



## International Summer School in Biospeleology

### *Cave fauna & habitats monitoring*

20 - 27 July 2026

Ic Ponor (Apuseni Mountains, Romania)

The University Babes Bolyai (Romania) organizes the 1<sup>st</sup> **International Summer School in Biospeleology (ISSB)** from **20 to 27 July 2026** in Ic Ponor, Apuseni Mountains, Romania.

Caves are specially protected **habitats types** within **Annex I** of the **EU Habitats Directive (code 8310 “Caves not open to the public”)**, which currently demands the monitoring at national and international level. Caves host specialised and endemic species, that are of paramount importance for the conservation; but only a few are listed as **Annex II or Annex IV species**. Cave invertebrates and their habitats, extending from caves to system of crevices in karst around them, have been neglected in monitoring programs.

### SUMMER SCHOOL GOALS

Based on lecturers long term experience on cave fauna systematic and taxonomy, habitat monitoring and sampling methods, the school aims to provide a background on the **assessment of subterranean biodiversity and the implementation of standardized monitoring protocols for cave-dwelling organisms and their habitats** discussed in a series of theoretical lectures and applied field trips.

This comprehensive training aims to empower participants with:

- **Taxonomic and Systematic Knowledge:** Identification and study of subterranean fauna (e.g. beetles, spiders, aquatic and terrestrial crustaceans)
- **Monitoring Methodologies:** Practical, standardized approaches for sampling subterranean species and evaluating habitat status
- **Conservation Management:** Evidence-based approaches to protect the subterranean ecosystems from anthropogenic impacts
- **Applied Field Skills:** Experience in cave fauna & karst habitats monitoring to understand the assessment of cave biodiversity.

The curriculum bridges theoretical knowledge with practical field techniques to improve the understanding and conservation of cave fauna.

## TARGET AUDIENCE

ISSB is open to 15 students worldwide targeting primarily (but not exclusively) to: **BSc students** (in the last years), **MSc and PhD students** (early stage and advanced) with background in biology, geology, environmental sciences, ecology, and nature conservation; speleologists, **practitioners, rangers of natural parks** and other **professionals** willing to be introduced in cave biology and karstology through theoretical classes and field work.

The summer school includes a variety of activities combining specific theoretical classes and caving trips to provide in-depth insight into cave biology and karstology and build collaboration, communication, and research skills across related disciplines. Science areas covered include:

- Biospeleology & cave microbiology
- Systematics and taxonomy of subterranean species
- Cave and groundwater ecology
- Morphological and physiological adaptations of subterranean fauna
- Methodology and techniques for collecting & monitoring cave fauna
- Tools for identifications and detection (i.e., morphology, DNA barcoding, eDNA from water and sediments)
- Karst hydrogeology and methods & techniques to study karst aquifers
- Karst aquifers monitoring
- Hands-on training on methods in field work
- Cave climatology & paleoclimate
- Speleothem-based climate reconstruction
- Challenges in protection of subterranean habitats

## TUTORS

The course will be taught in English by specialists in biospeleology, cave microbiology, karstology, climatology and cave management and protection:

**Dan Jones**, New Mexico Tech (USA) Biospeleology and cave microbiology,

**Vasile Ersek**, Northumbria University (UK) Karstology

**Virgil Dragusin**, Emil Racoviță Institute of Speleology (Romania) Climatology

**Sanda Iepure**, University Babeş-Bolyai/Emil Racoviță Institute of Speleology (Romania) Cave fauna sampling & monitoring

**Maja Zgmajster**, University of Ljubljana, Biotechnical Faculty (Slovenia) Subterranean biodiversity, Subterranean habitats protection and monitoring

**Course coordinator: Dr. Sanda Iepure**

**Contact:** [sanda.iepure@ubbcluj.ro](mailto:sanda.iepure@ubbcluj.ro)

## HOW TO APPLY

Please fill in the **REGISTRATION FORM** and send a cover letter of 500-words regarding one of the following topics: karst, cave biology, paleontology, or cave protection and conservation in your home country and a CV till **31 May 2026** to [sanda.iepure@ubbcluj.ro](mailto:sanda.iepure@ubbcluj.ro).



### Participant's selection criteria include:

- submission of an abstract or motivation letter demonstrating interest in the field
- prior experience/knowledge in cave biology and karstology (students with background in speleology)
- physical condition for cave fieldwork.

Accepted students will be selected by the organizers based on their registration and listed on the participant webpage on **1 June 2026**. The University Babes Bolyai is offering a participation certificate to recognize the involvement in the summer school and showcasing commitment and skills in cave monitoring methods.

### PAYMENT INSTRUCTIONS

The registration fee is **250 €** and covers the support of the lectures, access to facilities in the lab, lectures equipment's for afternoon sessions; transport to caves, coffee breaks.

**Registration payment:** <https://plati.ubbcluj.ro/Event/Details/370>

### OTHER COSTS

Accommodation is free of charge. **Meals are 40 EU/day (3 meals)**. Participants are expected to arrange and pay for their own travel to and from Ic Ponor. However, we provide the option for travel from Cluj Napoca and back for around 10 EU/pers.

### COURSE STRUCTURE

The course spans 7 days of intense training through lectures, complementary laboratory-based practical sessions and field-trips. Each course day will consist of morning theoretical classes (3 – 4 h) and afternoon practical sessions (3 – 4h) with 2 coffee breaks.

## SUMMER SCHOOL PROGRAM

Day 1: 20 July 2026, Monday		
Morning session 9.00 – 13.00	Karst hydrogeology	Vasile Ersek
Afternoon 15.00 – 18.00	Lab session	
Day 2: 21 July 2026, Tuesday		
Morning session 9.00 – 13.00	Climatology	Virgil Dragusin
Afternoon 15.00 – 18.00	Lab session	
Day 3: 22 July 2026 Wednesday Field trip: Karst hydrogeology & Climatology		
Day 4: 23 July 2026, Thursday		
Morning session 9.00 – 13.00	Biospeleology, Cave microbiology	Dan Jones
Afternoon 15.00 – 18.00	Lab session	
Day 5: 24 July 2026, Friday		
Morning session 9.00 – 13.00	Cave fauna sampling & monitoring	Sanda Iepure
Afternoon 15.00 – 18.00	Lab session	
Day 6: 25 July, 2026, Saturday Field trip: Life in caves 1 – microbes and fauna sampling methods		
Day 7 26 July 2026, Sunday		
Morning session 9.00 – 13.00	Challenges in subterranean habitats protection	Maja Zagmajster
Afternoon 15.00 – 18.00	General discussions	

### PRACTICAL INFORMATION'

**Accommodation.** Hut with sharing of gender-matched 2-bed rooms in 8-bed cabins (note that these are close accommodations without substantial personal space). The classes will be at the Apuseni Natural Park (ANP) cottage, where all facilities for presentations and laboratories are available.

**Meals.** Are provided by local catering (40 EU/day). There is a kitchen available at the accommodation cottage and students are expected to participate to washing dishes (no dishwasher), and keeping the facilities clean. There are a limited possibilities for cooking since it is a mountain rescue hut.

**Lectures.** Will be held in the Salvamont hut (morning sessions) and APN hut (afternoon sessions), a log cabin with facilities for laboratory work. The APN hut is 50 m apart, to the left side of the Salvamont hut.

**Internet facilities.** Internet has very limited services, and Wi-Fi is available but expected to slow down. The Wi-Fi covers basic use, and should not be used for streaming or downloading, and any settings that automatically download updates should be turned off, in order to maximize use by all. Cell phones do not always work but the following networks are available in the area, Vodafone, Orange.

**Electricity.** The electricity is available but the consumption should be kept as low as possible (i.e. computers turned off if not used). Portable power units that can be charged during the day, helpful and convenient for charging devices at night.

**Shopping.** Both accommodation and lectures cottages are about 200 m from the center of the village where there is a small food shop. No ATM or banks are available within 70 km.

## TRAVEL FROM CLUJ NAPOCA TO IC PONOR

We offer transport by van from Cluj Napoca to Ic Ponor (19 July, 2026) and back to Cluj Napoca (28 July 2026) for around 10 EU/person. The distance from Cluj Napoca to Ic Ponor is around 2h and can be considerably (>1 hr) delayed by temporary local road construction and traffic. For most of the drive there are alternative roads. We offer advice for bookings of flights to and from Cluj Napoca, which has an international airport (code CLJ). Alternatively, course participants can travel to and/or from Ic Ponor on their own and spend time there before and/or after the course (activities organized per request, see Outings and Additional Activities).

## WEATHER

Ic Ponor is located in a mountain area (1200 m asl) and has a relatively continental climate. Air temperatures are highest in July, typically around (20-25°C) and drop during the night to 13-14°C. Rain is common (snow is possible, but unlikely).

## WHAT TO BRING

- sleeping pad and warm sleeping bag
- indoor slippers and sandals
- hiking shoes/boots or similar, caving boots, rain gears (waterproof jacket and pants)
- towels, any medication you may need (there is no pharmacy)
- sun glasses, water bottle and/or thermos (for excursion), daypack for excursions
- European plug adaptors (for US participants 110-220 V converter)
- Insects repellents and after bite
- For the caving trips during the course
- Caving boots, caving gear & overall (the caves are cold, around 5-8°C), gloves, helmet, extra flash light
- Caving equipment can be rented at request ([sanda.iepure@ubbcluj.ro](mailto:sanda.iepure@ubbcluj.ro), [orestus745@gmail.com](mailto:orestus745@gmail.com))

## INSURANCE

The organizational type of this event is similar to that of a conference/workshop, where organizers are not responsible for your insurance. You need to organize any necessary insurance (health/accident) for yourself. Additionally, note the mountain conditions and the field trip requirements with associated potential risk factors for which participants must assume personal responsibility.

## OUTINGS AND ADDITIONAL ACTIVITIES

Summer school participants will have the opportunity to participate in organised outdoor activities as well as other specific activities in the ANP (ex. local food cooking, traditional wooded crafts of hand-made products, traditional houses visits), however arrangements will be available for those interested based on request:

- Engagement with local cavers, researchers, rangers, and park administration
- Cave field trips (technical caves available upon request at [sanda.iepure@ubbcluj.ro](mailto:sanda.iepure@ubbcluj.ro))
- Hiking opportunities in the Apuseni Natural Park (ANP)



## Traditional wooden crafts & hand-made products



### SUPPORT

The summer school is organised with the financial support of the **Natural Park Apuseni, Salvamaont Salvaspeo Cluj and Bihor** and **SubBioMon project\*** (Biodiversa+ , ERANET 26/2024, PN4-P8-235/01.04.2024)

With additional support from family members of Emil Racoviță, Founder of Biospeleology, in memoriam Marie-Jeanne and Gheorghe Racoviță, his grandchildren

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