

BELQUA Summer School 2026: “Climate Archives and Investigation Methods”

The BELQUA National Committee organizes its 2026 summer school on “*Climate Archives and Investigation Methods*”. It aims to provide early-career researchers with an integrated, interdisciplinary training in the study of past climate changes using natural archives. The course focuses on developing both theoretical understanding and practical skills across a wide range of state-of-the-art analytical approaches used in paleoclimate research.

Over five days, participants will explore complementary methodologies including non-destructive physical analyses of sediment cores, geochemical and mineralogical techniques, biological and isotopic proxies, and climate modelling approaches. Each thematic day combines lectures by Belgian and international experts, real-world case studies from diverse environments (marine, lacustrine, peatbogs, and caves), hands-on exercises, and interactive discussions. Participants are also actively involved through short presentations of their own research, fostering peer and interdisciplinary exchange. The program will conclude with a field excursion to the Han-sur-Lesse, where participants will apply a multi-proxy approach to climate archives in a natural cave system.

The summer school welcomes MSc and PhD students as well as early-career and senior researchers, who are interested in the reconstruction, interpretation and understanding of past climate changes. The full course comprises 36 contact hours or 5 ECTS. A certificate of participation can be issued upon request.

Date: 24-28 August 2026

Venue: Palace of Academies in Brussels (Hertogstraat, 1, Brussels) from 24 to 27 August 2026;
Fieldtrip at Han-sur-Lesse on 28 August 2026.

Preliminary program

Aug 24 – Non-destructive physical approach – Expert: Maarten van Daele (Ghent University)

- 09.30-10.00 - Introduction to summer school - types of archives - program of the week
- 10.00-12.00 - Lecture - Sediment logging techniques (bulk density, sound velocity and magnetic susceptibility, CT-scan, color images...).
- 12.00-13.30 - Lunch
- 13.30-14.00 - Short presentation of PhD (2 participants, volunteers)
- 14.00-15.30 - Applications on marine sediments
- 15.30-16.30 - Exercises & questions

Aug 25 – Geochemical and mineralogical approach – Experts: Sebastien Bertrand (Université Paris-Saclay) & Nathalie Fagel (University of Liège)

- 09.30 -10.30 - Lecture - X-ray fluorescence core scanning (CS-XRF) - S. Bertrand
- 10.30-11.00 - Coffee break
- 11.00-12.00 - Applications on Chilean lakes - S. Bertrand
- 12.00-13.30 - Lunch
- 13.30-14.00 - Short presentation of PhD (2 participants, volunteers)
- 14.00-15.30 - Applications on Mexican lakes - N. Fagel
- 15.30-16.30 - Exercises & questions

Aug 26 – Biological and isotopical approach – Expert: Reza Safaierad (University of Koblenz)

- 09.30-10.30 - Analysis & statistical treatment of vegetal assemblages (pollen & macroremains)

- 10.30-11.00 - Coffee break
- 11.00-12.00 - Lecture – Stable isotopes & Leaf wax
- 12.00-13.30 - Lunch
- 13.30-14.00 - Short presentation of PhD (2 participants, volunteers)
- 14.00-15.30 - Applications on Iranian and Belgian peatbogs
- 15.30-16.30 - Exercises & questions - Reza Safaierad & Marina Hennion (PhD)

Aug 27 – Modelling approach – Expert: Qiuzhen Yin (Université catholique de Louvain)

- 09.30-10.30 - Lecture – Climate system, climate models & paleoclimate modelling
- 10.30-11.00 - Coffee break
- 11.00-12.00 - Lecture – Astronomical parameters and insolation
- 12.00-13.30 - Lunch
- 13.30-14.00 - Short presentation of PhD (2 participants, volunteers)
- 14.00-15.30 - Applications of paleoclimate modelling on Quaternary climate changes
- 15.30-16.30 - Exercises & questions
- 16.30-17.00 - *Synthesis - Feedback on the doctoral school program by the participants*

Aug 28 – Fieldtrip at Han-sur-Lesse – Experts: Yves Quinif (University of Mons) & Christian Burret (IRSNB-Royal Belgian Institute of Natural Sciences)

Case study of cave sediments.

Integration of different approaches: LIBS measurement, thin section observations; trace element geochemistry & mineralogy; stable C & O isotopes.

- 10 am - Meeting point – Luik Guillemins train station.
- 10.00-11.00 – Transport by bus from Luik to Han-sur-Lesse and return
- 11.00-12.00 – Introduction by Yves Quinif
- 12.00-12.45 – Lunch
- 13.00-16.00 – Cave visit
- 16.30 -17.30 – Transport by bus from Han-sur-Lesse to Luik Guillemins

Registration fee

There will be a registration fee of 100€.

Funded by the FNRS doctoral school UNITER and the Ghent University Doctoral School, PhD candidates registered at the French-speaking universities in Belgium and in Ghent University are exempt from the registration fee.

Scientific Committee:

Maarten van Daele, Ghent University, Belgium
 Nathalie Fagel, University of Liège, Belgium
 Qiuzhen Yin, Université catholique de Louvain, Belgium
 Reza Safaierad, University of Koblenz, Germany
 Sebastien Bertrand, Université Paris-Saclay, France
 Yves Quinif, University of Mons, Belgium

Organizers

Nathalie Fagel, Department of Geology, University of Liège, Belgium
 Qiuzhen Yin, Earth and Life Institute, Université catholique de Louvain, Belgium
 Maarten van Daele, Ghent University, Belgium

Contact: If you are interested in participating in this summer school, please contact Nathalie Fagel (Nathalie.Fagel@uliege.be) **before May 18, 2026.**