

MountainSafER

MountainSafeER: Increasing safety and awareness in mountain sports

Final report

Erasmus+ Sports Project

2024-2025

<https://www.sialpin.hu/mountainsafer/>



**Co-funded by
the European Union**

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Description

As mountain landscapes have become more accessible, there is a constant increase of people engaging in mountain sports activities all over Europe. This trend was further enhanced by the COVID pandemic in the last years. These sport activities are ranging from hiking, trail running, mountaineering, rock climbing, alpine skiing, snowboarding to backcountry skiing (where both uphill and downhill travel is made on skis without the use of any motorized equipment e.g. without the use of lifts, and which usually also includes a number of techniques from classical alpinism, e.g. glacier traverse, also called ski touring and ski mountaineering or skimo). Although these activities are all associated with health benefits, they also come with a higher risk of injury or even death. Preventive measures that would decrease these risks include the improvement of sport-specific skills and fitness, the use of protective gear, well-targeted and intensive training programs concerning hazards related to these activities, and sports-medical counseling for elderly and those with pre-existing diseases. While the Alpine areas have a long tradition and experience in providing educational programs in mountain safety, in the region of the project countries, Croatia, Hungary and Romania (referred to as Region in the rest of the Project Proposal) -that still houses significant mountainous areas, like the Dinaric Alps or the

Carpathiens- that skill level is much lower and educational programs are rather limited to specific and often closed groups within alpine climbing association/clubs and high quality, systematic training is usually only available at really high price, such that many who participate in these activities can't afford.

Objectives

Objective 1.

Thus the number one objective of the current project was to raise health and safety awareness for outdoor sports done in a mountainous environment, close the gap between amateur, hobby athletes and mountain professionals, develop and spread the necessary safety training concepts for trainers, put an emphasis on accident prevention and continue the work on developing a network of European organizations centering on these goals. The project focuses on mountaineering, outdoor climbing and ski alpinism sport activities (backcountry skiing, where both uphill and downhill travel is made on skis without the use of any motorized equipment e.g. without the use of lifts, and which usually also includes a number of techniques from classical alpinism, e.g. glacier traverse, also called ski touring and ski mountaineering or skimo) (will be collectively labelled Mountaineering activities in the rest of the Project Proposal), as these are some of the most dangerous outdoor sports done in a mountainous environment. However the concepts formulated within this project have a much wider audience, including any people visiting the mountains for outdoor activities (i.e. freeriders, hikers, snowshoers, trail runners, mountain bikers), as the general basic safety guidelines are very similar for all these disciplines (called 'associated sports, associated activities, related activities' within the project).

- Objective 1.1 was to build the expertise level of the outdoor communities by providing training to the project participants in mountaineering, climbing and ski alpinism, in order to ("Addressing common needs and priorities in the fields of training and sport"):
 - engage the Project participants in a comprehensive, multi-day distributive learning process that builds the knowledge and skills required to effectively deliver safety, awareness and self rescue programs for local sport communities ("Increasing quality in the work and practices of the organisations");
 - provide comprehensive, systematic and internationally acknowledged training opportunity for the Project participants;
 - provide cross-border joint training opportunity for the Project Partners:

- for efficient and novel knowledge exchange between the Project Partners;
 - for working out new methods in training;
 - ensure that this knowledge will be passed onto the local outdoor communities; (“Support the inclusion of target groups with fewer opportunities and opening up to new actors not naturally included within one sector”)
 - ensure that the standards of training is up to the same high internationally acknowledged level in all the Project countries;
 - prepare the basics of a cross-border, standardized safety education system for trainers in mountaineering, climbing and ski alpinism, that can be easily and efficiently applied to the current local conditions in the Project and neighbouring countries by taking local conditions and differences into account.
- Objective 1.2 was to stimulate mountains related outdoor activities in the Region by sharing of good practices in order to (“Enabling transformation and change (at individual, organisational or sectoral level), leading to improvements in proportion to the context of each organisation”):
 - increase awareness on mountain safety: on one side with a special emphasis on ski alpinism and ski associated hazards (e.g. avalanche awareness, winter mountain weather, winter mountain first aid and rescue skills, team psychology, safety for freeriders, etc) and on mountaineering and climbing related safety (objective and subjective hazards, accident prevention, self and companion rescue, accident management, etc.). On the other side on general mountain hazards concerning general outdoor users, e.g. weather, first aid and rescue skills, orientation;
 - make people more willing to attend necessary courses, training sessions, to practice and to promote lifelong learning both in ski alpinism, mountaineering, rock climbing, and in associated sports (e.g. for freeriders);
 - reach out to the younger population enrolled in these activities. Reaching them is both a very important and a very difficult task, due to the different pedagogical concepts that have to be applied;
 - increase the willingness to greater participation of volunteers in associated activities, e.g. self-organized practice sessions, mentoring, etc.;
 - improve and maintain cooperation with main stakeholders, e.g. rescue bodies, course instructors, experienced people willing to act as mentors, etc. (“Building capacity of organisations to work across sectors”);
 - teach health and safety issues in an efficient way, e.g by using gamification, the optimal course structure and length, pedagogical and psychological aspects.

Objective 2.

Furthermore another important objective of the project was to raise awareness related to climate change for outdoor sports done in a mountainous environment, and teach and work out environmentally conscious ways and ecologically sound practices relating to these. This especially is a relevant issue for people living in the Region, as the knowledge and awareness of these topics is still lower than for those living in Western Europe. Objective 2. was to raise awareness on climate change, ecologically sound practices and environmental protection by educating outdoor sport communities in these topics and engaging them in addressing the issues in the most innovative and proactive way (“Enabling transformation and change (at individual, organisational or sectoral level), leading to improvements, in proportion to the context of each organisation”):

- to raise the awareness of the project participants on their role in the stewardship and conservation of the mountain and rock climbing environment, on their role in addressing climate change impact and challenges;
- to help the participants to understand the sensitivities of each unique climbing and mountain environment, and provide the knowledge and tools to help reduce the impact of sport activities in the mountain areas;
- to get to know methods and share experiences on climate change adaptation and environmental protection measures and adaptation projects/initiatives as a response to reduce high vulnerability of mountain areas;
- to share experiences on how to support and mobilize the local sports and inhabitant communities in the mountains in climate change adaptation, ecologically sound practices and environmental protection measures.

Objective 3. Networking

This project was built on the already created alliance between Hungary, Romania and Croatia founded during the MountainSafe Erasmus+ sport project (2019-2020) with the objective of further widening this strategic cooperation, continued growth and engagement of all targeted actors into a strong alliance in the Region. Furthermore, crossborder networking and learning opportunities are still sparse in the Region, isolating the different communities from each other, while valuable knowledge and information could be easily shared (especially that mountaineering is a really cross border activity in the Region, with people traveling to neighbouring countries often to carry out such activities). Thus Objective 3. Was to enhance transnational networking between the Project Partners associated bodies and other relevant associations to further build a platform in South East Europe with the main focus on mountaineering, outdoor climbing and ski alpinism and its associated sports (i.e. trail running) in

order to establish a tradition of working together and sharing good practices in the future. The network was an extension of the already existing network founded within the Erasmus+ Sports MountainSafe project. (“Building capacity of organisations to work transnationally and Support active European citizenship and bring the European dimension to the local level”)

Meetings

1. Kick-off Meeting, 4-6. April, 2024, Börzsöny, Hungary
2. Training Meeting on Improving safety in the mountains in non-winter month, 22. – 29. 9. 2024, Starigrad Paklenica, Croatia
3. Training Meeting on Improving safety and knowledge in the mountains in winter, 11. 2. – 4. 3. 2025, Fogaras mountains, Romania
4. Final Meeting, December 12-14 2025, Budapest, Hungary

Kick-off meeting 4-6 April, 2024 Kismaros, Hungary

Schedule

- 4. April:
 - Afternoon: arrival of participants, taking of accommodation
 - 19:00 Dinner at Patak Vendéglő
- 5. April:
 - 9:00 Meeting on Transnational meetings
 - 12:00 Lunch cooked by us at the accommodation
 - 14:00 Trail running in Börzsöny
 - 17:00 Meeting on Dissemination
 - 19:00 Dinner at the accommodation cooked on open fire in the garden
- 6. April
 - 7:30 Meeting on project management
 - 10:30 Departure for Tatras (self funded part)

Meeting report

During the kickoff meeting the project coordinator participants got to know each other, and had the chance to discuss all issues related to the management and organization of the project. We have heavily concentrated on the details of the first project meeting in September in Croatia, and have decided the main points of action (dates, place, accomodation, the IMFG professionals to invite, main target group for participants). Toni Begic will be the main organizer for the Meeting.

Akos Kozma also introduced their plans for the second meeting in Romania later, and Katalin Gillemot will be responsible to make contact with Chago Rodriguez, who will hold the courses.

Next to that we have discussed over the dissemination, financial and administrative parts of the project as well, and identified the responsible people for each task (see the related dissemination plan).

The participants also had the chance to try some trail running in our own training ground (Börzsöny), led by Viktor Agoston, and after the meeting had the chance to join us for some late spring ski touring in the High Tatras (self funded).



Training Meeting 1.

Improving safety in the mountains in non-winter month

Hosted by: Alpine Division of Hrvatsko planinarsko društvo "Željezničar"

Date: 22-29 September, 2024

Location: Paklenica National Park, Velebit mountains, Croatia

Accommodation: Camp Rujno, Starigrad Paklenica

Aim: The main aim of the Meeting was to share experiences, knowledge and practices through a number of specialized topics on how to increase general mountain safety for ski alpinism and related activities, propose and pilot novel and new methods to increase awareness and improve training specifically for people involved in outdoor mountain sports. The project partners trained together in the below detailed specific topics to deepen their knowledge and share their experiences.

Specific topics included

- general mountain hazards: rockfalls, thunderstorms, sudden weather changes, slippage, flash floods, hypothermia, typical accidents, etc.;
- ropework;
- tour planning for groups and individuals;
- appropriate gear;

And a set of specialized topics related to accident management and rescue techniques:

- self rescue techniques;
- rescue techniques of official rescue bodies;
- ropework for rescue practitioners;
- foundations of rigging;
- technical rescue systems;
- search and rescue basics, rescue management;
- trauma risk management;
- casualty care;
- mountain first aid;
- cooperation with rescue bodies;

- group psychology;

We also held a preliminary discussion on Activity 4 based on the experiences of Activities 1-3. The participants had the opportunity to give feedbacks at the end of the Meeting.

Schedule:

22. 09. Arrival day

23-24. 09. Rope techniques / advance self rescue practical days

This part was held under the supervision of 4 IFMGA (IFMGA - International Federation of Mountain Guides Associations) guides. The participants were divided into 4 groups of approximately 6 people each, based on skill level. In each group, in addition to the project participants, there was one member of the Croatian Mountain Rescue Service. The lead instructor was Klemen Gričar (IFMGA / GRZS).

25. 09. Climbing in Paklenica National Park, group discussions on various topics in the evening, with special focus on identified problem areas where climbers could educate ski touring people.

26. 09. Climbing in Paklenica National Park, Project dinner at Restaurant Dinko

27. 09. Lecture by the Croatian Mountain Rescue Service (HGSS). The lecture was planned to cover the principles of HGSS operations, what to do and how to act in case of an accident, as well as the organization of HGSS and its cooperation with other rescue services in Europe and around the world. Unfortunately due to a last minute call for the Rescue Services, this part couldn't be held.

28. 09. Advance first aid course by HGSS. The course was led by licensed HGSS rescuers and doctors. The training was structured to be in four stations, each covering different stages of an accident, including both theoretical and practical components, however due to the aforementioned last minute call for the HGSS, only a half a day practical part was held.

29.09 Departure day

Main conclusions: all in all the Meeting itself was a huge success, with many new skills learnt and experiences gained. The setting, Paklenica National Park with its many climbing routes, rugged rocks was a great location for learning and training, even the HGSS uses it as one of its main training grounds. However for future meetings an even more structured, pre-set course structure would be advisable, as this would make a much larger impact for the people coming from such varied backgrounds and mountain cultures. Including the HGSS and IFMGA guides

also made sure that high standards were maintained. During the Meeting a number of educational videos and pictures were prepared that are shared on the Facebook and Webpages of the Project.

Participants: 24 people (8 Croatians, 8 Romanians, 8 Hungarians). When choosing the participants we made sure to include people from a number of various backgrounds, with focus on the impact they can make after the Meeting in their own communities. We had people with both a lot of mountaineering experience and less experience (but with extensive communities behind them where they will take the learnt knowledge further), climbing coaches for adults and children, climbing and mountaineering instructors, club leaders, climbing hall leaders, people from the local climbing federations, etc., all of them with strong ties to ski touring as well.

At the end of the meeting we asked all participants to write 2 pages of their main experiences, one participants review of the training sessions is below. A photo gallery from the Meeting is available on the Project website: <https://www.sialpin.hu/mountainsafer/>

“In September 2024, I had the opportunity to participate in a project course held in Paklenica National Park, Croatia. This course was designed to teach advanced climbing techniques, proper use of specific equipment, and the administration of first aid in critical situations. The program also included practical sessions on rescuing an injured climber from a climbing route, offering me the chance to develop both individual and team skills.

The course was conducted over five days, each day focusing on a specific theme:

1. Techniques for Using Equipment

- The training included proper use of harnesses, carabiners, belay devices, and ropes.
- I learned how to inspect equipment for wear or defects, as well as proper storage methods.
- Practical exercises focused on correctly securing a partner and knot techniques such as the “figure-eight” and “prusik” knots.

2. Administering First Aid in Climbing

- The theoretical session covered managing common traumas such as fractures, dislocations, and hypothermia.
- I participated in practical simulations where I applied appropriate bandages and used a first aid kit.

3. Rescue Techniques

- Emphasis was placed on methods for evacuating an injured climber from a vertical wall using pulley systems.
- I learned how to communicate effectively with my partner and the rescue team.

4. Practical Climbing

- I had the opportunity to tackle routes of varying difficulty, applying the techniques learned.
- Each ascent was followed by a detailed performance analysis under the guidance of the instructors.

5. Final Assessment

- The final activity consisted of a simulated accident scenario where we had to apply all the knowledge acquired.

Lessons Learned

The course provided me with the opportunity to expand my knowledge and skills in sport climbing and to develop my ability to react in emergency situations. Among the main lessons learned were:

- The importance of thoroughly inspecting equipment to prevent accidents.
- The ability to administer first aid quickly and effectively, an essential skill in any outdoor activity.
- Acquiring advanced rescue techniques, applicable to other mountain sports as well.
- Increased awareness of personal limits and the importance of teamwork and communication.

Participating in this course was a transformative experience that reinforced my passion for mountaineering and equipped me with the tools needed to approach this sport in a safe and responsible manner. Paklenica National Park, with its spectacular landscapes, provided an ideal setting for learning and practicing these skills. I warmly recommend this type of training to anyone passionate about mountain sports.”



Training Meeting 2. **Improving safety and knowledge in the mountains in winter**

Hosted by: Asociatia Club Sportiv Linx Climbing Club

Date: 11 February - 4 March, 2025

Location: Fogaras Mountains, Romania

Accommodation: Cabana Paltinu, Balea Lac

Aim: The aim was to organise Training Meeting 2 in the Fogaras mountains in Romania to share experiences, knowledge and practices on how to increase winter mountain safety for ski alpinism. Furthermore with the help of professional trainers the project partners trained together in the below detailed specific topics to deepen their knowledge and share their experiences and also had the option to receive the qualifications ASG2 (ASG Trip Planning, AAA Rescue, and

AAA Level 1), ASG3 (includes ASG Advanced Trip Planning, Snow/Avalanche Science, ASG Advanced Rescue, AAA Level 2, and AAA PRO1 Content) and ASG4 (includes, Navigation Science, Advanced Snowpack Development, AAA PRO2 Content) of the American Avalanche Association (AAA) recognised provider: Avalanche Science Guides. The courses included workshops, plenary lectures and field training. A specific workshop was held to discuss climate change, ecologically sound practices and environmental protection related to ski mountaineering.

Learning outcomes

Learning Outcomes for ASG2:

1. Understand snow science: snow metamorphism and slab avalanche fracture mechanics. Anticipate the impact of weather in the snowpack. Track precipitation, wind, and temperature critical thresholds driving avalanche instability.
2. Make relevant weather, weather, and avalanche observations. Target observations relevant to the avalanche problem of the day.
3. Familiarity with CAA OGRS / AAA SWAG. Competency with ATES frameworks. Awareness of CMAH.
4. Recognize avalanche terrain and the role of slope angles. Identify, estimate, and measure slope angles and recognize terrain connectivity.
5. Develop terrain navigation tools and skills, such as stability wheel, structural weaknesses, and reactivity tests.
6. Adopt safe travel protocols when traveling in avalanche terrain and recognize human factors impacting the team's safety.
7. Introduce Avalanche Release Conceptual model and develop a systematic method for avalanche risk assessment and execution of safe travel plans.
8. Reliable identification of slab and weak layer structures in snow pits. Characterize snowpack structure reactivity with basic stability tests.

Learning Outcomes for RESCUE Module:

1. Gain an understanding of avalanche beacon technology.
2. Training in avalanche companion rescue techniques for D2 and D3 avalanche sizes.
3. Conduct transceiver functional verification at the trailhead.
4. Knowledge of the value and function of avalanche rescue equipment.
5. Demonstrate professional-level probing techniques.
6. Reliable single avalanche victim companion rescue.
7. Familiar with two-victim avalanche scenarios.
8. Effective communication during avalanche rescues.
9. Capable of generating Emergency Response Plans.

10. Internalize that an avalanche incident is a medical emergency, and develop familiarity with potential injuries and medical issues common to buried avalanche victims.
11. Develop awareness about the value of wilderness or outdoor medical training.

Learning outcomes for ASG3

Learning Outcomes for RESCUE Module:

1. Conduct transceiver functional verification at the trailhead.
2. Understanding of the value and the function of avalanche rescue equipment.
3. Demonstrate the operation of a transceiver/beacon.
4. Demonstrate professional-level probing techniques.
5. Become a reliable avalanche rescue companion.
6. Comfortable executing avalanche single victim rescues with a team.
7. Competent rescuer during two victims' avalanche scenarios.
8. Demonstrate or identify the steps necessary to be able to complete a two-avalanche victim rescue in less than FIVE (5) minutes in a 50x50 meter area.
9. Effective communication during avalanche rescues.
10. Capable of generating Emergency Response Plans.
11. Internalize that an avalanche incident is a medical emergency, and develop familiarity with potential injuries and potential medical issues common on buried avalanche victims.
12. Develop awareness about the value of WFA/WFR/OEC/WEMT training.

Learning Outcomes for the ASG3 module:

1. Enhance ASG2 advanced training in avalanche companion rescue techniques with multiple victim scenarios and triage.
2. Review ASG2 concepts:
 - a. Recognize avalanche terrain, develop a systematic method for avalanche risk assessment, and execute safe travel plans.
 - b. Science of snow crystals, metamorphism, and slab avalanche fracture mechanics.
 - c. Understand the impact of weather on the snowpack. Track precipitation, wind, and temperature critical thresholds driving stability.
 - d. Reliable identification of slab and weak layer structures in snow pits. Characterize snowpack structure reactivity with basic stability tests.
3. Become proficient with AAA SWAG nomenclature, snow/weather/avalanche observation recording. Understand SWE.
4. Generate snow pit hardness and temperature profiles. Relate season weather history with snowpack structure and layering.
5. Target standard and non-standard stability tests for various avalanche problems.

6. Competent in the application of avalanche release conceptual model and the integration of danger diagrams that assess risk in complex avalanche terrain during trip planning.

The ASG3+ is also preparatory course for the next professional developmental step; the AAA PRO1.

Learning outcomes for ASG4:

1. Understanding of snowpack tracking development techniques and CAMH avalanche forecasting
2. Integration of AAA-SWAG field observations to avalanche forecasting workflow
3. Competent in operational risk management, AM/PM meetings in terrain navigation planning
4. Team rescue in under 8 minutes for a D+ avalanche type with 4-victims burial.

The participants had the opportunity to give feedbacks at the end of the Meeting.

Schedule

February 11: Arrival day of ASG2 #1 participants

February 12: ASG2 Classroom

February 13-15: ASG2 Field Days

February 16: Departure day of ASG2 #1 participants, arrival day of ASG2 #2 participants

February 17: ASG2 Classroom

February 18-20: ASG2 Field Days

February 21: Departure day of ASG2 #2 participants, Arrival day of ASG3&4 participants

February 22: ASG3 Classroom

February 23-26: ASG3 Field Days

February 27: Morning: workshop was held to discuss climate change, ecologically sound practices and environmental protection related to ski mountaineering. Evening 3-hour ASG4 session

February 28 - March 3: ASG4 Field Days

March 4: Departure day of ASG3&4 participants

Main conclusions: all in all the Meeting itself was a huge success, it's a really rare occurrence to get such high quality training in avalanche education in the region for such a wide audience.

Both due to time and financial requirements not many people opt to seek such high quality education in this field, including even professionals like course providers or mountain guides. However by providing this opportunity to 36 well chosen people in the region with the help of the EU funding we hope to spread the word, pass on the knowledge and the motivation to seek these opportunities. We already know that some of the participants are even considering training to be able to provide this kind of education in the future. Furthermore even already now we see that the knowledge gained during the courses is being slowly built into the future avalanche education in the 3 countries by the participants (at all levels, so into professional course materials, rescue team training materials, community trainings, club trainings, lectures, etc.)

Participants: The training included altogether 36 people from the 3 countries. First two separate 4 day long ASG2 Level courses were held to people with no previous AAA certification (First course: 7 Romanian, 6 Hungarian, the Croatian party wanted to travel together due to easier travel engagements, so they chose to take only part in the second ASG2 course. Second course: 3 Hungarian, 5 Romanian, 5 Croatian). After that a joint 10 day long ASG 3 and 4 course was held for people who already held an ASG2 (or equivalent) certification (6 Hungarian, 4 Romanian, 4 Croatian). These were partly people who got their ASG2 certification during our previous Erasmus+ MountainSafe Project that ran between 2019-2020, and partly people who had their certificates from other sources. The training was provided by 3 trainers from Avalanche Science Guides.

Due to the exceptional nature of the training there were lots of applicants for all courses, so we were able to choose applicants whom we hope will be able to make the biggest impact. We tried to prioritize people who will most likely pass on their knowledge. So training participants included: guides, national mountaineering association trainers, course leaders, club course providers, mountain rescue personnel, local avalanche forecasting personnel, skimo coaches, mountaineering education committee personnel, etc.

Reviews

At the end of the meeting we asked all participants to write 2 pages of their main experiences, one participants review of the training sessions is below. A photo gallery from the Meeting is available on the Project website: <https://www.sialpin.hu/mountainsafer/>

“ASG 2 COURSE REPORT

Location: Lac Balea, Fagaras, Southern Carpathians, Romania

Date: 11-15 February 2025

Training is an essential part of being an accomplished mountaineer, let alone a rock climbing instructor. Travelling in backcountry in alpine winter is one of the most complex and challenging activity outdoors that one could undertake. The complexities are far reaching: technicalities, assessing and mitigating risks, understanding various features of weather and terrain as well as comprehending leadership issues are just a few of those factors to consider.

Organizers

This event was facilitated by the ERASMUS+ program and was concentrating on skiers and alpinists of the region. It was organized by the Hungarian Ski Mountaineering Association (HSMA) with hosts from the Avalanche Science Guides from Idaho, USA and with 13 participants altogether: 6 from Hungary (from the HSMA and the Excelsior Alpine Club) and 7 from Romania from various ski clubs/associations. Each of us had already taken training in avalanche risk, rescue and backcountry skiing before in certain frameworks largely complying with the UIAA standards.

Goals

The overall objectives of the course were set in accordance with the standards of the American Avalanche Association (AAA) at level 2 (ASG2). The requirements for the certificate were the following:

- Establish the ability of safe guiding of self and a team in the winter backcountry
- Effective risk management in different terrain complexities
- Successful avalanche rescue of 1 buried team member (1.5 m depth) under 5 minutes
- Demonstrate the ability of planning and debriefing a tour in the backcountry for self and the team.

We had three mentors as guides and instructors: Santiago “Chago” Rodriguez, Antonio “Tano” Tieppo, and Creighton Stoddard.

Course overview

The first day of the course was classroom day (unfortunately with the best weather during the whole course), with the purpose of introducing and developing a conceptual model of avalanches and associated risks in backcountry. Day 2-4 were entirely field training exercise (FTX) at close destinations to the base (Palatinu mountain chalet).

Objectives of the classroom day – the conceptual model of avalanche risk management, trip planning, team briefing and trip debriefing

Tools. The instructors provided each participant a set of tools including safety and travelling protocols, a comprehensive guide to avalanche risk assessment and planning (“*bitácora*”), trip planning tools (“*bitácorinas*”) and a scale to measure snow crystals.

Avalanche model. Based on the standards of the AAA, we were introduced to the basics of snow science, and the conceptual model of avalanche risk management. This included the understanding of various weather models, including the energy balance, precipitation rates, wind, their nomenclature and their implication on avalanche risks. The model also includes the evaluation of the regional and local avalanche forecasts, the avalanche nomenclature (avalanche problems, destructive size, sensitivity, spatial distribution and their relation to fatalities. The course was specially focused on the most prevalent avalanche problems in this latitude (primarily PWL – persistent weak layer, but also wind, storm and wet slabs) and their causes. It also explored physics and the mechanics behind the avalanches.

Terrain connectivity. A great emphasis was laid on the understanding of the terrain connectivity, and especially the importance of slope angles in various type of avalanche problems and therefore its implications on planning and route selection. Another conceptual model was introduced for terrain classification, which was in turn a great help in trip planning on the FTX days.

Complementing these models and the use of bitacorinas a number of case studies were also given to the group to study accidents in relation to various avalanche problems or terrain complexities.

Objectives and results of the FTX – safe travelling, recognizing and understanding terrain complexity, rescue

From Day 2 on our task was to implement these principles in training. The most important objectives were recognizing the key features of the terrain and classifying it as simple, challenging, complex or extreme. As per the ASG2 reference grade we were not allowed to travel or approach extreme terrain under any circumstances and given the avalanche problems we were expecting to face with we had to assess the viability of our plan. Given the conditionality of the plan viability in certain terrain types, the objectives of our trips were to test the initial hypotheses provided by the travel plan and the regional meteo/avalanche forecasts.

Our toolkit included measuring slope angles with our phones and/or maps, testing the avalanche problems with quick pits and quick pit+ tests: snow profiling, fracture initiation, quality and fracture propagation tests. In addition, rescue exercises were part of the objectives every day.

Major takeaways for future reference

Backcountry risk management take-aways: the methodology and the conceptual framework introduced during the course was a major novelty. Because the conceptual framework was science and data backed, its theoretical and practical foundations were solid and far more coherent than that of the curriculum of the European, let alone Hungarian avalanche trainings. The only shortfall is the lack of relevant statistical data in the majority of European mountain ranges (such as the Carpathians), therefore the applicability requires some extra care in these ranges.

The rescue objective was finding 1 buried victim (1.5 m burial) with a rescue team of 2 in less than 5 minutes, which is less than the industry average (8 minutes). The methodology we used was novel but appeared to be far more effective than I knew.

Leadership take-aways: Some of the most important skills (beyond those associated with backcountry travel and rescue, were those associated with leadership skills. The most important take-aways to this extent for the preparation were:

- Selecting and training your team
- Setting protocols and rituals for avalanche travel and rescue before going out
- Allocate time for planning
- Starting early
- Briefing

For the actual fieldwork:

- Situational awareness
- Managing teamwork
- Simple and effective communication

- Prioritize and execute travel objectives
- Empowering the team and decentralized command
- Debriefing the day

Conclusion

There is a need for such courses in the ski-alpinist community in CEE. There is a considerable effort put in the concept of this training, which can significantly elevate the backcountry skills of people here. Not only it should be integrated in basic mountaineering curriculum, but regular FTXs are essential to maintain mountain safety, which means, that I'm looking forward to the next stage anytime soon."





Final meeting
12-14 December, 2025
Budapest, Hungary

Schedule

- 12. December
 - Afternoon: arrival of participants, taking of accomodation
 - 18:00 Dinner
- 13. December
 - 9:30 Meeting on Final report preparation
 - 12:00 Lunch
 - 13:00 Final conclusions, dissemination, future collaborations

- 15:00 Climbing at Gravity Boulder
- 18:30 Dinner
- 14. December: Departure

Meeting report

The Meeting itself went down in a very cheerful and relaxed atmosphere. All participants agreed that the project was a huge success, with a special emphasis on the winter part. The fact that with the help of the EU funding from Erasmus+ we were able to once again invite such a high quality training opportunity to the region for so many participants in really something, we believe will make a really large impact on the safety and awareness of the people in the region, and will attract excellent and outstanding future training possibilities. We also discussed the summer meeting in detail and tried to find ways how that could have been made better, to maybe such a high standard as the winter meeting was. However unfortunately we weren't able to pinpoint any training providers (yet) who could deliver such a systematic, high-quality full educational program, as we had for the winter meeting. We also agreed to continue working together in the future with special emphasis on climbing and ski touring. Some future ideas were a regional safety conference on winter mountaineering, investing money into educating some people from all 3 countries to be American Avalanche Association certified instructors, organising a training camp on big wall climbing safety and rescue with invited professionals. We would also like to pursue the climate change and environment protection related topics (with regards to mountaineering and mountain landscape sustainability in the region), a topic that would probably make a full separate project in its own right.

Parts of the meeting were spent on finalising the Final report.

The participants also had the chance to go climbing in Gravity Boulder Bar, and take a short visit in downtown Budapest.

Project results and conclusions

Objective 1.1 was achieved to a very high level. Inviting internationally certified trainers, who provided the participants with high level standardised education ensured that all the above points were highly accomplished. The participants were engaged in an efficient, multi-day learning process, with very high level, systematic knowledge acquired, that is usually not available in the region. Furthermore, being certified at the end of the Winter meeting added a huge extra value and motivation for the participants. In the meantime they had the opportunity to train together, sharing their own knowledge and experiences. By choosing project participants from a wide

background we have ensured that the knowledge gained will be passed down (e.g. by the coaches, guides, rescue personnel, built into future training material by club/association representatives, etc.). We have also had ample discussions as to how to prepare the basics of a cross-border, standardized safety education system, however due to the completely different training structures in the different countries, all project partners agreed that this will require more time and resources, and a more coordinated effort. Being able to reach Objective 1.1 also resulted in Objective 1.2. being achieved to a high level. We already saw an increased motivation for future learning, and increased willingness to spread the knowledge among the project participants. As a lot of participants are involved in teaching the younger generations (e.g. coaches) we hope to have reached that audience as well. Also we already see that the collective motivational ambience of the Meetings truly made people more willing to take part in voluntary activities related to the project outcomes (e.g. by organising events in their own clubs). Furthermore Facebook posts on the specialized techniques learnt made a huge impact in the local communities.

As for Objective 2. climate change related topics were discussed thoroughly in both meetings both formally and informally among the participants. Meeting participants already have a heightened level of climate anxiety, as we clearly see the impact of climate change in our own daily sports activities. Furthermore climate change is not only impacting our circumstances (like snow amount, good weather days, etc.) but also has a massive safety aspect: new avalanche patterns, more rockslides, etc. However, the overall feeling of these discussions was that in order to make a definitive impact in our communities on the above topics, we would need to include experts on the topics in the future. This was discussed as a way to further work together, and move forward in the future after the project finishes.

Objective 3., the networking aspect of the project was also achieved to a very high level. Due to the fact that not only members of the project partners participated in the activities, networking was achieved to a very high level. Also the fact that the participants were chosen from a broad field of life (e.g. coaches, association representatives, mountain rescue personnel, etc) gave a huge boost to the networking aspects. Furthermore the professionals involved in the project (e.g. providers certified by the American Avalanche Association or the IFMG) further increased this result. Both Training meeting settings were perfect venues for networking purposes among the participants, and the joining training opportunities further enhanced this aspect. Both meetings spread wide sparks for future collaboration ideas of the partners.

All in all the project was a huge success especially from the training aspect, knowledge gained and networking point of views. All project members agreed that in the future climate change related discussions need to be carried out in a coordinated and professional-led way, and that the project dissemination (especially the use of social media, to advertise project results) should be further enhanced).