

TARFALA RESEARCH STATION

SAFETY RULES & STATION ETIQUETTE 2024

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INTRODUCTION

Welcome to Tarfala Research Station, TRS! Our goal is to produce excellent Arctic science and education in the fantastic Kebnekaise environment in a safe way. TRS location in an Arctic and alpine setting far from the nearest road and medical assistance, imposes particular requirements when it comes to safety, both during fieldwork and at the station. This leaflet contains safety and etiquette rules which shall be followed by everyone at the station, both staff and visitors, so that we together can experience our beautiful workplace in a safe and enjoyable way.

Our safety regulations have been produced in collaboration with representative from Fjällräddningen (the Swedish Mountain Rescue) and are based on recommendations from:

- Konsumentverket, a government agency whose task it is to safeguard consumer interests
- Lavinprognostjänsten, the Swedish Environmental Protection Agency avalanche forecasts service
- Sveriges Lavinutbildningar, a national training concept for avalanche safety with the aim of coordinating and quality-assuring Swedish avalanche training

FIELDWORK AND LEISURE TRIPS

The alpine weather and conditions change quickly. Temperature can change fast, waterflows may vary substantially and visibility can deteriorate quickly. Rapidly changing weather can quickly alter field conditions and it is therefore important that you carefully plan all your activities, both professional and leisure, to minimise risk exposure. Your overall ability to continuously assess and predict the conditions to cope with changes must always be high.

Always discuss your planned activities with the station manager who will help you assess the general safety situation (current weather and forecast, communication and safety equipment, chosen route, etc.), before you leave the station. It is important that activities are adapted to suit the abilities of the participants. It can be hard to assess the degree of difficulty for activities in high alpine terrain, and since the weather can change quickly, good safety margins are required. Due to variations in field conditions, it is impossible to assess all activities and participants in detail. But by discussing your plans with the station manager and your group, we can together create a risk assessment for your planned activity.

It is important that you take responsibility for your own safety here at TRS and you must respect your trip leader and the stations manager's assessment and safety regulations. The station managers' assessment builds on experience of the area and the effects that the remoteness of the station can lead to, available medical material/equipment, communication system and equipment, available personal protective equipment, estimation of general

human endurance and time needed for the planned activity. TRS safety regulations must be adhered to and individuals may be sent home if not in compliance.

It is your own responsibility to ensure that you read and understand the TRS Safety info & station etiquette, that you sign the safety agreement when arriving at TRS, that you are properly insured and that all relevant permits for your field work are acquired. If you are visiting as a group, the group leader is responsible for making sure that the entire group adhere to these rules.

Fieldwork clean up policy

Any fieldwork performed in connection with your stay at TRS must comply with the station's rules regarding littering and responsible fieldwork. This means that all equipment and instruments used during your fieldwork must be brought back from the field before your departure. If you plan to leave any equipment in the field, you are obliged to inform the station manager about this and make a plan for retrieving the equipment.

Summer map with red, yellow and green areas

Use the TRS summer field area map (Appendix 1) when planning your field work. The map is designed to help you evaluate the areas you would like to visit during the summer season. The areas have been categorised into red, yellow and green areas:

- Red = No-go areas
- Yellow = Areas that requires extra caution, clearance from the station manager and a well thought out trip plan
- Green = Areas with easier terrain

Red areas are not to be visited. They are very exposed and prone to deadly risks such as rock falls, etc.

Yellow areas can be visited, but only with extra caution and a well thought out trip plan that requires clearance from the station manager. Visits to these areas will depend on various factors, depending on the chosen area, such as current weather and forecast, your skills, equipment, etc.

Green areas can be visited, they are situated in easier terrain and are rather easily accessible. However, always keep in mind that we are in an Arctic and alpine setting and that all areas always need to be visited with respect.

Trip leader

For ALL field activities a trip leader must be appointed. He/she will be in charge of the group

and shall ensure that a trip plan is written. If you go on your own, you yourself are your own trip leader. We recommend that the trip leader is familiar with the first aid approach S-ABCDE, where S stands for Safety, A for Airway, B for Breathing, C for Circulation, D for Disability and E for Exposure (Appendix 2). The S-ABCDE approach is applicable in all emergencies for immediate assessment and treatment in case of an accident/illness.

Trip plan

The trip leader shall always fill out a trip plan before leaving TRS, and always report - on the same trip plan - once ALL participants in the group are back at TRS. In the trip plan, the trip leader states who is going, your planned routes and destination(s) and what equipment you are taking with you. The trip leader also ensures that a radio and first aid equipment is brought. Filling in a trip plan helps to create a risk assessment and facilitates a potential search and rescue operation.

You must verbally announce to the station manager that you are leaving, and state which time you will return. If you are delayed and might miss your estimated return time, you must inform the station manager. If you are not back in time, a search operation will be initiated and 112 will be called. When you plan your trip, always allow at least 2-3 hours of daylight to remain after you come home, to facilitate a possible search/rescue operation.

Communication

Mobile phone reception is unreliable around Tarfala, but usually works relatively well in the valley if you use the operators Telia or Tele2.

You must always bring a radio with you. Radios are stored in Personalhuset (Staff house). The main channel used at TRS is Mode 1 for VHF radios with channels 1 and 2, channel 05 for marine VHF radios. If your group need to have closer radio communication you may change to Mode 2 for VHF radios with channels 1 and 2 or Channel 77 for marine VHF radios.

Mode 1 communicates via a radio-repeater on the Kekkonen Peak and provides radio coverage throughout the Tarfala valley and across large parts of the Storglaciären. Mode 2 provides direct radio communication between devices. In Mode 2 the terrain restricts radio communication to roughly the range of your sight.

Using the radios:

- Collect a radio from Personalhuset (Staff house) and note which radio you have brought at the whiteboard next to the radios
- Do a communication check
 - To call: Press the transmit button and wait two seconds before you speak
 - Start your call with the name of the person you want to contact

- If you are called: Reply with your name

Please maintain good radio discipline, keep calls short, remember that everyone is listening, and that only one person can speak at a time.

First Aid Kit

Bring a First Aid kit with you, minimum one kit per group. You are welcome to borrow one from TRS and ask the station manager how to use the content in case of an accident. If you have brought your own kit, it needs to be approved by the station manager.

MISSING PERSON

You must be back in time, i.e., before the stated rescue time in your trip plan. If you are not back in time you will be considered a missing person and TRS will start a rescue effort including calling 112.

ACCIDENTS & ILLNESS IN THE FIELD

Procedure in the event of a serious accident **in the field**

- Make sure you and the injured person are in a safe position
- Use your radio to place an emergency call to TRS, who will call 112 for you
- If TRS does not answer, call 112 yourself
- Explain clearly the location and what has happened
- Use the S-ABCDE approach to take care of the injured person
- Keep radio contact with TRS who will assist you

ACCIDENTS AND ILLNESS AT THE STATION

Procedure in the event of a serious accident **at Tarfala Research Station**

- Make sure you and the injured person are in a safe position
- Call 112, a phone is located in the kitchen and in the main room in Personalhuset
- Explain clearly what happened and the location of the injured person. Tarfala Research Station location is SWEREF99 N 75373 E 06514 (Coordinates are truncated. For full coordinates, add 00)
- Use the S-ABCDE approach to take care of the injured person
- Inform the station manager, who has first aid training
- If possible, keep a log during the emergency response
- Refer any media inquiries to the station manager

First aid equipment

- First Aid equipment is available in the kitchen, the workshop and in Personalhuset
- Medication for dealing with allergic reactions is available in the kitchen
- A heart defibrillator is located in the entrance of Mässen (the Galley)
- A basket stretcher and a hypothermic stretcher are available in storage room in Nedre Sovhuset (the lower sleeping quarters)
- Rescue plan instructions, with a map, notepad, ruler, pencil and telephone list, is available in the kitchen
- One larger rescue bag, with extended first aid kits, is located in the kitchen and one is located in the Field equipment storage.

Illness

Call the Swedish healthcare information service on phone number 1177 for advice if you and/or the person affected are unsure about symptoms and possible treatment. Also inform the station manager.

FIRE AT THE STATION

Buildings are equipped with fire alarms and fire extinguishers. The fire extinguishers are positioned just inside the outer doors of the buildings, marked with signs. Fire blankets are located in the kitchen, next to the laboratory and in the workshop. Open flames are not permitted in any building except Mässen (the Galley). Smoking is only permitted at the fire pit outside Mässen. Never throw cigarettes on the ground.

All windows in the dormitories can be opened and used as emergency exits. The windows have a release catch on the right side of the frame. Make sure you know how to open the window and test to open it yourself. Regularly check that no snowdrift is blocking evacuation via the window.

Fire procedure

1. If you discover a fire, make sure that everyone leaves the building
2. Call 112. A phone is located in the kitchen and in the main room in Personalhuset.
3. Attempt to put out the fire as long as this does not entail danger
4. Inform the station manager
5. Everyone shall assemble in Mässen for a missing people count. If Mässen is affected, everyone assembles in the lecture hall. Group leaders are responsible for checking the numbers of their party.
6. Refer any media inquiries to the station manager

STATION INFO AND ETIQUETTE

A safe and enjoyable work environment

Consideration of interpersonal relationships is important to create a safe and enjoyable work environment. Here at TRS everyone shall treat each other in a respectful manner that build an inclusive community which retains and supports all individuals. At TRS we expect you to:

- Respect and be considerate of others
- Be accepting of diverse viewpoints
- Be honest and accountable
- Respect the landscape you are staying in including the people, animals and plants that live here

Harassment

At TRS we have a zero-tolerance policy for harassment including discrimination, sexual harassment and victimization. If you feel that you have been subjected to an abusive act, it is important that you inform your group leader as soon as possible. You can also contact the station manager or the station director. If an employer representative at Stockholm University becomes aware that an employee/visiting researchers/student feels that they have been subjected to an abusive act at TRS, they are obliged to act.

Workshop and laboratory

Contact the station manager before you use Tarfala's laboratories. All use of chemicals in the lab and in the field must be approved by the station manager.

The workshop is intended for Tarfala staff. If you need to use the workshop, or workshop equipment, you are welcome to contact the station manager.

Meals and kitchen duties

All meals are served in the galley, breakfast at 07.30 and dinner at 18.30. Please contact the station manager if you need other meal times. Lunch is usually not served, instead you are welcome to make your own lunch-pack during breakfast. During station days, a light lunch might be served in the galley. Everyone will be assigned a day (or more if you have a longer stay) to help with common kitchen duties such as setting the table and doing the dishes.

Please show respect for both the chef, who works hard to prepare nice meals for us, and for other guests, by coming clean to meal times and wearing proper clothes (i.e., not dirty field clothes, long johns etc.).

Drinking water

TRS has its own drinking water facility. Water is taken from the Tarfalajokk and possible bacteria are killed using an ultraviolet (UV) filter system. A bag filter system is also installed as a pre-filter to reduce particles in the water and reduce risk of possible errors with the UV

system. The UV system is equipped with a text message alarm so that any malfunctions can be rectified immediately. Water is sampled and analysed once per year, and laboratory values are reported to Kiruna Municipality (Miljökontoret).

WiFi

Welcome to use the WiFi TRS-guest. No password is needed but a limited amount of surf is available, so please be mindful of the amount of data you use.

Laundry

Contact the station manager if you need to do any laundry. We are happy to assist!

Showers and sauna

There are two showers in the service house. In general, showers are shared, exception during designated sauna times:

- Ladies only at 19.00-20.00
- Gents only at 20.00-21.00
- Staff only at 21.00-22.00

You must respect the designated shower and sauna times. Remember that this is a shared area and everyone using it must do so respectfully, so that everyone feels safe and comfortable.

We only use environmentally friendly soap, shampoo etc. at TRS since there is no waste water treatment system. Welcome to use our shampoo and soap if you have not brought your own eco-labelled products!

Toilets

Please use the incineration toilets in your sleeping quarters for solid waste. An introduction on how to use them will be given. Instructions on how to use them are also placed next to the toilets. Disposal of liquid waste is preferably done outside enjoying the view of the mountains, but please try to find a secluded place.

Checking out

When checking out from TRS, please clean your room and the common areas (entry, hallway, washing room etc.) in your sleeping quarter according to instructions. Leave your towels and bed linen in the laundry room. Please note that if rooms and common areas are not left in the condition they were upon arrival, TRS will charge a cleaning fee of 450 SEK (excl. VAT) per person.

We hope you will enjoy your stay here with us at beautiful Tarfala!

APPENDIX 1: Glaciers, water and winter

Glaciers

Bare, flat blue ice areas

You are welcome to work on bare, flat, blue ice, **where there are no crevasses, moulins, snow cover or rock fall areas** with no additional gear than your standard field equipment. Crampons and ice axes may be used during days when the ice is slippery. Crampons and a limited number of ice axes are available for lending at the station. Without the use of any other glacier safety equipment than crampons and ice axe, you **must never go closer than 3 meters to crevasses or moulins and never take even one step on snow covered areas**. Also keep in mind that sometimes one cannot get to bare, flat, blue ice without traversing areas that are steep or have crevasses, moulins, snow cover etc. For traversing these areas, please see below.

All other glacier ice areas

For all other glacier ice areas fundamental knowledge in glacier safety and skills for travelling safely on glaciers are required, as well as a team of 2-4 people (depending on skill level, see below). All members of the team need to know how to use glacier equipment, move safely in a rope team on ice and snow (with and without crampons), analyse risks and hazards in alpine areas and be able to perform a crevasse rescue.

TRS does not offer guests personal protective equipment. All guests must hence bring their own personal protective equipment and it is recommended that guests use the same kit as are required for the staff, please see below.

Personal Protective Equipment

- Shoes suitable for crampons
- Crampons
- Sit harness
- Ice axe
- Helmet
- 1 pc ice screw
- 1 pc pulley
- 1 pc belay device
- 1 pc knife
- 2 pc prusik
- 3 pc 120 cm loop
- 9 pc screw carabiner
- Hat and gloves, shell layer and insulating layer clothing, sunglasses, food and beverages

The group must also bring

- Single rope
- Radio
- First Aid Kit
- Map and compass

Mountain guides

Anyone lacking the knowledge listed above, is welcome to visit the glaciers together with a certified mountain guide with a minimum of a three people rope team (i.e., one mountain guide, plus two additional people). Alternatively, two mountain guides can perform planned field work for you after you have provided instructions regarding the research, sampling and documentation methods etc.

Mountain guides can be hired via TRS, but we need to know well in advance if this expertise is needed to be able to secure bookings. Costs for the mountain guide are covered by the party which hires them, this is not covered by TRS.

Flowing water

The temperature of lakes and watercourses is often 3-5°C in the area. At such low water temperatures, breathing and physical capacity deteriorate quickly. Flow rates in watercourses are determined by the weather and season, the level of risk therefore needs to be evaluated constantly. Even small watercourses can be difficult to cross, since algae often grow on the stones and make them slippery. Icing can occur in spring and autumn.

When crossing streaming water, use waterproof boots with a rough-patterned sole and a hiking pole. Life jacket should be used when working near watercourses with deep flowing water. When working near watercourses that have deep water and there is a risk of falling in, life jacket, harness (glacier type) and helmet may be needed. Discuss this with the station manager.

Lake Tarfala

Fieldwork on Lake Tarfala can only be performed when visibility is good and wind speed is low. Always plan your work thoroughly before heading to the lake. Before entering the boat, double check your safety equipment.

The boat

Two people must always be in the boat, and maximum three people are allowed. Keep the boat tidy while working. If you fall in the water, get back to the boat calmly. Making forceful movements increases heat loss from your body.

Personal Protective Equipment

- Dry suit with insulating clothing underneath or survival suit
- Life jacket OBS! Always check the gas cartridge in inflatable life jackets!
- Warm, waterproof gloves

Equipment in the boat

- Throwing line
- Radio + telephone in waterproof case

Winter fieldwork at Tarfala

Avalanche risks

TRS surroundings can experience avalanches in winter time which puts an extra safety dimension on fieldwork. The TRS field area map is design for summer condition and can therefore not be used during winter condition. Instead, we use Sveriges Lavinutbildningar, SVELAV avalanche terrain map for Swedish mountains. They have used the Avalanche Terrain Exposure Scale, ATES to distinguishing avalanche dangerous areas from safer areas. The terrain classification maps are available at <https://svelav.se/terrangklassningskartor>.

The Swedish Environmental Protection Agency, EPA provides avalanche forecasts to help make informed decisions and avoid unnecessary risks. Current avalanche forecasts can be found at <https://lavinprognoser.se>.

All who visit TRS during winter must make a well thought out trip plan in which both the EPA avalanche forecast and the SVELAV terrain classification maps are used as tools. When working in or passing through (even for the shortest of time) avalanche prone terrain, everyone must wear avalanche safety equipment such as transceiver, probe, shovel and have good knowledge of how the equipment is used. Planned activities must be adapted to suit the abilities of all the participants in the group.

Please note that according to SVELAV's terrain classification maps, Darfálvággi is classified as demanding (black) terrain. In black terrain, there are usually no completely safe routes because you inevitable expose yourself to large and steep slopes where there are no so called "outs". All who pass through black terrain must be aware of the risks. The trip leader is responsible for the assessments and choices the group makes, and thus also of the dangers everyone in the group is exposed to.

Snowmobile driving

TRS is located in an area where the use of snowmobiles is not permitted. Exceptions can be granted by the County Administrative Board Norrbotten (Länsstyrelsen Norrbotten) and applications for exceptions must be made well in advance to your visit. It is the visiting groups

responsibility to apply for any permits needed since TRS does not apply for permits on behalf of TRS guests. TRS also does not offer snowmobiles for rent, but it is possible to rent snowmobiles from companies in Kiruna.

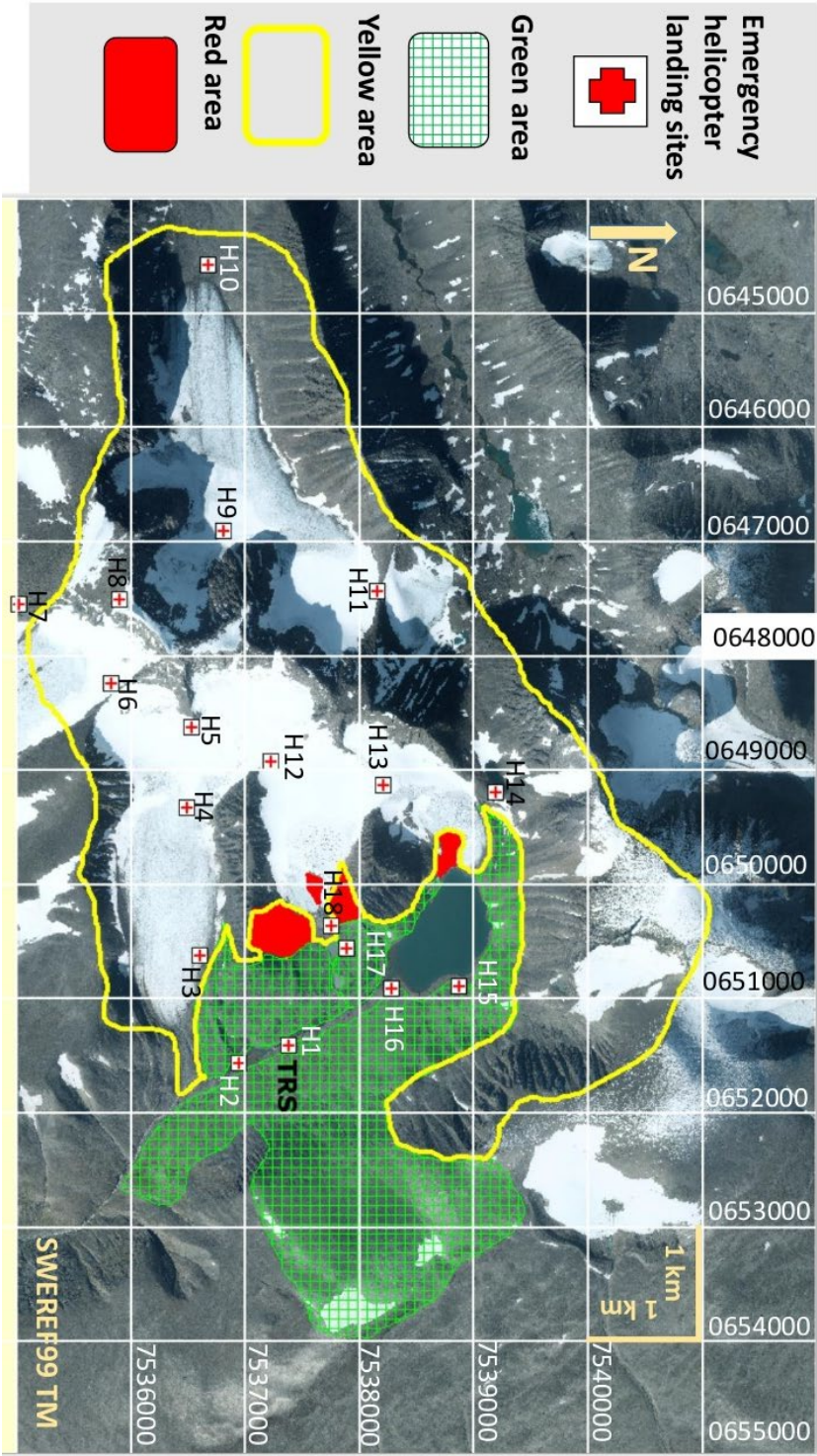
Driving routes around TRS have various degrees of difficulty. The area offers flat and easy terrain, as well as steep and very difficult terrain. A driver's experience must match the terrain. When driving in relatively risky snowmobile terrain, like Spelbacken and Hårnålen, extra care must be taken. This includes making pre-determined stops, in which the driving conditions are assessed and possible need for change of driver or other adaptations of the original plan, are discussed. This procedure applies to all relatively risky routes.

All who operate TRS own snowmobiles must have permission by the station manager, have a valid snowmobile driving license and undergo snowmobile driving training, including refresh exercises with an external safety expert, every year at the start of the spring-winter season.

All snowmobiles must be equipped with:

- First aid kit
- Avalanche probe
- Avalanche shovel
- Single rope
- Bivibag
- Insulating carry mat
- Extra drive belt
- Map and compass
- TRS snowmobile driving permits (for driving in prohibited area) from Länsstyrelsen
- Jumps starter pack for snowmobiles with a four-stroke engine

APPENDIX 2: TRS summer field area map



Emergency helicopter landing sites

Emergency helicopter landing sites in the greater Tarfala area (SWEREF99 TM).

Coordinates are truncated, for full coordinates, add 00.

| | | |
|--|---------|---------|
| H1 (TRS): | N 75374 | E 06514 |
| H2 (Cricketplan): | N 75369 | E 06516 |
| H3 (Hyddan, Storglaciären): | N 75366 | E 06506 |
| H4 (Snölinje Storglaciären, Staklinje 21): | N 75365 | E 06493 |
| H5 (Svarta väggen, Storglaciären): | N 75365 | E 06486 |
| H6 (Insteg, Nygrens led): | N 75358 | E 06483 |
| H7 (Gamla toppstugan): | N 75350 | E 06476 |
| H8 (nedanför Sydtoppen): | N 75359 | E 06475 |
| H9 (Rabots glaciär): | N 75368 | E 06469 |
| H10 (Rabots front): | N 75367 | E 06446 |
| H11 (Firnpasset): | N 75381 | E 06474 |
| H12 (Restaurant Hyllan): | N 75372 | E 06489 |
| H13 (Norra Klippbergspasset): | N 75382 | E 06491 |
| H14 (Svarta sjön): | N 75392 | E 06492 |
| H15 (below Tarfalasjöns Time Lapse Cam): | N 75389 | E 06509 |
| H16 (Tarfalastugan): | N 75383 | E 06509 |
| H17 (Isfallsfrontområde): | N 75379 | E 06506 |
| H18 (Nunatakken): | N 75364 | E 06493 |

APPENDIX 3: S-ABCDE

Standard procedure in case of emergency - Stop, Think and Act! Use the Safety, Airway, Breathing, Circulation, Disability, Exposure, (S-ABCDE) approach to assess and treat injured persons. Keep calm and work methodically.

S- Safety

Check the accident site, is the scene secure for everyone? What has happened? In the event of a life-threatening situation, the victim must be moved to a safe place before rescue work can continue.

A – Airway

Clear the airways. If back and neck injury are suspected, stabilize the neck with your hands.

B – Breathing

Check for breathing. If the person is not breathing, start CPR (hjärt- och lungräddning). If the injured person is breathing, make sure to loosen tight clothing and take measures to facilitate breathing. If necessary, place the injured person in a stable side position.

C – Circulation and bleeding

Stop any bleeding with bandages. Can internal bleeding be suspected? How is the heart rate? Are there signs of circulatory failure? If so, take measure to prevent circulatory failure. Place an emergency call to TRS and/or 112.

D – Disability

Check the person's degree of awareness as well as tactility and mobility in arms and legs.

E - Exposure and protection from the environment

Make sure that the injured person is kept warm. Place him/her on a sleeping mat, use a wind sack, extra clothing etc. Examine if the person has other injuries by doing a full body examination. Feel and squeeze the entire body from head to toe to detect additional injuries or signs of injury. Ask if the person has any other medical conditions, takes any medication and/or has any allergies.