Italy

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Organization and Number of Staff:

ASSOCIAZIONE GLOBE ITALIA 2 Country Coordinators and 6 Staff

Funding by:

European, National, Regional and from private foundations, calls for proposal, Municipalities and schools' own budget.

Cooperating Organizations/Individuals:

GLOBE ITALIA Association, set up with the aim of supporting the GLOBE ITALY School Network with training courses, activities, events and materials. The implementation of GLOBE in the school network is shared by:

- LABTER-CREA located in Mantova, focused on functions as coordination, information and communication, web management, event promotion and management
- IISS Malignani BASSA FRIULANA located in Cervignano del Friuli, focused on testing the use of globe
 protocols in primary and middle schools, promoting the use of Globe protocols in high schools' projects,
 event promotion and management

GLOBE Schools:

Comprehensive School, including Primary and Junior High Schools - 34, Senior High Schools - 71

GLOBE Areas you and schools focus on:

- Hydrosphere (16 reported in the past, 3 currently reporting)
- Atmosphere (36 reported in the past, 9 currently reporting)
- Soil (2 reported in the past, 0 reporting)
- Land Cover (9 reported in the past, 7 currently reporting)
- Earth as a System (6 reported in the past, 3 currently reporting)
- MUC (6 in the past, 3 currently reporting)

Number of Schools Reporting Data over Past Year:

6 Junior High Schools + 9 Senior High Schools

<u>Program Implementation. International Cooperation in GLOBE Network. and Activities over Past Year (categorized by GLOBE Strategic Plan 2018-2023 Goals):</u>

1. Education

The "School Generation on the move with GLOBE" project, designed by the GLOBE Italia APS Association to educate teachers of 30 schools belonging to 6 Italian regions (Friuli Venezia Giulia, Lombardy, Tuscany, Campania, Sicily and Sardinia) in philosophy, methodologies and the scientific practices of the GLOBE Program participated in the "Sustainability and Ecological Transition" section of a call from the Italian Ministry of Education in 2022. In the same year the Ministry announced that the project was ranked second in the ranking of the indicated section and as such had been awarded a loan of 100,000.00 euros. The Project included an online training course for at least 60 teachers of schools of all levels on the topics of the GLOBE Program relating to the monitoring of the spheres of the planet with a focus on Climate Change and an integration relating to the monitoring of microplastics, online webinars for students, regional events and a national event.

In December 2022, the agreement between the Ministry of Education and the GLOBE Italia Association APS was signed and the schools were selected in February 2023. The first meetin0gs of the training course of the same name took place in October 2023; the Course will end in January 2024.



ASSOCIAZIONE GLOBE ITALIA APS #connetti scuola scienza cittadini – the GLOBE Program rogramma Corso di Formazione per docenti di ogni ordine e grado iniziativa formativa SOFIA N. 83376 - edizione 123070

	Data	Orario	Tema
1	Mercoledi 4	15.30-	Presentazione del corso - Il Programma GLOBE per i cambiamenti
	ottobre 2023	17.00	climatici e la sostenibilità ambientale.
	Ottobre 2023	27.00	BIOSFERA fenologia, scelta del sito di osservazione, green down e
			green up, campagna autunnale europea, le attività da realizzare con gli
			studenti.
_			SESSIONE GLOBE TEACHERS-
2	Venerdi 6	15.30-	BIOSFERA trees, scelta del sito di osservazione, misure altezza degli
	ottobre 2023	17.00	alberi strumenti e metodi, campagna di indagine, le attività da realizzare con gli studenti. Inserimento dati nel sito internazionale.
			SESSIONE GLOBE TEACHERS:
3	Lunedi 9 ottobre	17.00-	LAND COVER, scelta del sito di osservazione, misure, strumenti e
_	2023	18.30	metodi, campagna di indagine, le attività da realizzare con gli studenti.
	2023	10.50	Inserimento dati nel sito internazionale.
L_			SESSIONE GLOBE TEACHERS-
4	Giovedì 12	15.30-	IL SUOLO – definizioni, funzioni, composizione, rilievi e attività da
	ottobre 2023	17.00	realizzare con gli studenti.
			SESSIONE GLOBE TEACHERS
5	Lunedi 23	15.30-	Atmosfera- Meteorologia: scelta del sito di osservazione, misure,
	ottobre 2023	17.00	strumenti e metodi, campagna di indagine, le attività da realizzare con
			gli studenti. SESSIONE GLOBE TEACHERS
6	Mercoledi 25	17.00-	Introduzione all'idrologia – a supporto della campagna MMPT
	ottobre 2023	18.30	Suoli, app e satelliti, Suolo e Urben Heat Island Effect - Surface
			Temperature Field. SESSIONE GLOBE TEACHERS
7	Martedi 31	10.30-	
		12.00	GLOBE OBSERVER APP TREES per studenti e docenti - SOSPESO
9	ottobre 2023		Cook and a satellist Cook a Habou Hank bland Milest. Cookses
,	Lunedi 6	17.00- 18.30	Suoli, app e satelliti, Suolo e Urban Heat Island Effect - Surface Temperature Field.
	novembre 2023	18.30	
			Introduzione all'idrologia – a supporto della campagna MMPT
10	Martedi 7	10.30-	GLOBE OBSERVER APP LAND COVER per studenti e docent-SOSPESO
	novembre 2023	12.00	SECOND SOCIETY OF EATH COTER PER MODERN E SOCIETY SOSPESO
11	Venerdi 10	Orario da	Protocollo di Monitoraggio delle Microplastiche in acque superficiali.
	novembre 2023	definire	Presentazione della campagna Microplastiche (Prof. Ass. Alessandra
	novembre 2023	demilie	Sutti, Institute for Frontier Materials, Deakin University, Geelong,
			Victoria, Australia and Ing. Ambientale Stuart Robottom della stessa
			Università)
12	Lunedì 13	10.30-	GLOBE OBSERVER APP CLOUDS per studenti e docenti-SOSPESO
	novembre 2023	12.00	
13	Venerdi 17	Orario da	Protocollo di Monitoraggio delle Microplastiche in acque superficiali
	novembre 2023	definire	
14	24 novembre	15.30-	Atmosfera e dati meteo buone pratiche
	2023	16.30	
	2023		

On average, the Course meetings are attended by 60 Teachers.

The course will allow at least 60 new Italian GLOBE Teachers to be certified.



The screenshot of the Course meeting on 6 October 2023

2. Science

SLE-GO Science Learning Expedition Gorizia-Nova Gorica, **20-21 April 2023** (Contribution for scientific dissemination activities by the Friuli Venezia Giulia Region).

The Science Learning Expedition GO - Nova Gorica offered, *in the first day*, 200 students, researchers and citizens, cross-border I-SLO, an expedition model: an immersive exploration experience using Science glasses. The project's mission is to inspire people to know and take care of their environment and facilitate contamination, useful for learning and suggesting new partnership possibilities. The exploratory activities used protocols also available digitally as Apps, developed by GLOBE. (The description of the expedition continues in the Community Section)



The SLE-GO and Earth Day 2023 leaflet

MINCIO Project 33rd edition

The 33rd edition of the Project has been carried out with a significant increase in the number of classes and stations monitored. The Giulio Romano Artistic High School of Mantova was added to the two high schools IS Fermi and IS Strozzi of Mantova, the fulcrum of the project, and the Roncoferraro

Comprehensive Institute was added to the Goito Comprehensive Institute. The increase in the number of classes was determined by the new entry of the 6 third classes of the High School of Applied Sciences of IS Fermi, by another class of IS Strozzi, by the four second and third classes of IC Goito by the third class of IC Roncoferraro and the two fourth classes of the Liceo Artistico, which led to a total of 17 classes involved in monitoring. The high number of classes forced LABTER-CREA to agree with schools on a calendar of releases, which began at the end of February and ended on May 3rd. Below is the calendar of releases, with the monitored stations, in which the release stands out canonical of 28 April and that of 19 April of the Quarta C Biotechnology of the IS Fermi aimed at investigating the bathing suitability of Lake Superior of Mantua. Such a demanding project can only be carried out with the collaboration of local authorities, associations and private individuals, in short the Mantova community. Among the free of charge collaborations, particularly significant is that of the company SAVI Laboratori & Service, specialized in high quality chemical and food analyses, which, just for Mincio Project, for years carried out free of charge control analyzes of Nitrates and Phosphates, but above all of Glyphosate and AMPA, one of Glyphosate's metabolites. With the results of the analyzes of the schools and the Savi s company, the Report on the Water Quality of the Mincio River and some tributaries was constructed; the results of the investigation were presented at the technical meeting of the Mincio River Contract, the planned negotiation between more than 60 bodies and associations from Mantova and beyond which over the years should resolve the numerous environmental problems of the river and its basin.

Date	School/s	Class/ees	Monitored Sampling Site/s Name (Code)
28/02/202 3	Liceo Artistico G. Romano	4LC, 4LF	Lago Superiore: Vasarina (LSVI A)
22/03/202 3	IS Strozzi MN	4M	
29/03/202 3	IS Fermi, LSA	3A, 3D	Lago Superiore: Vasarina (LSVI B) e Vasarone (LSVO)
19/04/202 3	IS Fermi-ITIS	4CBIO	Lago Superiore e Lago di Mezzo-Indagine Batteriologica per la Balneabilità
20/04/202	IS Fermi, LSA	3B, 3C	Fiume Mincio: Pietole Vecchia, Pontile del porticciolo (VI) e Governolo, alla biforcazione del Mincio (SU A)
28/04/202	IS Fermi-ITIS Corsi di Chimica IS Strozzi di Mantova IC Goito,	4CCH e 4C Biotecnologie 4D Articolazione Produzioni e Trasformazioni 2A, 2C, 3B, 3D	Canale Virgilio (MO1) Fiume Mincio-a valle scarico depuratore Peschiera (MO2), Fiume Mincio-Goito (GO), Canale Goldone (GL), Rivalta (RO), Canale Osone (OS), Valli del Mincio (BU), Governolo (SU B)
	Secondaria IC Roncoferraro, Secondaria	3B	
03/05/202 3	IS Fermi, LSA	3E, 3F	Pozzolo (PZ) e Massimbona (MA)



Students at work in different stations

"MICROPLASTICS MONITORING OF THE WATER OF RIVER MINCIO, SOME ITS TRIBUTARIES AND THE RIVER PO" 2nd edition

It has been the second systematic scientific research on the presence of microplastics in the Mincio river, in three of its tributaries and in the Po river. A webinar for teacher and a webinar for students were carried on, in collaboration with the Deakin University, Australia. The monitoring has produced the second x-ray of the state of the water in relation to these dangerous pollutants, which will serve as a basic knowledge for following the evolution of the state of the water over time. 6 schools, 21 classes, 22 teachers and technical assistants and 423 students participated in the project. 26 study sites were monitored. The sampling in 6 of the 12 sites on the Mantova Lakes was done in the central stream from a boat and not from the shore: as the students had hypothesized, the number of classified microplastics was significantly lower than those identified in the shore sampling. A gallery of hundres of images of the three categories of microplastics defined was produced. Great collaboration was offered by the Mantova diving club, the Mincio Rowing

Association and the Agriturismo La Montina in Ponti sul Mincio.



Students at work in different stations

Local newspapers gave great media coverage to both the "Mincio" and the "Microplastics" Projects with many articles published before, during or after the monitoring days.

INTERNATIONAL MICROPLASTICS MONITORING CAMPAIGN, MARCH-MAY 2023

36 Teachers from 29 schools took part in the Campaign, of which 3 from Czech Republic, 7 from Croatia, 2 from Estonia, 1 from Ireland,1 from Slovakia, 20 from Italy, 2 from Taiwan. Schools produced a high number of Data Sheet concerning the situation of their water bodies, as well as, precious Image Galleries, posters, video, summary reports, etc. All these materials were uploaded to the Deakin University cloudstore.



Images from Croatian, Italian, and Taiwaneese schools

Project "OCEAN MATTERS: Saveguarding our Oceans"

In the project, managed by TERI, the Indian Institute for Energy and Resources, DEAKIN University and GLOBE Italia play the role of trainers concerning the Microplastics Monitoring Protocol. The organizers had planned the webinars n.1 and 2 for teachers of 3 cities of the West Coast of India: Mumbay, Goa and Mangalore (6 webinar in total). The meetings of Mumbai and Goa had been realized in October and November 2022, the meeting of Mangalore were carried out in November/December 2022. Due to the proximity of the webinars to the Indian school holidays and the pressing commitments of the new year, not many teachers were able to upload the collected data to the Cloudstore. To help teachers upload data TERI is developing specific tutorials, built in collaboration with the MMP Team.

In any case, the collaboration with TERI is very rewarding.





Images from Deepvihar and Rosary Higher Secondary Shools in Goa, and CNM, Pawar PS Chandivali and Sri Sri Ravishankar VM Schools in Mangalore (India)

RIO SCHOOL Project

Also RIO School Project was carried by IS Strozzi and ITET Mantegna. IS Strozzi monitored the traditional chemical parameters foreseen by the GLOBE and GREEN projects with the addition of the monitoring of microplastics.



ITET Mantegna Mantova

IS Strozzi Mantova

3. Community

Rivers in Spring, the International World Water Day in Mantova", 22 March 2023.

After two years of online editions, the event has finally returned in person on the Lakes of Mantua, with its three thousand participants. But there was something new compared to the traditional presence editions conducted until 2019: a national online live broadcast in Italian managed by Lorella Rigonat, GLOBE Italy CC and Graziella Mocellin, webamaster of GLOBE Italia and a live international online event managed by Alessandra Sutti and Stuart Robottom of DEAKIN University, Australia, in which the Director of Implementation Tony Murphy participated with a pre-recorded video, Tracy Olstrom of the University of Berkeley with a presentation, Bara Semerakova of the GLOBE E-E RCO, teachers GLOBE of schools in Taiwan, Croatia, Ireland, Italy and scientists from Italian universities and research centers. The management of three different methods for the same event constituted a complex organizational problem, overcome by the important and widespread collaborations obtained from the community.



Rivers in Spring, March 22, 2023 (9:30 a.m. CET)



Rivers in Spring, March 22, 2023 (11:30 a.m. CET)

SLE-GO Science Learning Expedition Gorizia-Nova Gorica, and Earth Day 20-21 April 2023 (Contribution for scientific dissemination activities by the Friuli Venezia Giulia Region). The Science Learning Expedition GO - Nova Gorica offered, *in the first day*, 200 students, researchers and citizens, cross-border I-SLO, an expedition model: an immersive exploration experience using Science glasses. The project's mission is to inspire people to know and take care of their environment and facilitate contamination, useful forlearning and suggesting new partnership possibilities. The exploratory activities will use protocols also available digitally as Apps, developed by GLOBE. The expedition reached 6 stages located in Gorizia and the surrounding hills in the cross-border area. Researchers and students from high schools in FVG and Slovenia carried out investigations on various environmental issues. The activities were followed from Piazza Vittoria in Gorizia. Among the participants of the expedition also representatives of the GLOBE Europe-Eurasia network from the Czech Republic, Croatia and Slovenia, with researchers from Deakin University (Australia) connected remotely.

https://www.youtube.com/watch?v=QLKvh1sIXOo

21st April, The event opened with a Land Art at the Transalpina Station. From here the over 1230 participants reached the Castle of Gorizia, a long multicolored thread that physically and visually ran through Gorizia and Nova Gorica, ideally overcoming the limits of the border with science.

In Borgo Castello the explorers of the first day, together with local bodies, associations and schools, proposed to the participants a journey in stages through exhibits, games, interactive laboratories and a scientific-themed treasure hunt, in line with the theme chosen at the level international for the celebration of **EARTH DAY 2023** "Invest in our planet" to promote awareness of the issues of sustainability and acceleration towards the ecological transition. https://www.youtube.com/@Globeltalia-it/featured

In November 11, The SLE-GO project concluded with an event-show: "Science Learning Expedition GO meets #Laiselasience830" Journey of History Science Territory Music, testifying to the journey made with schools, scientists and researchers, citizens. https://www.globeitalia.it/sle-go/news/634-sle-go-2023-evento-conclusivo-immagini-e-rassegna-stampa.html



Science Learning Expedition and Earth Day in Gorizia (April 20-21, 2023): the Land Art in the big picture



Earth Day in Gorizia (April 21, 2023): setting up the stations in the Castel area





Earth Day in Gorizia (April 21, 2023): Students and children at the stations

"Read the horizon, write the future"

New Local school network – ISIS Bassa Friulana in cooperation with Associazione GLOBE Italia and the local University propose at the FVG Regional Educational Office a new project to develop STEM enhancing focus on climate change, innovative pedagogical approaches and use of technologies in teaching with GLOBE. October 2022-June 2023: 66 classes with 1050 students from primary to high schools participated with laboratory at school and outdoor developed to be included in the curriculum. As part of the same project, a **Summer School** was organized from 14.06.23 to 16.06.23 which saw the participation of scientists and researchers in the role of guiding the students' work, such as prof. Maurizia Sigura and prof. Marco Contin of UNIUD-DISA, Dr. Gabriele Cragnolini of Italia Nostra and the volunteers of the GLOBE ITALIA Association.







"Promoting and Creating GLOBE Areas in Friuli Venezia Giulia: a way to create or develop "urban spaces that connect people in a healthy environment" and "innovations for social and environmental benefit"

1. Parco Predulin, a new GLOBE area

In the ambit of the "PULCHRA Project: Rigenerating Urban Space to connect People in a Healthy Environment", after a number of contacts with local authorities, classes of ISIS Bassa Friulana in Cervignao del Friuli, after a series of contacts and negotiations with the municipal administration of Cervignano del Friuli, obtained authorization from the local authorities to redevelop an unused and partly degraded green area and transform it into a GLOBE area. The classes proposed to create a connected OPEN-LAB / a co-managed School-Park to promote understanding of the impact of climate change, to develop new scientific knowledge regarding the city as an urban ecosystem and facilitate the participation of citizens of all ages in scientific discovery, to contribute to the growth of an aware, innovative and participatory community.



Parco Predulin: students and teachers show the use of the GLOBE Observer Apps to Mr Andrea Balducci, Mayor of Cervignano del Friuli (UD) (June 15, 2023)

2. Bosco Brussa Natural Park: another GLOBE Area

The Bosco Brussa Natural Park, managed by the voluntary association of the same name, has reached an agreement with the GLOBE Italia APS Association to adapt it to the GLOBE Area, with the installation of specific GLOBE signage. Using the instructions and instrumentation made available by the GLOBE Italia APS Association and with the assistance of the volunteers of the Bosco Brussa Association, previously trained by the GLOBE Trainers of ISIS Bassa Friulana, students and citizens will be able to detect atmospheric parameters, of the hydrosphere, the pedosphere and in particular the vegetation. This is a practical and effective way to involve schools and communities on environmental problems



The inauguration of the GLOBE Area Bosco Brussa (June 6, 2023)

"MINCIO AND "MICROPLASTICS MONITORING OF THE WATER OF RIVER MINCIO, SOME ITS TRIBUTARIES AND THE RIVER PO" Projects

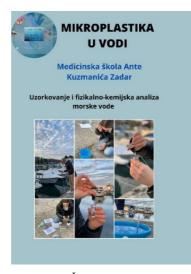
A good number of partner were involved in the project,: Deakin University, Università Politecnica delle Marche, Università di Parma, Municipal Administrations of Curtatone, Rodigo and Roncoferraro, Agriturimo La Montina, Associazione Amici della Vallazza, Pro Loco Rivalta su Mincio, Mantova Diving Club, Stancari family in Massimbona, etc.

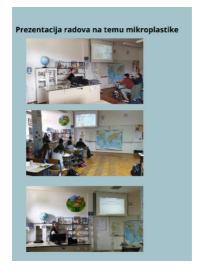
Project MINCIO and **Rivers in Spring** are actions of the River Mincio Contract, a political-environmental planned negotiation involving more than 60 stakeholders: Regional, Provincial, Local bodies plus a number

of no-profit associations to activate actions promoted by the community aimed at redeveloping the river basin in a sustainable way. With the adhesion to the River Mincio Contract, GLOBE Italia, through LABTER-CREA, takes on a political connotation: schools become components of participatory processes that improve the river and its territory.

Microplastics Monitoring Campaign, March-May 2023

During the Campaign, many schools created posters documenting the activities carried out, the results of the investigation and the probable consequences on the environment and health. With the posters and the equipment used for the survey, the schools organized communication and socialization interventions in their schools, in other schools, in their communities and in shopping centres. In this way they have made a great contribution to the diffusion of the MMP for a progression of Citizen Science and to the growth of awareness of the problems linked to the spread of microplastics in the spheres of the planet.







Medicinska Škola Ante Kuzmanića Zadar (Croatia)





XV Gimnazija Zagreb (Croatia)



Students and teachers of Elementary School Rugvica (Croatia) make microplastics monitoring demonstrations at IKEA shop

GLOBE E-E RCO Meetings

Globe Italy took part in all the monthly GLOBE E-E meetings.

GLOBE Annual Meeting, Denver, Colorado (July 2023)

Deakin University, (A. Prof. Alessandra Sutti, Ing. Stuart Robottom) LABTER-CREA and GLOBE Italy (Prof. Sandro Sutti) carried out a lightning presentation presentation and a symposium, structured in a panel and in a miniworkshop on Microplastics Monitoring Protocol Trial, in collaboration with GLOBE E-E RCO (Mrs Lenka Kleger), the University of California Berkeley (Mrs Tracy Ostrom, , the State University of San Francisco (Dr Matt Ferner and Prof. Edward Carpenter, the "father of microplastics studies in the Ocean"). Contact has been established with NASA (Dr Amy Chen) to discuss the possible organization of an international workshop focused on the Microplastics Monitoring Protocol.



The MMP panel: from the left S. Robottom, L. Kleger, T. Ostrom, S. Sutti, A Sutti. M. Ferner and E. Carpenter (online)





The MMP Worhshop

GLOBE at the Suzzara Science Festival (October 26-29)

Associazione GLOBE Italia and LABTER-CREA, wich are part of the Scientific Committee of the Science Festival, proposed two lectures and an activity. Among the readings it is worth mentioning the online one by Dr John T Reager of the Jet Propulsion Laboratory, NASA, who spoke about the change in the ongoing water cycle, induced by climate change, and future water availability scenarios with focus on Europe and Italy. The activity consisted of two Teacher Training Meetings on Phenology and the carbon cycle by Lorella Rigonat and Graziella Mocellin for teachers of primary and secondary schools in Suzzara.



The Suzzara Science Festiva poster and Leaflet

4. Technology

Anyway, there we have good reasons to hope an improvement of the entering of data by schools thanks to the use of Apps, because about more than Globe observer are active in our country

5. Communications

GLOBE Italia is using Youtube, Facebook, Telegram, Twitter to disseminate the action of the network andto connect schools and citizens. The edition of WWD and SLE-GO EARTH DAY are available on GLOBE YouTube and Facebook.

A fortnightly newsletter is sent to schools-teachers and people registered in GLOBE Italy and, in particular moments, even more times in a week. Many newspaper articles and local TV have covered this year actions. The links to press review and social media can be found on www.globeitalia.it

Plans and Ideas for Next Year:

Microplastics Monitoring Campaign 2024 - GLOBE schools in Italy will be invited to use the microplastics protocol mentioned before, along with the traditional GLOBE Hydrology measurements.

A Workshop online focused on Microplastics Monitoring Protocol to negotiate with NASA and NOAA the submission of the protocol for consideration, in collaboration with the University of California Berkeley and the State University of San Francisco.

A workshop in-person in San Francisco Bay, in collaboration with the University of California Berkeley, the State University of San Francisco, NASA, NOAA etc.

We plan to realize, in presence the following activities:

- 1. 34th edition of Mincio Project
- 2. 24rt edition of Rivers in Spring, WWD
- 3. 6th edition of RIO School Project
- 4. 4th edition of Microplastics Monitoring of Mincio River, some of its tributaries and the Po River
- 5. 22st edition of At school on the river
- 6. 13th edition of Earth Day
- 7. 2nd edition of Science Learning Expedition