



# INSEGNACI ETNA 2020

ANNUAL INTERNATIONAL WORKSHOP [ON LINE] – 2020, DECEMBER 4<sup>TH</sup>



Agence Erasmus+ France Education et Formation

## Groundwater : learn to preserve the European underground environment

**FABRICE MOURAU** <sup>1,2</sup>

**GIUSEPPE PATTI** <sup>3</sup>

<sup>1</sup> : MIDDLE-SCHOOL “COLLÈGE PIERRE DE COUBERTIN”, LE LUC (FRANCE)

<sup>2</sup> : EDUMED OBSERVATORY, IDEX-UCAJEDI, EDUCATION & OUTREACH CELL – UMR GÉOAZUR (UCA, OCA, CNRS, IRD)

<sup>3</sup> : HIGH-SCHOOL “LICEO ARCHIMEDE”, ACIREALE (ITALY)



# Groundwater : learn to preserve the European underground environment.



Collège Pierre de Coubertin

Lycée International de Valbonne France

Sukromna stredna odborná škola Slovakia

Liceo "Archimede" Italy

Gimnazija Metkovic Croatia



Agence Erasmus+ France Education et Formation  
**Groundwater : learn to preserve the European  
underground environment.**



Sukromna stredna odborná škola Slovakia



Collège Pierre de Coubertin  
Lycée International de Valbonne



Gimnazija Metkovic Croatia



Liceo "Archimede"

# Themes that will be addressed:



Sustainable Development

climate changes

hydrogeological risk

groundwater

underground environment

interactions between the underground environment and humans.

exploitation of mineral or fossil resources and consequences on the environment.

resilience of the underworld to human action

biodiversity in the underground world and

relationship with the surface environment.



## Planned activities:

- Extension of teaching resources, instruments and resources
- Underground environment monitoring
- Publication of results
- Organization of seminars and guided tours
- Collaboration with research bodies and experts in the field of caving, Biology, Earth Sciences, land protection
- Creation of a European project logo



## Goals:

### acquire skills on:

issues related to the underground environment in relation to society and how their lives will be affected by climate change.

climate, water resources, hydrogeological risks.

conservation of the environment and biodiversity.

development of students' scientific investigation skills by involving them in an investigative approach.

## Obiettivi:



- innovation in the quality and originality of teaching practices and increased motivation through a more intercultural, multidisciplinary and multilingual learning process.
- problem solving, teamwork skills, digital literacy and language skills in new educational environments for better professional and personal development, mobility and lifelong learning.
- laboratory approach in case studies

# How we will achieve our goals:



-I use the Etwinnings twinspace platform as a project website.

LTT project coordination seminars.

Presentation of the work and case studies by the children and teachers in the LTT seminars.

Publication of results on educational, university and caving websites.

Banners, posters and videos created for the project will be used to raise public awareness of the underground environment and its link with our society. We will use them in schools, during caving and geoscience congresses.





# Tasks of the referents



**Collège Départemental du Luc - Pierre de Coubertin**

**Fabrice Mourau - general contact person of the European project**

- will ensure that objectives and results are achieved.
- It will organize/monitor the **Website** common of the project.
- Provide **assistance and advice to partners during the preparation of case studies.**
- relationships between the flow of **Groundwater, planning of the land use And hydrogeological risks.**



# Gimnazija Metkovic Croatia

## Branka Vladimir

- review and improvement of the translation of case studies.
- karst environment, underwater biodiversity in cavities and their sensitivity to human activities.
- training using eTwinning and obtaining the eTwinning label.



# Liceo di Valbonnes

## Carolina Amand

- responsible for compiling and loading the **online testing** for students to evaluate acquired scientific skills and competences.
- In collaboration with the coordinator, it will build a **connection between middle school and high school** based on the themes of the project.



liceo Archimede

Giuseppe Patti

- *specialist in volcanology and lava tunnels*
- *consultant for topics and tasks related to Ecosystems.*
- He will specialize in the study of **Bats** *and their sensitivity to human activities.*





# Sukromna stredna odborná škola Slovakia

Jan Kopcak

- editing LTT content on eTwinning: images, activities, results. In addition
- evaluate the level of English of partners and the use of materials
- **CLIL methodology**. They will be the specialist in the use of groundwater as a resource.

| Identifiant<br>⬇ ⬆ | Type d'activité<br>⬇ ⬆   | Description<br>⬇ ⬆   | Période de début<br>⬇ ⬆ |
|--------------------|--|--|-------------------------|
| C1                 | ✓ Événements conjoints de formation du personnel de courte durée | Kick-off meeting   | 10-2020                 |
| C2                 | ✓ Échanges de groupes d'élèves de courte durée                   | Biodiversity in Croatian caves   | 11-2020                 |
| C3                 | ✓ Échanges de groupes d'élèves de courte durée                   | Underground Sicily : from lava tubes to karstic environment.   | 04-2021                 |
| C4                 | ✓ Échanges de groupes d'élèves de courte durée                   | Natural assets of Slovakia   | 09-2021                 |
| C5                 | ✓ Échanges de groupes d'élèves de courte durée                   | The water cycle in the Mediterranean karstic environment: how is groundwater affected by climate change and anthropogenic constraints ?  | 04-2022                 |
| P1                 | ✓ Autres événements du projet                                    | Start the project : In order to initiate the project among the students and to create as soon as possible an identity for the international working group, each school will have to prepare a presentation that will describe it and the underground environment it will work on. This production will be presented to the partners during the 1st LTT in October. It can take the form of an oral presentation or a video made with the students. | 09-2020                 |

P2  Autres événements du projet

Logo challenge :The identity of a project is also based on the creation of a graphic entity that will be used throughout its realization and beyond. This logo will be added systematically to all our productions, together with those of the European Commission and the ERASMUS+ programme. We will propose to the project's pupils to create this logo: each school will come to the 2nd LTT (C2) with its productions. They will be exhibited in the school, then the mobility participants will be invited to vote for their favourite.

09-2020

P3  Autres événements du projet

ERASMUS day 2020 : October 17, 2020 To celebrate the "Erasmus Day 2020", each school will create and organise an event involving pupils, parents, teachers and the school management. The aim is to introduce everyone to the ERASMUS+ programme and the project "Groundwater: learning to preserve the European underground environment". The event will be an opportunity to explain the role of the school in the project and the expected benefits, based (if possible) on past examples of European projects.

10-2020


P4  Autres événements du projet

First field activity : Students should take advantage of the late fall to visit at least one cave or site related to underground environment. This visit should be an opportunity to place sensors, take measurements and make scientific observations. They should take notes, photographs and videos. The content will be used to make the first case study.

11-2020

|   |   |         |
|---|---|---------|
| P5  Autres événements du projet   | Second field activity Students return to the field to complete their observations and eventually retrieve data from the sensors. They must complete their notes and observations to create their first case study on the underground environment. It should be presented during the 3rd LTT (C3) in Sicily.   | 03-2021 |
| P6  Autres événements du projet   | EGU 2021 : A delegation of teachers will go to represent the project at the national congress of the European Geophysical Union (EGU) in its workshop dedicated to secondary education and the higher/secondary link. In 2021, the theme of the workshop will be "Water in the solar system", a very relevant theme to present our project and its first results. We will facilitate a training workshop and participate in the poster session.         | 05-2021 |
| P7  Autres événements du projet   | We will celebrating the publication of the first results. The first 5 case studies will be "officially" published on the internet. On this occasion, each school will organise a special day (involving all staff, pupils, parents, local partners, the press...). The pupils of the project will be the main actors of the day, they will present the work carried out, the LTTs in which they have been involved and will run workshops for visitors. | 06-2021 |
| P8  Autres événements du projet | Third field activity : Students should take advantage of the fall to visit at least one cave or site related to underground environment. This visit should be an opportunity to place sensors, take measurements and make scientific observations. They should take notes, photographs and videos. The content will be used to make the second case study.  | 11-2021 |



|  |   |         |
|--|---|---------|
| P9  Autres événements du projet    | ERASMUS day 2021 : To celebrate the "Erasmus Day 2021", each school will create and organise an event involving pupils, parents, teachers and the school management. The objective will be to show the first published results of the project and to present the work carried out during the 4th LTT mobility. The event will also show the benefits of the project and the activities planned for 2021-2022.   | 10-2021 |
| P10  Autres événements du projet   | Fourth field activity Students return to the field to complete their observations and eventually retrieve data from the sensors. They must complete their notes and observations to create their second case study on the underground environment. It should be presented during the 5rd LTT (C5) in France.  | 03-2022 |
| P11  Autres événements du projet   | 18th International Congress of Speleology: A delegation of teachers and students will present the first case studies during the 18th International Congress of Speleology which will take place in Annecy (France) from 25 July to 1 August 2021. We will participate in at least one poster session and will lead a lecture if possible.   | 07-2021 |
| P12  Autres événements du projet | Project completion : Each school will organise a day to celebrate the end of the project for the publication of the last 5 case studies on the internet. We will debrief with pupils, parents, the pedagogical team and the project partners. Pupils will run stands, explain what they have learned from their European experience. It will also be an opportunity to look into the future and organise the continuation and sustainability of some of the project activities. | 06-2021 |



# Partnership



**Istituto Nazionale di Geofisica e Vulcanologia**

**Centro Universitario per la Tutela e Gestione degli Ambienti  
Naturali e degli Agro-ecosistemi - Università degli Studi di  
Catania**

**Club Alpino Italiano**

**Associazione Nazionale Insegnanti di Scienze Naturali**

**Comune di Acireale**





Patti

San Giovanni  
La Punta

Giarre

Taormina Letojanni

**Liceo "Archimede"**

Acireale

IV Istituto Comprensivo Statale "G. Galilei"  
II Istituto Comprensivo Statale "Vigo Fuccio - La Spina"  
Istituto Comprensivo Statale "Paolo Vasta"

Catania

Liceo "Galileo  
Galilei", Catania



# STUDY OF THE ETNA ENVIRONMENT

The **Landscape**: volcanic, vegetable and anthropic.

- Origin of **lava sliding tunnel**.
- The richness and fragility of **biodiversity in the hypogeum environment** of the lava sliding tunnels.
- Conservation of **cultural heritage** e **Environmental environmental tourism and sustainable development**.
- **Good practice** sustainable development.





## **WATER STUDY**

The water resource.

The distribution of aquifers and their exploitation.

Pollution of aquifers and surface water.

Sustainable water use. Hydrogeological risk

Chemical analysis of the waters of our territory and the rivers Simeto and Alcantara.



## GUIDED TOURS IN THE TWO-YEAR PERIOD:

- **Acitrezza, Isola Lachea, Acicastello.**  
*The origins of our volcano.*
- **Integral Nature Reserve "Complesso Immacolatelle e Micio Conti".** *Case study of a lava sliding cave.*
- **Timpa di Acireale**  
*Plant landscape, tectonics, seismic risk, history of Etna, history of Acireale.*

- **Castagno dei Cento Cavalli, Grotta dei Ladroni, Monti Sartorius, Rifugio Citelli, Piano Provenzana.**  
*The altitude bands of vegetation and the Etna landscape, history, environment, eruptive apparatuses, volcanic risk.*
- **Piano del Vescovo, Grotta del Vescovo, Acqua Rocca degli Zappini, Salto del Salifizio.**  
*The altitude bands of the vegetation and the Etna landscape, the history, the environment, the history of the volcano, volcanic risk.*
- **Val Calanna.**  
*The history, the environment, the history of the volcano, volcanic risk.*



## **Valle dell'Alcantara.**

*The history, the origins of Magna Graecia, the traces of history, the environment and the landscape, volcanic and hydrogeological risk, anthropogenic activities and water pollution, the profession of researcher and collection of water samples for laboratory analysis.*

## **Valle del Simeto.**

*History, traces of history, environment and landscape, volcanic and hydrogeological risk, anthropogenic activities and water pollution, the researcher's job and collection of water samples for laboratory analysis.*

## **Grotta Monello.**

*Plate tectonics, alpine orogeny, karst environment and karst, karst caves.*





# SUSTAINABLE DEVELOPMENT GOALS

17 GOALS TO TRANSFORM OUR WORLD



# SUSTAINABLE DEVELOPMENT GOALS

17 GOALS TO TRANSFORM OUR WORLD



# Activities:

- ❑ **Difficulty starting the project**
- ❑ **start late October**
- ❑ **Closing of the school**
- ❑ **remote activity only**
- ❑ **We have carried out remote activities**
- ❑ **We presented 5 Erasmus + logo proposals among those made by students**



## Obiettivo 13: Promuovere azioni, a tutti i livelli, per combattere il cambiamento climatico

**13** AGIRE PER  
IL CLIMA



Make the population as aware as our **behaviors** contribute to global warming and that small daily practices such as **lower the temperature of our environments by one degree, turn off unnecessary lights, reuse and recycling, the fight against waste, the conscious use of water, the use of public transport** compared to individual ones can make a difference in the fight against climate change;

# Obiettivo 15: Proteggere, ripristinare e favorire un uso sostenibile dell'ecosistema terrestre

**15** LA VITA  
SULLA TERRA



The **Mount Etna** it's the **highest active volcano in Europe**, one of the most active on the globe. The Etna territory is one of the few territories in Europe where so many **environments and ecosystems** of great scientific interest so much that Europe has called it **European Scientific Laboratory**. Since 21 June 2013 it has been a natural site of the **World Heritage Site** with unesco's inclusion in the **World Heritage List**. Etna is also one of the most studied and monitored volcanoes in the world and has a global scientific and cultural importance, for Volcanology, Geophysics and other disciplines of Earth Sciences;



# AGENDA 2030 – OBIETTIVI 13 E 15



LICEO  
“ARCHIMEDE”

Mercoledì 25 novembre 2020  
Ore 15,00-17,00

## THE CLIMATE LIMBO

Diretto da: Francesco Ferri, Paolo Caselli

**promote actions, at all levels, to combat climate change** making students aware of how our behaviors can contribute to global warming and how small daily practices such as lowering the temperature of our environments by one degree, turning off unnecessary lights, reuse and recycling, the fight against waste, the conscious use of water, the use of public transport compared to individual ones can make a difference in the fight against climate change





## Obiettivo 11: Rendere le città e gli insediamenti umani inclusivi, sicuri, duraturi e sostenibili

### 11 CITTÀ E COMUNITÀ SOSTENIBILI



#### **What can we do:**

Promoting and supporting good practices aimed at **improving the quality of life in population centres** with particular reference to the quality of the urban environment, air, traffic, greenery.

# AGENDA 2030 – OBIETTIVO 11



Erasmus+



LICEO  
"ARCHIMEDE"

Venerdì 27 novembre 2020

Ore 15,00-18,00

## BICICLETTE

Regia e Fotografia di Antonio Bellia

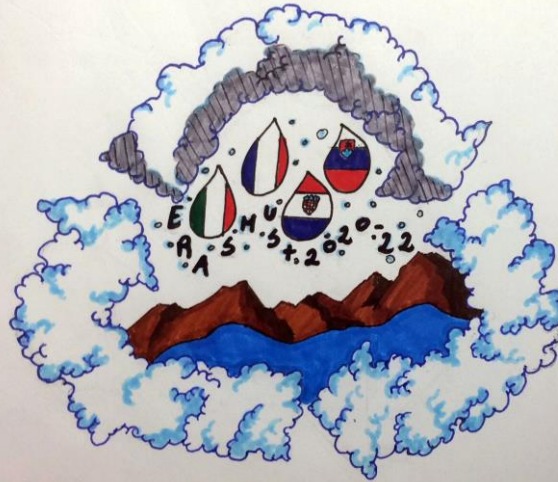
con la partecipazione di  
**Antonio Bellia**



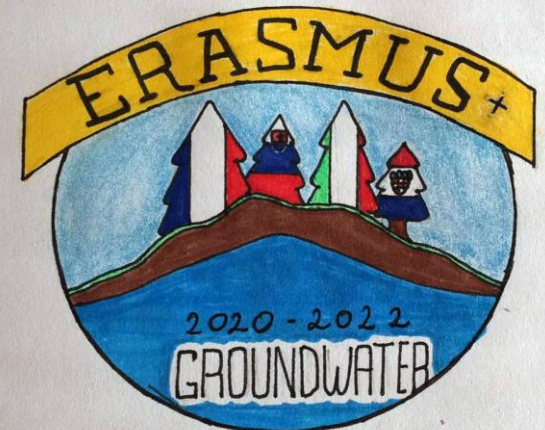
# Logos



Each school will feature  
5 logos



we will choose  
the best one



**thank you for your attention**

**merci pour votre attention**

**Ďakujeme vám za pozornost**

**hvala vam na pažnji**

**σας ευχαριστώ για την προσοχή σας**