

Report on the BIP: Using Drones in Environmental Services - 2026

Introduction

BIP (Blended Intensive Program) Using Drones for Environmental Sciences – 2026 started on the day 23 of February 2026. with the first online session and ended on the 15th ff June 2026. with the last online session. Fysical mobility started on the 1st of June 2026 And ended on the 5th of June 2026 In Sinaia, Romania (Image 1).



Image 1 Mavic 360

Online sessions for this BIP was:

Planed agenda:

1. SEMINAR 1. Monday, 23rd of February 2026 (15:00-16:30 CET) Introduction to Drones in Environmental Studies
2. SEMINAR 2. Monday, 9th of March 2026 (15:00-16:30 CET) Drone Regulations and Safety Requirements
3. SEMINAR 3. Monday, 23rd of March 2026 (15:00-16:30 CET) Drone Flight Planning and Data Acquisition
4. SEMINAR 4. Monday, 6th of April 2026 (15:00-16:30 CET) Fundamentals of Drone Data Processing Algorithms
5. SEMINAR 5. Monday, 20th of April 2026 (15:00-16:30 CET) Processing RGB and Multispectral Drone Imagery
6. SEMINAR 6. Monday, 4th of May 2026 (15:00-16:30 CET) Processing LiDAR Drone Data
7. SEMINAR 7. Monday, 18th of May 2026 (15:00-16:30 CET) Processing Thermal Drone Imagery
8. SEMINAR 8. Monday, 25th of May 2026 (15:00-16:30 CET) 3D Modelling from Drone Data

9. SEMINAR 9. Monday, 15th of June 2026 (15:00-16:30 CET) Challenges and Opportunities in Using Drones for Environmental Science

Descriptions of online sessions (objectives, lecturers)

The first seminar (online session) was an introduction to the course, the introduction of lecturers and an introduction to the students. Lecturer for this session was: Ionut Sandric, professor from Romania. He introduced us to the course and expectations of this course, he introduced online and field activities, and he also introduced the documentation part of the BIP (Learning Agreement and such). After the introduction of the course, he introduced us to the other lecturers that we would have the opportunity to meet. After introductions, he split students into groups of three and there we introduced each other with a set of questions (our experience, what we know about the topic, etc.). When the time of our own introduction ended, we presented our group in front of everyone.

The second online session we discussed drone regulations and safety requirements with lecturer Volker Hochschild, professor from Germany. We discussed drone categories, how to safely drive a drone and what are the regulations and requirements to safely fly a drone. We talked about safety altitudes, certificates, different drone types and what regulations are for different drones.

The third session was with lecturer Manfred Mittlboeck, professor from Austria. In this session we talked about flight planning, we learned how to prepare a flight and what the tools are to prepare a flight. In that session we used: ground sample distance calculator: <https://www.propelleraero.com/ground-sample-distance-calculator/>, and the simplified planning web page Ancient. Land: <https://ancient.land/>, and UGSC Planning Software that we needed to install prior to the session. After the session, we got a simple task to try planning our own flight over Black Church in Brasov, Romania.

The fourth session was with professor Sandric. In that session we discussed the fundamentals of the drone data processing algorithms. We talked about data processing, how we are processing it, what can we expect, what are the challenges and errors in processing and how we can fix them.

The fifth session was about RGB and Multispectral Drone Imagery processing with professor Mittlboeck. We talked about RGB and multispectral sensors, how we collect data with them, how we process data that we get, what we can expect out of it, and we looked over some examples of the RGB and multispectral data.

The sixth session was about LiDAR drone data with professor Sandric. In that session we did everything like in the previous one just for LiDAR drone imagery.

The seventh session was about Thermal Drone data with professor Hochschild, and we talked like in the previous two sessions just about thermal imagery.

The eighth session was about the 3D modeling of the drone data with professor Mittlboeck, and we were able to learn about Agisoft Metashape application for the macage of the 3D models out of the drone imagery. We learn the whole process of making the 3D models and what is important while we are making the models.

The night session was the last session, and it was held by the lecturers Diego Barrado-Timon and Carmen Hidalgo-Giralt, professors from Spain. They introduced us to the project about Peles Castle and how to use drone imagery for touristic purposes. In the session, we watched three videos of the other examples of the tourist implementation of drones, and we did group

work about our project at Peles Castle in Romania and how we think we can implement the drone imagery for touristic purposes. The project of Peles Castle was made as an assignment (Link to report on the project Peles Castle: <https://stojsavljevicjana.github.io/E-portfolio/Report%20on%20the%20project%20for%20BIP.pdf>).

Field week for this BIP:

Planned agenda:

Day 1: Monday, 1 June 2026

Introductory Course and Orientation

- Location: Sinaia Research Station
- 09:30–12:00: Advanced flight planning
- 12:00–13:00: Lunch break
- 13:00–18:00: Advanced flight planning, equipment demonstration, and field safety instructions
- 18:00: Group dinner at the Research Station
- Lecturers: Mittlböck Manfred, Ionut Sandric, Volker Hochschild

Day 2: Tuesday, 2 June 2026

Field Campaign in the Bucegi Mountains

- Route: Sinaia – Peștera Ialomiței – Cabana Babele – Bușteni – Sinaia
- 09:00: Departure by bus to Peștera Ialomiței (approx. 55 km)
- 10:30–13:00: Drone-based data collection on the Bucegi Plateau / Guided visit of the cave and vegetation data collection
- 13:00–14:00: Lunch break
- 14:00–16:30: Continued data collection and guided visits
- 16:30–18:00: Return by bus to Research Station
- 18:00: Group dinner at the Research Station

Day 3: Wednesday, 3 June 2026

Field Visits: Urban and Cultural Landscapes

- Route: Sinaia – Brașov – Hărman – Prejmer – Râșnov – Bran – Sinaia
- 10:00–11:00: Drone-based data collection in Brașov
- 11:00–12:30: Visit to Hărman fortified church (ticket required)
- 12:30–14:00: Visit and data collection at Prejmer fortified church (ticket required)
- 15:00–17:00: Visit to Bran Castle (ticket required) and surrounding landscape assessment

- 19:00: Group dinner and social evening at the Research Station

Day 4: Thursday, 4 June 2026

Cultural Heritage and Data Processing

- Location: Sinaia Research Station
- 09:00–12:00: Guided visits to Peleş and Pelişor Castles (entry tickets required)
- 14:00–18:00: Teamwork: processing drone imagery, data analysis, and interpretation
- 19:00: Gala Dinner and informal discussions

Day 5: Friday, 5 June 2026

Results Presentation and Course Wrap-Up

- 09:00–12:00: Group presentations of preliminary results and peer feedback
- 12:00–13:00: Final discussion: conclusions and recommendations
- 13:00–14:00: Closing lunch and departure

Descriptions of field week (objectives, lecturers)

On the field week, we had small changes in the schedule because the weather was not working in our favor.

On the first day of our field week, we started with greetings from the professors and introductions. On the first day, there was a change in the schedule, so we got information on the field activity and what we needed to do. We got assigned into groups, and we went on the field. On the field (Image 2), we got a task to inspect terrain and think about how to make a flight plan for the three topics: 1. Landslides, 2. Collection of vegetation and 3. Tourism. After the field work, we went into class, and we got assigned a task, and we started flight planning for the task. After we planned, we presented our plans in front of everyone (Image 3). In between the field work and class work, we had a lunch break and after class we had dinner break. After the day, we got instructions about when to come the next day.



Image 2 Field for data collection

On the second day, we went into the cave (Image 4) and there we got task to think about how to collect the drone data inside the cave. After the cave visit, we went to collect drone imagery data, but because of the bad weather conditions, we did not have a lot of time, and we could not do so many flights. Between the cave visit and collection of the data and after returning, we had dinner.



Image 3 Controller

On the third day, we went to a nearby city, Brsoy, to collect the data about Brasov Black Church and square. We had the flight planning (Image 5) lesson with professor Manfred on the site and after drone planning we had free time, because we could not fly ourselves, professors needed to do it themselves. But, we had an incident. A drone crashed into the church in the main square because the takeoff altitude was not correctly adjusted. We did not have time anymore, so we went to visit Prejmer fortified church where the professors collected drone imagery data while we looked inside the church. After that we went to see Bran Castle. Lunch and dinner were planned as the previous day.



Image 4 Cave

On the fourth day, we had a bit of luck, so we had three hours in the morning to collect the data for our previous topics from the first day. After the collection of data, we needed to pack quickly because rain started, and we needed to leave. After collection, we went into class and started the 3D modeling with Agisoft Metaphase on prepared data. Since the 3D modeling is a long process and the sun was up again, we went back to the field to look at the flight of the fixed wing drone (Image 6). But we had difficulties with landing and the drone went into a tree. One of the colleagues had an alpinist friend. He came with gear, and he saved the drone. We had lunch and dinner. After dinner, we had a party.

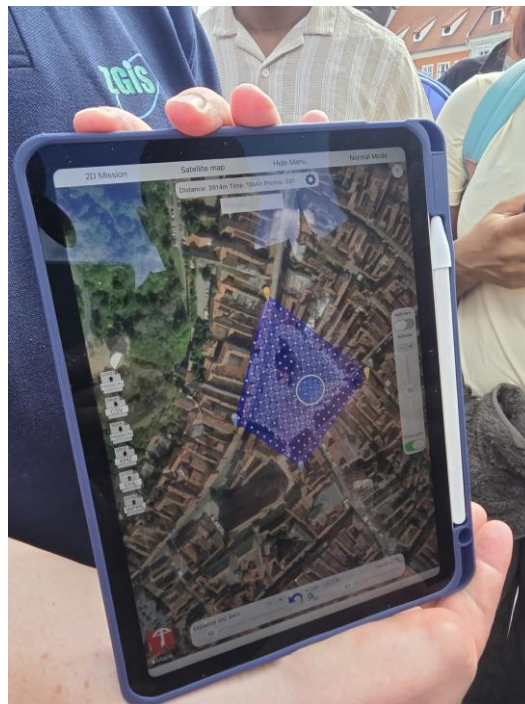


Image 5 Flight plan

On the fifth day, we had final words and then went to Peles, where we got our project of collecting the images and to think about how we would collect drone imagery of Peles castle for tourism purposes. After returning, we had lunch and we said goodbyes.



Image 6 Fixed wing drone

One day there was also one more crash of terminal drones because one setting return home was not set.

Conclusion

This BIP was a very fun and educative experience. From the new lessons about drones to flights and to crashing, we had very good experience of what could happen, although that was not in the plan. All the professors were very happy to exchange their knowledge, but also all participants were so amazing in sharing the knowledge. This BIP is very good for learning new things, establishing old things and seeing wildlife of Romania (BEARS, Image 7).



Image 7 Love bears

I recommend to all who will ever have the opportunity to go on this BIP to go. It will be a great experience, great team, great food and a lot of fun.