



6-day International geothermal summer school in Slovenia - 2025

Coupling and integration of energy piles with other geothermal technologies

Mon to Sat, 30th June – 5th July 2025

This is the 3rd international geothermal summer school in Ljubljana, now focused on building interdisciplinary expertise to address shallow geothermal structures and energy retrofitting with other geothermal technologies.

Scope and learning outcomes:

Within this summer school, trainees will use geothermal and geomechanical concepts to investigate and couple energy piles with various geothermal technologies, such as geoprobes, open-systems, thermal water and other types of heat pumps.

At the end of the course, the participants should:

- Explain geothermal and geomechanical concepts and exploration methods,
- Explain various technologies for geothermal use,
- Explain interactions between mechanical deformation and heat and flow fields in the subsurface and their change during the project lifetime,
- Describe the concept of sustainable exploitation and proper project development,
- Be able to illustratively present their student project, prepared during the course.

Participation:

The course is available for up to 30 trainees who are;

- PhD and postdoc students interested in geothermal energy use and impacts
- Young professionals who deal with any aspect of geothermal within their work
- MSc students interested in geothermal.

Reward:

- Successful participation at the course (presentation at student conference, student project and an exam) will result in granted 3 ECTS for a Thermogeology course at the MSc level at Faculty of Natural Sciences and Engineering in Ljubljana, Slovenia.

Training organizers:

- COST action CA21156 european network for FOstering Large-scale ImplementAtion of energy GEostructure (FOLIAGE)
- Co-organizers:
- Faculty of Natural Sciences and Engineering, University of Ljubljana (NTF)
- Geological Survey of Slovenia (GeoZS)
- Slovenian National Building and Civil Engineering Institute (ZAG)
- Faculty of Civil Engineering, Transportation Engineering and Architecture, University of Maribor (FGPA)





Venue:

Faculty of Natural Sciences and Engineering, Ljubljana, Slovenia, and several field sites

This is a face-to-face event and no online activities are foreseen.

Preliminary list of trainers:

Prof. Peter **Bourne-Webb**, Instituto Superior Tecnico of University of Lisbon, Portugal (thermallyactivated structures)

Prof. Mihael **Brenčič**, PhD, Faculty of Natural Sciences and Engineering of University of Ljubljana, Geological Survey of Slovenia, Ljubljana, Slovenia *(hydrogeology)*

Fiona M. **Chapman**, Institut national de la recherche scientifique, Quebec, Canada (*optical fibres in geothermal*)

Hrvoje Dorotić, mag.ing.mech. Energy Institute Hrvoje Požar, Zagreb, Croatia (energy market)

Assoc. Prof. Primož **Jelušič**, PhD, Department of Civil Engineering of University of Maribor, Maribor, Slovenia (*geomechanics*)

Assist. prof. Stanislav **Lenart**, PhD, Section for Geotechnics, Slovenian National Building and Civil Engineering Institute (*geomechanics*)

Assist. prof. Nina **Rman**, PhD, Geological Survey of Slovenia, Ljubljana, Slovenia *(direct use, environmental aspects)*

Grzegorz **Ryżyński**, Polish Geological Survey (geothermal measurements)

Prof. Rao Martand **Singh**, PhD, Norwegian University of Science and Technology, Trondheim, Norway (*shallow geothermal technologies*)

Assoc. Prof. **Maja Turnšek**, PhD, Faculty of Tourism University of Maribor, Brežice, Slovenia (communication strategies)

6-day training programme:

Day 1: Introduction to FOLIAGE, geothermal concepts & student conference

Day 2 & 3: Field trip with hands-on exercised in eastern Slovenia (a heat pump factory, a geothermal drilling site, a demo with energy baskets, an UTES facility, a cascade use of thermal water; field exercises in hydrogeological and geothermal measurements, visit to geochemical, geomechanics and geothermal laboratories...)

Day 4: Recommendations on energy piles integration & communicating new technologies

Day 5: Environmental issues, geothermal grids & preparation of student projects

Day 6: Preparation and presentation of student projects & final exam





Cost reimbursement:

Attendance at the summer school is **free**, including the travel and activities during the two-day field trip. Trainees and trainers must sign the attendance list each day.

Trainees should provide for their <u>own</u> travel arrangements and accommodation. The accommodation at the field trip will be pre-selected by the organizer but it should be paid at site by trainees themselves. All necessary information will be provided.

Trainees can apply for a grant to cover part of their travel and accommodation costs.

COST action 21156 FOLIAGE will provide for part of the travel and accommodation costs for up to **12 trainees** and 2 trainers and part of LOS. It may cover up to $350 \in$ of trainee's long-distance travel expenses (based on invoices, cancellation insurance included) and a daily allowance rate of $192 \in$ per day for a maximum duration of 7 days (no proof needed).

For further terms and conditions as well as instructions please see COST Annotated rules, Annex 1, A1-3.1. Travel reimbursement rules (https://www.cost.eu/uploads/2024/11/COST-094-21-V2.0-Annotated-Rules-for-COST-Actions-Level-C.pdf). Check your eligibility as per Article 6.4.

The FOLIAGE Action MC reserves all rights to reduce the daily allowance rate in case of unforeseen circumstances. In this case, applicants will be informed about possible reductions prior to formal invitations via the eCOST system.

Project of MOPE, ARIS DFP INRIGeoTeam and ARIS programe group P1-0020 Groundwaters and geochemistry will also provide coffee breaks and light lunch during the summer school, printing of the student conference abstract book, and part of the costs of the field trip and trainers.





APPLICATION PROCEDURE

The applications are open until Monday, 31rd of March 2025.

The application should be done following several steps:

1. Create/update your profile on eCOST (https://e-services.cost.eu/)

3. Carefully read the COST Annotated rules, Annex 1, A1-3.1. Travel reimbursement rules (https://www.cost.eu/uploads/2024/11/COST-094-21-V2.0-Annotated-Rules-for-COST-Actions-Level-C.pdf). Check your eligibility as per Article 6.4.

2. Submit your application documents through this survey, available at: https://forms.gle/e71PGwUrKgJZgpnq9.

You will have to list your contact, study and career details, if you are from an ITC country and if you request a grant for travel and accommodation, your background and experience in geothermal as a CV in max. 200 words, your motivation in max. 200 words, your link to FOLIAGE COST action in max. 100 words, and a proposed title of your presentation at the student's conference in max 30 words. If you are not active in geothermal yet, you can e.g. present the geothermal situation in your country or other useful new knowledge for you.

For any questions on eCOST system, please contact <<u>gestion-cost-foliage@univ-lille.fr</u>>.

For questions regarding the application itself, please contact <<u>geothermal@ntf.uni-lj.si</u>>.

SELECTION PROCEDURE

The selection results will be delivered to the applicants latest by the 5th of May 2025 latest.

We will select trainees trying to reach the following goals:

- up to 30 trainees

- quality of proposed contributions by the trainee & the student conference

- background from at least 3 different thematic groups (e.g. geologists, construction engineers, mechanical engineers, environmental specialists, social or economy sciences...)

- country balance (at least 3 countries represented)

- at least 4 trainees from ITC countries

- institutional balance (more than one trainee from the same faculty/institution will be selected in exceptional and well justified cases only)

- an average share of at least 40% of each gender, if possible

- at least 40% of young researchers and innovators

- priority will be given to trainees who will attend such summer school for the first time.





Acknowledgement:

Beside COST Action FOLIAGE, part of activities is also supported by the Ministry of the Environment, Climate and Energy of Slovenia, the Slovenian Research Agency (research core funding P1-0020) and project INRIGeoTeam with is co-funded by the Slovenian Research and Innovation Agency within the framework of DFP (Developmental funding pillar).

