



THE GLOBE PROGRAM

Europe and Eurasia



GLOBE's vision is of a worldwide community of students, teachers, scientists and citizens working together to better understand, sustain and improve Earth's environment at local, regional and global scales.

GLOBE's mission is to promote the teaching and learning of science; enhance environmental literacy and stewardship; and promote scientific discovery.



Implemented by: UCAR

About The GLOBE Program

GLOBE (Global Learning and Observations to Benefit the Environment) is a science and education program that connects a network of students, teachers, and professional and citizen scientists from around the world.

By engaging students in hands-on learning of Earth's environment, GLOBE offers an innovative way for teachers to excite students of all ages about scientific discovery locally and globally.

The GLOBE Program began operations on Earth Day in 1995, since that date, Over 10 million students in 117 countries around the world have participated in GLOBE contributing more than 140 million measurements to the GLOBE database creating meaningful, standardized and research-quality data sets that can be used in support of student and professional scientific research.

Involvement in GLOBE is open to teachers in any of the participating countries. The teachers learn through GLOBE training how to mentor students in performing scientific investigations. Over 50 science protocols and many learning activities have been developed for the following areas: Atmosphere, Biosphere, Hydrosphere, and Pedosphere (Soil). Measurements include weather, climate, air quality, water quality, soils, vegetation, and timing of plant and animal responses to seasonal environmental changes.

GLOBE also offers scientists an opportunity to work with students and teachers from around the world to broaden their research. The GLOBE international STEM Network (GISN) is a global community of Science, Technology, Engineering and Mathematics professionals who work with students and teachers through such activities as visiting a GLOBE school, judging student research at science fairs and symposia, proposing field campaigns, and conducting scientific investigations with GLOBE data. The GISN hosts webinars that provide tools, as well as tips for interacting with teachers and students.

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 41 countries with more than 4000 schools and several thousands of citizen scientists. The office is located in Prague, Czech Republic and hosted by TEREZA, Center for Environmental Education.

www.globe.gov

<https://www.facebook.com/TheGLOBEProgram>

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Science and Education Materials

The GLOBE Program has continuously engaged in the development and dissemination of educational and outreach products that use GLOBE-created and NASA-driven tools and resources to engage students, teachers, professional scientists, and citizen scientists in authentic scientific exploration.

GLOBE Teacher's Guide

The [GLOBE Teacher's Guide](#) provides the foundation for the GLOBE measurements used to investigate the atmosphere, biosphere, hydrosphere, and pedosphere (soil). It includes the information necessary for accurate data collection, and analysis, such as measurement procedures, student lab and field guides, instrument specifications, and scientific background information.

GLOBE for the youngest kids

GLOBE has developed [Elementary GLOBE](#), a suite of storybooks and learning activities specifically designed for elementary schools. Seven books, each of which addresses parts of the Earth system, engage the youngest GLOBE students in an age-appropriate fashion.

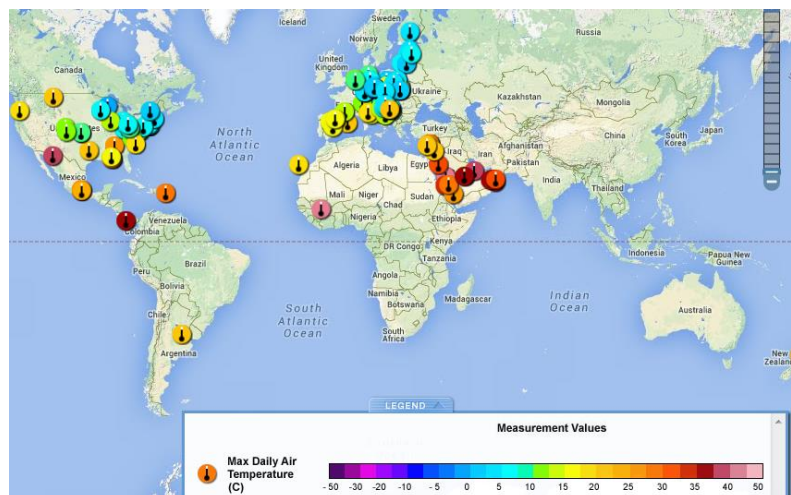


GLOBE e-Training

GLOBE [eTraining portal](#) offers the training materials teachers need to lead a classroom in data collection and lab procedures associated with GLOBE science protocols. E-training facilitates science learning experiences and functions as a community hub for teachers who cannot attend face-to-face trainings.

Data Visualization Tools

GLOBE provides the ability to view and interact with data measured by across the world. Data [visualization tools](#) allow to map, graph, filter and export data that have been measured across GLOBE protocols since 1995.



Science and Education in Action

Satellite Missions

GLOBE enjoys a unique position as part of NASA Science Mission Directorate (SMD). GLOBE students are not only involved in taking environmental measurements to use in their own research and share with others; they also assist NASA scientists with their research by taking measurements on the ground to validate measurements of Earth-observing satellites flying overhead.

Field Campaigns

GLOBE field campaigns provide students with hands-on opportunities to explore and learn about Earth. Worldwide, students join the [Urban Heat Island/Surface Temperature](#) Field Campaign, [El-Nino South Oscillation Campaign \(ENSO\)](#). At regional level, [European Aerosol Campaign](#) and [Phenology Campaign](#) are managed by RCO and partners in the Region.

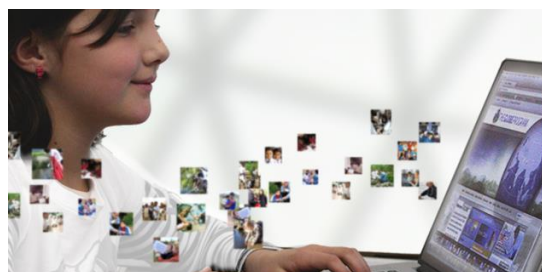


GLOBE Events

GLOBE is a partnership between the USA and over 100 countries that manage and support their own GLOBE efforts on national and regional scales. Events such as the GLOBE Annual Meetings and GLOBE Learning Expeditions bring the community together to share their research, knowledge and experiences and to make connections for continued collaboration.

International Virtual Science Symposium

The [online conference](#) opens to students from a GLOBE school in any GLOBE country. This is a great opportunity for students to apply the skills they've learned through their involvement in The GLOBE Program, to collaborate with a scientist and to address real-world problems. In 2017 147 student projects were submitted from all six GLOBE regions.



Citizen Science

GLOBE has expanded beyond its student-scientist base to engage the general public in the process of scientific investigation. [GLOBE Observer data entry app](#) allows anyone in a GLOBE country with a cell-phone to enter data on a large number of GLOBE science protocols.



Highlights from the Europe and Eurasia Region

European Phenology Campaign

Students use their smartphones to observe plants changing over seasons and learn how plants react to climatic changes. The campaign focus on 7 species that are common in Europe: beech, birch, hazel, oak, lime, fig and sour cherry. Along with taking pictures and creating time lapse movie of a tree with the [GrowApp](#), students follow the GLOBE protocols to monitor the greening up and greening down of the selected tree as well as air temperature and other characteristics.



The [campaign](#) is organized by GLOBE Netherlands, GLOBE Program Europe and Eurasia Regional Coordination Office and leading scientists Arnold van Vliet from the University in Wageningen. Phenology scientists involved in the campaign provide regular feedback to the schools about the seasonal changes that take place.

Student Research Projects with GLOBE Data

Between January and April 2017, students all around the world participated in the [GLOBE International Virtual Science Symposium](#). Several STEM professionals from Europe took the role of mentors and judges and volunteered to evaluate these projects. Students from Europe and Eurasia contributed 26 projects (Croatia 8, France 3, Israel 7, Italy 1, Netherlands 4, and Poland 3), two of them received a stipend to travel to the GLOBE Annual Partner Meeting in USA:



Lycée Bernard PALISSY, AGEN Aquitaine, France with the project [Global Warming and His Actions in Maximal and Minimal Temperature Variations on the Continent](#)

Al Faruk Elementary School, Jerusalem, Israel with the project [Checking the Validity and the Quality of Wells' Water in Jabel Al-Mukkaber Area](#)

2017 GLOBE Photo Competition

More than 600 pictures were sent by students from nine countries of the Europe and Eurasia Region. In these pictures students captured their best moments with GLOBE, showing GLOBE study sites along with the local environment. The best photos were presented in [2017 GLOBE at My School Calendar](#) which was distributed to the GLOBE community.

GLOBE Program Annual Regional Meeting



The event is organized once a year and consists of two days of GLOBE Country Coordinators meeting and two days of training.

The meeting took place at the University of Cologne, Germany in 2016 and was attended by more than 30 Country Coordinators, teachers, trainers and scientists from 18 European countries.

Coordinators presented good practice of the GLOBE Program in their country, which altogether reflected the diversity of the program implementation in the region. Based on the wide range of good practice presented, coordinators discussed their own priorities for development of the program on national level. Several topics resonated the most among the participants: Citizen Science, International School-to-school Collaboration, Implementation GLOBE in School Curricula and Phenology Campaign 2016-17.

Teachers, university students and other members of GLOBE community joined the group for the poster session and later on for the GLOBE trainings and the [Motivate and Attract Students to Science](#) workshops.

Next [Regional Meeting](#) will be hosted by GLOBE Israel in November 2017.



GLOBE Science Fair in Croatia

The Education and Teacher Training Agency organize Annual GLOBE Conference & Competition for students and teachers of Croatian GLOBE schools. The event is famous for the Science Fair, where students present their research projects in four thematic sections: Atmosphere, Hydrology, Soil and Land cover & Phenology. The goal of the Science

Fair is to increase the knowledge and skill required for project based learning, increase scientific literacy and STEM competences within GLOBE community and beyond. Each school gets the mentorship of a scientist or a specialist for a particular science area during the project work. At the end, the assessment of submitted projects is done by judges - scientists and GLOBE teachers.

GLOBE Games in Czech Republic

GLOBE Games hosted 260 students, teachers and scientists from the Czech Republic, Slovakia and Belgium. The event was organized by TEREZA Educational Center in cooperation with a GLOBE school at Moravske Budejovice.

The three daylong event was opened by a speech from Mrs. Kelly Adams-Smith, Chargé d'Affairs of the U.S. Embassy. At the science conference, student teams presented outcomes of their research projects. They were evaluated by STEM professionals and audience consisting of other school teams. The feedback and discussion of results was an important input to their yearlong work in the GLOBE program.

As a part of the event, students enjoyed being outdoors during the student research experience. The students completed tasks focused on soils, botany, forestry, hydrology and meteorology.



Climate, Water, Forest - GLOBE Games in Poland

Nearly 120 teachers and students attended the event to celebrate the 20th anniversary of GLOBE Poland, to exchange experience and learn about the local culture, environment and history of the Great Masurian Lake district. GLOBE students spent most of the time in the field and worked on almost 40 research stations. They were supported by 30 scientists - members of GLOBE Poland Scientific Board and experts from the Maskulińskie Forest District and UNEP/GRID-Warsaw Centre.

They learned about different clouds types and how to collect data using GLOBE Observer app, about the effects of aerosols on climate, they looked closer to local species, deepen their knowledge about lakes and understanding of nature phenomena such as succession.



Student Phenology Campaign “Cherry Ukraine 2016”

The campaign consisted of 448 students and 60 teachers from 60 educational institutions of 17 regions of Ukraine. According to GLOBE protocols students observed budburst and measured the length of the leave twice a week during April and May. At the same time they collected data about air temperatures every day and entered the data to the GLOBE website.



Many participants noted that in 2016 the buds developed faster than in 2015 due to a fairly warm April. According to NASA, April 2016 was the hottest month globally for the entire history of observations (since 1880). Campaign "Cherry Ukraine" is important not only because students collect data that can help scientists to build possible climate models, but also to raise awareness of the younger generation about climate change.

A School Celebrates 20 Years of Participation in The GLOBE Program

From 1996 to 2016 Finland's Utajärvi Upper Secondary School has been involved in The GLOBE Program and has earned the rare distinction of having taken and reported environmental data, without fail, for twenty straight years. Using data from the school's Davis automated weather station students and teachers take the automated data and enter the data manually to the GLOBE database and the school database. Daily they record precipitation, temperature, pressure, wind, snow depth, and UV, with dedicated crews gathering the data even on weekends, all holidays and during summer vacation! Very soon the school is set to achieve an astonishing milestone: 50,000 measurements!

The GLOBE Program unites communities in Israel

In Israel, 146 schools actively participate in the GLOBE Program that unites schools from diverse ethnic communities and allows them to build a peaceful coexistence and cooperate through the environmental education. As a part of their annual meeting, GLOBE Israel rewarded 28 GLOBE schools for their outstanding work in the program.



GLOBE Earth Day celebrations in Estonia

In Estonia, the Earth Day marks a very important event in the calendars of both GLOBE and the US Embassy and its joint celebration has become a tradition which is followed every year.

In Narva - the city on the border with Russia, GLOBE day was hosted by Narva Language Lyceum on April 18. The main aim of the event was to bring together Estonian and Russian-speaking GLOBE communities in Estonia and share good practices. Altogether 60 participants, including representatives of the US Embassy in Tallinn, attended the training in atmosphere, land cover and hydrology. Presentations were held in 3 languages: Estonian, Russian, and English.

A remarkable celebration of The Earth Day also took place on April 28 in Loobu, Lääne-Virumaa, where GLOBE alumni and students from GLOBE schools, employees from the US Embassy in Tallinn and State Forest Department gathered to plant 3200 pine trees together. The new forest can be observed by GLOBE students in the future.



GLOBE Trot' AIR Expedition in France

Towards the end of March 2017, 120 students and 20 teachers from 8 French Middle schools and High schools joined GLOBE Trot' AIR Expedition. The 3 days long field trip took place in the South West France in the Arcachon Bay (Bassin d'Arcachon), a bay of the Atlantic Ocean located on the southwest coast of France.

Students presented projects connected with the Air Quality Campaign (Aerosol Campaign). They also enjoyed a field day with many different measurements and observations focused not only on atmosphere but also on hydrology, soil, biodiversity etc. As a part of the program students prepared short presentations on the outcomes of the field trip measurements while focusing on one of the measurement and observation subjects.

Europe and Eurasia Region: 41 Countries

For contacts to the GLOBE Country Coordinator at particular country contact the Regional Coordination Office at europa@globe.gov or go to the GLOBE Program website community map: <https://www.globe.gov/globe-community/community-map>

	Austria		Ireland		Netherlands
	Belgium		Israel		Norway
	Bulgaria		Italy		Poland
	Croatia		Kazakhstan		Portugal
	Cyprus		Kyrgyz Republic		Romania
	Czech Republic		Latvia		Russia
	Denmark		Liechtenstein		Serbia
	Estonia		Lithuania		Spain
	Finland		Luxembourg		Sweden
	France		Macedonia		Switzerland
	Germany		Malta		Turkey
	Greece		Moldova		Ukraine
	Hungary		Monaco		United Kingdom
	Iceland		Montenegro		