



# Juneau Icefield Research Program

*Funded by the Foundation for Glacier and Environmental Research*

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## EQUIPMENT LIST

### **GENERAL INFORMATION: Please read thoroughly**

The items listed below are the tools you will use during the field season to live and learn on the icefield. This list is based on many decades of experience with the requirements of the Juneau Icefield traverse. **Please follow it closely.** Shop around and research carefully before buying.

The items on this list can be very expensive if you purchase them at full retail price, we suggest looking for alternative options. Outdoor equipment shops are a good source for gear and advice but be aware that salespeople unfamiliar with Southeast Alaska often underestimate the weather conditions we encounter. Use caution when considering a salesperson's recommendations. Consider renting or borrowing equipment. If you have the time and access to a sewing machine, consider modifying or making gear; for instance, stuff sacks are easy to make with nylon from a fabric store. Also, consider whether you will participate in relevant outdoor activities after your summer on the Juneau Icefield – if you will, it may be worth the initial investment to purchase your own gear.

Limit your gear (excluding skis, boots, and ice axe) to about 50 pounds or less. Typically, you will carry all your gear across the icefield. There may be times when a few of your items can be transported from camp-to-camp via snowmobile or helicopter, but you should be prepared to carry it yourself.

You will spend several days or weeks at different camps on the icefield during the summer. Travel between camps takes one or two days and involves hiking and skiing while carrying a full backpack (40+ lbs.). Fast weather changes can require several changes between a light shirt, rain gear, and your warmest clothing all in one afternoon. Temperatures range between 40°F/4°C and 65°F/18°C, with extremes of 20°F/-7°C and 70°F/21°C. The wind is generally light to moderate, although we occasionally see gusts up to 70mph/110km/hr! Rain and fog are more common than clear weather and can persist for days or even weeks. Wet snow is possible at high camps throughout the summer. **Waterproof gear gets extensive use and is critical to guarding against hypothermia.** Balancing the rain are many beautiful warm and sunny days. Especially towards the end of the summer, as we cross into the rain shadow of the icefield, the weather is often clear and dry.

Most people want to have a fresh set of clothing for the trip home. You may plan on leaving these clothes in town, and they will be brought to meet us at the end of the traverse.

Please note that except for items marked optional, all equipment listed here is **REQUIRED**. The staff will check every piece of equipment individually in Juneau, and you will not be allowed onto the icefield without the required gear. Except for generic grocery store items (ex sunscreen) it is usually difficult and expensive to procure these items in Juneau; do your best to get exactly what this list describes before the program starts.

**IMPORTANT:** Try all your equipment before arriving in Juneau. Make certain it fits and works. Break in your boots and carry your pack with some weight in it. This is a great way to improve your fitness level if you do it regularly! Pre-planning will save both you and the expedition unnecessary problems and delays.

BE SURE TO MARK YOUR LAST NAME, IN LARGE, LEGIBLE PRINT, ON EVERYTHING YOU BRING, INCLUDING PACKS, BOOTS, CLOTHING, AND SKIS. We are living in close quarters from the day you arrive, unmarked items get confused and misplaced very easily.

PLEASE DO NOT BRING SUITCASES. They are too bulky for our storage facility. A soft sided bag or small pack is much better and easier to store. You may bring a ski bag that can be stored in Juneau.

BE SURE YOUR HIKING BOOTS ARE WELL BROKEN-IN BEFORE LEAVING HOME. This is the best thing you can do to avoid painful and debilitating blisters.

Questions regarding items on this list should be directed to the JIRP via e-mail at [fger.jirp@gmail.com](mailto:fger.jirp@gmail.com) or over the phone at 907-500-8913.

## **REQUIRED EQUIPMENT**

### **PASSPORT**

You will ski across the Juneau Icefield into Canada and will re-enter the United States for your flight home from Juneau. Therefore, **you must have a valid passport** with an expiration date no earlier than December 31 of the year you will be on the icefield. If you do not yet have a passport, or if your current passport expires before December 31, you must get a new passport or renew your current passport. For U.S. citizens, this can be done at any U.S. Post Office. **You must have your valid passport with you upon arrival in Juneau at the start of the program and you must have it with you on the icefield. JIRP personnel will collect passport information before you arrive in Juneau, so please don't delay in renewing or applying for this.**

### **VISA**

If you are not a US citizen, you will need to acquire appropriate visas for the US and Canada. This is YOUR responsibility! Check with the US State Department here: <http://travel.state.gov/content/visas/en/visit.html> and the Canadian Government here: <http://www.cic.gc.ca/english/visit/visas.asp>

### **LARGE BACKPACK**

Your backpack must be of sufficient volume (3660-4880 cu. in./60-80 liters) to carry all your gear. Make sure there are attachment points to strap on crampons, ice axe, and especially your skis. An internal frame pack, structured by a plastic sheet and aluminum stays inside the backpack, is required; **the alternative, with a large, visible frame external to the backpack, is not acceptable.** The North Face, Lowe, Gregory, Mountain Smith, Black Diamond, and Osprey are a few brands known to produce appropriate and high quality backpacks. Ensure that your backpack frame and harness (the part that sits against to your back and the shoulder/hip straps) are suitable for your torso size. This is particularly important if you are borrowing a pack from someone else as some packs are adjustable and some are not. Practice packing your pack before JIRP to familiarize yourself with its ins and outs and so you're sure there's a way to attach your skis to you pack (see picture for tips). We will talk more about how to pack a backpack properly in Juneau.



*Fig 1. Side view of skis strapped to backpack. Note backpack side straps for skis. These are not the recommended backpack or skis, but merely an illustration of the strap use.*



*Fig 2. Rear view of skis strapped to backpack (secured with a rubberised ski strap at the top)*

### **ICE AXE**

This is one of the most important tools for safety and travel. Typical lengths range from 50-65 cm depending on your height. We require ice axes designed for general-purpose mountaineering use (see examples below). Your ice axe should have a “B” or “T” rating and have a steel or chromoly shaft. Do not bring a lightweight aluminum-shaft ice axe, as these are not strong enough to use as an anchor in crevasse rescue situations. Put your name on the shaft in large letters. JIRP has a limited number of ice axes to rent/borrow, contact the Program Manager if you’re interested.

**Ice axes/ice tools designed for technical ice climbing, or hybrid ski pole/ice axes are not allowed.**



*Example #1: Grivel G1+*



*Example #2: Black Diamond Raven*

### **CRAMPONS WITH STRAPS**

We require hinged (flexible) crampons made from chromoly steel or stainless steel, with either 10-points or 12-points, and with straps that fit your boots tightly (see example below). **Do not bring crampons made from aluminum or aluminum alloy**, these are not durable enough.

We require strap-style crampons. This style can accommodate most hiking and ski boots because it uses flexible rubber straps at the toe and heel (example 1 below). Other styles, with steel wires at the toe and/or heel, are often incompatible with either a student's hiking boot or their ski boot. This is unacceptable.



*Example 1: Grivel G-10, strap-style, 10-point mountaineering crampons.*

### **EXTRA LONG CRAMPON BARS**

Strap-style crampons are compatible with all boots. However, you need to check that your crampons are the right size for both your ski boots and your hiking boots. You adjust the size of your crampons by changing the setting on the bar that runs toe-to-heel up the middle of the crampons. If the largest size setting is not large enough for your ski boot, you should order a longer bar through the manufacturer's website. When adjusting the size of the crampon make sure that the boot (both ski and hiking boots) fits inside the two front and back brackets (see examples below). If the crampons are not large enough, the boot will sit on top of the brackets (unacceptable). You may have to apply a small amount of force to get the boot into the crampon, such as you would putting body weight on the boot/crampon set up. If your ski boots are larger than a Mondo size 27 (W10/M8 in the US), you are likely to need extra long crampon bars.

Correct crampon fit (mountain boots):



The toe of the boot should be snugly inside the strap of the crampon.



The heel of the boot should fit snugly against the brackets at the heel of the crampon.

Correct crampon fit (ski boots):



The toe of your ski boot should fit inside the brackets at the toe of your crampon.



The heel of your ski boot should fit inside the Brackets at the heel of your crampon.



## **THE FOLLOWING TYPES OF CRAMPONS ARE PROHIBITED**

We do not allow students to use automatic (steel wire bail at the toe and heel, ex. 2 below) or semi-automatic (steel wire bail at heel, rubber strap at toe, ex. 3 below) crampons. These are much more likely to cause fit issue with either the hiking boots or the ski boots.



*Example 2: Automatic crampons*



*Example 3: Semi-automatic crampons.*

***Note that in very specific cases, and with proven extensive mountaineering and skiing experience, we might allow different set-ups if they fit both skiing and hiking boots. If you are very familiar with your gear, you are experienced using it, and you have questions as to whether it would be appropriate, feel free to contact us before buying new equipment.***

## **CLIMBING HARNESS**

Get a harness that has a belay loop, adjustable leg loops, gear loops, and is easy to put on and take off over your boots. Fully detachable leg loops are a nice feature to have, they make the harness easier to put on over boots. If you plan to use the harness for rock or ice climbing after the program, waist belt/leg loop padding makes the harness significantly more comfortable; for our traverse it isn't required. The Black Diamond Couloir (ex. 1, not padded) and the Petzl Corax (ex. 2, padded) harnesses or similar are ideal. Your harness should have fairly wide webbing and a waistband that cinches above your hip bones. Make certain it the correct size: both tight enough over just a t-shirt/thin pants and not too restrictive over several layers of warm clothing. If you can pull your harness down over your hips it is too big.



*Example 1: Black Diamond Alpine Couloir (not padded)*



*Example 2: Petzl Corax harness (padded)*

## CLIMBING HELMET

If you already have a lightweight climbing helmet, you should bring it with you to Juneau. Bike, ski, and snowboard helmets are not acceptable substitutes. JIRP has a number of Petzl Elios helmets (Ex. 1 below) available for rent for the season. If you intend to continue skiing or mountaineering after JIRP, you might consider looking into a foam climbing helmet instead (ex. 2). The foam helmets are lighter and offer better ventilation when we're skiing in hot conditions (this happens fairly often). The hard plastic helmets are heavier, but more durable and sometimes cheaper.



*Ex.1: Petzl Elios, a basic hard plastic climbing helmet.*



*Ex. 2: Black Diamond Vapor, a basic foam climbing helmet.*

At some camps there are **optional** recreational downhill ski opportunities (conditions permitting). The climbing helmets we recommend for mountaineering **are not certified** to protect you in a downhill skiing accident. If you want to engage in optional downhill skiing, we recommend you purchase a helmet that is certified for both mountaineering and skiing. Some popular options are the *Camp Pulse*, the *Mammut Alpine Rider*, and the *Kong Kosmos*. If you choose to engage in recreational downhill skiing without an appropriate helmet, you do so at your own risk. At no point will JIRP activities require you to ski downhill fast enough to need a downhill ski helmet.

## CARABINERS

Climbing carabiners come in two general types: locking and non-locking; the lock is a cylindrical jacket that twists up over the gate of the carabiner to stop it from opening accidentally. Bring four locking and five non-locking (standard) carabiners. At least one large, pear-shaped locking carabiner is recommended. A good way to personalize your carabiners is to use various combinations of colored duct tape or electrical tape on the side opposite the gate. **Carabiners must be designed and approved for climbing use.**

*Locking carabiner:  
(the bright blue piece is the lock)*



*Two types of non-locking carabiners,  
both are acceptable:*



### **SLEEPING BAG**

A sleeping bag rated down to at least +15° F to +20° F (-9° C to -6° C). Cold sleepers may prefer a bag rated down to 0° F/-18° C. Insulation may be down or synthetic. Mummy shape is strongly recommended because it optimizes efficiency, weight, and volume. If you bring a down bag, you will have to be extra careful to keep it dry. A compression stuff sack is required, as it greatly reduces the packed volume of your sleeping bag. If you are unsure about the quality of a bag, please read reviews online, it is important that you are warm enough and sleep well.

### **SLEEPING PAD**

A closed-cell foam or inflatable sleeping pad. It can be either full-length or ¾-length. Thermarest, Ridgerest, REI and Big Agnes all make good quality pads. If your pad is inflatable, bring a small patch kit in case of punctures.

### **TARP / GROUND SHEET**

A large 8 ft. by 10 ft. (2.5m x 3m) blue poly or coated nylon tarp is required for constructing bivouac shelters or covering packs outside the tent at trail camps. Surplus tent “footprints” may be purchased cheaply and work well. **The metallic “space blanket” emergency type tarps are not durable enough for our use.**

### **LARGE STUFF SACK**

You will use this for items being transported between camps by vehicle. Stuff sack size should be around 9" x 20" (approx. 1,200 in<sup>3</sup> or 20 liters). A waterproof dry bag is very useful as this bag will be outside in wet weather for several days at a time. A heavy duty marine/boating type dry bag works well for this bag.

### **SMALLER STUFF SACKS**

Four to six smaller (~3-10 L) stuff sacks to organize gear, both in camp and on the trail. For organization in camp, non-waterproof nylon stuff sacks are fine. For use on the trail, many people use lightweight dry sacks (lighter weight than marine/boating dry bags). Sea-to-Summit and Granite Gear make a great range of backpacking-weight dry sacks. **Do not bring marine/boating type dry bags for these items, they are far too bulky.**

### **PARACHUTE CORD (P-CORD)**

50' (15m) of parachute cord (commonly called “p-cord”) or equivalent for tying tarps, fashioning climbing aids for skis, any many other uses. This cord should not be more than 4mm in diameter. **This cord is not for climbing or crevasse rescue purposes** – for that, see CORDELETTE below.

### **CORDELETTE / PERLON CORD**

50 ft. (15m) of 6 mm diameter perlon cord. Do not bring larger diameter than 6 mm. This is available at any shop that sells climbing gear. This cord is used for making prusik loops, constructing snow anchors, and other mountaineering purposes.

### **TUBULAR NYLON WEBBING**

One piece of tubular webbing, 1 inch wide and 8 ft long. You can find this at any store carrying climbing gear.

### **DYNEEMA SLING**

One 180 cm long, 8-11mm wide dyneema sling. You can find this at any store carrying climbing gear.

### **PLASTIC BAGS**

Five large plastic bags. Large trash compactor bags are ideal, but 30-33 gal. standard garbage bags are acceptable. Consider saving the free, heavy-duty plastic bags that airlines put your backpack in. Additionally, bring four to six smaller plastic bags, such as quart/gallon size ziploc bags to protect individual items from moisture.

### **CUP & SPOON**

Your cup and spoon are for trail and camp use. A metal cup is preferred; in an emergency you can use it to heat water. 12-16 oz. is a good size for the cup. Metal or Lexan spoon or spork. You don't need a fork or dinner knife.

**POCKET KNIFE / LEATHERMAN-TYPE MULTI-TOOL**

Swiss Army or Leatherman type with scissors is preferred. The large blade should be at least 2" long. Miniature Swiss Army knives are not sufficient. Leatherman-type multi-tool knives are very useful because they have pliers.

**HEADLAMP**

An LED headlamp is recommended, as these are small and lightweight, but still powerful. Bring one set of extra batteries. Do not bring a hand-held flashlight.

**WATER BOTTLE / BLADDER**

Two 1-1.5 qt/L water bottles. We recommend wide-mouth bottles, as these are easier to fill than are the small-mouth bottles. Water bladders (e.g. Camelbak, Dromedary) or insulated water bottles (e.g. Hydroflask) are popular and can be substituted for one bottle each.

**COMPASS**

Basic, handheld compass. It is an added bonus if your compass allows you to set the magnetic declination. The Silva Ranger type compass is nice because you can set the declination and it has a mirror. Geologists may also want to have a Brunton for scientific use.

**MIRROR**

Small, non-breakable. Some compasses have mirrors.

**LIGHTER**

One or two lighters, wrapped to be waterproof. These can easily be bought in Juneau.

**SMALL REPAIR KIT**

Thread, needles, tape, wire, grips, replacement parts for your ski bindings, etc. Leatherman-type multi tools are useful. Adhesive patch material (ex. Tenacious Tape) is also very useful.

**WRIST WATCH**

**Required for everyone.** This is an essential item for keeping you on schedule with daily activities. Bring a good one that is rugged, waterproof, and has an alarm. Bring extra batteries if needed. Make certain you know how to set and change the time and alarm.

## **MOUNTAINEERING SUNGLASSES**

Sunglasses are our primary protection against snow blindness. Snow blindness, a sunburn on your cornea, is painful, debilitating, and dangerous for both the individual and the team. You will wear your sunglasses all day, every day (even in bad weather). **We recommend sunglasses designed for mountaineering**, which filter out 100% of UV rays and 95% of visible light, however wrap-around fishing glasses or dark safety glasses that provide 100% UV protection and block 95% visible light are also acceptable. Either way, they must be wrap-around or have some sort of side shield and sit flush to your face to protect from light reflected up off the snow. Polarization is not critical. Many mountaineers prefer non-polarized glasses because visible glare helps differentiate between different snow conditions.

You must have two pairs of sunglasses so as to have a backup if your primary pair breaks. **Your primary glacier glasses must be high-quality mountaineering glacier glasses or wraparound fishing/safety glasses.** Your backup pair may be less specialized (cheaper) sports sunglasses as long as they provide 100% UV protection (most do, but please check) and high visible light protection.

If you use prescription glasses or contacts to correct your vision, please factor this into your decision about sunglasses. The first option is to wear contacts; many students choose contacts because it simplifies the options for sunglasses. The second option is to bring prescription sunglasses; if you go this route, bring a high quality back-up pair. The third option is to wear dark ski goggles over prescription glasses. This is often hot on warm days, so bring an anti-fogging agent, and bring a high quality back-up pair.



*Good example of glacier glasses*

## **EXTRA PAIR OF PRESCRIPTION GLASSES / CONTACT LENSES**

If you wear prescription glasses, be sure to bring an extra pair. If you wear disposable contacts, bring enough for the 8-week program and a back up pair of glasses. Either way, bring a copy of your prescription.

## **LIP BALM**

3-4 tubes with an SPF of 15 or higher.

## **SUNSCREEN**

One 8-12 ounce container of SPF 30 or higher should be sufficient. If you burn easily, bring two bottles. See First Aid List for additional information. **You must use sunscreen.** Zinc oxide or Glacier Cream blocks out all radiation, which is great.

## **PERSONAL HYGIENE ITEMS**

Soap, shampoo, **small** non-cotton towel, washcloth, toothbrush, dental floss, toothpaste, nail clippers, contact solution, feminine hygiene items, and laundry soap (approx. 1-2 cups of powder sealed in a bag). Keep all items to a minimum. The small travel sizes of soap and shampoo are perfect. Amounts of toothpaste, floss, contact solution, and feminine hygiene products should be sufficient for two months. Many students like to have a small container of lotion to combat the effects of sun and weather on sensitive skin. Personal hygiene beyond washing hands and face and brushing teeth takes on very little importance once on the icefield. Tampon users: consider bringing applicator-less tampons to reduce waste; NatraCare and OB are good brands for this.

## **DUCT TAPE**

One large roll, two inches wide – this is an essential item! It may sound like a lot, but we use duct tape to package and label large bags all the time and you will go through the whole roll before the program ends.

## **PERMANENT MARKER**

Black, permanent, wide tip. You will need this to mark all your gear, as well as for other purposes.

## **JOURNAL & WRITING MATERIALS**

Bring enough stamps, envelopes, paper, pencils, and pens to last the summer. JIRP will supply waterproof field notebooks. Be realistic in what you bring, paper is heavy!

## **USB FLASH DRIVE**

While on the icefield, you will compile a project proposal and the preliminary results of your student research project. You will need a USB flash drive to store your files and move them between shared computers. One or two 4 GB drives is sufficient, or bring a higher capacity drive if you already have one.

## **CLIMBING SKINS or other CLIMBING AIDS FOR SKIS**

The ski route across the Juneau Icefield includes several steep ascents. Even with pattern-base skis we use climbing aids for our skis. There are two primary types of climbing aids: climbing skins or parachute cord. Climbing skins give the most grip, allowing you to ascend in a straight line directly uphill. They are quick and easy to take on and off your skis. They are, however, much more expensive than p-cord. Climbing aids made of parachute cord are very inexpensive and can provide climbing ability approaching that of climbing skins. The drawback to parachute cord aids is that they can be time-consuming to put on your skis and they tend to require multiple adjustments on the trail.

If you bring climbing skins, be sure to pre-fit them to your skis before leaving home. If you choose to bring parachute cord climbing aids, we will teach you how to tie them at our first camp.

## **SKI LEASHES**

Ski leashes attach your skis to your ski boots so you can take your boots out of your skis without losing the skis. These can either be fashioned from p-cord and cheap small carabiners or you can buy pre-made ski leashes from Black Diamond or a similar company. You need two ski leashes, one for each ski.

## **SKI STRAPS**

One rubberized skis strap. This serves many purposes on the Icefield, especially when carrying your skis. Example to the right:



## **SPARE BINDING PARTS**

Bring a spare cable (or two) for your bindings and a few extra specialized binding screws.

## SKI POLES

We recommend adjustable length metal ski poles. Fiberglass poles tend to break. Transitioning between different terrains and carrying poles strapped to your backpack is easier with adjustable length poles; look for an external flip lock instead of an internal screw lock. If you have fixed length ski poles, they cannot be longer than the distance between the ground and your armpit. Bring one extra set of baskets. Do not bring poles with self-arrest grips.

## SKIS, SKI BINDINGS, and SKI BOOTS

We ski for most of the traverse and spend all day in our ski boots. The vast majority of the terrain is low angle (1° to 5° slope), although there are a couple steeper hills to both ascend and descend. Snow is consistently old, wet, and dense. To best meet these conditions, we **require medium-duty, medium-width, full metal-edged, backcountry/cross-country skis**, with length appropriate for your height and weight, with **medium-duty boots and medium-duty bindings**.

Some people prefer to have separate ski boots and hiking boots, while others prefer to have one pair of boots which do double-duty as both ski boots and hiking boots. Either approach is acceptable for the icefield, but do make sure your ski boots match your bindings. Regardless of your choice, **your boots must meet our requirements**.

We realize there are many different approaches to, and opinions about, ski setups. We provide you with these recommendations based on extensive experience with the particular conditions of a summer traverse of the Juneau Icefield. **You must comply with our requirements for ski equipment**.

Ski equipment can be particularly expensive to buy. Check into options to rent from a local outdoor store, look around for second hand equipment, and consider borrowing from a friend (it is the off season for many people, after all). In addition, JIRP has some ski boots to lend/rent out, although quantities are limited and must be reserved with the Program Manager prior to arrival in Juneau.

## REQUIRED SKIS

We require **medium-duty** skis designed for **backcountry touring**. They must have **full-length metal edges**. This type of ski is available with two types of bases – waxless/pattern-base (aka fishscale) or waxable/non-pattern-base. Either type of base is acceptable, but a **pattern-base is highly preferable**, especially if you don't have prior experience with waxing skis. Even with prior experience, the large majority of staff and students prefer to use waxless/pattern-base skis. Madshus, Rossignol, Alpina, and Fischer are several ski brands that have metal edged, waxless/pattern-base, medium-duty, backcountry touring skis. Below are several examples of the type of skis that are required for the Icefield.

**\*\*If you already own a backcountry or AT setup and are exceptionally experienced please contact us to ask if your setup is appropriate before buying new equipment\*\***



*Typical example of a patterned base. The numerous small ridges that are cut into the base help the ski to grip the snow, allowing you to easily move forward without slipping*



*Example #1: Madshus Epoch (med. width)  
Madshus Annum (wider)  
Madshus Eon (narrower)*



*Example #2: Fischer S-bound 98 (med. width)  
Fischer S-bound 112 (wider)*



*Example #3: Rossignol BC 90 Positrack (med. width)  
Rossignol BC 110 Positrack (wider)  
Rossignol BC 70 Positrack (narrower)\**

*\*Note: We've had recurring issues with the 3-pin bindings ripping out of this model, which we believe is due to novice skiers putting undue stress on the narrow skis. The problem is repairable in the field, but novice skiers should consider the medium width model (BC 90) if possible.*

### **Typical Specifications for Required Medium-duty Skis**

- Use:* easy-to-moderate backcountry touring/cross-country skiing
- Width:* 50 mm to 80 mm (underfoot width, the narrowest measurement in the ski specs)
- Length:* depends on your height and weight (google "ski length" for more information)
- Base:* waxless/pattern-base/fishscale
- Edges:* full-length metal edges
- Camber:* double is best, but partial or single camber is also acceptable

See more examples of skis required for the Juneau Icefield at <http://www.rei.com/c/metal-edge-touring-skis>.

Most ski manufacturers have a sizing chart on their website. When sizing skis based on your weight, do not include the weight of your pack; this often results in a longer, less manageable ski length for your height.

## REQUIRED SKI BINDINGS

We require **medium-duty**, standard 75mm/three-pin bindings (see Ex. #1 and 2 below) or telemark cable bindings (Ex. #3). The most common icefield binding is similar to either Ex. 1 or 2, they are cheap and reliable. Voile and G3 are two manufacturers that make reliable bindings of this type.

If you choose the one-boot system, medium-duty Silvretta or equivalent (Ex. #4) bindings work well, but these are hard to come by as they are no longer made.

**NNN and SNS style bindings WILL NOT BE ALLOWED as these are likely to fail on the icefield.**

Below are several examples of the type of bindings that are suitable, and required for use on the icefield.



*Ex. 1: Voile Mountaineer (no heel cable)*



*Ex. 2: Voile 3 Pin Cable Telemark*



*Ex. #3: Voile Switchback X1 Telemark Touring*



*Ex. #4: Silvretta Touring*

## REQUIRED SKI BOOTS

We require **medium-duty** ski boots designed to clip into telemark cable bindings or 75mm three-pin bindings via a duckbill at the toe of the boot. On the bottom of the duckbill there are three holes that fit onto the three little pins on the 3-pin bindings. All ski boots must fit above the ankle and be designed for moderate backcountry or moderate telemark use.

Appropriate boots are made of leather, soft synthetic material, or a removable soft liner with a hard plastic shell. Medium-duty hard plastic boots (E. 2) are warmer and drier than leather or soft synthetic boots on the icefield. The hard plastic shells are more waterproof and the removable liner makes the boots easier to dry at night. We recommend that you get plastic ski boots if you don't already have something suitable. Examples of this type of boot are the Scarpa T4 and the Scott Excursion (formerly the Garmont Excursion).

Leather or soft synthetic boots are generally lighter and cheaper than hard plastic boots, but they quickly become soaked through with in Icefield conditions (even if they claim waterproofness) and provide less control when skiing downhill. Examples of current leather boots on the market are the Scarpa Wasatch (see Ex. 1 below), or the soft synthetic equivalent Fischer BCX 675 and Alpina Alaska 75mm.

**Your ski boots should be well fitted** to be worn with both a thin liner sock and a thicker wool sock (at the same time). Dry, well-fitting boots will be very useful in preventing blisters. If purchasing used boots, be certain that they are in good condition and fit properly while wearing both liner and warm socks.

\*\*JIRP has a small collection of worn/broken in but usable plastic boots. Please contact us at fger.jirp@gmail.com if you want to inquire about renting these for the season. We cannot guarantee fit as you won't be able to try them on until you get to Juneau. It is best to seek out options locally. \*\*

**Do not bring downhill ski boots, alpine touring (commonly referred to as AT) boots, ski mountaineering boots, or boots that are designed for extreme telemarking,** as these are uncomfortable, heavy and overkill for the type of skiing we do on the icefield. **These type of boots will not be allowed!**



*Ex. 1: Scarpa Wasatch (leather)*



*Ex. 2: Scarpa T4 (plastic) This style is recommended.*

## **IMPORTANT!**

Be sure to thoroughly examine your skis, ski boots, bindings, and poles for cracks, delamination, loose screws, worn parts, broken laces, and other defects in the spring. Pay particular attention to your ski bindings, as it can be very difficult or impossible to adequately repair these while on the icefield. If you find problems with any of your gear, get the item(s) repaired in plenty of time before departing for Juneau. .

### **THE FOLLOWING TYPES OF HEAVY-DUTY SKI GEAR ARE PROHIBITED**

- Downhill skis
- Super-wide alpine touring skis
- Super-wide telemark skis
- Skis that are shorter than recommended for your height and weight
- Ski bindings that include ski brakes

Downhill skis and super-wide alpine touring/telemark skis are too heavy and are overkill for 99% of the skiing you will do. Skis of this type will make you expend more energy, will dramatically increase your chances of developing long-lasting debilitating blisters, and will slow you down. This will slow down your entire group on the trail.

#### **Heavy-duty Skis – NOT ALLOWED**



*Example #1: Black Diamond Drift Telemark/Randonee*



*Example #2: Rossignol Temptation 76*

#### **Typical Specifications of Skis that are NOT ALLOWED**

*Use:* downhill skiing, advanced alpine touring, advanced telemark skiing, extreme skiing  
*Width:* 90 mm to 140 mm (underfoot width)  
*Length:* typically shorter than the recommended length for backcountry touring skis  
*Edges:* full-length metal edges  
*Camber:* single  
*Base:* waxable

See more examples of skis we will not allow on the Juneau Icefield at <http://www.rei.com/c/downhill-skis>

**Heavy-duty Boots – NOT ALLOWED**



*Example: Scarpa Maestrale RS Randonee*

**Heavy-duty Bindings – NOT ALLOWED**



*Example: Marker Duke Randonee*

**THE FOLLOWING TYPES OF LIGHT-WEIGHT SKI GEAR ARE PROHIBITED**

- Skate skis
- Ski bindings and ski boots that utilize the NNN or SNS (or similar) mounting system

**Skate Skis – NOT ALLOWED**



*Example: Fischer Carbonite Skate*

**NNN/SNS Boots – NOT ALLOWED**



*Example: Salomon Escape 7 Pilot CF*

**NNN/SNS Bindings – NOT ALLOWED**



*Example: Rottefella T4 Auto Touring*

Skating skis are too narrow and too fragile for the sun-cupped surface of the Juneau Icefield. Likewise, bindings and boots using the NNN or SNS mounting system are too fragile. Our experience has shown they are prone to breaking under the use to which they will be subjected on the Juneau Icefield.

**IF YOU ARRIVE IN JUNEAU WITH THE TYPE OF SKI GEAR THAT IS PROHIBITED, IT WILL NOT BE ALLOWED ON THE ICEFIELD. YOU WILL BE REQUIRED TO PURCHASE OR OTHERWISE ACQUIRE THE REQUIRED GEAR, AT YOUR OWN (PROBABLY) CONSIDERABLE EXPENSE.**

## **REQUIRED FIELD CLOTHING**

**General information:** There are a number of different technical materials on the market, boasting a wide range of characteristics. Most are acceptable, and the choice comes down to personal preference. The exceptions to this are cotton and down: Cotton fibers absorb water and lose their insulation properties. Likewise, down collapses when wet, becomes a heavy, soggy mess, and loses all its insulative properties. We often work all day in the rain. It is acceptable to bring an optional down jacket for camp (see the optional gear section) and a down sleeping bag, but none of your other clothing or equipment can be down or cotton.

### **HIKING BOOTS**

You will be hiking on snow, ice, sharp frost-shattered rocks, mud, and loose, unconsolidated rocks and gravel, as well as across several streams. You will need sturdy, comfortable, hiking boots. Your hiking boots must be above-the-ankle in height, medium-weight, with Vibram-type lug soles and a moderately stiff midsole (see examples below). Your boots **MUST** be compatible with your crampons! Please note that strap-type crampons are compatible with almost any pair of boots.

**We strongly recommend leather or soft synthetic hiking boots instead of hard plastic boots**, as soft boots provide better flexibility and traction on rock. Asolo, La Sportiva, Merrell, Scarpa, and Vasque are some well-known and reputable brands, but there are many others. Some boots have built-in Gore-Tex liners – we strongly recommend these to cope with the wet conditions. We also recommend you purchase separate supportive insoles, such as Superfeet, for both your hiking boots and your ski boots. These provide better support and are more comfortable than the standard insoles that come with your boots. If you're bringing used boots, check to see if they need to be resoled or restitched. **Make sure new boots are well broken-in** and are large enough for two pairs of socks (thick socks and liner). **Work boots are not allowed** because they do not provide adequate traction or support on rock.

Strap-style crampons are compatible with all boots. However, make sure the size range of your crampons accommodates both your SKI and HIKING boots. When checking your boots and crampons, you can change the size of the crampons by adjusting the setting on the bar that runs toe-to-heel up the middle of the foot. If when setting on the bar is at the largest size and still does not fit your ski boots, get a larger crampon bar.



*Ex. 1: Danner Mountain Light II GTX*



*Ex. 2: Asolo TPS 520 GV*



*Ex. 3: Lowa Mountain Expert GTX*



*Ex. 4 LaSportiva Makalu*

### **LIGHTWEIGHT SNEAKERS**

These are for in-camp use. Make sure the soles provide adequate traction, as there is snow within the perimeter of the camps.

### **LINER SOCKS**

Two or three pairs of polypropylene, thin wool or other non-cotton sock liners.

### **HEAVY SOCKS**

Three pairs of wool or wool poly mixture. **Do not bring cotton socks!**

## **RAIN PANTS AND RAIN JACKET**

**The Juneau Icefield is often cold and very wet for extended periods of time. Get the best rain gear you can afford. Quality here will be appreciated.** We cannot emphasize enough that we will working outside in consistently cold and wet conditions.

Material should be of strong, durable, waterproof, breathable materials. In our experience, the best rain jackets are made of either Gore-Tex or eVent. The second best options are Dry-Vent, Pertex, or Patagonia H2No. **Make certain you stress to the salesperson that you are purchasing this for a very wet, sometimes high-wind environment!** Make sure the seams have been factory taped and sealed. If you are borrowing gear check the seams. This is your outermost layer of clothing and is critical for protection from rain, cold, and wind. Rain pants should have side zippers so you can take them on and off over boots. Rain pants may be coated or rubberized nylon, but be aware they will be uncomfortably warm in some conditions. Your rain jacket must have a hood **that fits over your helmet. Ponchos are not acceptable.** Brands such as Patagonia, The North Face, Arcteryx, Rab, Marmot, Outdoor Research, Stio, REI, EMS, and Mountain Hardwear are brands that produce high quality rain gear.

## **UNDERWEAR**

Three-five pairs are adequate. Nylon or polyester are best because they dry quickly.

## **LONG UNDERWEAR**

Two sets of top and bottom. These should be polypropylene, wool, wool blend, or other synthetic. Two sets are required so you can change into a dry set in camp. **No cotton!**

## **SHORTS**

One pair. Choose a durable synthetic material, you may find your shorts may get a great deal of use. Great for sunny days and to wear over your long underwear. Do not bring blue-jean cutoffs, they take too long to dry and are heavy.

## **FLEECE OR WOOL PANTS**

One pair of fleece-type pants, heavier than long underwear bottoms. While various manufacturers may use different names to describe the material, they all describe essentially the same thing – a synthetic material characterized by a thick, fuzzy feel that provides insulation and warmth and dries quickly. You may find a cheaper wool alternative at an Army surplus store, look for a pair with a medium-weight, tight weave.

## **CAMP PANTS**

One pair of nylon or other lightweight, durable, non-cotton pants for in camp and warm weather and for a change when others are wet. Your fleece or wool pants can be your camp pants.

## **LIGHT SHIRTS**

Two T-shirts or light long-sleeve shirts for layering and warm weather. Polyester, poly blend, other synthetic, or wool (**no 100% cotton**).

## **MIDWEIGHT LAYER**

One midweight long-sleeve fleece, wool, or polypro shirt, pullover, or jacket

## **HEAVYWEIGHT FLEECE, WOOL, OR SYNTHETIC FILL JACKET**

One heavy-weight fleece or wool pullover or jacket or synthetic fill puffy jacket. Do not bring an expedition-weight down jacket with gore-tex outer, as this is overkill for the summer conditions on the icefield.

## **BANDANA /BUFF**

One is sufficient.

## **BRIMMED HAT**

For rain and sun protection. Baseball caps work well.

### **HAT WINTER HAT**

Polypro, fleece, or wool hat that covers your ears.

### **POLYPRO/WOOL LINER GLOVES**

Two pairs of lightweight, close-fitting polyester or wool liner gloves.

### **WOOL OR FLEECE GLOVES**

One pair of midweight, fleece or wool gloves.

### **OVERMITTS/GLOVES**

One pair of waterproof shell overmitts or waterproof gloves. Mitts that are just shells are becoming harder to find, so an insulated mitt or glove that includes a waterproof shell will be adequate. If possible, do get waterproof gloves or find good quality leather gloves that can be waterproofed (Black Diamond has some) as we often have to touch snow in wet conditions. A cheap option can be bought in Juneau: Alaskan fishermen use fleece-lined rubber gloves which have been proven to work very well on the icefield.



### **SNOW GAITERS**

These go over your boots and keep snow from getting in your boots. Shin height is desirable. These also protect your pants/legs when walking in crampons.

## **REQUIRED CONTENTS FOR FIRST AID KIT**

The following list contains material necessary to treat situations we are likely to encounter on the Juneau Icefield. You can purchase a pre-assembled kits at an outdoor equipment store; make sure it is designed for hiking and includes the required items. Make sure your kit will stay dry, and re-package it in ziploc bags if necessary.

Keep in mind that your first aid is primarily for your personal use.. We supply trail parties with the idea that everyone is carrying a few pieces of commonly needed items that can be combined in an emergency.

Rubber Gloves	1 Pair
Band-Aids	5-10
Moleskin (Large Roll or Sheets)*	2
Spenco 111 Second Skin*	1 package
Athletic Tape/Cloth adhesive tape (1.5 inch wide)*	1 or 2 rolls
Gauze 2x2 Pads	3
Antiseptic Ointment (Bacitracin, Betadine)	1 sm. tube
Aloe Vera Gel – for sunburn (optional)	1 sm. tube
Acetaminophen (Tylenol or similar)	Small bottle
Ibuprofen (Motrin, Advil, or similar)	Small bottle
Any prescription medications you may be taking	2 month supply

\* These are essential; our most used items. This combination has saved many feet. Blisters are the most frequent medical problem in the field, and their prevention must be a strong personal commitment. Bring a space blanket if you already own one.

**Include in your first aid kit any pertinent medical information.** On a piece of paper, list any allergies to medications, any illnesses that you have, any medications currently being taken while on the icefield etc. If none of these apply, then write the following on a piece of paper and place it in your first aid kit:

**No allergies, no pertinent medical history, no medications**

**You must carry your first aid kit with you whenever you are on the trail, out for the day doing field work, or at any other time when you are away from one of the JIRP camps.**

## OPTIONAL ITEMS

These items are useful but not absolutely necessary.

### **EAR PLUGS**

You will be sleeping in close proximity to many others throughout the eight week program. Many people snore, some quite loudly, making it difficult to get a good night's sleep. Several pairs of compressible foam ear plugs can make all the difference when trying to sleep.

### **BLISTER BARRIERS**

Blisters can be a real problem and are more likely to form if you have ill-fitting gear. Blisters can sideline students and have kept people in camp instead of heading out into the field on projects! Everyone seems to have different suggestions for mitigating blisters, from duct tape to liner socks to preventative bandaging. Some of our staff highly recommend this product and attribute their lack of blisters to these booties:



eZee Hi Ankle Booties:

Available online through Amazon or [ezeefitsports.com](http://ezeefitsports.com)

### **BOOT WATERPROOFING**

If you use leather hiking boots and/or leather ski boots, purchase one can/tube of Aqua Seal, Biwell, Nikwax, Snowseal, or an equivalent type of boot waterproofing to make sure your boots remain as dry as possible. Waterproof your boots well before leaving home and bring at least one tube or small can with you to treat boots while on the Icefield.

### **EXTRA PUFFY JACKET**

This is in addition to the fleece/insulated layer required above. A lightweight down or synthetic puffy jacket or vest (that packs down well) can be nice to have for cold nights. Such a jacket is highly recommended by staff. Do not bring an expedition down jacket with Gore-Tex shell.

### **DAYPACK**

We will do several day trips in Juneau, on the Icefield, and possibly in Atlin. Some people like to use a smaller daypack (30-40 L capacity), most people (including staff) just use their large backpacks. If you bring a daypack onto the Icefield, you can use it as a camp-to-camp bag transported via helicopter or snowmobile.

### **CAMERA**

There will be daily opportunity for recharging batteries. Cameras independent of your cell phone are a good idea. It is best if it is waterproof/resistant. GoPros are extremely durable and terrific for strapping onto your helmet. If you bring a nicer camera, a wide angle lens is nice for capturing the immensity of the icefield. A polarizing filter can be helpful in reducing glare.

### **BELT / SUSPENDERS**

You will be hiking and skiing for long distances in your rain pants. If they do not stay up on their own, make sure that you have a method to keep your pants up.

### **BIVY BAG**

Bivy bags can be used to help keep your sleeping bag dry, especially if you bring a down sleeping bag. Do not bring bivy bags that use poles, these are too bulky. A bivy bag does not replace a tarp, the tarp is still required.

### **TOPOGRAPHIC MAPS OF THE JUNEAU ICEFIELD**

If you are really into maps, you might consider bringing a set of USGS 1:63,360 scale topographic maps that cover the area of the Juneau Icefield. The maps are: Juneau B-1, Juneau B-2, Juneau C-1, Juneau C-2, Juneau D-1, and Juneau D-2. Bring the maps only if you want your own personal set, as we have them at the camps on the icefield.

### **HAND LENS, ROCK HAMMER, and SAMPLE BAGS**

These are useful if you are interested in bedrock geology. The hand lens should be of the fold-up, 10x to 15x type.

### **LIGHTWEIGHT WINDBREAKER/ SOFTSHELL**

This is for breezy, clear days. This is optional because a rain jacket also works as a windbreaker.

### **BOOT INSOLES**

Superfeet and Sole make nice insoles. These insoles cushion and help customize the boot to your foot, making your boots more comfortable.

### **LEATHER WORK GLOVES**

For work around camp and some field work. Highly recommended! Consider using some kind of waterproofing on these gloves. Bringing these saves some wear on expensive mountaineering gloves.

### **TUPPERWARE CONTAINER**

Large enough to hold a sandwich, helpful for keeping your sandwich from getting squished on the trail. This can also double as a personal bowl for camp use, and can be bought in Juneau.

### **CLIMBING EQUIPMENT**

If you already own an ATC, you may bring it. Do not bring pickets, flukes, ice screws, pitons or climbing ropes, these items will be provided by the program.

### **HANDHELD GPS**

If you already own one, know how to use it, and feel that you would like to have it, then consider bringing it. Do not buy a new one, you do not need it.

## **DO NOT BRING**

### **SOLAR PANELS**

These are unnecessary as there is ample time to charge small electronics at camp each day.

### **SATELLITE TEXTING/COMMUNICATION DEVICE**

Devices such as DeLorme InReachs are not allowed by students on the icefield. Staff will have VHS radios for communicating with our office in Juneau, as well as satellite phones for backup and emergency contact. Having access to the internet and people off-ice diminishes the quality of the experience for students. The JIRP field season is an intellectually, physically, and emotionally intense eight weeks. For the sake of the expedition, we ask everyone to be fully present while we're in the field.

**In general, if you already own equipment similar to what is described on this list, you are experienced using it, and you have questions as to whether it would be appropriate, feel free to contact us before buying new equipment.**

## Checklist

### REQUIRED EQUIPMENT

- Passport
- Visa
- Large backpack
- Ice axe
- Crampons
  - Extra long bars
- Climbing harness
- Helmet
- Carabiners
  - 4 Locking
  - 5 Non-locking
- Sleeping bag
- Compression sack
- Sleeping pad
- Tarp/groundsheet
- Large stuff sack
- 4-6 Small stuff sacks
- 50'/15m Parachute Cord ("p-cord")
- 50'/15m 6 mm Cordelette
- 8'/2.5m x 1"/2.5cm webbing
- 180 cm dyneema sling
- Plastic bags
  - 5 trash bags
  - 4-6 Ziploc bags
- Cup
- Spoon/spork
- Pocket knife/multi-tool
- Headlamp
- Water bottles/bladder
- Compass
- Mirror
- Lighter
- Small repair kit
- Watch
- Sunglasses
  - Primary glacier glasses
  - Back-up pair

- Prescription glasses/contacts
  - Back-up pair
- 3-4 tubes SPF lip balm
- Sunscreen
- Personal hygiene items
  - Soap
  - Shampoo
  - Toothpaste
  - Toothbrush
  - Small towel
  - Laundry soap
  - Feminine hygiene products
  - Contact solution
  - Face lotion
  - Dental floss
- Ear plugs
- Duct tape (seriously, a whole roll)
- Sharpie
- Journal and writing materials
- USB flashdrive
- Climbing skins (or p-cord)
- Skis
- Ski bindings (mounted to skis, if possible)
- Ski boots
- Ski poles
- Ski leashes
- Ski straps

### REQUIRED CLOTHING

- Hiking boots
- Sneakers
- 2-3 pairs Liner socks
- 3 pairs Midweight wool/poly socks
- Rain jacket

- Rain pants
- 3-5 pairs Underwear
- 2 Long underwear tops
- 2 Long underwear bottoms
- Shorts
- Fleece/wool pants
- Camp pants
- 2 Light shirts
- Midweight polypro/wool shirt
- Heavyweight fleece/wool jacket or synthetic puffy
- Bandana/buff
- Brimmed hat
- Warm hat
- 2 pairs Polypro/wool liner gloves
- Midweight fleece/wool gloves
- Overmitts/waterproof gloves
- Gaiters
- First Aid Kit

### OPTIONAL ITEMS

- Blister barriers
- Boot waterproofing
- Down jacket
- Daypack
- Camera
- Belt/suspenders
- Bivy bag
- Topographic maps
- Hand lens + rock hammer
- Windbreaker or softshell jacket
- Boot insoles
- Work gloves
- Tupperware
- ATC
- Handheld GPS