North Macedonia now has a Facebook page to share updates and accomplishments with the large public: [Facebook: GLOBE North Macedonia](#)

We also maintain active communication with all GLOBE schools in North Macedonia via email as well as a Viber group, where we post regular updates on activities and campaigns. A new standalone website, independent from the Ministry's website, is under construction that will enable a more simplified and faster access to GLOBE program information and data.

#### **Plans and Ideas for Next Year:**

For 2025, North Macedonia will participate in the ERASMUS+ project Climate Learning through Investigation and Mapping of Extremes and Beyond, in collaboration with Czechia and Estonia.

The Ministry plans to continue supporting the program both financially and administratively in 2025. Plans for 2025 include additional teacher training, securing more equipment, and, if funding permits, organizing a national GLOBE contest for students. We also aim to foster connections between schools in North Macedonia and international GLOBE schools, promoting cross-border collaboration in the upcoming year.



ГЛОБАЛНО УЧЕЊЕ И НАБЉУДУВАЊЕ ВО ПОЛЗА НА ЖИВОТНАТА СРЕДИНА

# Slovakia

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## **Organization and Number of Staff:**

Daphne Institute of Applied Ecology, Podunajská 24, 821 06 Bratislava, Slovakia.

14 internal employees from which 1 is dedicated to GLOBE and other 3 people are involved in GLOBE above their regular work agenda.

## **Funding by:**

- Embassy of the United States of America
- Small grants from local private foundations
- Interreg Slovakia-Austria
- Norway Grants Fund for Regional Cooperation

## **Cooperating Organizations/Individuals:**

- Slovak Hydrometeorological Institute,
- Matej Bell University Banská Bystrica,
- Comenius University Bratislava
- Konstantin philosopher university Nitra
- Embassy of the United States of America
- Czech GLOBE team – TEREZA Educational Centre
- Peter Falcon, NASA
- National parks and Protected areas around Slovakia

### **GLOBE Schools (what types, how many):**

41 Primary schools and 8 Secondary schools, 3 other educational institutions

### **GLOBE Areas you and schools focus on:**

Atmosphere, Biosphere, Hydrosphere, Carbon cycle

### **Number of Schools Reporting Data over Past Year:**

12

### **Program Implementation, International Cooperation in GLOBE Network, and Activities over Past Year (categorized by GLOBE Strategic Plan 2018-2023 Goals):**

#### **1. Education**

Educational materials, presentations and activity ideas for all schools involved in GLOBE are covered by our website [www.globeslovakia.sk](http://www.globeslovakia.sk).

Regular monthly webinars were held to discuss science topics and school measurements, as well as to communicate live with teachers from January to June. .

In August, we organised a two-day in-person training for teachers in Bratislava, where they were able to review and try out new activities from the GLOBE portfolio, working with protocols, databases and the GLOBE observer application directly in the field.

In September 2024, we organised a two-day long GLOBE online training for 17 new GLOBE teachers.

#### **2. Science**

Slovak GLOBE schools participated in the Phenology campaigns, did research activities on climate change and wetlands, but the main science activity this year was the GLOBE Games festival with a student conference. In cooperation with the US Embassy Regional Center in Banská Bystrica, a workshop for teachers was organized to build capacity and deepen knowledge in the field of climate change. The topic of climate change was introduced to teachers at these seminars through various lectures (including by a scientist from the Slovak Hydrometeorological Institute).

In cooperation with NASA scientist Peter Falconi, we organised personal visits to schools where pupils learned more about GLOBE and the way data entered into NASA's international database is used. Together with him, we also organised one public lecture on the topic.

#### **3. Community**

GLOBE Games was a four-day event from June 6 to June 9 hosted by the Polytechnic Secondary School of Jan Antonín Bat'a in Svit. The target audience included students and teachers of schools involved in the GLOBE program from Slovakia and the Czech Republic. The event was a unique opportunity to establish contacts among schools and initiate discussions between pupils/students and experts or scientists. Students have had the opportunity to present their own research results at the student conference and share and obtain new experiences during workshops and field games surrounding nature in the vicinity of TATRA National Park. Through the practical demonstration of activities of the GLOBE Program has been introduced to the general public in Svit.

#### **4. Technology**

Teachers and students continue to use the GLOBE Observer App. Together with teachers we try to overcome the English language barrier and technical problems in entering data into the GLOBE database, often through personal consultations.

During the face-to-face GLOBE teacher training during the summer holidays, we devoted one full day to working with the apps and data. Teachers were introduced to the GLOBE hydrology and meteorology tools, which were provided to all new member schools. One of the participating schools started working with a Calitoo photometer and for the purpose of simple measurements of dust particles in the air, we

purchased 15 low cost sensors for citizen science projects, which we plan to implement with the 21 registered schools.

#### **5. Communications**

We regularly attend CC Europe and Eurasia region meetings to learn about ongoing events and to report on our activities. On selected topics we work mainly with partners from the Czech Republic to establish closer partnerships. Together we were successful in applying for funding for an IBSE project for pupils from disadvantaged backgrounds and since September we have been running a common project to support research-based learning in disadvantaged communities.

#### **Plans and Ideas for Next Year:**

- To motivate and provide additional personal support to educators
- To encourage teachers to participate in international meetings and international GLOBE campaigns
- To seek new funding to cover the running of the GLOBE program in Slovakia
- Translation of the methodology focusing on Land Cover and Pedosphere
- To organize capacity building workshops for teachers during spring and autumn, in collaboration with the U.S. Embassy regional centers dedicated to IBSE
- To strengthen and stabilize the GLOBE team in Slovakia by creating a team of GLOBE Educator Mentors
- To expand collaboration with the scientific community in Slovakia and abroad.



# Slovenia

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## **Organization and Number of Staff:**

**Country coordinator and deputy country coordinator**, supported by their organizations (Centre for School and Outdoor Education and the Eco school Program) and **a team of GLOBE educators** that have taken on additional organizational tasks (translation and quality of materials, purchasing and logistics of equipment, communication and promotion).

## **Funding by:**

**Ministry of Education of Slovenia** provides core funding, additional funding is provided by **various projects**. In 2023, these projects were the following: a national project connected to teacher training, an Erasmus+ partnership project with GLOBE Croatia schools, and an Erasmus+ teacher training mobility project.

## **Cooperating Organizations/Individuals:**

The **Ministry of Education of Slovenia** has charged the **Centre for School and Outdoor Education (CŠOD)** with coordinating the GLOBE program in Slovenia. CŠOD in turn formed a partnership with the **Eco school Program in Slovenia** to ensure a quicker implementation of the GLOBE Program in Slovenian schools. The Ministry has also formed an advisory group to oversee the GLOBE Program implementation in Slovenia. An active cooperation with the **US Embassy in Ljubljana** is established.

## **GLOBE Schools (what types, how many):**

Slovenia is completing its second year in GLOBE and has registered 67 GLOBE schools and other educational organizations (up from 58 in 2023). This includes 35 primary schools (up from 29 in 2023) for students aged 6 to 14, 20 secondary schools (up from 17 in 2023) for students aged 15 to 19, 9 kindergartens for preschool children, 1 Center for School and Outdoor Education with 25 outdoor learning centers across Slovenia, and 2 informal education organizations.

## **GLOBE Areas you and schools focus on:**

We focus on all GLOBE areas. By 2024, we have conducted training for all GLOBE spheres, and teachers are implementing activities from various areas. We continue to focus on GLOBE international campaigns and have participated in several international GLOBE events this year. There is also a sustained interest in Elementary GLOBE activities.

## **Number of Schools Reporting Data over Past Year:**

In the past year, 30 schools and several citizen scientists have reported data.



## **Program Implementation, International Cooperation in GLOBE Network, and Activities over Past Year (categorized by GLOBE Strategic Plan 2018-2023 Goals):**

### **1. Education**

19 GLOBE teachers (new and existing) attended **one live training** in Slovenia with trainers from GLOBE Slovenia (in person), the GLOBE Europe and Eurasia regional office (online) and NASA (online). Several teachers also finished the **e-training program** on the GLOBE website.

By October 2024, Slovenia has trained **157 GLOBE educators** and **two certified GLOBE trainers**.

The first 16 protocols (5 for Atmosphere, 7 for Hydrosphere, 1 for Pedosphere, 3 for Biosphere) were translated into Slovenian by 2021, underwent expert review in 2022, and are available for teachers. Additional materials related to these protocols were translated and shared in 2024.

### **2. Science**

Although GLOBE Slovenia has not yet established formal connections with scientists in Slovenia, NASA scientists have participated in several events. Strengthening this area will be a priority for 2025.

### **3. Community**

The **GLOBE community in Slovenia is getting stronger**, with some GLOBE teachers continuing their work with students and some starting it for the first time in the school year 2024/2025. We have several citizen scientists interested in the program and using the GLOBE Observer mobile app.

In addition to the Country Coordinator and Deputy Country Coordinator, a **growing number of teachers is becoming active in the global, regional and cross-border GLOBE activities**, connecting GLOBE Slovenia to the wider GLOBE community:

- Slovenian teachers have been active in several **international GLOBE campaigns**, including the Spring and Autumn European Phenology Campaigns, the Year of Climate and Carbon and the Tree Reporters Challenge.
- Two teams of students **participated in the 2024 IVSS**.
- Two teams of students participated in the **GLOBE Europe and Eurasia Virtual Students Conference**.
- A group of students with their teacher attended the **GLOBE student conference in the Czech Republic** in April.
- Two teachers participated in the **GLOBE Learning Expedition in Estonia**.
- School-to-school cooperation between Croatian and Slovenian teachers, initiated in 2021, continued in 2024 with several international exchanges connected to Erasmus+ projects.
- The Slovenian Country Coordinator participated in the **Earth Day learning expedition** organized by GLOBE Italy in Aquileia.
- Numerous activities were undertaken in preparation for the GLOBE Europe and Eurasia Regional Meeting, which will be held in Ljubljana, Slovenia, in November 2024.

Additionally, the GLOBE Country Coordinator for Slovenia, Zoran Petrov, continues to serve as a **member of the GLOBE Regional Board for Europe and Eurasia**.

### **4. Technology**

GLOBE Slovenia continues using **online tools** (Zoom, MS Teams, Padlet etc.) for most of our coordination work, as this approach allows us to quickly connect different parties and lower our environmental footprint, so we will keep using it in the future.

We continued acquiring equipment **for GLOBE program implementation**. In 2024, additional devices were purchased and distributed to GLOBE schools.

We are setting up **10 Davis weather stations** purchased in 2023. Several have been successfully installed and are reporting data to the GLOBE database, with the rest to be completed by the end of 2024.

## 5. Communications

Most activities of GLOBE Slovenia connected to communications were aimed at further presenting the GLOBE Program in Slovenia. Notable activities include:

- presenting the GLOBE program at the **yearly Ecoschool meeting and its international conferences**,
- presenting GLOBE at the **yearly training for all CŠOD teachers**,
- attending **the US Embassy in Ljubljana** events to present GLOBE Slovenia and promote its activities,
- **developing a webpage** for CŠOD projects where we will be able to feature GLOBE and distribute GLOBE materials in Slovenian language,
- presenting the GLOBE Program at **several other meetings and conferences** in Slovenia,
- presenting the GLOBE Program through **webpages and social networks** of the country coordinator (CŠOD) and their partners (Ecoschool program, GLOBE schools).

### Plans and Ideas for Next Year:

For 2025, our plans include:

- To **host the GLOBE Regional Meeting** for Europe and Eurasia in November 2024,
- To successfully **implement and improve GLOBE activities** in existing and new Slovenian GLOBE schools, as this will be the fourth school year in which the GLOBE program is carried out with students in Slovenia,
- To **motivate more teachers** to become GLOBE educators and further **increase the number of GLOBE schools** in Slovenia,
- To carry out **several training events** for Slovenian GLOBE teachers, at **minimum one for new GLOBE educators and one advanced training**,
- To enable Slovenian GLOBE teachers to attend **trainings and other GLOBE events in other countries**,
- To establish **further cross-border cooperation** between schools in Slovenia and schools in neighboring countries (Croatia, Italy),
- To **support schools that wish to connect** with other schools in the wider GLOBE community,
- To start building **connections with scientists in Slovenia** in connection to GLOBE,
- To **continue translating** GLOBE protocols and other GLOBE materials into Slovenian,
- To **acquire more equipment** for GLOBE schools in Slovenia,
- To **actively contribute** to the further development of the GLOBE international Community,
- And to **further promote** the GLOBE program in Slovenia.

# Switzerland

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## **Organization and Number of Staff:**

GLOBE Switzerland is organized as an association (NGO) with a national implementation office situated in Berne, the capital of Switzerland. At the office in Berne three staff members work part time (at 60% to 80%), along with two trainees. In addition, GLOBE Switzerland has seven regional offices implementing the GLOBE program in three languages (German, French, and Italian). The regional implementation is done by mandates to Teacher Education Universities (part time jobs of 10% to 20%) and allows to have direct access with the GLOBE activities to students' courses.

## **Funding by:**

GLOBE Switzerland receives major funding by the Swiss Federal Office of Environment. Additional funding for events and R&D projects comes from private foundations, US Embassy, other Swiss Federal Offices and sponsors.

## **Cooperating Organizations/Individuals:**

GLOBE Switzerland maintains close cooperation with all regional Teachers Education Universities, some with and some without mandates. In addition, we cooperate with Swiss Federal Research Institutions, with universities and Federal Institutes of Technology for R&D projects, for science outreach and for citizen science projects. In addition, we closely collaborate with the Swiss Academy of Science and with different national environmental education programs.

## **GLOBE Schools (what types, how many):**

In Switzerland we have 164 active GLOBE schools from all school levels (primary, secondary, and high schools). About 72 GLOBE schools were not active in 2024. Most of the GLOBE schools in Switzerland are public, some are private ones (international schools). However, far more schools in Switzerland use the GLOBE offers without being part of the GLOBE school network, engaging with national and international GLOBE resources and data entry.

### **GLOBE Areas you and schools focus on:**

Atmosphere, Hydrosphere, Biosphere, Pedosphere, and Earth as a System. Complementary to international protocols, national offers on agriculture (biodiversity and climate change), phenology and water quality are very often implemented.

### **Number of Schools Reporting Data over Past Year:**

65

### **Program Implementation, International Cooperation in GLOBE Network, and Activities over Past Year (categorized by GLOBE Strategic Plan 2018-2023 Goals):**

#### **1. Education**

Numerous introductory GLOBE trainings and workshops were offered across Switzerland to both in-service and pre-service teachers and multipliers, facilitated by the GLOBE national implementation office and seven regional offices. The training sessions were carried out by trainers and our regional experts who are employed at the Universities of teacher Education. In addition to these workshops, more than 500 individual consultations of teachers were carried out as in the last year before, or while they were implementing GLOBE offers. Switzerland currently has three mentor trainers and eleven certified trainers..

#### **2. Science**

We are steadily working on our national GLOBE offers in collaboration with partners of teachers' education and with scientific partners. In addition, we maintain close collaboration with the Swiss Federal Office of Environment to develop science education offers adapted to their needs. In 2024, our collaboration was focused on the following partners from science:

- ETH Zurich: Training course for young scientists to accompany school classes in their research projects on farms on biodiversity and climate change.
- ETH Zurich, Swiss Academy of Science and Research Institute of Organic Agriculture: consultation for teachers on science outreach with regards to topics biodiversity and climate change.
- Swiss Federal Institute for Forest, Snow and Landscape Research WSL: Joint project on phenology in forests and forest pests.
- Swiss Federal Office of Meteorology and Climatology: Joint project on phenology.
- Lucerne Teachers Education University: Common R&D project on development of offers for Education on Sustainable Development

#### **3. Community**

GLOBE Switzerland launched the new national GLOBE Contest 2024/25. This „campaign“ serves as trigger for the use of GLOBE offers and aims at promoting them via social media platforms and newsletters. The Contest will end with the national science conference for students in June 2025.

#### **4. Technology**

We continue to improve GLOBE offers, including the restructuring our GLOBE website (in three languages), and making it more user-friendly. In the area of phenology, we are still working on the introduction of temperature and humidity probes (air and soil) to measure the microclimate near the observed plants. These data are now included to our phenology WebApp.

#### **5. Communications**

The national office distributes a newsletter 3-5 times per year to Swiss teachers, with essential information coming from the international program, as well as activities, campaigns, and training opportunities. Different target groups are contacted by direct mailings, if needed. We regularly promote selected offers on social media.

**Plans and Ideas for Next Year:**

Over the next year, we will focus on action within a R&D project. We aim to shift from research and understanding to action with all our offers, supporting Switzerland's goals in Education for Sustainable Development.

# Ukraine

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## **Organization and Number of Staff:**

The National Ecological and Natural Science Center of the Ministry of Education and Science of Ukraine is a leading educational institution in the field of ecology, biology and natural science in Ukraine, a component of the extracurricular education system for gifted and motivated students. NENC has also been the national coordinator of the GLOBE program in Ukraine since 1999. GLOBE is part of the national program of integration into the European and global educational space. The coordination office of the GLOBE program in Ukraine employs a program coordinator and 2 representatives of the coordinator. In addition, the center also involves other staff during the organization of events or competitions.

## **Funding by:**

Ministry of Education and Science of Ukraine

## **Cooperating Organizations/Individuals:**

The Ministry of Education and Science of Ukraine, the Ministry of Environmental Protection and Natural Resources of Ukraine, the Ukrainian Hydrometeorological Center, the State Space Agency of Ukraine, the Palladin Institute of Biochemistry of the National Academy of Sciences of Ukraine, the Institute of Botany named after Academician of Kholodny National Academy of Sciences of Ukraine, Taras Shevchenko Kyiv National University, Kyiv-Mohyla Academy National University, public organizations, etc.

## **GLOBE Schools (what types, how many):**

There are 502 schools and educational institutions, 5038 students, 463 teachers, and 1304 program observers registered on the website. Due to the fact that hostilities continue in Ukraine, there are only about 16 active participating schools as of November 2024. The GLOBE network in Ukraine includes not only institutions of the general secondary world, but also institutions of extracurricular education. Students of higher educational institutions are also registered.



### **GLOBE Areas you and schools focus on:**

The most popular areas among Ukrainian GLOBE students are the following:

- Soil: Soil moisture by gravimetry, soil moisture by SMAP;
- Atmosphere: Air temperature, barometric pressure, cloud observations, precipitation, relative humidity, snow cover, surface temperature;
- Phenology: (GreenUp/GreenDown), tree biometry, vegetation cover;
- Some teachers conducted measurements in the field of Hydrology (dissolved oxygen, nitrates, transparencies, water pH, water temperature) and Land cover (water temperature, water pH).

### **Number of Schools Reporting Data over Past Year:**

11

### **Program Implementation, International Cooperation in GLOBE Network, and Activities over Past Year (categorized by GLOBE Strategic Plan 2018-2023 Goals):**

#### **1. Education**

Between October 2023 - October 2024, we registered new GLOBE teachers, provided them with training support, added new schools to the existing accounts of trained GLOBE teachers, as teachers moved across the territory of Ukraine to safer regions, and also provided assistance to GLOBE schools.

#### **2. Science**

Between October 2023 - October 2024, 22 new teachers were registered in the GLOBE program. Scientific data was collected and uploaded to our website, with 48 teachers and students conducting as many as 128,582 observations in the field of Phenology, Atmosphere, Climate and Land cover. Teachers and students from Ukraine took an active part in the European Phenology Campaign (spring-autumn). As part of the GLOBE program, the annual events "Calendar GLOBE 2024", GLOBE Marathon 2024 and GLOBE Games 2024 were held, while the last 2 events were dedicated to the 25th anniversary of the GLOBE program in Ukraine. From October 2023 to October 2024, we are holding the All-Ukrainian online photo contest *Autumn Symphony of Ukraine: My Tree*.

#### **3. Community**

22 new teachers were involved in the GLOBE Program.

#### **4. Technology**

Between October 2023 - October 2024, 18 schools actively entered data with different frequency and there are 11 active schools at present. We hope that the activity of schools will increase with the beginning of the new school year.

#### **5. Communications**

We conduct consultations for community members, keep people updated on news and events, and continue to actively share updates with the GLOBE community via Viber. We also provide news about the program through our website ([www.nenc.gov.ua/GLOBE](http://www.nenc.gov.ua/GLOBE)), where information is regularly posted about webinars, Zoom conferences, regional meetings, and more. The website also highlights competitions organized by NENC within the framework of the international program.

### **Plans and Ideas for Next Year:**

NENC is preparing an online meeting for GLOBE Ukraine teachers in December 2024 to facilitate experience-sharing (including practical education skills and plans for the new academic year). We will continue to organize annual national events as part of the GLOBE program, aiming to involve as many teachers and students as possible.

Planned activities include:

GLOBE 2025 Calendar, Spring Phenology Campaign, GLOBE Marathon 2025, GLOBE Games 2025, Autumn Phenology Campaign, Training sessions and seminars for teachers throughout the year



Europe and Eurasia  
2024 Country Reports

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