

# Snow and Ice Trekking and Snowshoeing - Equipment Information

*Below is equipment information concerning anything you may need on our summer snow and ice trekking trips and winter snowshoeing trips or foot based avalanche course. Please see your particular trips gear list to know what is required for your trip. To help with your selection we have collated some notes which may help you save time and money.*

## **Clothing: Outer and Mid-layers**

### ***Waterproof jacket and trousers***

Waterproof jackets and trousers should be lightweight without any excessive features, mesh or insulating lining which will be hot and heavy.

Waterproof fabrics are usually a sandwich of an outer layer providing strength and an inner membrane that provides water resistance and breathability. Membranes stop liquid water but allow water vapour or sweat to pass through. Many brands of membrane are available with similar performance (such as Gore Tex® or Event®). The outer layer will have a water repellent treatment that prevents it from becoming saturated and compromising the breathability of the membrane. Waterproof clothing should have tape sealed seams

These materials must be cared for to prolong their performance. This requires regular washing and tumble drying or ironing to reactivate the water repellent treatment. Refer to the manufacturer's instructions.

Technical mountaineering jackets are ideal but many general-purpose jackets are sufficient. Features include a suitable length to get tucked snugly into a harness, pockets that don't interfere with the harness, a full front zip and an attached hood that fits over a helmet.

Waterproof trousers must have side zips down the legs so they can be put on and taken off whilst wearing boots and crampons. Make sure they have sufficient movement to enable you to lift your legs high.

### ***Insulated jacket***

An insulating layer is for colder conditions whilst stopped or at the hut in the evening. It should have a full front zip and a hood is useful. Synthetic insulation (such as Primaloft®) is best as it maintains its performance even when wet though many water resistant natural down jackets are now also available.

### ***Trousers***

Trousers should be lightweight and made from quick drying synthetic or softshell material. Warmer softshell pants are good for colder times but there is more flexibility by layering lighter fabrics with leggings.

**Clothing: Outer and Mid-layers cont.****Gaiters**

Full calf-length gaiters keep the snow out and should have a sturdy tie down system under the instep to stop snow creeping up into the boot. These are essential to keep snow from getting in the top of the boot and melting creating a steady flow of meltwater through the boot. Front closing gaiters are much easier to use since they are easier to reach. In deep snow conditions gaiters are useful even for boots with integrated gaiters.

**Mid layers**

A lightweight midlayer can provide insulation and some degree of weather-proofness. They can be constructed from fleece (such as 100-200 Polartec®) or wind resistant materials. Wool is heavier and takes longer to dry and heavier weight softshell materials tend to be too warm and bulky for summer conditions.

**Clothing: Base layers****Underwear**

Quick drying or wicking 'sports' underwear are most comfortable

**Top**

High zip neck, long sleeve synthetic or merino (wool) baselayer. Merino materials have reduced odour on multi-day trips but can be slow to dry in hot and humid conditions.

**Leggings**

Synthetic or merino leggings are lightweight and provide additional warmth if worn under outer trousers or to wear around the hut or sleeping.

**Glacier shirt**

At any time of the year long days on a sunny days on the glacier and make keeping cool a real challenge. A trekking or glacier shirt with long sleeves and a collar can be useful as it is important to cover up in the strong NZ sun.

**Hands and head****Warm gloves**

Good quality warm gloves are essential at all times. Gloves need to be windproof and well insulated and leather palms provide the best grip, longevity and dexterity. Waterproof gloves are significantly more expensive and not necessary. Totally leather gloves are heavier and can be slower to dry out. Mittens are not warranted as temperatures are not usually warm enough.

**Light gloves**

Light gloves are essential for warmer conditions and when more dexterity is required. Even in warm condition, it is important to keep skin protected from the sun and abrasive snow. These can be very thin, inexpensive pair of polypropylene gloves or dedicated climbing or even workers 'work' gloves.

**Warm hat**

Either wool or fleece, must extend over the ears and fit under a helmet.

**Sunhat**

Full brim hats do not work when when worn under a helmet. A baseball style cap is good but won't protect your ears from the sun so needs to be used in conjunction with a 'legionnaires' neck cover or a neck gaiter (such as Buff®).

## Feet

### **Boots**

Where crampons are worn the boots must have a solid and semi-rigid sole (3/4 shank) sole. As cold conditions or wet snow can be encountered at any time of the year in the high mountains, a warm and waterproof 2-3 season boots is required.

For all snow and ice trekking trips, all boots must be crampon compatible.

### **Socks**

Sock thickness depends on the boot fit. With a well worn in, well sized boot, choose a close fitting mid weight (non cotton) sock. Thin liner socks can be used underneath to minimise the chance of blisters providing there is space. A too tight fit within the boot with a thick sock can reduce circulation and result in cold feet. Keep a spare dry pair for night time and one pair to climb (and sweat) in.

### **Approach/ hut shoes**

Lightweight approach shoes or running trainers are handy for in and around the hut and for the walk out to get a break from mountaineering boots. Alternatively hut booties or sandals (such as Crocs®) are a popular options.

## Technical Equipment

### **Crampons**

For trekking, 12 or 10 point crampons with horizontally aligned front-points work best.

The crampon binding system must be compatible with the boots. A hybrid system (also known as semi-automatic with a heel clip and toe strap) works well with semi rigid boots or strap on crampons can also on a wider variety of boots.

Due to the variable NZ snow conditions, all crampons must have anti-balling plates.

### **Ice axe**

For trekking, a straight shafted walking axe between 60 cm to 80 cm long is required. A longer tool is more helpful on moderate ground. These will have a 'classic' shaped curved pick that is ideal for self arresting.

### **Trekking poles**

If used to using trekking poles, they are a useful addition for walking around on snow and ice. Most people prefer to use two rather than just one whilst trekking. Poles need to be collapsible so they will fit in or onto your pack when not in use.

### **Harness**

A lightweight a specially designed alpine harness is easier to get in and out of over boots and crampons and packs down small for the walk out.

### **Helmet**

For glacier trips, a lightweight climbing helmet is required. These are designed to deflect falling ice and rocks and protect the head in case of a fall. Check that it is big enough to be worn over a warm or sun hat and the straps are correctly adjusted.

## Technical Equipment cont.

### ***Avalanche transceiver***

During winter, avalanche transceivers are required whenever an avalanche danger is expected. All modern transceivers operate on the same frequency.

### ***Avalanche shovel and probe***

Shovel and probe are essential avalanche safety gear and also useful for camping in the snow. 2 to 3 metre probes are most commonly used in NZ. Shovels must be strong and durable in order to be effective for digging in hard avalanche debris. Lightweight models often fall short in this respect.

## Accessories

### ***Water bottle***

Have capacity to carry 2 litres of water on an ascent. Bladder systems (such as Camelback® or Platypus®) are useful but can freeze in cold conditions or get damaged and don't fit well in a stuffed pack. Wide mouth plastic bottles (such as Nalgene®) are useful for filling from streams and can handle boiling water so can be used for hot drinks on the go and as a hot water bottle at night. PET bottles that come with bottled water or fizzy drinks are cheap, light and crushable.

In winter an insulated flask is useful for carrying hot drinks or a Jetboil® type stove is great for melting snow and making hot drinks quickly whilst out and about.

### ***Compass, map, notebook and pencil***

Compass and map are important navigational tools. Ensure your compass is suitable for the Southern Hemisphere. Notebook and pencil is useful for taking notes on techniques, routes, conditions and weather.

### ***Sun glasses***

Must provide good protection with a close fitting wraparound or glacier style. Category 4 lenses are mandatory for alpine trips above the snowline where there is intense reflection from the snow. Polarized lenses don't increase the protection but remove the glare from surfaces (such as water) that can make it more difficult to differentiate snow from ice.

### ***Snow goggles***

Goggles are an essential safety item. In stormy weather it can be impossible to navigate without proper eye protection. At least two people in the party should have good quality snow goggles during summer and all members should have them in winter. for this reason and can be used as a backup in case sunglasses are lost or damaged. A low light orange/yellow lense is best.

### ***Headlamp***

LED headlamps are vital for nocturnal toileting and early starts. Start the trip with fresh batteries and bring spare in case it gets left on in the pack.

### ***Sun block***

A small bottle of high protection sunblock and lip protection is required for the strong NZ sun.

### ***Stuff sacs or dry bags***

Lightweight nylon stuff sacs with draw cords or dry bags with roll tops are good for keeping stuff in your pack organised and dry.

### ***Snow study kit***

During winter, if interested in snow science a snow study kit containing a digital thermometer, magnification glass and snow crystal card is a good addition to kit.

## Sleeping and carrying

### **Backpack**

A suitable backpack for snow and ice trekking has 40 to 50 litre capacity. Larger than this will be too heavy when correctly packed. It must be light and it is useful if it can be stripped (lid or waist strap removed) or collapsed down to make it more comfortable on day trips when less needs to be carried. It must have ice tool attachments.

### **Sleeping bag**

For use in huts from December to April a lightweight sleeping bag rated to 0°C (32°F) is usually fine. If you are a 'cold' person, go warmer. For the shoulder seasons a 3 season bag good to -5°C (23°F) is needed. If bivvying or camping additional warmth can come from wearing more clothing inside the bag. Down fill has a better weight to warmth ratio but many modern synthetic fill materials are getting very close. Synthetic material has the advantage of staying warm when wet so good in damper conditions such as when snow caving.

Silk or cotton liners are recommended to prolong the life of your sleeping bag.

### **Plastic bowl, cup & spoon**

Most huts have a supply of cooking utensils, cutlery and crockery. If camping or bivvying, a lightweight plastic cup, bowl and spoon is required.

### **Bivvy bag**

A bivvy bag is a lightweight bag to put a sleeping bag inside to give it more weather protection when spending the night bivvying out. They are usually much lighter than a tent but not as good in bad weather and handy to have in an emergency. They are only required if the conditions are conducive to sleeping out.

### **Sleeping pad**

Most huts have mattresses and sleeping pads do not need to be carried unless camping or bivvying.

Inflatable mattress (such as Thermarest®) are most comfortable and provide superior insulation properties. They can puncture so a repair kit must be carried. Closed-cell foam mats are reliable and cheap and can be layered under an inflatable mattress to protect it from sharp rocks or to give more insulation when sleeping on snow.

### **Toiletries**

Toiletries should be minimised as much as possible. There is little opportunity for washing with soap in the high mountains and can be a drain on resources. Your guide will carry a comprehensive first aid kit for emergencies but personal medications such as blister tape, anti inflammatories etc. is useful (Please inform your guide if you are on prescription medication).

A towel is useful for nights spent in town and after arriving back from the mountains.

### **Ear plugs**

Huts are communal places so For light sleepers ear plugs can be a great help!

**Please check the equipment list for your particular trip**