

McGill Earth and Planetary Sciences Safety Plan

Working draft

Earth and Planetary Science Field Safety Best Practices

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SECTION 1: ALL FIELD PARTY MEMBERS AND SAFETY CONTACTS TO CARRY A COPY

Field Trip Activities and Purpose:

One paragraph description including general area of travel and transportation modes. Scientific motivation or research plan do not need to be included.

Participants (including McGill and non-McGill people)

Some participants may not wish to disclose medical information to the entire team. In that case, a complete form including any information critical to pass to first responders can be held by individuals or by a designated member of the field team in a sealed envelope. Include a plan for returning this to the individual or destroying it to maintain confidentiality.

If you are injured, rescue workers and hospital staff will look in your phone for an In Case of Emergency number, or "ICE." Without an ICE number, they will not know who to contact. Learn how to program an ICE number into your phone before you go.

Copy the table below to repeat for every member of the field party. Include: Field Party Point of Contact, Field Party members, even if only joining the field party for part of the field work.

<i>Role in field party</i>	
<i>Position/ affiliation</i>	
<i>Phone number (s)</i>	
<i>Email (s)</i>	
<i>Emergency contact</i>	
<i>Insurance details (how to contact and group/plan numbers)</i>	
<i>First aid training? Other relevant skills</i>	
<i>Citizenship and status in fieldwork country. Citizenship related resources:</i>	<i>Passport Number, address disclosed to the border security office, offline copy of visa permit, letter of support for fieldwork from PI (linked or printed), registration documents with embassy. Research permit numbers</i>
<i>Allergies and Dietary Restrictions: (optional)</i>	

<i>Pre-existing health concerns or injuries: (optional)</i>	
<i>Immunization documents if required for travel</i>	
<i>Drivers license number if driving, relevant insurance details:</i>	
<i>Dates with field party:</i>	

Contacts outside the Field Party and Local Resources

Add or subtract lines from this table as needed. Designate at least 2 people to receive and confirm scheduled check-ins (at least one within McGill). Store these locations in google maps in your phone to make it easier to navigate if you plan to have cellular data or store for use offline.

McGill	<i>Name</i>	<i>Position/Title</i>	<i>Phone</i>	<i>Email</i>
<i>Daily check-in person</i>				
<i>Departmental</i>				
<i>Risk Management</i>				
<i>Travel Desk</i>				
<i>Finance</i>				
<i>Other</i>				
Field Area				
<i>Land owners</i>				
<i>Stakeholders</i>				
<i>Permitting agencies</i>				
<i>Collaborators</i>				
Logistics				

<i>Shipping Companies</i>				
<i>Field outfitters</i>				
<i>Vehicle rental</i>				
<i>Other local services</i>				

Emergency Resources in Field Area

Location-specific health requirements (vaccinations, precautions, etc) prior to travel?

	<i>Address</i>	<i>Phone</i>	<i>Services provided/notes</i>
<i>Emergency number</i>		<i>911/ other</i>	
<i>Hospitals</i>			
<i>Clinics</i>			
<i>Police</i>			
<i>Other Emergency responders</i>			
<i>Local community authorities</i>			
<i>Coast Guard</i>			
<i>Parks ?</i>			

Other Emergency Resources:

Evacuation insurance?

Travel insurance other than individual (listed above)

Emergency beacons / devices - details and account information if relevant

Location & Dates (with maps)

Field site:

Location (Lat/Long):

Attach map to this document. Annotate map with field areas, camps/accommodations and travel routes. Include emergency meeting points, distance and directions to emergency facilities, and communications sites (e.g. cell coverage spots, places to get wifi)

Daily Plan - this is to guide rescuers so be as specific as possible. Begin and end with departure from Montreal and return to Montreal or transition to personal travel. Add rows as needed.

<i>Date</i>	<i>Work plan - general location</i>	<i>Accommodation for the night</i>	<i>Notes (challenges to reaching area, resources available in area e.g. cell service, water, power)</i>

What is the current COVID situation in the field region or areas to be transited (include links for updated info)

Other disease information or environmental hazards relevant to the field site: (e.g. drinkable water? Malaria risk, other infectious diseases, waterborne pathogens, food risks, wildfire).

Mitigation recommendations (e.g. vaccinations, pharmaceuticals to include in emergency kit)

Comments (specific dates if known, map attached Y/N):

Non-Emergency Communication Plan

Communication Mechanisms in the Field Area

Cell service? GPS with messaging? Satellite Phone? Wifi? Etc. List all modes that are available even if only occasionally, and relevant locations.

If cellular service to be used, will Canadian plans work or are local phones/sim cards required? How to be billed? Describe battery /charging needs and power adaptors.

Within Field Party

Meet up location in case of emergencies:

Frequency and mode of contact for check-ins when separated:

Communication within field team in case of emergency: (text message? Note on car? etc)

Regular Check-ins with someone not in the field

Who to contact and on what frequency / timing? (ideas: emails sent to short distribution list, inReach message with location, calls, etc).

Indicate who from the contact list above will expect to receive calls and designate alternative contacts in case first person can't be reached.

Emergency Response Plan

Medical Emergency (definitions:)

- *An acute injury or illness, individual or group, that poses an immediate risk to a person's life or long-term health. Natural Emergency*
- *Severe storms, fire, flood, landslide, severe heat/cold, high wind, falling debris, animal or insects, lightning strike, etc.*
- *Automobile accidents, roughhousing or risky behavior, drug/alcohol use, building fire/explosion, utility failure.*
- *Infectious disease, contaminated food/water/air.*
- *Unsafe environments, intruder, violent act, sexual assault.*
- *Identity-linked hazards - discrimination and other threats related to gender, gender expression, race, religion, ethnicity, language, culture, sexuality, physical appearance, behavior, or other factors.*

Communications Protocols

Communication Tree:

- *Contact Emergency Services in case of Medical Emergency (local responders, e.g. Parks Dispatch, Coast Guard, Local Community Authority)*
- *Activate emergency beacon or evacuation trigger if needed - stay where you are if safe*
- *Contact rest of field party if separated and/or return to designated meeting point if not awaiting emergency responders and if safe to do so*
- *Contact injured person's emergency contact*
- *Contact designated people at McGill / check-in people and inform of situation.*
- *When moving from one location to the next, leave a written message advising people of your movements.*
- *When safe, contact your insurance providers*
- *When safe, Contact McGill Risk Management (supportrisk.insurance@mcgill.ca) and file report. Incident/injury: <https://www.mcgill.ca/ehs/forms/forms/accident-and-incident-report> Automobile/property: <https://www.mcgill.ca/riskmanagement/forms>. Incidents of harassment, discrimination, and near-misses must be documented and potential development of strategies could be beneficial before/during/after.*

COVID planning

Describe plans in place to:

- a. Reduce risk of contact and exposure (safety precautions, transport/accommodation planning, include necessary safety equipment or materials)*
- b. Respond to possible exposure (testing and quarantine plan, include details of what is covered by insurance)*
- c. Evacuate back to Montreal (include whether everyone in the group has the necessary insurance coverage for extractions)*

SECTION 2: FOR FIELD PARTY PLANNING – SHARING OUTSIDE GROUP IS OPTIONAL

Field site hazard assessment

Preparation of field party leaders and members:

- a. *Identification of hazards and mitigation strategies (see below)*
- b. *Budget – all members of the field party must know what is paid for and what is not. Secure adequate funds for safety precautions, equipment, training, insurance. If additional funds are needed in an emergency, what is the source and how to acquire the funds?*
- c. *Necessary skills/training - are there sufficient first aid skills in the party, do you need to plan training before you go? Also consider using scientific equipment, safe driving courses, firearms, survival skills.*
- d. *Skills to be learned on-the-job (any reading/introduction before leaving?)*
- e. *Pay or lost wages compensation?*
- f. *Work hours expectations*
- g. *Personal risk – financial responsibilities/risks taken on (explicitly or implicitly) by members of the field party? E.g. loss or damage of personal equipment, insurance policies required, liability. What protections does McGill offer?*
- h. *Clear messaging prioritizing safety over data collection. Risks should be discussed before travel and discuss example scenarios for calling off field work, or abandoning original science plans. Discuss decision-making priorities. Recognize that junior researchers may feel pressure to “prove themselves” which can limit their ability to inform others when they are not comfortable with an activity. Inexperienced researchers may not be able to identify hazards or be aware of alternative options to keep work safe, so an additional burden of responsibility for these decisions should be expressly placed on the more experienced field researchers.*
- i. *Protocols for getting lost or separated – STOP (Stay calm and do not panic; Think through how you got there and what landmarks you see; Observe - if without a map, follow stream downhill as last resort; Plan - stay put if near dark.)*
- j. *Concerns - health, safety, etc. Pre-existing conditions or past injuries, potential individual risks. Clear expressions of support for field party members to disclose and discuss concerns.*
- k. *Vaccinations / medical preparations e.g. knee brace for old injury, extra sun protection if sensitive, epi pen, etc*
- l. *Supervision or mentoring responsibilities - clearly laid out commitments*
- m. *Responsibilities and roles of each field party member*
- n. *Responsibilities after field work and expectations for ongoing collaboration, support and mentorship.*
- o. *“Official” appearance – will being visually associated with a university team make you safer or facilitate easier access in the field? Consider car magnets (branding), university logos, high-vis vests or other clear badges of “official business”. Correspondence on official letterhead, carrying permits and displaying on car dashboards, to show to interested people. Carry business cards. Balance these benefits against the potential risks of self-identifying (e.g. target for equipment theft, negative engagements).*
- p. *Sample and data management plan – local authority requirements? (including sample repatriation) , funding agency requirements, university requirements, disciplinary best practices*

Safety in the Team

- a. *Statement of commitment for an inclusive field experience - explicitly recognize cultural, racial, social differences, commit to support one another and maintain an atmosphere of mutual respect and communication. Discuss cultural factors and particular hazards that may affect field party members in the environment. Recognize that power/seniority contrasts within the team may also affect team members' abilities to raise concerns, and that many issues may be difficult to anticipate. A group dynamic of supportive and open communication will help the team respond to needs as they arrive.*
- b. *Identity-linked hazards - mitigation, de-escalation and extraction plans, safety precautions, local resources, allies*
 - i. *Mitigation / planning strategies to reduce vulnerabilities*
 - ii. *Bystander training for field party – McGill training (<https://www.mcgill.ca/osvrse/get-involved/workshops>)*
 - iii. *Disclosure plan – within field party? Outside field party? Consider training on how to receive disclosures.*
 - iv. *Local law – consider how/when to report to local authorities.*
- c. *Mental health / fatigue / team dynamics*

Standards of Care

Privacy and safety, as well as other protections, should be required – how will your field plan address these issues?

- **Equipping** – *field party members without experience in the area need to have access to experienced advice for setting up field kit and may need financial support. Safety and productivity depend on proper footwear, warmth/weather protection and good nights sleep.*
- **Toilet privacy** - *Members of the party need to have thorough information about toilet availability, frequency, and type of facility. Hygiene training for areas without standard plumbing is essential. In areas where toilets are not available, teach safe/hygienic protocols for poo, pee, toilet paper removal, menstruation supplies removal and disposal. Privacy tents should be provided in open areas where toileting is outdoors and visual screens are required.*
- **Medical and Mental Health crisis response** - *Are members of the party versed in any type of emergency care or decision making? What resources are available or can be added. What privacy protections are available for members of field party who may want to or need to disclose personal information? Discuss situational stress, share expectations of the demands (physical mental) to allow members of the group to prepare contingency plans, training, and communication ahead of concerns as far as possible.*
- **Availability of washing facilities (showers) and privacy expectations similar to toileting.** *Provision for washing clothes and equipment should be planned and field party informed of availability.*
- **Mobility/accessibility issues (costs, individual gear, transport, access, etc.)** *Create a daily schedule for fieldwork that includes some information about the difficulty (e.g. distance / elevation to hike, carrying equipment or samples, length of driving or working days). Check with all participants about whether they are prepared or feel safe with the schedule.*
- **Food** – *sufficient quantity and quality for wellness in the field are required for the health and productivity of the field party, so it is essential to plan for local conditions and food availabilities to match individual's needs. This may include: intensive meal planning, bringing rare ingredients from home, nutritional planning for going without usual food items, and personal preparation for dietary changes. Specific health and comfort needs MUST be communicated with the group*

and incorporated into planning. Every individual should develop reasonable expectations of what is available or practical to provide for meals. Similarly, opportunities for shopping should be clear in advance. Specific hygiene requirements and preparation (e.g. dedicated cooking equipment if cross-contamination is of concern) should be planned in advance.

- *Communication* – members of field party should be able to know in advance how often they can make contact with friends and family, and by what mechanism and at what cost. Members of the field party should be able to individually establish outside contact so they are not compromised by negative interactions within the field team should problems occur. Field party members should have the right for privacy in communications.
- *Rest and protected time* – field work schedule must include appropriate down time (e.g. full night's sleep or compensated sleep hours if work is overnight) and days off for rest and personal maintenance.

Hazards (Identify and Mitigate)

- d. *Physical dangers*
- e. *Climate/environmental/wildlife hazards*
- f. *Livelihood - hazards to food, water, shelter*
- g. *Hazards from other people e.g. crime, harassment, theft, racial discrimination. De-escalation and extraction plans*

Consideration for Identity-based Risk Assessments and Mitigation:

- **Research** the racial, ethnic, religious demographic data for the proposed field site(s), as well as historical/ documented racial prejudices that may exist in each region. Research the local customs and laws surrounding dress. There may be particular dress-requirements or 'modesty' requirements in a particular region that apply to women and/or men. Be aware of the potential additional risk factors from local men that may exist for female-presenting members of the field team. Research the local customs and laws surrounding sexual orientation, LGBTQ+ individuals and research ways to prepare for relevant risks. Depending on the field area, attitudes towards LGBTQ+ team members may range from accepting to hostile, and severe anti-LGBTQ+ laws could exist. Visible indicators of religion or ethnic identity may infer differential vulnerability or power.
- **Prepare** Local consultation may help predict and ameliorate identity-based hazards, including informing local contacts of concerns and seeking information/advice. Develop strategy for interaction with law enforcement, mindful of identity-linked threats. Consider offering or making available resources relating to training in 'bystander intervention', and outline expectations for team member responses if confronted with targeted/prejudiced behaviour. When considering living/ sleeping/ toileting plans, consider local laws/customs and how trans team members may be perceived in single-gender environments in order to avoid potential safety risks for those team members.
- **Discuss** when intervention is appropriate or desired. The person who is impacted may face additional risk due to inappropriate intervention or escalations. *De-escalation* should be prioritized and advance conversations can help facilitate collaboration in the moment.

- **Inclusive field work - physical differences, visible differences, nationality** - Examine any communal field equipment (in particular personal protective equipment) to ensure that appropriate sizes/shapes are available for all team members, as many default sizes are designed primarily for average male proportions. Research the political stability of the nation and sub-region you will be traveling to for your field research, to assess potential risks of changes in stability or political situation which may endanger the field team. Consider the nationalities / citizenships of team members when traveling through and working within other countries, assessing potential discrimination or other risks that may exist for them as a result of geopolitical tensions, current/recent wars, sanctions, etc. If your travel involves crossing borders, document the border restrictions at the present time and record the websites where you will check for updates. If there are costs associated with border crossing, including visas and testing, indicate how they will be paid for.

Continuation Plan

In the unlikely event of a person leaving the field party (e.g. medical evacuation, being called away for other reasons), should the rest of the field party continue? How should plan be modified?

- *Prepare – party leader should provide as much documentation as possible for field party to allow continuation*
- *Designate chain of responsibility within field party - including chain of command for taking over contact with check-ins and other team communications*
- *Identify locations or activities that cannot be accessed in the absence of one or more members of the field party*
- *Identify circumstances of “Go/No go” – under what circumstances should field work be canceled?*
- *Unexpected costs – what backup resources exist and what threshold of unexpected costs would result in cancellation?*
-

SECTION 3. Field Research Readiness Checklist - for planning purposes

- McGill stuff
 - Fill travel form (faculty and staff: <https://www.mcgill.ca/travelservices/regulation-and-procedures/university-travel-registration-form-faculty-and-staff>)
 - McGill Pre-travel orientation: <https://www.mcgill.ca/mcgillabroad/safety/predeparture> (3-6 months before departure)
 - Download and complete any McGill - linked insurance e.g. student insurance policies
 - Contact Risk Management office to see if there are any protections offered.
- Permits to collect samples - could be multiple levels of permitting required with national and local governments, park authorities, or written confirmation from landowners
- Land access/ permissions
- Land rights – Indigenous consultation. Sometimes occupants don't have legal recognition in land rights but still need to be consulted.
- Local community engagement
 - Are there any potential benefits to local communities? How to best communicate or offer these benefits?
 - Plan ahead to make contact with local communities through appropriate channels
 - Are you collecting material that might have local significance? Consider repatriating research samples or information from research samples or respectfully archive or dispose as appropriate.
- Language barriers
- Science Plan
 - What are the specific aims / what constitutes a successful completion of field season?
 - Plans change in the field - who makes decisions about adapting science plans?
- Physical Preparation
 - Understanding physical challenges + preparing - talk to people who have done similar work before and develop a clear understanding of the challenges
 - match expectations to capabilities - plan fitness in advance if needed
 - Specific plans for physical challenges related to individual abilities or conditions
 - Plan for utilizing collaboration within team to create redundancy or balance tasks according to team member skills and experience
- Resources
 - Field library / access to reference material
 - Field equipment - manuals, account passwords, service agreements? Tools needed for repairs or upgrades, back up of disposables etc.
- Impact of field research activities on local communities and environment
 - Environmental impacts of research activities - sample protocols for environmental/ecological protection. DON'T SAMPLE ON TRAILS

- *Social costs / benefits of your research if any?*
- *Understanding political, racial, historical context where you are working – cultural literacy, language awareness...*
- *Cultural norms and practices.-- incorporate into site-specific code of conduct*
- *Awareness of regional archeological resources – avoid damage to resources if encountered, learn reporting policy for any paleontological or archaeological sites that you might discover.*
- *Collaboration with scientists and especially students from local area*
 - *Equity considerations – inclusion and compensation*
 - *Consultation for potential cultural impacts , benefits*
 - *Early consultation and establishment of agreements for collaborative relationship*
 - *Namibia collaboration guide for principals of engagement*
- *Budget*
 - *Travel expenses including visa costs*
 - *Hazard Mitigation - check hazards list above for expenses*
 - *Accommodation*
 - *Field supplies (acquisition and/or shipping). Consider power needs (international plug / 12V charging from vehicles? Back up batteries? Include communications devices.*
 - *Support for “personal” gear which is technically personal but only needed because of professional activities (e.g. boots)*
 - *Communications – sat phone? GPS messaging plan? Sim cards + air time?*
 - *Medical insurance, travel-related vaccinations or pharmaceuticals , first aid supplies*
 - *Compensation for field party members or support services e.g. guiding, driving, translating*
 - *What is the source of emergency funds and how to access?*
 - *Request cash advances and out-of-pocket advances for all field party members - 2 months ahead of travel or immediately after booking.*

APPENDICES: SAMPLE COMMUNICATIONS AND CODE OF CONDUCT

A SAMPLE EMAIL TO A GROUP GOING INTO THE FIELD FROM MOJAVE FIELD SCHOOL 2022

Hi everybody!

We'll talk a lot about field hygiene when we get to the desert, but I thought I would send around some videos to help you think ahead while you're packing. Here are some principles to follow in order to minimize our impact in the field areas. **WARNING THIS EMAIL INCLUDES SOME GRAPHIC LANGUAGE.** double warning : I'll repeat all these instructions verbally in person as well, I'm sorry it's a bit awkward but honestly it is too important to not talk about. Please review this very long email below, the videos are just for reinforcement so if everything in the text is clear then don't worry about watching them. It is my goal to desensitize you to talking about this so we can keep the dialog going in the field and make sure everyone's questions are answered.

Action Item: If you are planning to seek gear from the McGill Outdoor Club, please fill out this form: <https://forms.gle/GsPcz32HAid28cXP9>. We are so lucky that the gear manager for MOC is our Teaching Assistant, Emiliene! She will confirm if there is enough gear to accommodate all requests.

The rest of this email is FOR YOUR INFORMATION so no follow up is required but please read everything and send me any questions.

1. We have four different places we are staying - only the third place (SHEAR Center in Shoshone) has showers, the rest of the time we will be dropping into other facilities for showers about every other day. So, plan to have a small bag packed to grab for shower day (your toiletries, towel, change of clothes). In Shoshone we will probably be able to do laundry.
2. There is water available at every campsite so you can use that to wash in between showers.
3. Key point for hygiene in the field areas is to **leave nothing behind**. This includes "biodegradable" stuff like apple cores, egg shells, cherry pits, toilet paper, disposables used for menstruation and pooping. The rate of biodegradation in the desert is very low compared to wetter environments, and even toilet paper can hang around for years. Everything you carry in should be either consumed or taken back out with you every day.

4. *I'll purchase small packs of wet wipes for everybody -- these are great for cleaning your body in between showers. I like to wet wipe the dirt and dust off hands, feet, face, armpits, private parts, etc before going to sleep, and also hands before lunch, etc. You should carry these all day while hiking around. I will also provide small plastic bags (e.g. dog walking poop bags) for everybody to carry for proper disposal. You can use these for wiping after a poo as well, better than dry toilet paper. You can also carry some toilet paper (enough for a couple of uses) in a ziplock bag in your pack.*
5. *Plan ahead -- Pit toilets (or more rarely, flush toilets) are available in the campsites but not in the mapping areas. Best case scenario is to poop morning/evening at the campsite and not during the day when you're out and about. Same with menstrual supplies changes. Of course in both cases this is not always possible. Peeing in the field MUST happen multiple times a day, if you don't pee you are NOT DRINKING ENOUGH WATER. The consequences of dehydration include: eye pain and headache, chills, confusion, nausea, grumpiness, general malaise, stomach pain, constipation, dizziness, increased sun sensitivity, so many many many problems. We will talk a lot about drinking water and also I will provide sports drink powder, other flavored drink powders in case the water takes minerally and you don't like the taste. It's so essential to drink water in order to stay healthy -- not only while you are in the field, but also during recovery in the evenings, and in the morning so you start the day with a good hydration state.*
6. *Peeing in the field (supplementary youtube link below):*
 1. *Find private spot*
 2. *Water a bush*
 3. *If you wipe afterwards, pack out your toilet paper or wipe in a doggy bag as described below.*
 4. *In the desert, you can pretty much pee anywhere. In the Sierras when we are near running water, you want to go 200 ft (60 m) away from a stream at least.*
 5. *Some tips for effective squatting:*
7. *Pooping in the field (supplementary youtube link below):*
 1. *If you're in Rainbow Basin, or another high traffic area, flag a TA to drive you back to camp. No questions asked. Carry on only if it's a time sensitive emergency:*
 2. *Find a very out-of-the-way place, far from trails and not near a stream (even though the streams will likely be dry -- in drainages, the sediment moves very often and will unbury anything you try to bury).*
 3. *Dig a deep hole (12"/35 cm if possible!)*
 4. *Poop in the hole. The lower you squat, the less poo will stick to your butt cheeks. If you can feel the breeze you*
 5. *Wipe your butt. Put the wipe into a plastic bag and tie it off. Put this in your pack to throw away in a bin back at camp. If you have ever seen toilet paper blowing around the desert, it's probably because someone buried it with their poo and it was uncovered by water/wind or by an animal.*

6. *Fill the hole*
7. *Mark the hole! Do not make it invisible, there is a terrible pattern of people finding the same hiding places to poop that have been previously used. You do not want to be the person thinking you have a pristine spot and then digging into somebody's recent contribution. So, pile some rocks on top of your hole after filling it in. This is a subtle hint to future poopers or passersby and nobody would dismantle a rock pile to dig a poop hole, so it should be reasonably safe.*
8. *For menstruation (supplementary youtube link below):*
 1. *If you use tampons or pads, find a private place (you can also ask your field partner to stand guard for you) to change your items. Pack the used items and all the packaging into a doggy bag to dispose at camp (leave nothing behind). Cleaning hands and body with a wet wipe can help, place used wipes in your doggy bag as well.*
 2. *If you use a menstrual cup, you can use a wash bucket and boil water to clean it at least once a day or as needed.*
 3. *If you use period underwear, you can hand wash it as needed in the evenings and hang to dry, there will be some clothes lines and clothes pins at camp. You can use the pins to hang private things inside your tent to dry during the day, they won't dry as quickly inside but if you prefer to keep them out of sight that will totally work too.*

There are other hazards associated with traveling and field work which we will also discuss along the way.

- *Animals and Plants (rattlesnakes, spiders/scorpions, cacti)*
- *Blisters - For most of us, this camp will involve a big increase in the amount of walking we do every day. Some of you will definitely get blisters. Be super proactive -- clean your feet every evening with wipes if not soap and water. Wool or synthetic socks are much better than cotton, cotton can chafe when it gets wet and cause/sustain blisters. Bring some comfortable "camp shoes" to change into as soon as you are done with field work for the day so you are not in your boots all evening. At the first sign of chaffing or rubbing, clean and disinfect the site and cover with adhesive pads (e.g. moleskin) to prevent further damage.*
- *People - who we will normally avoid, for covid bubble reasons - but still need to prepare for. Strangers are sometimes curious, sometimes challenging, sometimes threatening. Interaction with locals can be strongly affected by demographic-linked hazards, some people may face specific threats related to perceived race or ethnicity, gender or sexuality . I want to make sure we discuss this with the whole group and will talk about how to support each other with pro-active verbal and non-verbal intervention strategies in the case of any unpleasant interactions. As an old, assertive, bossy white lady I am working on ways to leverage my privilege to help support others and I look forward to discussing strategies for effective ways for everyone to support one another and feel*

prepared for anything that we may encounter. To help get ready, please read this short article by Hendratta Ali which offers some very tangible and actionable guidance (<https://eos.org/opinions/ten-steps-to-protect-bipoc-scholars-in-the-field>)

*Do you pee? Do you know somebody who does? If so, this video is for you:
<https://www.youtube.com/watch?v=aB28PUrXM-o>*

*Do you menstruate? Do you know somebody who does? If so, this is the video for you:
<https://www.youtube.com/watch?v=jjFZ1nzijrI&t=1s>*

*Do you poop? Do you know somebody who does? This video is a little long, but it explains the problem with pooping in the desert: it takes a long time for poop and toilet paper to decompose, and toilet paper blows around, and in high traffic areas, poops and toilet paper really accumulate in the desert, ruining everyone's good time. Nobody wants to discover the last person's business.
<https://www.youtube.com/watch?v=eSMS57eFk1M>*

*SEE YOU SOON!
Send me any questions*

Sample medical information form – to be sealed and carried by instructor

*Mojave / Owens Valley Field School 2022
SAFETY / EMERGENCY INFO*

CONFIDENTIAL

Please fill out this form completely, seal it in an envelope with your name on the outside, and pass it to one of the instructors. We will open it only in case of a medical emergency if you are unable to provide this information yourself to emergency responders.

Name:

Contact phone and email:

Date of Birth:

Family Doctor name and contact info:

*Medical Insurance Information (company, plan, group, phone number for authorizations)
Including supplementary/travel insurance*

Emergency contact person (Name, relationship to you, phone number, email)

Medications currently taking:

Pre-existing conditions:

Previous injuries or other relevant medical history (surgeries, hospitalizations, risk factors):

Allergies to food or pharmaceuticals, dietary restrictions:

Blood type:

CONDUCT GUIDELINES FROM MOJAVE FIELD SCHOOL, 2022

2.5 Field Camp Life

Students, instructors and guests form a temporary community at field camp that is very reliant on cooperation to succeed. The environment can be stressful, uncomfortable at times, and the work is challenging. It is essential that all members of the community treat themselves and one another with patience, consideration, and forgiveness, while maintaining the values of mutual support and cooperation that will help everyone succeed.

2.5.1 Guidelines for Healthy Field Camp Culture

Harassment of any person or discrimination against any person based on race, color, sex, sexual orientation, gender identity, ethnicity or national origin, religion, age, or disability by any member of the community, is strictly prohibited. Incidents of harassment or discrimination are subject to McGill's Policy on Harassment and Discrimination Prohibited by Law. Harassment is repeated unwanted or hostile conduct that has a negative impact on the person and results in a harmful environment for the person. In the employment context, a single serious incident may constitute harassment. Discrimination is any action that disadvantages someone based on any prohibited ground of discrimination (e.g., race, sex, national origin, disability, religion, etc.).

The social atmosphere in the field is different from that in a normal classroom. The usual distinctions between 'at work' and 'at home' become meaningless when living/working with peers and colleagues. This policy therefore applies to both 'on duty' and 'off duty' behavior while in the field, working on assignments, or during off-time.

Early interventions can prevent situations from worsening and correct misunderstandings. If you experience or witness any behavior during field school that seems contradictory to the letter and spirit of this document, you may confidentially inform a member of the teaching staff (instructor or teaching assistants) who will respond in a confidential manner as much as they are able in the circumstances. Instructors will take assertive action to protect reporters from retaliation.

Anyone whose conduct violates these standards or otherwise interferes with the functioning of camp or the educational experience of other students will be subject to interventions by the instructors. This may include actions such as: a quiet word, a warning, isolating an offender from the rest of the group, filing report with appropriate offices at McGill, contacting local law enforcement to file a report, and pursuing removal from the course (according to the severity and nature of the behavior).

Every member and visitor to this Field Course is expected to uphold these community standards as a matter of mutual respect and fundamental fairness, and McGill community members are held to McGill University's Policy on Harassment and Discrimination Prohibited by Law and McGill's Policy against Sexual Violence. For more information about these policies, please visit: <https://www.mcgill.ca/how-to-report/harassment-discrimination>.

2.5.2 How does that policy translate into good community practices?

Treat everyone with respect. Exercise patience and generosity, offer assistance and support when it is needed. Encourage everyone's learning (in terms of geological mapping, camping/outdoors skills, fitness, etc.).

Stick up for one another. If you observe harassment, bullying, or negative conduct of any kind, intervene if you are comfortable or seek support for the target in other ways. If you see someone struggling, point this out to people who can help.

Do your part around camp. Keep the place clean and help others remember to do so. Assist with unassigned but important group tasks like packing and unpacking the common equipment, sweeping the perimeter for trash and personal objects when moving camp, cleaning out the vehicles periodically. Enlist others to help or point out needed jobs. (see Section 2.5.4)

Respect the camp schedule. We share equipment, facilities and vehicles, so if you are not ready to work in the morning then others might lose valuable time. Set an alarm if you need one to rise in the morning, be cleaned up and ready to leave camp on time, honor meeting times or pick ups with instructors/TAs, and return to camp at the agreed time, otherwise search parties will be organized.

Take time to yourself when you need it - do so safely and inform somebody if you are going to leave line of sight/earshot. Take a short nap after lunch in the field during the hot, still part of the afternoon - it can help re-energize you and clear your head. Be sensitive to others' needs for quiet or personal time as well.

Regarding alcohol - drink responsibly if at all, do not pressure others to do what you do. Instructors will intervene if alcohol consumption affects camp function or healthy culture.

Treat the natural environment, and the camp sites themselves, with respect and appreciation. Geological field work is an extraordinary opportunity to interact with new places, including their ecology, human history, and culture. (see Section 2.5.3).

2.5.3 In the Field

Field School 1 students sometimes find that their first impression of the desert environment is that it is monochromatic and devoid of life. After a short period of acclimation, you will discover how varied the colors of the desert can be and you will start to discover a variety of plants and wildlife. If you are not used to hiking in hot, dry areas, it is important to stay aware of the risks of sunburn and dehydration.

Wildlife

Wildlife is abundant in the desert! A lot of it is sharp or spikey. Try not to step or sit on any plants. Look in particular for Joshua Trees (especially in the Mojave Preserve), cholla (particularly spikey), prickly pear, mesquite, barrel cactus, and perhaps surprisingly, biological soil crusts. These cover soil areas in between plants and can be difficult to distinguish from bare ground. They are microorganism communities (bacteria, plants and fungi) and are usually the color of the soil or blackish crusts. Avoid crushing them where possible - damaged crusts take a long time to heal.

Rainbow Basin is a Mojave Desert Tortoise preserve. Do not mess with the tortoises. A frightened tortoise will sometimes evacuate its bladder, sacrificing all its stored water in an attempt to escape, which could affect its chances of surviving the dry season. A common lizard in all our areas is the horned lizard (aka horny toad), and we will also see chuckwallas, collared lizards, and potentially several types of non-venomous snakes. Scorpions are common in our mapping areas. They can be spotted in the dark using a black light.

Rattle snakes are abundant in our mapping areas. Do not approach snakes to take photos and do not under any circumstances do anything to bother a rattlesnake. Rattlesnake bites are rarely fatal but emergency medical attention is essential to prevent serious injury. Following simple guidelines can help you avoid unpleasant interactions with rattle snakes. They are not active in the cold of the night or the peak heat of the day, when they will hide under cover. Never put your hand into any holes you can't see into or reach up onto a ledge overhead where you can't see. Protect your ankles and legs with boots, loose pants, gaiters. Don't dig in woodpiles or rock piles. Step on top of, not over, rocks and obstructions. If you see or hear a snake, back slowly away and point it out to other people in the area - they tend not to move very far. Keep tent zipped when you are not inside. At night, pull socks over the tops of your hiking boots to keep out snakes and bugs. When walking at night, use a flashlight to illuminate the ground in front of you.

In case of snake bite, keep victim as calm as possible (do not run out to cars which would elevate heart rate) and keep wound below the heart. Remove any tight jewelry and clothing near the bite area. Seek transportation to hospital immediately.

Dehydration causes headaches, body aches, crankiness, tiredness, discouragement, and all kinds of unpleasant symptoms. Once you realize you might be getting dehydrated, you are quite dehydrated! Drink water preventatively all day. If you don't like the taste of desert well water, which can be mineraly, consider buying some sports drink powder.

Law enforcement in the USA is less forgiving than you might hope, especially with respect to underage (under 21) drinking or alcohol possession. There are very serious penalties for adults who provide alcohol to minors. If you run into trouble with the law there is very little I can do to help you.

If any physical violence, sexual violence, or threat of violence occurs in camp, I will call law enforcement immediately.

Medical insurance and allergy information, as well as any details of pre-existing conditions or medical history are your private information. However, in case of emergency, it may be necessary to get this information to first responders or medical personnel. You will be invited to file this information with the course instructor (but are not required to do so). Regardless, please carry all necessary info with you at all times.

Smoking - Only in designated areas, and if any smoking-related waste are left around, it may be prohibited. Absolutely no smoking in vehicles or near where people are eating, sleeping, or cooking. If there is a fire ban at the campsite, there will be no smoking.

Absolutely no fireworks in camp, ever.

No alcohol during the work day. Excessive or inappropriately timed drinking will require intervention from the prof. Absolutely no drinking or open containers in the vehicles under any circumstances. Treat the camp equipment with care, and report any damaged or worn equipment so that it can be repaired or replaced.

Never walk around barefoot.

Do not climb unsafe slopes or cliffs. Instructor reserves the right to tell you what is unsafe even if you think you can handle it.

Watch for people below you when you are up high on a hill. Do not pass above or below other people on a slope where rocks may be dislodged.

Field partners are not permitted to separate unless one is immobilized and the other cannot get help without leaving them for a short time.

Stick to agreed pick up times and locations unless you are able to confirm a change with the prof or TAs. Sending messages by other people is not sufficient. If somebody misses a pickup appointment, we start looking for them right away.

When we are mapping in the field, there may be no toilet facilities available. Hygienic practices for midday toileting will be discussed.

Anything you bring into the field with you must leave the field with you. This includes toilet paper and sanitary supplies. Bring plastic ziplock bags to carry these items out with you.

If you find you don't know where you are on the map, get up higher so you can find landmarks, see more topography. In the advent of a sudden storm or lightning, come down off the hills and find shelter for as long as it lasts (usually short). Do not go into steep-walled canyons if it is raining.

2.5.4 In Camp

Camp life is a really important part of the field experience - including contributing to cooking, cleaning, packing and unpacking, and general camp maintenance.

We will keep a completely clean camp at all times, trash will be properly disposed of, and no food will be left out. The desert is surprisingly full of animals (as you discover right away if you leave food out or in your tent). The primary culprits are small rodents, birds, and ants. Whenever people are not actively cooking/eating, the food should be in coolers or plastic storage tubs and secured in the vehicles.



Collaboration Guide for International Researchers in Namibia

Geological Survey of Namibia

- Anna Nguno
- Aviation Rd, Windhoek
- +264 61 284 8111
- <http://www.mme.gov.na/gsn/>
- Thin sections, zircon sep, remote sensing, geochronology
- info@mme.gov.na

UNAM Geology —

- Dr. Absai Vatuva
- Southern Campus, Keetmanshoop
- +264 61 206 3148
- <https://www.unam.edu.na/faculty-of-science/geology>
- make inquiries
- absai.vatuva@unam.na

NUST Mining Eng.

- Prof. Ben Mapani
- Jackson Kaujeua St, Windhoek
- +264 61 207 2191
- <https://www.nust.na>
- Scanning electron microscope
- bmapani@nust.na

Overview

Recruiting a field assistant from a local university can be a mutually beneficial prospect for researchers coming from overseas. This document is meant to provide some useful guidelines for recruiting and collaborating with local scientists working in Namibia and field assistants from a Namibian university.

Why engage with local scientists?

What benefits are gained when international researchers collaborate with local scientists and members of local communities?

- Research benefits from local knowledge
- Training and experience for local young scientists
- Access to equipment and research facilities within Namibia
- Research and personal relationships that last beyond field work
- Capacity development for host country
- Potential for 'broader impacts', discourage 'parachute' science

Making Contact

Geoscientists in Namibia are concentrated at two universities: University of Namibia (UNAM) and Namibia University of Science and Technology (NUST), at the Geological Survey of Namibia (GSN) and in professional organizations such as the Geological Society of Namibia (<https://www.facebook.com/geolsocnamibia/>) and the Namibia Scientific Society (<https://www.namscience.com/>). Contact details for scientists at these organizations are in the sidebar.

If you wish to engage a university student as a field/research assistant, especially for a continuing research project, make contact with the university in June for projects to start as early as January the following year. The Namibian academic year is aligned with the calendar year (Feb-Nov). University students can benefit from co-supervision between a lecturer at their home university and a foreign researcher to diversify the expertise and disciplinary footprint. The University of Namibia programs include BSc, BSc Hons, and MS in Geology, often linked with environmental science, chemistry, computer science, or physics. NUST students study geophysics, mining and metallurgy and related engineering fields. BSc Honours students have time for field work around Easter and mid-year break (June-July).

To establish a collaboration plan with the Geological Survey of Namibia, it is recommended to make contact at least four months in advance of field work to secure a letter of collaboration for permit application purposes.

The GSN engages in international collaborations on a variety of scales, from informal contact with individual researchers and teams, to Memos of Understanding with peer agencies and research institutions which support multi-year projects. GSN scientists also interact with university students and can engage in supervision of student research as well. Staff at the GSN cover a wide range of disciplines so make general contact and Ms. Nguno can help you find scientists for collaboration.

Websites are not always up to date, it may sometimes take a few tries to find the right contact for your project.

Before the Trip

All members of the research team benefit when field assistants are well-prepared for field work. Field assistants and collaborators may be able to help with pre-trip planning, both scientific and logistical. Pay them for their personal time spent on your research project, and if expenses are incurred, provide the necessary funds in advance (for example, for at-desk permit application fees and bank transfer fees). University research assistants and collaborators can work with maps and remote sensing data, geophysical data, logistics, land holder contact, and equipping.

Communicate your research plans in as much detail as possible, including the specific roles and intentions in seeking collaboration.

Scientific roles

Attribution and authorship practices vary across the international scientific community. When interacting with local collaborators including field assistants, communicate early and clearly about roles and expectations. Employers may have specific expectations or requirements for evidence of research productivity which can be met through international collaboration. Assist student researchers in CV-building through skills development and training which are documented. Collaborators are sometimes passed over unfairly if their contributions are concentrated early in the project, e.g. during data collection. Explicit discussion of roles, intended products, and authorship at the planning stages will ensure that all parties agree.

Expectations for student field assistantships

Of field assistant

What tasks are expected? Will field assistant be involved in, for example, collecting routine/repetitive data or samples, or making interpretations as well? What preparation is expected of the field assistant? What On-the-job training or experience will they be expected to learn? What are the expectations for camp tasks? How many hours a day will field assistant be “on duty”? Communicate your level of skill and expertise, ask for help and training when you need it. Make contact early with other students who will be in the field party. Raise any concerns which arise during the planning or while in the field. Discuss your long-term goals with the supervisor and how this experience can advance your goals. If you are comfortable, share your home culture, language and traditions with your international collaborators.

Of supervisor

Ensure that the field assistant does not lose financially by joining your research project (e.g. through lost wages, incurred expenses). Confirm that field assistant is adequately equipped for safe and productive field work (do not assume they have any particular outdoors skills or experience). Support the students' learning with stage-appropriate training and preparation. Clarify the degree of commitment to the student's involvement that you will maintain after the field work. If possible, look for ways to involve the student in scientific aspects of the project before, during and after the field work. Commit to create an anti-racist environment and educate yourself about the racial and historical context where you work, and how members of your team may be affected differently. Respect cultural background and identity of team members, be aware how cultural norms and practices may affect field team dynamics.

Points to Clarify at the Beginning of a Collaboration

communication	How will team share information, email, whatsapp, texts etc? How much communication is expected during planning stages (e.g. weekly or daily contact?) or after field work?
money	How much financial compensation will field assistant receive? Will field assistant be handling money for the project (e.g. for facilitating permit applications?) Will incurred costs be covered (communication, transport, gear) <i>prior</i> to the expenditures or after?
dates	What are the dates of the field work? Will field assistant be required to be available for any days before/after the field work? Is there any uncertainty in the dates?
transport	Will transportation be provided to/from the student's home or university accommodation? If not, will funds be provided to cover transportation? Will field assistant be expected to drive in the field?
tasks	Who has what responsibilities and field tasks? What skills or knowledge are needed to succeed in these tasks, and is any particular training or preparation required? How physically demanding is the field work?
camping	What camping gear and personal gear is required for the field work? If the field assistant needs some gear, how will it be provided?
phones	Is there cell service in the field area? If not, will field assistant have access to other means of communication with friends and family? How often will they be able to make contact?
emergencies	Make and share hazard assessment and emergency plans. This should include consideration of identity-related hazards in the field. Share emergency contacts.

Contributors

This document was compiled from general discussions during the Naukluft Mountains Symposium (<http://naukluftsymposium.weebly.com>) with additional contributions from Moses Angombe, Inga Boianju, Ben Mapani, Anna Nguno, Christie Rowe. Last updated June 29, 2021.