

Winter equipment – detailed list

Below is equipment information concerning anything you may need on our winter skiing/boarding or climbing trips. 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 layers

Shell gear should offer protection from wind and water and not be an insulating layer. Avoid shell gear that has any mesh or insulating material which will be hot and heavy. There are numerous fabrics which are both water resistant and breathable. Gortex is the most common brand name but there are many other excellent fabrics. Shell clothing should be tape sealed on the seams and be easy to move in and be put on and taken off when wearing gloves or mittens. As with all touring/mountaineering equipment weight is a factor.

□ **jacket/waterproof shell:** Look for a full front zipper model with an attached hood with draw cord. Make sure you can zip it up to cover your face even when you have your warm hat on. For climbing the hood will need to fit over a helmet (try it on with a helmet to make sure). Some models have adjustable hoods. Ski touring jackets need good ventilation (pit zips) and large chest pockets are a plus since they will be accessible for quick access items. If you can fit your climbing skins in your chest pockets you will be much faster in your transitions from downhill to uphill.

□ **over pants shell:** These must have full length zips down the legs so they can be put on and taken off when you are wearing boots. The `bib' types are warmer as they extend above the lower back keeping out snow when you crash. Once again, light weight and well made is good. Make sure they have sufficient movement to enable you to lift your legs high.

□ **gaiters:** Gaiters are not usually used for ski touring unless the boots being used are a lower cut boot such as those used Nordic skiing. Since you do not tend to be plunge stepping in the snow it is not as crucial as when climbing.

For climbing 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

Guide tip #1 : All breathable fabrics lose their waterproofness after hard usage. Most climbers and skiers have a closet full of well made, expensive jackets that they don't wear anymore because they are no longer waterproof. Waterproofing sprays only postpone the inevitable. After a season or two of hard use your shell gear will leak. Most top rated companies make shell gear that is less expensive and lighter than their top of the line models. While these items will not be as heavy duty as the more expensive models, they may be a better option if you need to replace either one after two years to be waterproof.

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. Some gaiters are designed to close in front of the leg rather than behind. Front closing gaiters are much easier to use since they are easier to reach.

clothing : mid layers

□ **“soft shell” insulating**

jacket: Primaloft, synthetic down or fleece. Should be the full front zip variety to allow ventilation. Zip up pockets help avoid losing items which are stored there.

□ **fleece sweater:** A lighter weight sweater (100-200 POLARTEC) is a good addition if you need extra warmth or it is not cold enough for your regular jacket.

□ **fleece pants:** Preferably not too heavy a fabric as they can cause overheating.

□ **down jacket:** Regarding the general query as to whether a down jacket can be substituted for a fleece one; we find that they tend to complement each other rather than act as a replacement, a fleece jacket is quick drying and breathes, yet retains good insulation values and is ideal under an outer shell. A down jacket tends to come into its own at the end of the day when you want to put something really warm on but is still lightweight and packs down into your pack.

clothing : base layers

- **top:** Bring two high zip neck, full sleeve polypropylene or wool tops. A long sleeve cotton shirt with a collar can be useful for those hot days on the glacier. Wool-based thermals such as Icebreaker provide high quality protection with reduced odour.
- **long johns:** Polypropylene or merino wool long johns are lightweight and provide a change if your fleece pants are wet or too warm. They provide additional warmth if worn under the fleece pants. Bring a second pair to sleep in on overnight trips.
- **underwear:** Bring sufficient changes of your regular underwear.

hands

- **warm gloves:** Gloves need to fit well and have an insulation rating for working at below freezing temperatures. Climbing requires the dexterity of fingered gloves rather than mittens. Gloves should be windproof and have as little leather as possible (palms only) since leather gloves are difficult to dry. The glove liners should be removable to facilitate drying and giving another option to wear only the outer layer in warmer conditions.

- **light gloves:** Your hands will need protection even when you are hot, snow can be very abrasive and the sunburn is a factor to avoid. A thin pair of gloves is essential to wear when the weather is hot but you are working with your hand in the snow. Get inexpensive “polypro” gloves (no cotton). Go for light and quick drying.

Guide tip #2 : For climbing, gloves should have an attachment so you can clip them to your harness. Some models have the clip on a finger so the gloves hang fingers up. This way the snow does not collect into the gloves when they are on your harness. Only wear your warm gloves when you absolutely have to. This will keep them in good condition and dry for when you really need them. Once you warm up and your hands start to sweat, take them off rather than having them get damp. Keep your thin gloves handy to use when you are climbing or working hard.

head

- **warm hat:** Either wool or fleece and must extend over the ears and should not have a tendency to fly off in a strong wind. A polypropylene balaclava is good to carry as a spare when climbing.
- **sunhat** Full brim hats do not work when you have to wear a helmet over them. A baseball cap is good but won't protect your ears from the sun. A cotton scarf is a handy addition for ear protection but the best option is some form of “legionair's” hat with maximum neck and face protection

feet

- **ski boots:** Regular alpine ski boots that you use on a ski area can be used for touring. They are heavier and stiffer than boots made specifically for alpine touring (AT). If you are doing lots of touring (or renting gear) it is well worth getting dedicated AT boots. Boots should be snug but not uncomfortably tight.
- **snow board boots:** Snowboard boots work well for touring, particularly for snowshoeing. They are a bit soft for split boards when trying to traverse but as with all riding, you need to match your technique to the gear you are using.
- **climbing boots:** Steeper climbing on snow and ice demands a boot with a rigid sole. “Plastic” boots have a plastic shell and removable liner. These boots are long lasting and tend to keep your feet dry. Since the shells do not stretch it is important to find a pair that are comfortable. Second hand or old boots are fine but once the toe and heel begin to wear down they should be replaced. This is an important safety consideration since the shells will break eventually. The heel and toe welts are often the only thing holding your crampons on and there is a large amount of torque on them when climbing steep snow and ice.

“Leather” boots are a single boot (without an inner liner) and have a more flexible and natural feel. An increased amount of flex and rocker in the sole make these boots more comfortable particularly on rock. They are difficult to dry if they get wet but newer models have good waterproofness. Some models are designed for high altitude but for New Zealand conditions the extra warmth and integrated gaiter are not necessary.

Boot Ratings - Mountaineering boots come with different ratings. Our summer climbing trips (except for non-snow and ice trips) require either B1 or B2 rated boots

- **B1** : Four season boots with a stiff midsole suitable for traversing fairly steep slopes.
- **B2** : Four-season mountaineering boots with a stiff flex.
- **B3** : Technical mountaineering boots with a fully rigid midsole and supportive upper.

□ **socks**: Thermal properties or merino wool are the best choice. No cotton. No more than two pair of socks is needed on a trip. Keep one pair dry for night time and one pair to climb (and sweat) in.

hardware

All ski touring equipment has the common ability to free the heel for level and uphill travel. However ski touring can be carried out using a variety of equipment. The choice of equipment is determined by the ski touring goals and to some degree, the other types of skiing the individual participates in. Generally speaking, steeper, more difficult terrain requires a more supportive, heavier equipment choice. Most people will need to rent skis since they require specialized bindings but will be able to use their own boots.

□ **skis**: The same skis used at ski areas can be used ski touring if they are equipped with the correct bindings. Specialized touring skis are usually more flexible and wider since they are designed for softer snow conditions.

□ **telemark skis**: Bindings which only have the toes attached to the ski with the heels free to go up and down are called nordic skis. Nordic skis that are primarily for steeper touring or ski area skiing are referred to as telemark skis.

□ **skins**: To get traction for going uphill we carry long strips of nylon material referred to as “skins” (they originally were made from seal skin). There are many types and most work well if they are the right length and in good condition.

□ **bindings**: Touring bindings are designed to allow the heel to lift for ascending and be fixed down for going downhill. Some binding come with

“ski crampon” attachments that can be useful when ski touring on hard snow.

□ **snowboards**: Snow boards designed for powder tend to be longer and softer than usual. Special split boards are available that separate into two “skis” for the uphill climbing.

□ **snow shoes** : Snow shoes come in many different shapes but for touring you want the smallest possible snow shoes since you will be carrying them often.

□ **crampons**: The clip on type are the quickest to put on and take off which can save an appreciable amount of time on a mixed climb. The front points should stick out from the front of the boot about 2.5cm. Be sure to check the heel piece is compatible with your boots and stays in place when in the up position. A well adjusted `strap on` crampon can be more secure than a `clip on` but it takes practice to become efficient with them. If you’re bringing your own crampons we highly recommend you have anti-balling plates attached to them. 12 point crampons are recommended for most ascents however 10 point crampons are acceptable for courses and some lower angle ascents.

Crampon Ratings - Please ensure boot and crampons are matched. For a crampon to work successfully, it must be attached to a boot that has an equal or better rating. For this reason all suitable boots are given a rating (B1, B2 or B3), which corresponds to the rating of the crampon (see below). All summer climbing trips (except for non-snow and ice trips) require C2 or C3 crampons.

- **C1** : Designed for walking purposes only, attached with straps.
- **C2** : Suitable for general mountaineering and low-grade ice climbs.
- **C3** : For technical ice climbing, with modular front points - attached with a heel clip and toe bail.

Boot Rating	Crampon Rating
B1	C1
B2	C1, C2
B3	C1, C2, C3

□ **ice axe**: For most alpine climbing you need a straight shafted axe between 60 cm to 80 cm long. A longer tool is more helpful on moderate ground and even the most difficult climbs have approaches and descents for which this is helpful. Short axes with curved shafts and rubber hand grips are fine on hard technical ice climbs (45cm - 60cm) but not so suited to most alpine climbing. The head of the axe should be comfortable to hold when in the walking stick mode and not have any protrusions which may dig into your hand. The pick can be curved or banana shape. Shafts are either metal, or carbon fibre and some have rubber hand grips. A wrist loop is needed for support on the steeper stuff and you should be able to hold the bottom of the shaft with the sling tight.

□ **ice screws**: We use Grivel Helix 20cm and Black Diamond Turbo Express 19cm. protection sun block and lip protection.

□ **ice hammer**: This can be a shorter tool (45 cm to 55 cm) as it is often only used on the steeper sections of a climb and for hammering in stakes and ice screws. Some people find it easier to have axe and hammer the same length on steep ice and others like a combination. Only experimentation can identify your own preference. The hammer head receives quite a lot of abuse on a climb and must be very secure with a good striking surface.

□ **helmet**: Some people use helmets when ski touring but the slower speeds and lower chance of collisions means that most people do not use helmets when touring. In addition the weight and overheating when skiing up hill is a concern. The plastic helmets designed for climbing are lightweight and really only designed to deflect falling ice and rocks. They also protect the head in the case of a fall. Check the harness size and be sure it will adjust for when you wear your warm hat underneath. Do not borrow a helmet made of plastic if it's more than 4 years old.

□ **harness**: The sit harness type is mainly used. These should be lightweight and adjustable around the waist and legs. A specially designed alpine harness is easier to get in and out of (which is important when nature calls) and they can be put on even when you have boots and crampons on. Many specialised rock climbing harnesses have fixed leg loops so will not do this. Comfort is essential. If you're bringing your own harness, please ensure you have a "cows-tail" or lanyard which is an arms reach in length.

□ **carabiners**: Bring your own screw lock and snaplink carabiners - otherwise use ours.

□ **prussic slings**: 1 x 2.8m - 2 x 1.6 m (loop length). 6mm kernmantel. A double or triple fisherman's knot ties these into slings.

□ **tape slings**: Regular climbing tape slings (25mm) at a variety of lengths (e.g. 1 x 1-1.5m loop length).

□ **avalanche transceiver**: Any time the avalanche hazard is judged to be present, transceivers will be required. There are many models but all modern transceivers operate on the same frequency. Roughly (it changes quickly with a snow storm) we require transceivers from June to December.

□ **shovel/probe**: Any time there is risk of avalanche, a light weight shovel and probe are required safety gear. These are specialized avalanche gear that is made to be strong and light weight.

□ **snow goggles**: Goggles are an essential safety item.

In stormy weather it can be impossible to navigate without proper eye protection.

Guide tip #3 : Don't wear your goggles on your head when you are climbing uphill. Your goggles will fog up from the perspiration and will be difficult to clean. Put them in a handy pocket or in your pack.

□ **walking poles**: These can be useful for walking in deep snow, particularly for snowshoers.

other

□ **sleeping bag**: For winter trips where sleeping bags are not supplied a 4 season bag good to -7 degrees F will be needed.

□ **backpack**: There are many models available which are suitable. You must have at least a 50 litre capacity for overnight trips and a 25 litre pack for day trips. Ensure the pack has ice tool attachments for climbing trips and side straps to hold skis for ski trips. You do not need a pack larger than 65 litre. It is not worth bringing a second pack for day trips - unfortunately we can't carry everything.

□ **headlamp:** Black Diamond & Petzl have great headlamps. Bring two extra alkaline batteries for the trip.

□ **sun glasses:** Preferably the glacier glasses type with side protection. The lens should be dark enough to withstand the intense reflection from the snow.

□ **water bottle:** Be prepared to carry 1.5-2 litres of water. A wide mouth bottle is best. A small thermos is very nice on cold days.

Guide tip #4 : A wide mouth nalgene bottle will be easier to replenish with snow (good on hot days) and will not freeze up as quick as a narrow mouth water bottle (good on cold days). If you pour hot (not boiling) water into the nalgene bottle it makes a great "hottie" in your sleeping bag on a cold night. Camel backs will freeze up and are best avoided unless specially insulated.

□ **sun block:** A small bottle of maximum protection sun block and lip protection.

□ **plastic bowl, cup & spoon:** A light non-breakable bowl and spoon. The cup can be tin or non breakable plastic. If you are a big eater, bring a big bowl.

optional bits `n` pieces

□ **stuff bags:** Lightweight nylon bags with draw cords to store spare clothes etc. Bring 2 or 3. This will keep all the stuff in your pack organized

□ **toilet bag:** Soap, toothpaste and toothbrush in plastic bags. Also any personal medication required. (Please inform your guide if you are on prescription medicine)

Guide tip #5 : Keep a roll of good quality tape handy in the top of your pack. From a quick fix for loose skins or a broken zipper you will always find a use for it.

□ **first aid kit:** In a small stuff bag or container carry blister tape, 2nd skin, anti-flamm. Ensure contents are kept watertight. Your guide will have a full first aid kit.

□ **compass, note book and pencil:** Any compass which is suitable for orienteering will do. Ensure your compass is suitable for the Southern Hemisphere. Notebook and pencil should be water proof or wrapped in plastic bags.

□ **snow study kit:** This is a specialized kit containing a magnification glass, thermometers, ruler and other tools to study snow crystals.

□ **ear plugs:** For light sleepers these can be a great help!

□ **a good book:** Good for bad weather or rest days. A light paperback is fine

please check the equipment list for your particular trip