

# **Safety Instructions for Fieldwork**

## **2024**

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3.0			Section 4.1 External participants Section 4.4 Reporting on fieldwork in Greenland Section 4.5 Area Allotment (NEW) Section 7.2 Communication equipment Section 11.3 Responsibilities and roles on board – offshore Section 11.5 Safety equipment – offshore (NEW) Section 14.1 Travel advice - abroad

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# Safety Instructions for Fieldwork

The safety of employees carrying out fieldwork for GEUS has the highest priority. No one should take unnecessary risks or be exposed to unnecessary hazards in order to carry out fieldwork.

Safety is a responsibility shared amongst all involved.

Preventive work is important for safety. Therefore, emphasis must be placed on:

- Good planning, risk assessment and preparation in advance of all field activities.
- Relevant training and certification are a pre-requisite to taking part in fieldwork.
- Well-maintained field equipment that is suitable to the task.
- Evaluating and learning from experiences and incidents that may occur during fieldwork.

At GEUS, safety is a culture and a natural part of all fieldwork. Safety must always be considered as part of normal working procedures.

## How to use these instructions

These instructions apply to all types of fieldwork carried out by GEUS, except onshore fieldwork in Denmark, which is covered by its own instructions that can be found on GEUS' Intranet

In this document, 'Project Manager' refers to the person who is responsible for organising the specific fieldwork, both in terms of finances, selecting the team, logistics and safety. During fieldwork, the responsibility for logistics and safety can be delegated, e.g. to an Expedition Leader or Chief Scientist, who then assumes the role as Safety Manager. Whether you are a Project Manager, Expedition Leader or Chief Scientist, it is important to agree on the responsibilities, duties, and roles each person has within the specific project, see Appendix 1 Field Plan and Risk Assessment.

While decisions from the Project Manager or Safety Manager must be respected, it is always acceptable to speak out if something feels unsafe.

As part of the preparation for fieldwork, Project Managers must ensure that, they have the right team for the task, both in terms of professional skills and that the team can operate safely. At GEUS, the Project Manager, in collaboration with the Head of Department, selects the field team based on the participants' professional skills and experience.

Sections 1 to 10 in this document apply to all GEUS fieldwork, while matters specifically concerning fieldwork offshore (globally), onshore in Greenland, on the ice, and other places abroad can be found in sections 11, 12, 13 and 14.

Please refer to relevant information in external links and on GEUS' intranet.

To ensure that you have remembered and checked off the most important things in connection with fieldwork, checklists have been prepared for the specific types of fieldwork. These are available both as appendices and ready-to-print documents.

**Note that you must sign to confirm that you have read these instructions, see section 15.**

# 1 General Guidelines

These general safety instructions apply to all GEUS employees and external participants in GEUS-led fieldwork. However, for external participants matters such as SAR, insurance coverage, payment of airline tickets, hotel, field clothing and more should always be addressed and agreed upon. The safety instructions are available in both Danish and English.

- When carrying out fieldwork onshore in Greenland and offshore (globally, including Denmark), a field plan for the work must be prepared, and all issues related to safety in the field must be assessed regarding the participants' safety, see Appendix 1 Field Plan and Risk Assessment. The Project Manager shall discuss the field plan with the field participants. The field plan must be approved by the relevant Head of Department.
- When carrying out fieldwork onshore in Greenland, field teams must consist of a minimum of two persons working together. Under special circumstances exemptions from this can be given. These exemptions must be approved by the relevant Head of Department, or Project Manager if the decision has to be taken in the field.
- For all types of fieldwork, field participants must possess the necessary skills to complete their tasks safely, and these skills must be kept up to date by participating in mandatory training courses prior to each field season.
- Prior to fieldwork in Greenland (both on and offshore), field participants must be able to show a certified health certificate.
- Field participants must bring communication equipment with adequate network coverage so measures can be taken in the event of an accident.
- In connection with the fieldwork, regular contact with base camp, locals, GEUS colleagues or others must be agreed for all participants, see Appendix 1 Field Plan and Risk Assessment. For fieldwork in very remote areas, daily contact is recommended.
- These instructions are updated regularly. Participants in fieldwork are obliged to read and sign the instructions once a year before commencing field work.

## 2 Responsibilities

### 2.1 Employer's Responsibility

As the employer, GEUS is responsible for the health, safety and working environment for its employees. GEUS must ensure that the work is organised so it can be carried out in a safe manner. GEUS is thus responsible for:

- Everyone participating in fieldwork organised by GEUS. This also applies to participants who are not permanent employees but have been appointed to perform certain functions or tasks, e.g. field assistants, researchers from external institutions or external consultants/experts.
- Students who participate in fieldwork as part of their university education and who are associated with a project managed by GEUS.

Employees are covered by the Danish Labour Market Insurance (arbejdsskadesikringen), but see section 5.1-5.3.

When travelling to Greenland and abroad, employees are furthermore covered by the Danish Government's travel insurance (Tjenesterejseforsikringen), see section 5.

### Fieldwork with External Institutions

When GEUS employees participate in fieldwork under the direction of external institutions, the health, safety, and environment (HSE) rules of these institutions must be followed. Even so, as an employer, GEUS maintains the responsibility for their employees. GEUS employees are expected to maintain the high-level of safety culture employed by GEUS even if they are working under an external institution's direction.

The preparation of a field plan and risk assessment can help clarify whether special measures are needed to ensure an appropriate level of safety. If there is any doubt as to whether the fieldwork is sound in terms of safety, the Head of Department should be involved. If there is doubt/uncertainty among the employees in the field, you are encouraged to discuss the issue with the Head of Department.

### 2.2 Project Manager's Responsibility

The Project Manager acts as Safety Officer during the fieldwork or expedition, unless otherwise agreed. It is the Project Manager's responsibility:

- That all participants in GEUS-led fieldwork have a valid agreement of collaboration or contract of employment, see sections 4.1 and 4.2.
- That at least one meeting is held with all field participants and responsible Head of Department/project owner, where the field plan and risk assessment are reviewed.
- To bring the necessary safety and field equipment.
- That all equipment is checked and in order. Batteries, spare parts and tools for maintenance and smaller repairs must be brought as well. This is often done by GEUS' equipment section (Udrustningen).

- That all field participants bring a personal first aid kit and relevant communication equipment. Inexperienced field participants must be made aware of the special conditions, e.g. in Greenland where it can be impossible to buy anything, including personal items such as medicine, sanitary towels, sunscreen etc.
- That the fieldwork has been approved by the responsible Head of Department.
- To answer enquiries from GEUS' logistic coordinator regarding the fieldwork.
- To evaluate the fieldwork when requested to do so.
- To report accidents (including *near miss incidents*) and any deficiencies in safety equipment to GEUS' safety managers (to be coordinated with the field participants).
- To ensure that all field participants are familiar with GEUS' rules on confidentiality, see Appendix 2 Declaration of Confidentiality.

### 2.3 Field Participant's Responsibility

It is the responsibility of each field participant to:

- Contribute to the preparation of the fieldwork, including prioritising a high level of safety.
- Inform the Project Manager of personal matters that may have an impact on the health and safety associated with the fieldwork. This must be done well in advance, before departure.
- Have a valid health certificate conforming to the rules for the specific type of fieldwork.
- Have completed the required safety courses specified for the project.
- Follow and respect the decisions of the employer and the Project Manager.
- Use the required safety equipment correctly.
- Exercise due diligence. This includes being unaffected by alcohol or other intoxicants.
- Help prevent accidents and damage to anyone's health.
- Evaluate the fieldwork when requested to do so.
- Report accidents (including *near miss incidents*) and any deficiencies in safety equipment to GEUS' safety managers (in coordination with the Project Manager).
- Familiarise themselves with the information in this document and sign, to confirm that it has been read before entering the field (section 15).



## 3 Health

### 3.1 Health Certificate

Participants in GEUS fieldwork both onshore Greenland and offshore, must have a valid health certificate.

Employees carrying out fieldwork offshore must have their health examined and be given a certificate every 2<sup>nd</sup> year according to the rules for seafarers ([Medical examinations \(dma.dk\)](#)).

For fieldwork onshore in Greenland a health examination must be done by a maritime medical practitioner certified by [The Danish Maritime Authority](#). Normally these health certificates are valid for 2 years. GEUS has an agreement with [Medical Office](#), who do health examinations. Read more on the page Health and dental examination at [GEUS' website](#).

### 3.2 Health and Fieldwork – Special Conditions

**Informing colleagues about your health.** If you have a pre-existing medical condition, are affected by allergies or are on medication that may have an impact on your performance or the ability of a colleague to treat you should you become ill or involved in an accident, you are encouraged to discuss this (perhaps in confidence) with the project manager or relevant colleague, before leaving for the field, so that any impact of this condition is minimised and the safety of all is maintained.

**Medical pre-approval.** If you are ill (e.g. have chronic illness), pregnant, or have been injured before your trip or if you have other reasons to believe that you may need a doctor or other treatment abroad, you should apply for a medical pre-approval ([medicinsk forhåndstilsagn](#)). Medical pre-approval will probably only be relevant in connection with fieldwork that does not require a valid health certificate, e.g. fieldwork abroad (see chapter 14).

**Vaccination etc.** Depending on where and under which conditions the fieldwork takes place, you may consider the need for vaccination, see guidelines here [Statens Serum Institut](#). GEUS covers the cost of relevant vaccinations.

**Medicine for your own use.** GEUS recommends that you bring a small selection of medicine for own use, e.g. painkillers, motion sickness pills, hydrocortisone, nasal spray, and mosquito spray. This is particularly important for destinations where there is no easy access to buy supplies. If you bring prescription medicine, do check in advance that it is legal to bring into the country. For certain countries it can be a good idea to bring electrolytes and maybe clean needles.

**Dental check.** Participants in fieldwork in Greenland and offshore outside of Danish water are obliged to have their teeth checked 6 months before fieldwork. Expenses are not covered by GEUS.

**Next of kin.** An employee may inform GEUS about their next of kin, in order for GEUS to be able to notify them if something should happen to the employee. Information about [next of kin](#) can be accessed via [GEUS' website](#).

## 4 Agreements and Contracts

### 4.1 External Field Participants in GEUS Fieldwork

External field participants can be researchers or other professionals who are hired as field assistants, consultants, field guides or the like. They can also be students who participate (paid or unpaid) in the fieldwork as part of their education.

For everyone who participates in GEUS-led fieldwork, but who is not employed by GEUS, there must be an agreement describing rights and responsibilities (including liability for insurance matters) in connection with their participation in fieldwork. Read more on Agreements and Contracts ([Aftaler og kontrakter](#)) on GEUS' intranet and Appendix 2 Declaration of Confidentiality.

Project Managers who make use of external field participants must pay special attention to ensuring that they have or obtain sufficient qualifications in order to be able to participate in the fieldwork safely, especially if they do not participate in GEUS' safety courses. See section 9.

### 4.2 Cooperation Agreements – Fieldwork Organised by Externals

Researchers at GEUS have a wide range of contacts and are part of many different networks and work programmes in relation to their research.

When this collaboration involves fieldwork organised by institutions other than GEUS, the responsibility for Search & Rescue (SAR), safety, insurance and any permits to perform the work has to be clarified and agreed upon beforehand, e.g. in a written agreement. The relevant Head of Department must approve the planned fieldwork.

### 4.3 Contractors

Contractors can be many things. For all types of fieldwork, Project Managers must pay special attention to safety issues before signing a contract regarding e.g. chartering of ships and helicopters. Remember that captains and pilots have special authority and duties, and that passenger insurance is always included as part of a charter agreement. See more in section 11.2, 11.3 and 12.7.

### 4.4 Applying to carry out fieldwork in Greenland

Project Managers are obliged to inform about planned fieldwork in Greenland (even if funding may not be in place) and to follow up on details of the expedition or fieldwork when GEUS' logistic coordinator requests this information.

Previously, GEUS could carry out scientific fieldwork in Greenland without applying for a permit, as long as the work was done within the framework of the Mineral Resources Act, the Self-Government Act and other regulations pertaining to GEUS operating in Greenland.

From 1 January 2024, GEUS must apply for permission to carry out scientific fieldwork on equal conditions with universities and research institutions. This is primarily due to a new mining law and changes to the Minerals Act. When to apply depends on the type of fieldwork and where the work is to be carried out. Some areas have stricter requirements than others, and you may need documentation for a radio license, weapons permit, guarantee for Search and Rescue coverage, etc.

The applications often are subject to hearings, for example at the Expedition Office, the police, the Arctic Command and Joint Rescue Coordination Center (JRCC). The processing time can be up to 3 months, and therefore it is recommended that you apply as early as possible.

Application procedures are described on the intranet (page to be created).

#### **4.4.1 Information about Fieldwork on Isaaffik.org**

GEUS is a partner of the portal [www.isaaffik.org](http://www.isaaffik.org), where scientific institutions carrying out research in the Arctic, share information about projects and field activities. The purpose is, amongst other things, to find potential partners, and to offer or ask for available logistics capacity and thus achieve synergies and cost-savings.

If fieldwork is reported to the portal, the individual players get an overview of the research and activities carried out in Greenland. The portal also constitutes a safety measure, as the information is monitored by Arctic Command and thus JRCC.

GEUS' Project Managers are obliged to report information regarding expeditions and fieldwork in Greenland to [www.isaaffik.org](http://www.isaaffik.org).

#### **4.5 Area Allotment**

In Greenland there is joint ownership of the land. Areas can thus neither be bought nor sold. In order to be able to use an area for construction, storage etc. an area allotment must be issued. This also applies to setting up weather stations, containers or the like, which are not permanent buildings or installations (time-limited land application).

An area allotment gives the right of use to the land. The municipalities in Greenland administer the right of use. You can apply to the municipality for an area allocation in two ways:

- Via NunaGIS: <https://nunagis-asiaq.hub.arcgis.com/pages/arealtildeling>
- Via the local citizen service center or village office and get guidance there.

Note:

- Due to hearing requirements, e.g. if a municipal plan has not been adopted for the area in question, a case processing time can be expected to obtain an area allotment.
- The municipality can charge a fee for issuing an area allotment
- You are obliged to clean up the area when it is no longer used.

Read more about area allotments at [sulissivil.gl](http://sulissivil.gl) or at NunaGIS/Arealtildeling

## 5 Insurance

When travelling on official journeys, GEUS employees are covered by different types of insurance, each with their coverage area.

As a state institution, GEUS is covered by the [rules of self-insurance](#). In practice, this means that GEUS may not take out insurance for employees or equipment. In case of an accident, if someone has been injured or GEUS' equipment (own or rented) is lost or damaged, GEUS provides compensation in accordance with applicable legislation and rules.

There are exceptions to the above rules, e.g. when you are abroad, please see §4 og §5 in the [rules of self-insurance](#).

### 5.1 Labour Market Insurance

Persons who are engaged by an employer to carry out work in Denmark are covered by the Danish Workers' Compensation Act ([Arbejdsskadesikringsloven](#)).

This insurance covers all types of injuries happening while at work. However, the injury must be reported and subsequently recognised as an occupational injury by the Danish Labour Market Insurance ([Arbejdsmarkedets Erhvervssikring](#)). It is not possible to draw up general descriptions of what is recognised as an occupational injury, as this is based on a case-by-case assessment.

The Labour Market Insurance (Arbejdsskadesikringen) covers both non-economic damages (injury/disability) and economic losses (loss of ability to work/earning capacity). Compensation for non-economic damages is tax-free.

The Labour Market Insurance usually does not cover injuries that have occurred in your leisure time, even if the injury occurs in connection with an official journey, also see section 5.2 and 5.3. GEUS recommends that you check coverage from any private accident insurance. Read more on the page Labour Market Insurance in connection with an official journey ([Arbejdsskadesikring i forbindelse med tjenesterejse](#)) on GEUS' intranet.

### 5.2 Fieldwork Offshore in Denmark

The Danish Health Insurance Card (Sundhedskortet) covers everywhere in Denmark, including Danish waters. The card entitles you to use the Danish health services in case of illness or accidents. GEUS cannot take out any insurances in addition to the Labour Market Insurance.

Even though the Labour Market Insurance normally does not cover injuries that occur in your 'leisure time', even on official journeys, a special practice applies when working offshore. According to Arbejdsmarkedets Erhvervssikring, "a practice which applies especially to seafarers includes accidents which occur in their leisure time when the accident is due to the conditions on board", i.e. when the fieldwork is carried out on a ship.

### **5.3 Fieldwork Abroad (incl. Greenland and the Faroe Islands)**

Employees carrying out fieldwork abroad (including Greenland and the Faroe Islands) are covered by the Danish Government's [travel insurance for official journeys](#) (which also covers injuries/illness occurring during leisure time). Generally, the official travel insurance only covers injuries in connection with acute illness and injury. See also medical pre-approval ([medicinsk forhåndstilsagn](#)).

*An insurance card can be obtained from Budget and Accounting (Budget og Regnskab).*

GEUS employees have the option of taking out individual supplementary travel insurance to increase the level of coverage. GEUS recommends that you check coverage from any private accident insurance. Read more about travel insurance for Danish Government employees ([Forsikring på tjenesterejsen](#)) on GEUS' intranet.

### **5.4 For Employees Residing in Greenland**

Employees with permanent residence in Greenland are not covered by the Danish Government's official journey insurance when they carry out fieldwork in Greenland. As citizens of Greenland they are covered by the Greenlandic rules on SAR. Like other GEUS employees, these employees can take out supplementary travel insurance on official journeys outside Greenland.

## 6 Personnel Field Equipment

Due to the special circumstances and environment when carrying out fieldwork offshore and in Greenland, field clothing is paid by GEUS according to the current rules on workwear for these employees. Field clothing shall keep the field participants dry and protect against wind, water and cold. A good rule of thumb is to wear multiple layers of clothing so you can regulate temperature and humidity according to the weather conditions and work intensity. Read more about field clothing ([arbejdstøj](#)) on GEUS' intranet.

Costs in connection with field clothing are covered by the individual departments, either via projects or via GEUS' basic grant.

## 7 Field Equipment

The specific equipment needed for fieldwork depends entirely on where the fieldwork takes place, and on the nature and content of the work. Field participants must bring clothing and field equipment suitable for the conditions under which the fieldwork takes place. Together with the team members the Project Manager must make sure that the right field equipment is purchased/ordered and sent to the field destination.

For a fee, Project Managers can rent/order equipment from GEUS' equipment department (Udrustningen), e.g. field and communication equipment, provisions, and firearms. Udrustningen is usually responsible for the purchase and maintenance of field equipment, but sometimes equipment is purchased by individual departments. Udrustningen also ensures shipment of the equipment and takes care of permits for bringing firearms, radio permits etc. in connection with fieldwork in Greenland.

Project Managers are encouraged to contact Udrustningen early in the planning process to get optimal service, and to make sure that purchases, necessary permits and shipments can be arranged in due time.

### 7.1 Safety Equipment

The necessary safety equipment depends on the nature of the fieldwork, and where and under which circumstances the fieldwork is to take place. Decisions on specific safety equipment required is part of fieldwork planning, see Appendix 1 Field Plan and Risk Assessment, Table 7. The safety equipment must be checked and in good working order, and all participants in the specific fieldwork must know how to operate/use the equipment and have undertaken necessary training in the use of the equipment if required.

### 7.2 Communication Equipment

Communication equipment is a very important part of the safety equipment and must be ordered from the Equipment Section as soon as possible in order to have plenty of time to familiarize oneself with the equipment\*. Thus, as a field participant, one should always ensure that the equipment works as intended both before departure and after arriving in the field. In Greenland special conditions make communication difficult, especially satellite-based communication. Hence, extra attention should be made to what communication equipment is used and one should always keep in mind that outages may still occur. Multiple lines of communication should be available, when/if important communication is required, see Table 7 below.

\*Note that satellite telephones have a 3 months minimum subscription enabling enough time to get to know this type of equipment.

### **7.3 Shipment of Goods and Dangerous Goods**

Shipment of goods and dangerous goods is mostly handled by GEUS' equipment department (Udrustningen). Dangerous goods must be packed according to special designs, depending on whether the transport is by land, sea, or air.

GEUS does not have the competences to pack dangerous goods for air transport. If you need to send dangerous goods in connection with fieldwork, the transport must be ordered well in advance to get the necessary assistance with the shipment.

It must be emphasised that packing of dangerous goods for return shipment must be carried out in accordance with regulations, i.e. that they are packed the same way as when the goods arrived. The consequences for not properly packed dangerous goods can be fines.

Regular goods can be sent from both Udrustningen in Taastrup and from Øster Voldgade.

### **7.4 Firearms – Ordering, Permits and Transport**

GEUS brings firearms to Greenland for self-defence in areas where there is a risk of encounters with potentially dangerous wild animals. Read more about these rules and procedures on the page firearms and permits for firearms ([Våben og våbentilladelser](#)) on GEUS' intranet.

### **7.5 Heavy Equipment**

For some types of fieldwork, work with heavy equipment is necessary. A person should not lift anything heavier than max 20 kg. No matter how much is to be carried, always ensure that correct lifting techniques are employed such as using your legs and lifting close to the body, to avoid injuries. Whenever possible, two people should carry heavy equipment together. Read more about the correct lifting techniques in the article 'Lifting, pulling and pushing' in WEA Guideline D.3.1 on the [Work Environment in Denmark's website](#).



## 8 Illness and Accidents

### 8.1 Rest, Stress, and Exhaustion

Fieldwork can be physically hard and mentally/intellectually demanding. Therefore, as a field participant, you must pay special attention to getting enough sleep and eating nutritious food. Stress, exhaustion, exposure to cold/heat, dehydration, alcohol, unresolved conflicts with colleagues or others, and much more can have a negative impact on people's mood and their ability to work and may therefore increase the risk of accidents. GEUS encourages all field participants to be aware of their physical and mental well-being, and to work together and individually to regain strength and lift the mood of both themselves and their team members.

### 8.2 Accidents and Near Miss Incidents

To ensure that you are well prepared and able to handle unexpected incidents (near misses) or actual accidents, the assessment of safety (Appendix 1 Field Plan and Risk Assessment), including risk assessment, is an important part of field planning. When fieldwork is carried out in remote areas, you should always consider and/or find out:

- Whether the field participants have the necessary training to deal with illness and injuries.
- Where the nearest hospital or health centre is located.
- Phone numbers for hospitals, doctors, and helpful local contacts.
- How to arrange transport/evacuation in case of an accident/illness.
- Whether it is relevant to appoint a fieldwork Safety Manager and what it entails.

If an accident happens, field participants must remain calm and use their common sense and experience/knowledge from safety courses and their life in general. GEUS emphasises that employees/field participants have the freedom to assess, which measures are the right ones, e.g. who to contact as the first person in case of an accident. This includes contacting the police, Radio Medical, Bagvagt/colleague. Remember that it is not allowed to pass on information about accidents/incidents on social media, as this may cause unnecessary concern and may lead to blocking of important lines of communication.

Everyone is expected to know the basic principles and ABCDE of first aid.

Accidents must be reported as soon as possible to GEUS' HSE Manager (arbejdsmiljøleder), who is responsible for reporting occupational injuries to the Labour Market Insurance (Arbejds-markedets Erhvervssikring, see section 5.1).

To be able to provide the best possible safety measures GEUS would like to collate and learn from incidents that could have gone wrong, but did not, i.e. so-called near miss incidents. Therefore, everyone is encouraged to report near miss incidents using [this form](#), even if these appear insignificant. Only then we are able to learn from these incidents and increase safety.

In the event of both near miss incidents and actual accidents in connection with helicopter flights, the affected parties must immediately ensure that the helicopter company is notified about the

incident and ask them to save video recordings and any other documentation from the flight. GEUS employees are advised to use their own recording equipment (e.g. GPS and video).

### **8.3 Radio Medical**

Radio Medical (RM) is the maritime alarm centre, which offers 24-hours guidance and treatment in form of 'telemedicine' to both Danish registered vessels and GEUS remote field parties in Greenland.

#### **8.3.1 When Carrying Out Fieldwork Offshore**

When carrying out fieldwork offshore, you are often far from land and thus far from medical treatment. Depending on the ship's trading area (fartsområde) and the distance to land, a large or small sea chest with medicine and bandages is brought along. The crew will be trained in treating injuries/illness and administering medicine under the guidance of Radio Medical.

#### **8.3.2 When Carrying Out Fieldwork Onshore and on Ice**

When carrying out fieldwork onshore and on ice in Greenland, you are also often far away from towns and settlements and thus timely medical treatment. Therefore, GEUS has agreed with Radio Medical that participants in GEUS' fieldwork on land and ice can use their 24/7 'telemedicine' service. GEUS and Radio Medical have prepared our own 'GEUS Medicine Chest' for use in the field. Medicines and others are marked in accordance with the maritime sea chests and GEUS follows the rules for reporting their use.

When calling Radio Medical, 'GEUS' should be stated when asked for the name of the ship.

On the Arctic First Aid course, the contents of the medicine chest are reviewed, and the recording of a medical report (anamnesis) is trained in order to be able to receive and act on treatment advice given by Radio Medical's doctors.

### **8.4 Duty Officer (Bagvagt)**

During the field season in Greenland, GEUS sets up a team of duty officers (bagvagter) that can be contacted if there is urgent need for help or safety advice. Two Head of Departments or experienced field geologists monitor the hotline and can be contacted in case of an emergency. Please note that the duty officer hotline is only for emergencies. Read more on GEUS' [intranet](#).

In connection with the set-up of duty officers, GEUS has prepared an [Emergency Response Procedure](#) (ERP) with instructions on how to behave and who to contact in case of an accident or serious illness during fieldwork. The ERP can be found in the booklet Field Instructions and Standards that is handed out in connection with onshore and offshore fieldwork in Greenland.

## 9 Safety Courses

For all types of fieldwork, participants are required to have attended mandatory courses and that their certification is up to date.

Due to the geographical and environmental challenges one may face either offshore or onshore in Greenland as well as on the inland ice, GEUS requires field participants to present up to date, mandatory safety course accreditation before embarking on fieldwork. The requirements for safety courses depend on where and under what circumstances the fieldwork takes place; see section 11.4 Safety Courses – Offshore; 12.1 Safety Courses, Greenland – Onshore; 13.2 Safety Courses According to Risk Exposure Level – on Ice, and 14.2 Safety Courses – Abroad.

When carrying out fieldwork abroad, the Project Manager/Owner is responsible for assessing the need for safety courses and for the field participants' level of training in relation to this. Special attention should be given to external participants who are not able to attend the safety courses offered by GEUS in Denmark. A thorough assessment of the person's qualifications with respect to safely carry out fieldwork must be conducted.

## **10 Evaluation of Fieldwork**

Evaluating and learning from experiences and incidents in connection with fieldwork is an important part of GEUS' safety culture. Evaluation of the fieldwork, including experiences in connection with planning, contributes useful knowledge that can improve safety by continually improving procedures.

Project Managers must evaluate their fieldwork once a year, but everyone is encouraged to fill in the evaluation form distributed once a year. All responses to the evaluations are collected, compiled and are presented in notes to the committee for fieldwork under the Working Environment Committee and the management', which takes a position on recommendations and new initiatives.

### **10.1 Evaluation of Fieldwork for Specific Projects**

Upon completion of fieldwork, all project managers are encouraged to discuss with their team members the merits or problems associated with the planning and completion of their field programmes with an emphasis on safety. Issues of overall concern should be brought to the attention of the the committee for fieldwork.

## 11 Fieldwork Offshore

Several GEUS employees carry out offshore fieldwork as part of their job. In these instructions 'Offshore fieldwork' also includes work on large lakes.

Offshore fieldwork includes scientific measurements and sampling of geological materials from ships (e.g. sediment, crystalline rocks, etc.). The work can be carried out in Danish and international waters. Ships can also be used as a base camp for onshore fieldwork. If chartering a ship to be used as a base camp the guidelines in section 11.1-11.3 must be followed.

Offshore fieldwork can be carried out on large vessels (e.g. research vessels or the Danish Armed Forces' ships), on smaller ships with a crew, on coring platforms or rigs and on small boats you navigate on your own.

From time-to-time GEUS employees participate in scientific expeditions organised by partners or clients with GEUS as a subcontractor, see section 2 Responsibilities.

Work onboard ships, and the safety aspects connected with this, are regulated by international maritime rules, and, in Denmark and Greenland, furthermore by rules from the Danish Maritime Authority. This means, among other things, that there are rules for the supervision and inspection of ships and for a ship's operating and/or safety crew as well as for the crew members' qualifications which shall be documented in a so-called 'Safe-manning document' (besætningsfastsættelse). As a rule, all ships sailing commercially must have a safe-manning document.

### 11.1 The Project Manager's Responsibility – Offshore

In addition to the points mentioned in section 2.2, Project Managers for offshore fieldwork have special responsibilities regarding:

- Choice of vessel in relation to the task and the waters. The vessel must be inspected with respect to safety before signing an agreement.
- Assessment of the ship's crew in relation to the type, scope, and duration of the work.
- In collaboration with the Project Owner ensuring the status of the field participants regarding their health (section 3.1) and safety courses (section 11.4 or 12.1 if the ship is used as a base camp).
- Preparation of a schedule ensuring that the work can be carried out in a safe manner and comply with rules and rest periods.
- Taking into account that you may not be able to work efficiently every day, e.g. due to weather conditions, and thus plan accordingly.

The Project Manager should be aware that special rules apply when working from small boats or when navigating the boat yourself, see section 11.6.

### 11.2 Ship Charter – Offshore

When signing an agreement on a ship charter, you must consider and possibly require information about the following:

- What type of ship is needed? Ships with a P certificate can sail with passengers, but other ships may also be approved for carrying passengers, e.g. cargo ships or research vessels.
- The ship's suitability in relation to the task, e.g. the ship's dimensions and equipment (cranes, winches, etc.), deck layout, trading certificate (fartilladelse)
- The crew's qualifications, etc.
- Management of HSE work by the ships' owner and crew
- Experience of similar tasks
- Experience and understanding of the nature and execution of the required task
- Support and backup in case things do not work out as anticipated
- That the language of communication as a minimum is Danish or English.

In addition, the following things may be relevant and require documentation:

- Trading area: Where is the ship approved to sail? Does the ship have ice classification?
- Insurance (passenger liability, a so-called P&I insurance), safety certificate, latest ship inspection, establishment of crew, trading certificate
- Safety equipment: Is safety equipment approved and serviced in accordance with regulations? Is safety equipment functional and is the crew able to demonstrate and instruct others in the proper use of the equipment? Is there sufficient safety equipment for the number of field participants and crew?
- Inspection and safety routines/drills
- Agreement on payment for food, drink, and extra services.

### **11.3 Responsibilities and Roles on Board – Offshore**

On scientific expeditions, you live and work within a very limited area, and thus you are dependent on the crew and your colleagues' skills and abilities to cooperate.

On ships, the Captain has the supreme authority, and GEUS fieldwork participants are passengers who must attend a safety briefing upon boarding, participate in the ship's fire, boat and man-over-board exercises and in general follow the crew's instructions. Before the expedition, the responsible Safety Officer from GEUS is obliged to:

- Inform the ship's management about safety issues in relation to the handling of GEUS' equipment
- Ensure that safety instructions are coordinated with the ship's Captain and crew
- Agree on procedures and the division of responsibilities. Special attention should be brought to this matter, if GEUS has an agreement with a third party to conduct special tasks in which case it should be made very clear who is responsible for specific equipment and procedures.
- Arrange safe retrieval of equipment if it is necessary to interrupt the work.

In connection with survey tasks that are performed with a ship as a platform, employees must participate in conversations with the ship's Captain/crew before the tasks are initiated. Relevant personal protective equipment (PPE) must be used as needed and depending on the nature of the work. If you go on deck alone, the First Officer on duty must always be notified.

GEUS expedition participants are obliged to:

- Manage the research/surveying operations
- Assist on deck, except in the operation of winches and cranes etc.
- Manage/plan the tasks in collaboration with the ship's Captain/crew.

In addition, only crew members:

- Can perform ship-specific work
- Can operate the ship's crane and winch (however, GEUS' winch is operated by GEUS employees)
- Can sail the ships Rigid Inflatable Boats (RIBs) and smaller boats
- Are responsible for the ship's safety
- And the Captain and crew plan the voyage based on the customer's wishes, so that the tasks can be performed in the best way possible.

## 11.4 Safety Courses – Offshore

For all fieldwork, the Project Manager/Owner is responsible for assessing the need for safety courses and for the field participants' level of training in relation to this.

Offshore fieldwork may take place far away from medical treatment and hospitals. The requirements for safety training are related to the conditions under which the fieldwork is carried out. The list below is not exhaustive. There may be special requirements for other courses on specific scientific expeditions. A more detailed description of the courses can be found on the page Courses – Fieldwork ([Kurser feltarbejde](#)) on GEUS' intranet.

- [First Aid](#) (mandatory, renewed at least every 3<sup>rd</sup> year; for offshore fieldwork in Greenland, please consider taking the course [Arctic First Aid I](#))
- [Basic training in maritime safety](#) (STCW) (mandatory, renewed at least every 4<sup>th</sup> year)
- [Rubber boat course](#) (mandatory if a significant part of the fieldwork is carried out from a rubber boat; renewed at least every 3<sup>rd</sup> year)
- [Elementary firefighting](#) (mandatory for fieldwork in smaller boats, renewed at least every 3<sup>rd</sup> year – may sometimes be included as part of the STCW training)
- VHF radio course (mandatory for some employees, recommended for others)
- Helicopter Underwater Escape Training (HUET) (not mandatory, but employees who use a ship-based helicopter as a significant part of their fieldwork should discuss the possibility of a HUET course with the Project Manager and Owner).

## 11.5 Safety equipment guidelines – offshore

Vessels are operated under different regimes, often time with platform-specific safety requirements. Many vessels have safety equipment available that can be used by cruise participants, and sometimes personal clothes (e.g. Arctic clothes) can be obtained from a pool of a participating research institution. The safety equipment necessary on a cruise should reflect the work to be conducted, which can vary greatly (e.g. deck, lab, office) and climatic conditions must always be considered. The Project Manager is responsible for ensuring that cruise participants know what

safety equipment is required, and how to obtain it, e.g. as loan or by purchasing it, see section 6.

Typical items used during fieldwork are:

- Safety helmet
- Safety shoes (shoes, boots, rubber boots)
- Rain gear (for offshore use; standard Gore-Tex hiking clothes not sufficient)
- Inflatable life jacket
- Safety harness
- Safety gloves (regular pair, waterproof/resistant)
- Floatation suit
- Overall
- Safety glasses (use GEUS purchase order if personal lens strength is required)
- Ear protection
- Reflective vest (also useful on land, e.g. in harbours)

Additional items that help to make for a comfortable and safe stay on the vessel:

- Sunglasses
- Sunscreen
- Second pair of glasses
- Water bottle
- Small personal medical kit (band aid, painkillers, sea sickness medication, anti-diarrheal etc.)
- Thick woollen socks
- Hat (even in the summer)
- Knee pads
- Indoor shoes (preferably fixed at the heel and toes covered)

## **11.6 Work from GEUS' Coring Platform – Offshore**

GEUS employees sometimes carry out fieldwork near the shore and on lakes from GEUS' coring platform.

As GEUS is the shipowner, and the dimensions of the platform means that it is subject to the Executive order (BEK 956 af 26/09/2012) for smaller vessels carrying up to 12 passengers, Safety instructions for GEUS' Coring Platform have been made as to how the platform should be used and the qualifications required to operate the coring platform. The coring platform's safety instructions should always be carefully reviewed in relation to the planned fieldwork. Make sure that you bring suitable safety equipment and that it is used correctly, see the Drill Rig Safety Sheet on the intranet.

## **11.7 Fieldwork from Smaller Boats and Rubber Boats – Offshore**

'Small boats' can be chartered with a captain or they can be boats you navigate yourself.

Small boats are required to have their own safety instructions. Important things to consider when reviewing safety on small boats:

- That sufficient, certified personal safety equipment is onboard



- The maintenance condition of the boat and its equipment, especially with relation to the boat's safe operation
- The boat's limitations in relation to the number of passengers and any cargo on board
- The nature of the waters and thus the suitability of the boat for the task
- Access conditions and launching
- The Captain's experience and qualifications
- Trading area, 'emergency port'/mother ship, distance from land
- Season, weather, and forecasts
- Operator(s); are they an experienced/trained sailor?
- Local knowledge.

When boarding GEUS' motorboat *Maritina*, you will be given a copy of the [safety sheet](#), which can also be found onboard; furthermore the Captain will brief team members before sailing. GEUS has no employees who are allowed to navigate the boat on commercial projects or with passengers. When this is required, a professional Captain and sometimes crew is hired, often from the company FOGA ApS in Esbjerg. You can read about the equipment onboard *Maritina* and other information about *Maritina* [here](#) (in Danish).

Things to consider when sailing with a rubber boat in Greenland are described in *Field Instructions and Standards: 4.4 Boat operations*. Also read GEUS' [Safety Instructions for GEUS' Rubber Boats](#).

## 11.8 Alcohol Policy – Offshore

When working offshore, consumption of alcohol is not allowed on board GEUS' boat or on boats/vessels chartered by GEUS. During temporary interruptions, e.g. port calls due to bad weather, change of crew or breakdown of equipment, the general alcohol ban can be lifted to a limited extent; one must be able to resume work after at least 6 hours' notice from the Project Manager. For fieldwork organised by institutions other than GEUS, the rules of the vessel's captain or Project Manager must be followed.

## 11.9 Hours of Rest – Offshore

Hours of rest and other rules related to seafarers' conditions of employment are regulated by the Maritime Labour Convention (MLC). It states, amongst other things that:

*Seafarers and fishermen must have at least 10 hours of rest in a 24-hours period. It is possible to divide the hours of rest into a maximum of two periods, one of which must have a duration of at least 6 hours. There must be a maximum of 14 hours between the periods of rest.*

Read more about the rules for hours of rest on the Danish Maritime Authority's website: [Hours of rest | Danish Maritime Authority \(dma.dk\)](#).

## 12 Fieldwork in Greenland – Onshore

Fieldwork in Greenland can be carried out from towns or settlements or in very remote areas. Depending on where in Greenland and the conditions under which the fieldwork takes place, different requirements regarding the safety of the field participants apply. The fieldwork can be carried out from tent camp(s), houses, or ships can be used as a base camp for the fieldwork. When chartering a ship to be used as a base camp the guidelines in section 11.1-11.3 is must be followed.

Early and thorough planning is particularly crucial for fieldwork taking place far from towns and normal infrastructure. As described in section 1, a field plan must be prepared and a risk assessment must be made for specific elements that can be a potential risk, see Appendix 1 Field Plan and Risk Assessment. As part of the field plan, practical and safety issues are discussed with all field participants, and support from the Head of Department is ensured.

### 12.1 Safety Courses, Greenland – Onshore

For all fieldwork, the Project Manager/Owner is responsible for assessing the need for safety courses and for the field participants' level of training in relation to this.

Due to the Arctic climate and often very long distances to medical treatment and hospitals, the requirements for appropriate safety training are strict when carrying out fieldwork in Greenland, and these requirements are therefore closely related to the conditions under which the fieldwork is carried out. A more detailed description of the courses can be found on the page [Courses – Fieldwork \(Kurser feltarbejde](#), in Danish) on GEUS' intranet.

- [Arctic First Aid I & II](#) (mandatory, the two courses must be renewed alternately each year)
- [Shooting courses \(rifle or revolver\)](#) (mandatory for fieldwork outside towns/settlements, renewed at least every 3<sup>rd</sup> year)
- [Rubber boat course](#) (mandatory for fieldwork from rubber/inflatable boats, renewed at least every 3<sup>rd</sup> year)
- [Glacier course \(standard and refresher\)](#) (see section 13.2)
- [Elementary firefighting](#) (recommended)
- First aid course or AED course (recommended)

### 12.2 Field Clothing and Personal Equipment, Greenland – Onshore

Proper clothing is essential to carry out fieldwork in Greenland in a safe manner. Wool underwear, rainwear, shell jacket, hat, mittens, good hiking boots and the possibility to regulate the body temperature via layering, depending on weather conditions and work intensity, are important safety parameters when staying and working in Arctic regions.

Often it is not possible to buy medicine, sunscreen, contact lenses, sanitary towels, blister plasters etc. once you have arrived at your field destination. Project Managers and experienced colleagues have a special responsibility to share their experience and knowledge with less experienced/inexperienced field participants. Read more in *Field Instructions and Standards: 1 Equipment*.

### **12.3 Field Equipment and Safety Equipment, Greenland – Onshore**

As fieldwork in Greenland often is in uninhabited areas, it is important to bring equipment that takes the general comfort and safety of the field participants into account, see sections 6.2 and 7.

Certain types of safety equipment are mandatory if you are outside towns and settlements in Greenland, for instance communication equipment and [firearms](#), see Table 7 in Appendix 1 Field Plan and Risk Assessment for inspiration.

### **12.4 Camping Equipment, Water and Provisions, Greenland – Onshore**

When the fieldwork is carried out from field camps, it is important to bring suitable equipment for this. Usually, this can be ordered from GEUS' equipment section (Udrustningen), see section 7.

When camping it is essential that the location of the camp is close to clean water. Read more in *Field Instructions and Standards: 2.1 Selecting a campsite*.

In addition to warm clothes, good tents, sleeping bags, communication and safety equipment, water and provisions are primary necessities. Always bring plenty of provisions, so there is enough food for a prolonged, unanticipated stay in the field. Read more in *Field Instructions and Standards: 1.2 Provisions*.

### **12.5 Polar Bears and Defence Measures Against Dangerous Animals, Greenland – Onshore**

**Handling of firearms.** The proper use of firearms is an important part of GEUS' preparedness when it comes to encounters with polar bears and other potentially dangerous animals. Field participants learn to handle firearms and receive practical shooting training at the shooting courses organised by GEUS every year prior to the field season in Greenland, see sections 9 and 12.1.

Field participants who carry firearms in the field must always make sure that they have unambiguous agreements with field partners and other colleagues about handling of the firearms and where the firearms are placed, both during the daily field trips and in the camp. The location of firearms should be marked with luminescent bands or flagging tape to ensure that they are easy to find. Likewise, it must always be agreed and planned how to handle a possible bear encounter, e.g. if the bear alarm goes off while the field participants are in the tent(s). Two field participants should go the same way around the tent, so they do not risk shooting each other. It may be useful to test the firearms when arriving at the field site.

It can be difficult to find an optimal way to carry handguns in the field. It is therefore recommended that you consider in advance how you want to carry your revolver, so it is immediately within reach. E.g. it can be by carrying the weapon in a belt and supplementing with suspenders, as the weight of the weapon can pull down the trousers.

Read more about wildlife and firearms in Greenland in *Field Instructions and Standards: 4.9 Wildlife and 4.10 Firearms*.

**Bear alarms.** GEUS' bear alarms are brought and set up when field teams spend the night in tents outside towns and settlements where there is a risk of bear encounters. Read more in *Field Instructions and Standards: 2 The Camp*.

## **12.6 Agreements regarding contact during Fieldwork, Greenland – Onshore**

When carrying out fieldwork outside towns and settlements, it is recommended that field participants have daily contact with base camp, a local contact or a colleague at GEUS to continuously ensure that things are proceeding according to the plan and no one is injured or lacks necessities. If several field teams are out at the same time, but at different locations, agreements must be made on which means of communication equipment to use and how often contact should be made. The plan for contact must be noted in section 1.2 in Appendix 1 Field Plan and Risk Assessment.

In connection with larger field expeditions with a base camp and many smaller teams out in the field, contact (radio time) with base camp is recommended twice a day, e.g. at 8 am and 8 pm. Read more about communication and radio time in *Field Instructions and Standards: 3 Communication*.

## **12.7 Helicopter Operations, Greenland – Onshore**

GEUS has signed general framework agreements with suppliers of ad hoc and full charter helicopter services. These agreements stipulate the terms of the helicopter services; read more about helicopter charter ([Helikoptercharter](#)) on GEUS' intranet.

When signing charter agreements, consider agreements on matters such as:

- Experience with the specific type of flight, e.g. sling, on the ice, in mountainous areas
- Clear agreements regarding contact, meeting time and place, weather, equipment, weight, length of the charter, etc.

The pilot will give a mandatory safety briefing before the charter begins.

Read more in *Field Instructions and Standards: 4.3 Helicopter Operations*.

## **12.8 Work from Chartered Ship or Rubber boat, Greenland – Onshore**

When carrying out fieldwork on land in Greenland, but where a rubber boat or other small boats are used, the rules for offshore work apply, see section 11.6 Fieldwork from Smaller Boats and Rubber Boats – Offshore. However, one should be very aware that the Arctic climate and the large distances to medical care constitute a very significant risk, which should always be addressed when preparing the field plan and risk assessment, cf. Appendix 1 Field Plan and Risk Assessment.

Another important (limiting) factor is the number of ships/vessels available for charter. Therefore, make sure to check all possibilities and seek information and advice from colleagues and others you trust.

## **12.9 Working in Difficult Terrain, Greenland – Onshore**

Working in difficult terrain can cause different strains on the body depending on e.g., the type of ground or angle of the slope: it may be difficult to stand firmly or walk without slipping or stumbling. Therefore, there is a real risk of accidents and of sudden and unexpected strain that can cause acute or permanent injuries, e.g. to the legs or back. If the surface is slippery or greasy, the risk increases.

When working on slopes, ditches, and alike, where the surface is not planar, the work must be planned and organised, so it can be carried out safely. This assessment includes the angle and the height of the slope, the nature of the surface, the footwear used, the duration and nature of the work, as well as other conditions such as the weather.

If the conditions involved in reaching the point of interest suggest a high likelihood of accident or injury, the sample must be taken elsewhere.

## **12.10 Use of Waders in Lakes and Rivers, Greenland – Onshore**

Waders are a work tool which GEUS employees primarily use when working in lakes and rivers. There are many different types of waders, both in terms of fabric type and thickness, but also in terms of soles, which are available in different thicknesses and materials; each type has its advantages and disadvantages. It may be a good idea to talk to salesperson before buying – especially if one knows the conditions under which the waders will be used. There are lots of tips on the internet for buying the correct waders.

When using waders attention should be paid to the following:

- Know your own limitations and understand and evaluate each wading scenario
- Take a step into knee-high water to assess:
  - How strong is the current?
  - What is the condition of the bottom (smooth/not smooth, stone, is the bottom flat etc.)?
  - What is the water temperature?
- Use a walking stick or other stick or hold a colleague by the hand to always have a two-point contact (e.g. foot and stick, foot and colleague)
- Go sideways if the water depth becomes too high and the current too strong
- Correct foot placement – concentrate on where you place your feet
- Use a life jacket if you must wade where the water is deep, or currents are strong
- Use a waders belt, if possible. If you fall, it will reduce the speed at which the water can flow in.
- Bring a whistle so you quickly can alert nearby people.
- Have a Plan B – know what to do if you fall into the water.
- Remember correct clothing, wool as an inner layer is often a good idea for insulation.

After use, the waders are rinsed and hung to dry.

## 13 Fieldwork on Glaciers, the Greenland Ice Sheet, and Ice Caps

Fieldwork on ice- or snow-covered areas requires special attention and specific skills. Depending on the conditions under which the fieldwork takes place, there are different requirements for the protection of your own and your colleagues' safety.

Most GEUS fieldwork on ice is carried out in Greenland, but fieldwork and courses can also take place in Antarctica, Svalbard, and Iceland. The descriptions in this section relate specifically to fieldwork in Greenland.

Early and thorough planning is particularly crucial for fieldwork taking place far from towns and normal infrastructure. Therefore, an annual pre-field season meeting is held with the Head of Department for Department of Glaciology and Climate and the Project Managers, where field plans and risk exposure level for the specific projects is discussed, see section 13.1. The Head of Department makes the final decision on the project's risk exposure level for the individual fieldwork. This must be done well in advance so the field participants can meet the requirements that apply to the risk exposure level in question, see section 13.2

When the risk exposure level is found, a field plan and risk assessment has to be prepared (see section 1 and Appendix 1 Field Plan and Risk Assessment), where all other matters regarding safety than the risk exposure level of the ice is discussed.

If the fieldwork is carried out in areas where there is a significantly increased risk of accidents (e.g. if traversing crevasse areas), external safety experts can be used, e.g. a mountain guide. An 'external' expert can also be a colleague with extensive field experience and good judgment.

### 13.1 Risk Exposure Level – on Ice

Fieldwork on the ice does not in itself necessarily involve an increased risk. This applies, e.g. to a day trip by helicopter that remains at the site, or working on fixed installations in areas with crevasses, where the work area itself has been checked for crevasses, and you only move within the area that has been checked. In these cases, external experts will not be needed.

When carrying out field work on the ice, three risk exposure levels is used: green, yellow, and red. For each color, the risk for an incident in relation to fieldwork is described. The color influences the measures to be taken in relation to safety courses (see section 13.2).

**Green risk exposure level** – no significant risks in relation to the fieldwork:

Working on bare ice, the helicopter is waiting on-site, no camping in the field, no rifle brought along

**Yellow risk exposure level** – some risks in relation to the fieldwork:

Working and travelling on ice- and snow-covered areas at a distance from known crevasse fields, camping on snow/ice or land may occur, rifle brought along

**Red risk exposure level** – significant risks involved with fieldwork:

Working and travelling on snow covered areas with expected crease fields, camping on ice or land, rifle brought along

## 13.2 Safety Courses According to Risk Exposure Level – on Ice

Due to the Arctic climate and the great distances to medical treatment and hospitals, and as working on the ice often involves a risk, the requirements for appropriate safety training are stricter when it comes to doing fieldwork on the ice.

For all types of fieldwork on ice the field participants need for safety courses is determined by the risk exposure level found in collaboration with the Head of Department, see section 13.1. If the fieldwork is assessed to be carried out in an area with green risk exposure level, the safety courses must correspond to a green risk exposure level, see below. If the risk exposure level is yellow, the courses should correspond to yellow and likewise for red levels.

### Green level

- [Arctic First Aid I & II](#) (mandatory, annually)
- At least one participant must have an updated [glacier course \(standard and refresher\)](#) (renewed every 3<sup>rd</sup> year; when combined with an annual refresher course in Denmark where safety techniques are reviewed by a mountain guide, it can be prolonged by a year, however only twice at most).

### Yellow level

- [Arctic First Aid I & II](#) (mandatory, the two courses must be renewed alternately each year)
- [Shooting courses \(rifle and rifle + revolver\)](#) (mandatory, renewed at least every 3<sup>rd</sup> year)
- [Glacier safety course \(standard and refresher\)](#) (mandatory, must be renewed every 3<sup>rd</sup> year; when combined with an annual refresher course in Denmark where safety techniques are reviewed by a mountain guide, it can be prolonged by a year, but only twice at most).

### Red level

- [Arctic First Aid I & II](#) (mandatory, the first time both courses must be attended, then the courses are to be renewed each year alternately)
- [Shooting courses \(rifle and rifle + revolver\)](#) (mandatory, must be renewed at least every 3<sup>rd</sup> year)
- [Glacier safety course \(standard and refresher\)](#) (mandatory, must have been attended within the past three years, must be combined with an annual refresher course in Denmark where safety techniques are reviewed by a mountain guide, if the glacier course is more than one year old).

The courses are intended to make participants familiar with the equipment used and with typical procedures. Inexperienced participants are not expected to acquire expert skills.

A more detailed description of the courses can be found on the page Courses – Fieldwork ([Kurser feltarbejde](#)) on GEUS' intranet.

### **13.3 Field Clothing and Personal Equipment – on Ice**

Proper clothing is essential when carrying out fieldwork in Greenland in a safe manner. Wool underwear, rainwear, shell jacket, hat, mittens, good hiking boots and the possibility to regulate the body temperature depending on weather conditions and work intensity are important safety parameters when staying and working in Arctic regions.

Often it is not possible to buy medicine, sunscreen, contact lenses, sanitary towels, blister plasters etc. once you have arrived at your field destination. Project Managers and experienced colleagues have a special responsibility to share their experience and knowledge with less experienced/inexperienced field participants.

### **13.4 Field Equipment and Safety Equipment – on Ice**

As fieldwork in Greenland often is in uninhabited areas, it is important to bring equipment that takes the general comfort and safety of the field participants into account, see sections 6.2 and 7.

Certain types of safety equipment are mandatory if you are outside towns and settlements in Greenland, for instance communication equipment and [firearms](#), see Table 7 in Appendix 1 Field Plan and Risk Assessment for inspiration. If work is carried out in areas with crevasses, moulins etc., relevant safety equipment shall be brought along.

### **13.5 Camping Equipment, Water and Provisions – on Ice**

When the fieldwork is carried out from field camps, it is important to bring suitable equipment for this. Usually, this can be ordered from GEUS' equipment section (Udrustningen), see section 7.

When camping it is essential that the location of the camp is close to clean water. Read more in *Field Instructions and Standards: 2.1 Selecting a campsite*.

In addition to warm clothes, good tents, sleeping bags, communication and safety equipment, water and provisions are primary necessities. Always bring plenty of provisions, so there is enough food for a prolonged, unanticipated stay in the field. Read more in *Field Instructions and Standards: 1.2 Provisions*.

### **13.6 Polar Bears and Defence Measures Against Dangerous Animals – on Ice**

**Handling of firearms.** The proper use of firearms is an important part of GEUS' preparedness when it comes to encounters with polar bears and other potentially dangerous animals. Field participants learn to handle firearms and receive practical shooting training at the shooting courses organised by GEUS every year prior to the field season in Greenland, see sections 9 and 12.1.

Field participants who carry firearms in the field must always make sure that they have unambiguous agreements with field partners and other colleagues about handling of the firearms and where the firearms are placed, both during the daily field trips and in the camp. The location of firearms



should be marked with luminescent bands or flagging tape to ensure that they are easy to find. Likewise, it must always be agreed and planned how to handle a possible bear encounter, e.g. if the bear alarm goes off while the field participants are in the tent(s). Two field participants should go the same way around the tent, so they do not risk shooting each other. It may be useful to test the firearms when arriving at the field site.

It can be difficult to find an optimal way to carry handguns in the field. It is therefore recommended that you consider in advance how you want to carry your revolver, so it is immediately within reach. E.g. it can be by carrying the weapon in a belt and supplementing with suspenders, as the weight of the weapon can pull down the trousers.

Read more about wildlife and firearms in Greenland in *Field Instructions and Standards: 4.9 Wildlife and 4.10 Firearms*.

**Bear alarms.** GEUS' bear alarms are brought and set up when field teams spend the night in tents outside towns and settlements where there is a risk of bear encounters. Read more in *Field Instructions and Standards: 2 The Camp*.

### **13.7 Agreements Regarding Contact during Fieldwork – on Ice**

When carrying out fieldwork outside towns and settlements, it is recommended that field participants have daily contact with base camp, a local contact or a colleague at GEUS to continuously ensure that things are proceeding according to the plan and no one is injured or lacks necessities. The plan for contact must be noted in section 1.2 in Appendix 1 Field Plan and Risk Assessment.

### **13.8 Helicopter Operations – on Ice**

GEUS has signed general framework agreements with suppliers of ad hoc and full charter helicopter services. These agreements stipulate the terms of the helicopter services; read more about helicopter charter ([Helikoptercharter](#)) on GEUS' intranet.

When signing charter agreements, consider agreements on matters such as:

- Experience with the specific type of flight, e.g. sling, on the ice, in mountainous areas
- Clear agreements regarding contact, meeting time and place, weather, equipment, weight, length of the charter, etc.

The pilot will give a mandatory safety briefing before the charter begins.

Read more in *Field Instructions and Standards: 4.3 Helicopter Operations*.

## 14 Fieldwork Abroad

From time-to-time GEUS carries out fieldwork in countries other than Denmark and Greenland. The Head of Department and Project Manager must be aware of possible safety issues during fieldwork abroad. Appendix 1 Field Plan and Risk Assessment must be prepared when planning the work.

### 14.1 Travel Advice – Abroad

The security situations of countries where GEUS carries out fieldwork can change rapidly. The Ministry of Foreign Affairs of Denmark prepares travel advisories with useful information for specific countries and these should always be consulted prior to travel. Normally the travel advisories are prepared for countries where Denmark has an embassy or considerable interest, but they are also prepared for countries where there are many travellers from Denmark and/or where significant safety risks may occur, e.g. due to war, danger of terrorism, riots, natural disasters, crime etc. Read more on [The Ministry of Foreign Affairs of Denmark's website](#).

Also read [Good advice from colleagues](#) (Gode råd fra kollega til kollega) before you leave. Although the list is not entirely new, most of the advice is still good and fully valid.

### 14.2 Safety Courses – Abroad

When carrying out fieldwork abroad, the Project Manager/Owner is responsible for assessing the need for safety courses and for the field participants' level of training in relation to this.

As the fieldwork can be diverse, no examples of courses are given here apart from the first aid course that is mandatory:

- [First Aid](#) (mandatory, updated within the last 12 months before departure)

### 14.3 Health – Abroad

**Health Certificates.** Health certificates are not required for fieldwork abroad. GEUS recommends being mindful of your own health prior to the fieldwork, and if needed to have a health examination from your own physician or from the Medical Office, see section 3.1. For a medical pre-approval, see section 3.2.

**Vaccination.** Remember to bring any documentation of vaccinations etc., see section 3.2.

#### Other Considerations Regarding Health

- Malaria medicine (preventive/treatment) or other types of medicine, e.g. non-prescription medicine for treatment of stomach pains etc. can be difficult to buy when travelling, so do bring it with you.
- In hot regions consider bringing electrolyte doses, and clean needles.
- Always carry abundant supplies of water in the field in hot regions. In areas where drinking water cannot be purchased, bring your own water filters or tablets to purify the water.
- Other issues can be the climate (cold/heat/sun), diseases (food, dangerous animals, bacteria, parasites etc.). Therefore, bring strong sun protection such as waterproof sunscreen

and sun-protective clothing (shade hats, long-sleeved shirt/long trousers, etc.), and an effective mosquito repellent, nets etc., as this might be difficult to obtain locally.

- In some countries, traffic can be the biggest risk in terms of safety. Be aware that the traffic culture – e.g., the side of the road that is driven on – may be very different from the one you know.

#### **14.4 Agreements Regarding Contact during Fieldwork – Abroad**

**Contact with GEUS.** In connection with fieldwork abroad, it is recommended that the Project Manager and Head of Department agree on how and when contact with GEUS shall take place during the fieldwork.

**Local Partners.** Fieldwork abroad will often take place in collaboration with local partners. If suitable, you can arrange regular contact with local partners when working remotely from normal infrastructure, or if the work involves a potential risk in any way. It should also be agreed that the local partner contacts someone from GEUS' management in case something happens to an employee. The relevant Head of Department, or the director of GEUS, can then inform the employee's next of kin, if contact information has been provided. If this is not the case, it will ultimately be the police, the Danish Embassy, or the consulate to get in contact with the family (next of kin).

#### **14.5 Field Clothing and Personal Equipment – Abroad**

Nothing specific can be said about what kind of field clothing and personal equipment that is relevant for fieldwork abroad in general. The individual Project Manager is therefore requested to carefully consider whether the fieldwork requires special clothing or if field equipment is needed.

#### **14.6 Sampling and Export of Samples – Abroad**

Find out well in advance whether permission is required for the planned fieldwork, including collecting and export of samples and import/export of equipment. A reliable local contact is often indispensable in this regard.

Also, consider in advance how collected samples and equipment can be shipped out of the country; can the samples be carried in your luggage, or must they be transported by a courier company, if so, by which company?

#### **14.7 Finances and other Considerations – Abroad**

Expenses in connection with export of samples, etc. can be costly. Ensure in advance that you have the necessary coverage on your GEUS credit card and be aware that sometimes there is a limit to the amount that can be withdrawn in cash daily and monthly. Also, be aware that in some countries, only clean, brand-new banknotes without folds etc. can be exchanged. Often, Danish kroner cannot be exchanged for local currency. US dollars and euros may be easier to exchange. Due to exchange rates, it is sometimes cheaper to withdraw dollars/euros in Denmark and exchange them to the local currency once you are there, rather than withdrawing the local currency in Denmark.

## 15 Field Participant's Signature

As participant in GEUS fieldwork you must read these Safety Instructions and sign to confirm that you have read the instructions with any updates via [this link](#).

## Appendix 1 Field Plan and Risk Assessment

A *Field plan and risk assessment* must be prepared prior to all fieldwork, except onshore in Denmark. For fieldwork onshore in Denmark, a field plan and risk assessment can be prepared; this decision is taken by the Project Manager and the responsible Head of Department.

*The field plan* shall provide an overview of the basic information related to the planned fieldwork, and at the same time help the Project Manager to get an overview of whether the participants chosen to take part in fieldwork, constitute an optimal team to complete the required tasks.

The purpose of *the risk assessment* is to identify potential risks in order to evaluate whether precautions need to be taken to minimise the identified risks.

By default, the Project Manager is also the acting Safety Officer and must inform of and involve all relevant persons in field planning and risk assessment. However, the Project Manager may appoint a colleague as expedition leader, cruise leader or field leader, who will then assume the responsibility of Safety Officer for that specific part of the project and it is this leader who will ensure that all field participants have received all necessary information. For each field plan, the Project Manager, possibly in collaboration with the Head of Department, must decide whether there is a need for an independent review of the field plan and risk assessment by a 'safety consultant'. The safety consultant can be an external consultant but can also be an experienced colleague.

# Field Plan and Risk Assessment for <Project xxx>

## 1 Field Plan – General Description of the Project

### 1.1 Basic Information

<b>Project</b>	<official name, abbreviation, alias>	
<b>Project Manager</b>		
<b>Expedition/cruise leader</b>	<name of appointed expedition, cruise or field leader>	
<b>Department</b>		
<b>Telephone number</b>		
<b>E-mail</b>		
<b>Partners</b>	<institution, contact person, e-mail, phone no.>	
<b>GEUS fieldwork</b>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	If no: <who is responsible for the health status of the participants, SAR, safety, insurance and permits to perform the work?>	
<b>Location</b>	<Denmark, Greenland, other>	

#### Purpose of the Fieldwork:

<a short description of the purpose, time frame, etc. for the entire project>

#### Map of the Field Area/Expected Locations:

<insert a map of the fieldwork/project area, from Google Maps or GIS. Please mark the nearest hospital, medical clinic, police, airport, and other relevant information. If the area is very remote, an additional map at a larger scale to show these facilities should also be inserted.>

### 1.2 Plan for the Fieldwork

<b>What?</b>	<short description of the actual fieldwork, that is planned in connection with the project, use of equipment, if any>
<b>Start date</b>	<from leaving home>
<b>End date</b>	<to return to home>
<b>Transportation</b>	<planned international or local transport, if any>
<b>Safety Manager*</b>	<is it necessary to appoint a Safety Manager? A Safety Manager is appointed if there are ten or more participants>
<b>Radio time**</b>	<what kind of contact to GEUS or others is agreed?> <which types of communication equipment is available?>

\*Unless otherwise agreed, the Project Manager is also the Safety Manager

\*\*Radio time means communication with e.g. GEUS, but also internal communication between different field teams, this in order to be able to give a status on the participants' well-being

### 1.3 Information About the Field Participants

Name	Institution	Role/function	Comment
<Ole Olsen>	<GEUS>	<Glaciologist>	
<Hanne Hansen>	<DTU>	<Geophysicist>	

## 2 Risk Assessment

### 2.1 Identification of Risks during the Planned Fieldwork

Risk assessments are a tool to create awareness and minimise the risk of injury or damage to persons, equipment, the environment and GEUS' reputation.

**Risk** can be defined as the **consequence x probability** associated with an unwanted event. The purpose of the risk assessment is to evaluate whether an identified risk is acceptable or whether it can be minimised or eliminated by taking suitable precautions.

The risk assessment must be done well in advance of the planned fieldwork, so any precautions can be implemented without delays to the schedule. Please be aware that this is a desktop tool; with the purpose of increasing awareness to any risks that should be considered during the planning stage. The reality in the field can be very different from what was imagined at home, and it should always be observed conditions that determine decisions taken in the field.

#### Course of Action

1. Table 3 can help to identify potential risks in relation to the fieldwork. Remember: Not everything is a risk, if you consider them carefully, e.g. it is obvious that you need enough food, water, fuel etc. when camping in the Arctic.
2. For each identified risk, assess the probability (S1-S5) of the incident occurring (Table 1) and the severity of the consequences (C1-C5) if it occurs (Table 2).
3. Calculate the risk level by multiplying the probability with the consequence (Table 4).
4. In Table 6, list all the identified risks that you have found to be a potential risk in connection with the fieldwork
5. Use Table 5 to decide whether precautions are needed to change the 'probability' and mitigate the severity of the 'consequences' if the incident occurs.

**Table 1** Classes of probability S1 to S5.

Probability	Category	Probability	Description
	S5	Very likely	Expected to happen several times during the fieldwork
	S4	Somewhat likely	Will happen sometimes during fieldwork
	S3	Possible	Has been registered for similar types of fieldwork, might happen once during the fieldwork
	S2	Rare	Have heard of similar incidents, but it is very unlikely that it will happen during fieldwork
	S1	Unlikely	Have never heard of a similar incident, will most likely not happen during fieldwork

**Table 2** Classes of consequence C1 to C5.

Consequence	Category	Consequence	Description
	C1	Negligible	First aid injury
	C2	Minor	Medical treatment
	C3	Moderate	Absence injury, hospital stay
	C4	Major	Partially/permanently incapacitated
	C5	Catastrophic	Fatal accident

**Table 3** The list below can help to identify potential risks in relation to fieldwork.

✓	<b>Health Issues</b>		
	Valid health certificate(s)		Dog sledge
	Appropriate clothing and personal equipment		ATV
	Food and drinks (preferences / allergies)		Car
	Next of kin		On foot / ski
	Medication (allergies etc.)		Information / announcing of field activities
	Rabies		Activities that might create public concern, or be of danger to the public
	Parasites and possible infection or disease	✓	<b>Environmental Issues</b>
	Sanitation, hygiene, and risk of contagion		Disturbance of wildlife special to the area and time period.
	Workload/overtime – physical and mental exhaustion		Waste disposal
	Other things?		Protected areas
✓	<b>Insurance</b>		Cultural heritage
	Travel insurance, is everyone covered?		Location of camp sites
	Insurance of field equipment and personal equipment		Flora
	Search & Rescue (SAR), is everyone covered?		Need for special permits / applications?
✓	<b>Safety Issues in General</b>	✓	<b>Field Camp</b>
	The field parties' route		Tents
	Weather forecast for the period		Small cabins
	How to handle bad weather conditions		Fire protection
	Travelling over / movement on sea ice		
	Travelling over / movement on glaciers		CO <sub>2</sub> poisoning
	Travelling / movement in difficult terrain		Polar bear protection
	Travelling/moving in areas exposed to avalanches		Location of the field camp, safety issues.
	Dangerous animals – equipment / agreements		Communications from the field camp
	Routines regarding firearms and pyrotechnics		Garbage / waste, routines, and handling
	Emergency procedures (radio medical, list of contacts)		Access to clean water
	Travelling / movement on melted Tundra		Familiarity with use of camp equipment such as camp stoves, polar bear fence, etc.
	Crossing rivers	✓	<b>Organisation, Planning and Responsibilities</b>
	Means of communication		Leadership and responsibilities
	Communication routines		When to report back to GEUS/base camp
	Distribution of safety equipment in the field party		Report when leaving/returning to a destination or field camp
	Working on large vessels		Location of emergency equipment
✓	<b>Use of Drones (UAV, UUV / AUS)</b>		Termination of fieldwork – when is it unsafe to continue the fieldwork?
	Permits in place?	✓	<b>Mandatory Check-In/De-brief/Evaluation</b>
	Competence and certificates for pilots		Register incidents, accidents, or deviations
	Risk analysis		Restore / cleaning equipment after fieldwork
✓	<b>Transportation by</b>		Need of debriefing / evaluation
	Snow scooter. Organisation and driving procedures		Register polar bear sightings / incidents
	Small boats. Safety instructions / mandatory safety briefing	✓	<b>Special Operations</b>
	Large vessels. Mandatory safety briefing		Handling heavy equipment
	Large vessels – handling of equipment, navigation, weather, rescue equipment		Handling heavy or dangerous machinery
	Helicopter. Mandatory safety briefing.		Use of winch or similar
	Fixed winged airplane		Handling chemicals
			Use of toxic material
			Need for special safety analyses / HSE analyses?



**Precautions.** The need for precautions depends on the risk (Table 4). Table 5 shows when action is needed. If the risk is 'extreme' (red), it must, in principle, be assessed as unacceptable and the desired fieldwork cannot be carried out. If it is possible to reduce the 'high' risk (orange) in Table 5 by taking precautions, the fieldwork can probably be carried out.

Precautions can include extra training, consultation of safety experts, change in schedule, change in staffing, purchase/use of extra safety equipment, implementation of risk zones and much more. The specific precautions are chosen based on the actual situation.

**Table 4** Risk matrix for risk assessment.

Incident during fieldwork		Consequence (severity)				
		Negligible K1	Minor K2	Moderate K3	Major K4	Catastrophic K5
Probability	Very likely S5	Moderate 5	High 10	Extreme 15	Extreme 20	Extreme 25
	Likely S4	Moderate 4	High 8	High 12	Extreme 16	Extreme 20
	Possible S3	Low 3	Moderate 6	High 9	High 12	Extreme 15
	Rare S2	Low 2	Moderate 4	Moderate 6	High 8	High 10
	Unlikely S1	Low 1	Low 2	Low 3	Moderate 4	Moderate 5

**Table 5** Risk matrix and need for precautions.

Colour	Risk	Actions
	Extreme	If fieldwork must be carried out, precautions must be taken so the risk changes to orange
	High	Detailed planning and preparedness are required
	Moderate	Continuous assessment of possible/necessary precautions
	Low	No immediate need for action. Precautions may prevent low risk from getting higher

**Table 6** Risks and possible precautions to mitigate consequences. Please remove the examples before completing the form.

Order of priority	Risk description	Probability (1-5)	Consequence (1-5)	Overall rating (red, orange, yellow, green). Red, orange and yellow risks <i>must</i> be considered, green <i>can</i> be included.	Current precautions	Additional precautions	Is the risk considered to be a basic condition where precautions will only to a small extent influence the risk? (yes/no)
1	Risk of falling into crevasses when working on glaciers	3	5		Always work at least two persons together, walk with ropes between you and wear crampons.	Never go out alone or far away from your tent after dark (but you can go out to pee).	Yes
2	Risk of falling and spraining your foot while doing geological mapping	2	3		Work at least two persons together, so you can help the injured person. Arctic First Aid is a prerequisite. Always carry your satellite phone and PLB.		Yes
3	The duration of the field period is extended, and you run out of food	2	2		Bring food for two days more than planned.	Bring food for another two days.	No
4							
5							
...							

Prioritise, describe, and note identified risks. Note probability, consequence and colour. Describe current precautions and additional precautions, if any. Decide whether the risk is considered a basic condition for the fieldwork. Text and colours in lines 1-3 are examples; please delete these.

<b>Prepared by:</b>	<b>Date:</b>
<b>Updated by:</b>	<b>Date:</b>

## 2.2.1 Other Procedures for Risk Reduction/Elimination

Other procedures that may reduce or eliminate risks:

- Project-specific safety procedures
- Detailed planning of the fieldwork, including daily plans
- Agreements on regular communication between the field participants
- No work after dark
- Availability of emergency flares (if brought along)
- Communication equipment
- Recording of all events
- Not to proceed if in doubt.
- Clear agreements on what safety equipment is brought; see Table 7.

**Table 7** List of safety equipment that should be considered when planning the fieldwork. The list is not exhaustive.

Equipment	Number	Remarks
Personal first aid kit		
Medical box		
Rifle, cal. .30-06		
Ammunition cal. .30-06		
Revolver, cal. .44 magnum		
Ammunition cal. .44 magnum		
Signal pistol		
Red signal ammunition		
Green signal ammunition		
Brown signal ammunition (blitz / knald)		
Signal pen (flares)		
Communication equipment	Satellite telephone	
	Emergency beacon (PLB)	
	Garmin InReach	
	Cell phone	
	VHF radio	
Spare batteries		
Battery charger for VHF radio		
Tripwire alarm		
GEUS reco bag		
Heliograph		
Whistle		
Safety goggles / shoes (boots)		
Safety helmets (hardhats)		
Avalanche search beacon		
Glacier rescue kit		
Life jackets, survival, and flotation suit		
Map		
Compass		
GPS		
Tools for minor repairs of e.g. rubber boats, snowmobiles etc.		
Windproof bag (or bothy bag)		
Extra fuel, oil, and other consumables		
Helmet, safety shoes or safety boots, hearing protection, reflective vest and safety climbing harness.		

The field plan is approved, and the risk assessment has been presented to the Head of Department on

Head of department

<dd-mm-yyyy>

<name and signature>

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## Appendix 2 Declaration of Confidentiality

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### Confidentiality in connection with Participation in Fieldwork

All GEUS employees have signed a declaration of confidentiality upon commencement of their employment. When participating in GEUS fieldwork external participants are also subject to provisions on confidentiality and are expected to fully accept and comply with the contents of GEUS' Declaration of professional secrecy cited below.

“During my stay [with GEUS] I may obtain knowledge of confidential information. I hereby undertake not to make any unwarranted transfer or use of such confidential information neither at GEUS nor outside GEUS. Information is confidential when by law or any other legal provision it is named as such or when it otherwise is necessary to keep the information confidential in order to consider substantial governmental or private interests. Reference is made to the Danish criminal code (borgerlig straffelov) §§ 152-152f, §299a and the Danish administrative code (forvaltningsloven) § 27.

I am aware that, according to legal provisions, a confidentiality period of 5 years applies to all reported data on oil and gas fields. Furthermore, I undertake, during my [at GEUS] fieldwork, to follow the instructions which apply to GEUS' employees, including safety instructions and instructions regarding the safeguarding and handling of GEUS' data. The obligations determined in this statement do not cease at the end of my stay with GEUS.”

Professional secrecy and confidentiality are especially important when external parties participate or in other ways are involved in GEUS fieldwork (e.g. external research teams using the GEUS logistics platform, subcontractors, and exploration and mining companies). Consider what you say and to whom. As a principle, no new observations and findings are to be discussed before they are published. Professional secrecy and confidentiality should also be considered while travelling and during radio communication.

## Appendix 3 Check List – Offshore Fieldwork



GEUS

<p>As a GEUS employee carrying out offshore fieldwork, you are obliged to familiarise yourself with GEUS' <i>Safety Instructions for Fieldwork</i>.</p> <p>The list below is intended to give GEUS employees an overview of matters that should be considered and/or agreed upon/put in order, before commencing offshore fieldwork. The checklist is not exhaustive. Your Project Manager is responsible for ensuring that you receive all necessary information in connection with fieldwork, both of a practical and professional nature and in terms of safety.</p>		
Safety instructions, field plan, and risk assessment	<input type="checkbox"/>	Have you read and signed GEUS' Safety Instructions for Fieldwork? Has a field plan and a risk assessment been prepared?
Salary, allowances, and other supplements	<input type="checkbox"/>	As a GEUS employee, you are entitled to benefits according to the state's rules on allowances during official travels ( <a href="#">Tjenesterejsecirkulæret</a> ). Depending on the fieldwork, it may be necessary to make a more detailed agreement on remuneration and benefits with the Head of Department. If the fieldwork is in Greenland, you may be entitled to additional payment (merarbejder-tillæg) in accordance with rules that can be <a href="#">found on GEUS' intranet</a> .
Collaboration agreements	<input type="checkbox"/>	Have collaboration agreements been drawn up for field participants who are not permanently employed at GEUS and for whom GEUS is responsible?
Insurance	<input type="checkbox"/>	Rules regarding insurance are described in GEUS' Safety Instructions for Fieldwork and on GEUS' <a href="#">intranet</a> . Remember to pick up an insurance card from <i>Budget and Accounting</i> if you do not already have one.
Health, special conditions	<input type="checkbox"/>	Participants in offshore fieldwork must have a health certificate, see GEUS' Safety Instructions for Fieldwork.
Next of kin	<input type="checkbox"/>	GEUS collects contact information for the next of kin of the field participants as part of the preparedness that GEUS maintains in connection with offshore fieldwork and in Greenland. It is voluntary to provide this information. <a href="#">Find the form</a> on geus.dk
Contact information	<input type="checkbox"/>	When participating in all types of fieldwork, it is recommended that you update your calendar with location and phone number. For long-term fieldwork, it is recommended that the Project Manager and Head of Department agree on how and when contact with GEUS should take place.
Field clothes and safety equipment	<input type="checkbox"/>	Field participants must bring clothing and field equipment suitable to the conditions under which the fieldwork takes place. For the current rules and recommendations, see GEUS' Safety Instructions for Fieldwork.
Mandatory courses	<input type="checkbox"/>	GEUS requires field participants to have taken the mandatory safety courses relevant for the type of fieldwork in question. See GEUS' Safety Instructions for Fieldwork.
Hours of rest	<input type="checkbox"/>	Are you updated on the <a href="#">current hours of rest</a> ? "Seafarer and fishermen must have at least 10 hours of rest in a 24-hours period. It is possible to divide the hours in a maximum of two periods, one of which must have a duration of at least 6 hours. There must be a maximum of 14 hours between the rest periods".
Airline tickets, passport, visa	<input type="checkbox"/>	GEUS usually books the relevant airline tickets. Remember passport and visa if required. Read more on GEUS' <a href="#">intranet</a> .

## Appendix 4 Check List – Onshore Fieldwork, Greenland



GEUS

<p>As a GEUS employee carrying out onshore fieldwork in Greenland, you are obliged to familiarise yourself with GEUS' <i>Safety Instructions for Fieldwork</i> and GEUS' field manual, <i>Field Instructions and Standards</i>.</p> <p>The list below is intended to give GEUS employees an overview of matters that should be considered and/or agreed upon/put in order, before commencing onshore fieldwork in Greenland. The checklist is not exhaustive. Your Project Manager is responsible for ensuring that you receive all necessary information in connection with fieldwork, both of a practical and professional nature and in terms of safety.</p>		
Safety instructions, field plan, and risk assessment	<input type="checkbox"/>	Have you read and signed GEUS' Safety Instructions for Fieldwork? Have a field plan and a risk assessment been prepared?
Salary, allowances, and other supplements	<input type="checkbox"/>	As a GEUS employee, you are entitled to benefits according to the state's rules on allowances during official travels ( <a href="#">Tjenesterejsecirkulæret</a> ). Depending on the fieldwork, it may be necessary to make a more detailed agreement on remuneration and benefits with the Head of Department. If the fieldwork is in Greenland, you may be entitled to additional payment (merarbejde-tillæg) in accordance with the rules that can be <a href="#">found on GEUS' intranet</a> .
Collaboration agreements	<input type="checkbox"/>	Have collaboration agreements been drawn up for field participants who are not permanently employed at GEUS and for whom GEUS is responsible?
Insurance	<input type="checkbox"/>	Rules regarding insurance are described in GEUS' Safety Instructions for Fieldwork and on GEUS' <a href="#">intranet</a> . Remember to pick up an insurance card from <i>Budget and Accounting</i> , if you do not already have one.
Health, special conditions	<input type="checkbox"/>	Participants in fieldwork in Greenland must have a health certificate, see GEUS' Safety Instructions for Fieldwork.
Next of kin	<input type="checkbox"/>	GEUS collects contact information for the next of kin of the field participants as part of the preparedness that GEUS maintains in connection with offshore fieldwork and in Greenland. It is voluntary to provide this information. <a href="#">Find the form</a> on geus.dk
Contact information	<input type="checkbox"/>	When participating in all types of fieldwork, it is recommended that you update your calendar with location and phone number. For long-term fieldwork, it is recommended that the Project Manager and Head of Department agree on how and when contact with GEUS should take place.
Field clothing and safety equipment	<input type="checkbox"/>	Field participants must bring clothing and field equipment suitable to the conditions under which the fieldwork takes place. For the current rules and recommendations, see GEUS' Safety Instructions for Fieldwork.
Mandatory courses	<input type="checkbox"/>	GEUS requires all field participants to have taken the safety courses that are mandatory for the type of fieldwork in question. See GEUS' Safety Instructions for Fieldwork.
Airline tickets, passport, visa	<input type="checkbox"/>	GEUS usually books the relevant airline tickets. Remember passport and visa if required. Read more on GEUS' <a href="#">intranet</a> .

## Appendix 5 Check List – Fieldwork on Ice



GEUS

<p>As a GEUS employee carrying out fieldwork on land or in ice-covered areas, you are obliged to familiarise yourself with GEUS' <i>Safety Instructions for Fieldwork</i> and GEUS' field manual, <i>Field Instructions and Standards</i>.</p> <p>The list below is intended to give GEUS employees an overview of matters that should be considered and/or agreed upon/put in order, before commencing fieldwork on glaciers etc. The checklist is not exhaustive. Your Project Manager is responsible for ensuring that you receive all necessary information in connection with fieldwork, both of a practical and professional nature and in terms of safety.</p>		
Safety instructions, field plan, and risk assessment	<input type="checkbox"/>	Have you read and signed GEUS' Safety Instructions for Fieldwork? Have a field plan and a risk assessment been prepared?
Salary, allowances, and other supplements	<input type="checkbox"/>	As a GEUS employee, you are entitled to benefits according to the state's rules on allowances during official travels ( <a href="#">Tjenesterejsecirkulæret</a> ). Depending on the fieldwork, it may be necessary to make a more detailed agreement on remuneration and benefits with the Head of Department. If the fieldwork is in Greenland, you may be entitled to additional pay (merarbejde-tillæg) in accordance with the rules that can be <a href="#">found on GEUS' intranet</a> .
Collaboration agreements	<input type="checkbox"/>	Have collaboration agreements been drawn up for field participants who are not permanently employed at GEUS and for whom GEUS is responsible?
Insurance	<input type="checkbox"/>	Rules regarding insurance are described in GEUS' Safety Instructions for Fieldwork and on GEUS' <a href="#">intranet</a> . Remember to pick up an insurance card from <i>Budget and Accounting</i> , if you do not already have one.
Health, special conditions	<input type="checkbox"/>	Participants in fieldwork in Greenland must have a health certificate, see GEUS' Safety Instructions for Fieldwork.
Next of kin	<input type="checkbox"/>	GEUS collects contact information for the next of kin of the field participants as part of the preparedness that GEUS maintains in connection with offshore fieldwork and in Greenland. It is voluntary to provide this information. <a href="#">Find the form</a> on geus.dk
Contact information	<input type="checkbox"/>	When participating in all types of fieldwork, it is recommended that you update your calendar with location and phone number. For long-term fieldwork, it is recommended that the Project Manager and Head of Department agree on how and when contact with GEUS should take place.
Field clothes and safety equipment	<input type="checkbox"/>	Field participants must bring clothing and field equipment suitable to the conditions under which the fieldwork takes place. For the current rules and recommendations, see GEUS' Safety instructions for fieldwork.
Mandatory courses	<input type="checkbox"/>	GEUS requires all field participants to have taken the safety courses that are mandatory for the type of fieldwork in question. See GEUS' Safety Instructions for Fieldwork.
Airline tickets, passport, visa	<input type="checkbox"/>	GEUS usually books the relevant airline tickets. Remember passport and visa if required. Read more on GEUS' <a href="#">intranet</a> .



## Appendix 6 Check List – Fieldwork Abroad



GEUS

<p>As a GEUS employee carrying out fieldwork abroad (not counting Greenland), you are obliged to familiarise yourself with GEUS' <i>Safety Instructions for Fieldwork</i>.</p> <p>The list below is intended to give GEUS employees an overview of matters that should be considered and/or agreed upon/put in order, before commencing fieldwork abroad. The checklist is not exhaustive. Your Project Manager is responsible for ensuring that you receive all necessary information in connection with fieldwork, both of a practical and professional nature and in terms of safety.</p>		
Safety instructions, field plan, and risk assessment	<input type="checkbox"/>	Have you read and signed GEUS' Safety Instructions for Fieldwork? Has a field plan and maybe a risk assessment been prepared?
Salary, allowances, and other supplements	<input type="checkbox"/>	As a GEUS employee, you are entitled to benefits according to the state's rules on allowances during official travels ( <a href="#">Tjenesterejsecirkulæret</a> ). Depending on the fieldwork, it may be necessary to make a more detailed agreement on remuneration and benefits with the Head of Department.
Collaboration agreements	<input type="checkbox"/>	Have collaboration agreements been drawn up for field participants who are not permanently employed at GEUS and for whom GEUS is responsible?
Insurance	<input type="checkbox"/>	Rules regarding insurance are described in GEUS' Safety Instructions for Fieldwork and on GEUS' <a href="#">intranet</a> . Remember to pick up insurance card from <i>Budget and Accounting</i> , if you do not already have one.
Health, special conditions	<input type="checkbox"/>	Recommendations and considerations regarding vaccination, health, etc. can be found in GEUS' Safety Instructions for Fieldwork.
Next of kin	<input type="checkbox"/>	GEUS collects contact information for the next of kin of the field participants as part of the preparedness that GEUS maintains in connection with offshore fieldwork and in Greenland. It can also be done for other official travel journeys. It is voluntary to provide this information. <a href="#">Find the form</a> on geus.dk
Contact information	<input type="checkbox"/>	When participating in all types of fieldwork, it is recommended that you update your calendar with location and phone number. For long-term fieldwork, it is recommended that the Project Manager and Head of Department agree on how and when contact with GEUS should take place.
Considerations regarding safety	<input type="checkbox"/>	Are there other safety considerations when doing fieldwork abroad, e.g. heat, cold, sun, water, traffic? See GEUS' Safety Instructions for Fieldwork.
Field clothes and safety equipment	<input type="checkbox"/>	Field participants must bring clothing and field equipment suitable for the conditions under which the fieldwork takes place. For applicable rules and recommendations, see GEUS' Safety instructions for fieldwork.
Mandatory courses	<input type="checkbox"/>	GEUS requires all field participants to have taken the safety courses that are mandatory for the type of fieldwork in question. See GEUS' Safety Instructions for Fieldwork.
Sampling and export of samples and equipment	<input type="checkbox"/>	See GEUS' Safety Instructions for Fieldwork.
Airline ticket, passport, visa etc.	<input type="checkbox"/>	GEUS usually books the relevant airline tickets. Alternatively, it can be done locally if it is more practical, which is most often the case with fieldwork abroad. Remember passport and possibly visa and residence permit if required. In some countries, your passport must be valid for a longer period than the planned trip. Therefore, check the rules for the country in question well in advance.
Travel Advice	<input type="checkbox"/>	Have you checked The Ministry of Foreign Affairs of Denmark's <a href="#">Travel Advice</a> for the country/region in question?
Currency and credit card	<input type="checkbox"/>	Make sure in advance that you have the necessary coverage on your GEUS credit card. Read more in GEUS' Safety Instructions for Fieldwork.