Climademy

NEWSLETTER BY CLIMADEMY - ISSUE 6 / MAY 2025

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BY CLIMADEMY
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OUR MESSAGE

As our project comes to an end, we would like to reflect on CLIMADEMY's journey and celebrate its accomplishments. In its three-year "life", CLIMADEMY established a network between four European countries, allowing teachers to exchange teaching practices for tackling the complex, multidimensional problem of climate change education. In addition to fostering this network, the CLIMADEMY team supported teachers in their efforts to teach climate change by introducing a comprehensive educational framework for developing climate change competences in the classroom, as well as a virtual database of teaching materials for all Academy's participants.

ERASMUS+

ACTING
ENVISIONING
SCIENTIFIC INQUIRING
VALUES BUILDING

Natural scientists, educators, and teachers came together through life experience and combined their efforts to understand each other's "language". They support teachers' professional development regarding climate change education through working and training meetings. These meetings are supported by outdoor and laboratory experiences at the four national hubs and a central web platform with educational material, CLAUDI. This newsletter is dedicated to the various milestones achieved during this journey that provide legacy for the future since the established network will continue to be supported by CLAUDI at the University of Crete.

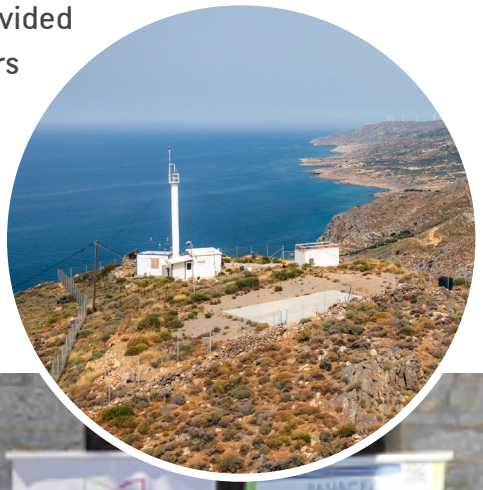
ESTABLISHING THE NATIONAL HUBS

The first step of our project was the establisment of four national Hubs in Greece, Italy, Germany and Italy. Each Hub had dinstictive characteristics and was developed by researchers with specific expertise in the interdisciplinary field of Climate Change.

Greek Hub

Mediterranean Climate and Atmospheric Chemistry

The Greek hub focused on the Mediterranean region, which was particularly vulnerable to climate change. Its thematic emphasis was on the chemistry of the atmosphere and climate impacts in subtropical environments. Based at the Finokalia atmospheric monitoring station and its near-by old school at Nofalia in Crete, the Greek Hub provided hands-on training using real environmental data. Teachers engaged in experimental and data-based activities that connected scientific content with pedagogical practice. The hub supported both in-person and virtual training and aimed to build teachers' capacity to use authentic data and field experiences in secondary education settings.



Finnish Hub
Boreal Environment and Atmospheric Physics

Located near the Arctic region, the Finnish hub emphasized atmospheric physics and climate phenomena in boreal forest ecosystems. Training was grounded in the infrastructure of the Hyytiälä field station, enabling teachers to work with real-time air pollution and climate data. The hub enhanced participants' digital and analytical skills through guided use of environmental databases and online learning tools. It promoted a strong connection between climate science and teaching practice, and served as a model for integrating scientific observation into teacher professional development.

German Hub
Space-based Observations and Modelling Tools

The German hub (based in Bremen) specialized in the use of space-based Earth observation technologies and climate modelling. It trained teachers to retrieve, analyze, and visualize climate-related data from platforms like Copernicus and ESA. Emphasizing a systems' thinking approach, the hub equipped educators with tools to build classroom activities based on satellite imagery, simulations, and data interpretation. This hub was central for developing digital competences and introducing teachers to large-scale monitoring of environmental changes, how the signal captured by the satellite sensor is converted to concentrations of pollutants, what the models predict for the future and the implications for European and global climate strategies.

PROGRAMME OF THE EUROPEAN UNION

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Italian Hub
Pedagogical Transformation and Environmental Education

The Italian hub (based in Bologna) focused on the pedagogical aspects of climate education, particularly the transformation of scientific knowledge into awareness and behavioral change. It supported teachers in designing meaningful learning experiences that connected climate data with students' social and cultural contexts. Emphasizing transformative learning, environmental values, and sustainability, the hub equipped educators with strategies for engaging students emotionally and critically with climate issues. It promoted creative educational methodologies and participatory approaches rooted in environmental education theory.

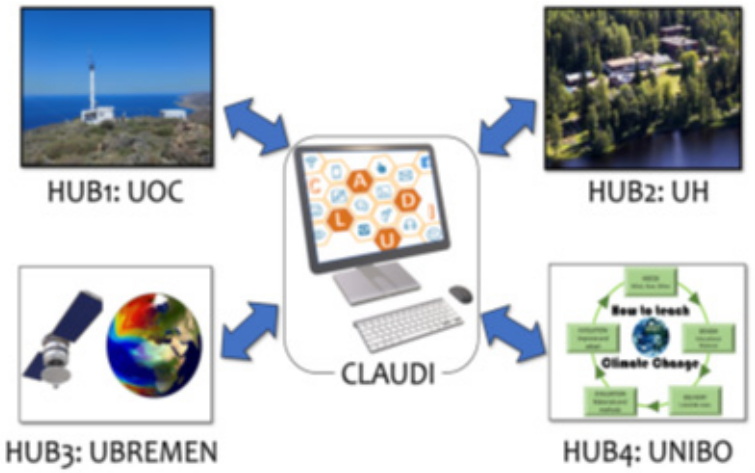
CLAUDI AND EDUCATIONAL DATABASE

The four national hubs were virtually connected via a web platform named CLAUDI (Climate Auditorium), which served as the central digital platform of the CLIMADEMY project. It is hosting all educational materials, online courses, and open-access climate data in multiple languages, including English, Greek, German, Italian, and Finnish. CLAUDI facilitates communication and collaboration among teachers and learners across Europe, providing space for discussion, exchange of experiences, and co-development of teaching practices. It functions as the main repository and gateway for both synchronous and asynchronous training, supporting teachers' professional development regardless of geographic location. The platform was instrumental in expanding access and sustaining the project's impact beyond the physical hubs. It will be maintained and populated with new material even after the end of the project. This educational material is available to all participants of the Academy as well as anyone who creates a free account in CLAUDI.

The material is divided into three categories depending on its content:

1. Drivers
2. Impacts
3. Mitigation/Adaptation strategies

Explore our database in CLAUDI



COMPETENCE FRAMEWORK

One of the great milestones of CLIMADEMY was the introduction of Climate Change Competence Framework developed by our team. This framework was based on existing frameworks, as GreenComp, for cultivating climate change competences. It has four dimensions.

1. **Values Building:** Taking values and attitudes into account from the outset is regarded as a foundation for fostering engagement, motivation, and deeper understanding of climate change. These values and attitudes can also guide the selection of key concepts and shape climate-related actions promoted through education.
2. **Scientific Inquiring:** Scientific inquiry provides the foundation for understanding climate change as a scientific phenomenon. Tools like critical thinking, systems thinking, and problem framing are essential for developing a comprehensive and coherent view of the causes and effects linked to climate change.
3. **Envisioning:** Embracing creativity to make connections and discover new solutions is a key element for driving change. In this context, education practices across various subjects should apply future-oriented, creative methods and pedagogical strategies. These may include, but are not limited to, artistic approaches, gamified learning experiences, or other imaginative tools that engage learners in meaningful and transformative ways.
4. **Acting:** Values, knowledge, and creativity should collectively empower individuals and foster the development of climate action competences. This dimension encompasses the capacity to take both individual and collective action aimed at mitigating and adapting to climate change.

This framework has been the foundation of CLIMADEMY's training activities across the four national hubs and all education materials produced by our project are in line with its dimensions.

INTERNATIONAL SCHOOLS AND CLIMADEMY CONFERENCE

A major success of the project was the successful organization of a number of international schools at the national Hubs. These schools were aimed at creating a welcoming space for teachers across Europe to be educated in the Academies framework as well as to have the opportunity to exchange practices. At these schools, participants had the opportunity to network with other educators and foster their European identity as teachers of the next generation of EU citizens.

Summer Schools – Athens, Bologna

Two international schools took place in summer 2024: one in Athens (Greece) and one in Bologna (Italy). The first one in Athens aimed for the participants' teachers to:

- understand the basic aspects of Climate and Climate Change (drivers, impacts, and mitigation options) and
- gain solid scientific knowledge,
- develop useful skills to teach Climate Change in their classroom,
- be introduced to the CLIMADEMY competence framework that frames the structure of the general and specific goals to pursue through the teaching activities,
- become familiar with pedagogies and methodological approaches (e.g. inquiry-based, problem-based) to adopt them in their daily practice,
- participate in an active teaching and learning community of Continuous Professional Development.

The second one in Bologna focused on data humanism and data storytelling, aiming to provide a nurturing forum to rethink our ways of communicating and teaching, exploring the potential of STEAM approaches. It was designed to raise awareness of the complexity of climate change and data interpretation, as well as the need to imagine possible solutions by cultivating hope. In this process, first the teachers and then the students become leaders and builders of their own knowledge.

Autumn School – Agios Nikolaos, Crete

The CLIMADEMY Autumn School took place in Agios Nikolaos, Crete, in November 2024, offering a rich program of lectures and hands-on activities aimed at teachers of all educational levels. The school introduced participants to both the scientific foundations of climate change and effective pedagogical methods for bringing these concepts into the classroom. Attendees explored the CLIMADEMY teaching framework through experiential learning activities conducted at the Research and Innovation Hub at Nofalia/ Finokalia, and visited the University of Crete's environmental station at Finokalia to engage directly with climate monitoring tools and research practices. Teachers from six countries (England, Germany, Italy, Portugal, Finland, and Greece) participated, creating a dynamic international setting for sharing perspectives and educational approaches to climate change.

FINOKALIA

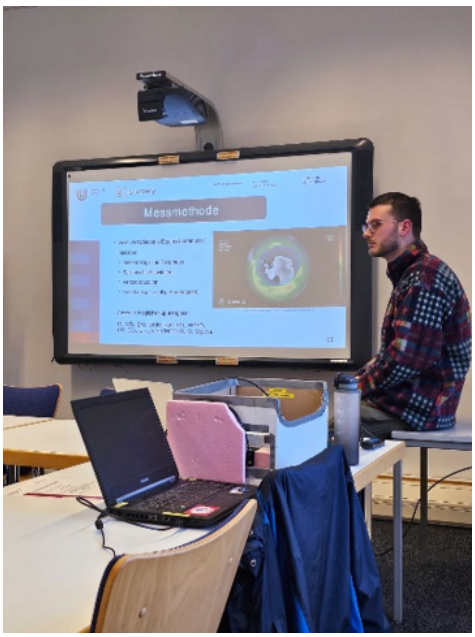
Winter School, Bremen

The Winter School took place in Bremen (Germany) in December 2024 and it was designed for teachers to gain a foundation in atmospheric science and explore practical ways to bring climate change education into the classroom. Through interactive sessions and hands-on activities, participants engaged with both theoretical and applied aspects of climate change and its causes.

During the training days, teachers explored key questions such as the structure and composition of the atmosphere, the role of

BREMEN

greenhouse gases, and the far-reaching consequences of the greenhouse effect. Participants learned about the sources and sinks of emissions and how they relate to both air pollution and global climate systems.
In practical workshops, participants worked directly with satellite data to identify patterns and changes over time. They were introduced to different types of models, discussed how models are built and interpreted, and explored the role of human activity in shaping climate outcomes.



Spring School, Bologna

The Spring School took place during the meeting of the ESERA SIG8 on Future Oriented Science Education in Bologna (Italy) in 2025. It consisted of three interactive workshops enriched participants' understanding of climate education.

BOLOGNA

- The first workshop, structured as a World Cafı, explored the role of futures competences in relation to the GreenComp sustainability areas. Teachers rotated through 20-minute discussions on "embodying sustainability values," "embracing complexity," and "acting for sustainability."
- The second workshop featured presentations from project partners, highlighting how the CLIMADEMY framework was implemented across hubs. The Greek hub shared classroom applications of educational materials, the Finnish hub reflected on teacher feedback, and the Italian hub presented a parallel school initiative inspired by CLIMADEMY. A guest from the University of Syo Paulo emphasized the need for interdisciplinary and intercultural approaches beyond Eurocentric perspectives.
- The third workshop, led by Juliana Friedrichsen and the Italian hub, was a panel discussion that divided participants by agency level (individual, social, collective, political) to share insights on what teachers can do—or need—in order to address climate change in classrooms.

CLIMADEMY Conference, Hyytiälä

CLIMADEMY's Final Conference, organized in collaboration with the Teachers' Climate Change Forum, took place at the Hyytiälä Forest Station in Finland from April 1 to April 3, 2025. The conference highlighted impactful climate change education practices co-developed over CLIMADEMY's three-year program by pilot teachers, tailored to local needs and grounded in the project's pedagogical model and competence framework. These were showcased alongside keynote speeches, including one by Finland's former President Tarja Halonen, who emphasized the role of education during global crises, and another by Guia Bianchi, co-author of the GreenComp sustainability framework.

HYYTIÄLÄ

Participants engaged in a range of activities, including a school visit to Orivesi's Upper Secondary School led by CLIMADEMY pilot teacher Aulikki Laine. The visit offered insights into the Finnish education system and sparked conversations around the contextual challenges and opportunities in schools. Cultural experiences such as art workshops, forest walks, sauna sessions, and ice swimming fostered community and exchange among attendees.

As the CLIMADEMY project concludes, its influence persists, having established a strong foundation for innovative, localized, and collaborative climate education approaches. The initiative leaves behind a legacy that is expected to shape sustainability teaching practices across Europe and potentially inspire broader international adoption.

CONFERENCE PARTICIPATIONS

During CLIMADEMY's life our team had the opportunity to share the project's progress with the rest of the scientific community. Either via a poster or oral presentation we had the privilege to have meaningful conversations with esteemed colleagues. The following is a selection of conferences were CLIMADEMY was presented:

- The **ESERA** (European Science Education Research Association Conference) in Cappadocia in 2023 with about 250 participants.
- The Teachers' Climate Change Forum (**TCC**F) in Hyytiälä, Finland, in October 2023
- The **FERA** Conference in Vaasa in October 2023
- The **EGU** General Assembly 2023 in Vienna which is the largest geosciences conference in Europe with over 15,000 participants. CLIMADEMY solicited poster attracted the attention of teachers and young researchers
- The **EGU** General Assembly in 2024 and in 2025 in Vienna with over 20,000 participants

CLIMADEMY activities will continue after the end of the project in June 2025. They will be announced on the project's website and summarized in e-newsletters that will continue to be edited at least one per year

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