Avalanche Academy

CREVASSE RESCUE SUMMARY

Equipment to carry when skiing on a glacier: Rope (30m, 8-9mm diameter, static/low stretch if possible), harness (must be worn not carried, with extension cord to shoulder), crampons, 2 x prussic loops (or micro traxion, tibloc and pulley), 2 x long slings, 5 x screw gate krabs, 1 x ice screw, shovel, probe, transceiver. Always have two ropes per group.

Avoiding Crevasses: This is the most important thing – not falling in to crevasses ! Careful trip planning and navigation will reduce the risk of crevasse falls significantly. Give serious consideration to the following:

- Identify routes using maps and topos. These should highlight the most heavily crevassed areas.
- Seek local advice to ask about current conditions.
- Try and ski the fall-line whenever possible to avoid traversing over crevasses.
- Avoiding glacial skiing during high temperatures. High temperatures weaken snow bridges.
- Avoid glacial skiing early season. Crevasse bridges may be unconsolidated and weak, and many crevasses will still be exposed.
- Avoid skiing glaciers in poor visibility. Snow, cloud or flat light significantly increase the chance of crevasse falls.

Skiing Roped up: Normally you would only ski roped together if you are skiing parallel to the crevasses (such as traversing across the fall line), or when the visibility is so bad you cannot see likely areas for crevasses. When skiing roped you should generally have the strongest skiers at the back, so they can adjust speed and turns to suit those at the front. Those at the front should ski slowly, in control, and should avoid fast turns.

If you fall into a crevasse:

1. If on a snow bridge, use an ice screw to attach yourself to the wall of the crevasse to prevent falling further.

2. Put on spare clothing. Lack of sunlight means you will get cold very quickly.

3. Try and shout your condition to those on the surface. If unsuccessful, try and phone them (you would be surprised where you can get a phone signal).

In the event of a group member falling into a crevasse:

1. Consider if it is safe to take your skis off. Always probe before removing your skis on a glacier. Phone for rescue if you have phone signal. Shout to other groups for help. Unless you are sure you can deal with it, PHONE FOR HELP. NB: The victim may be injured.

2. Build an anchor, well back from the edge. If the glacier is wind-scoured use ice screws ; if snowy you should bury your skis. Remember the 3 golden rules of Crevasse Rescue:

   (i) THE ANCHOR MUST BE BOMBPROOF

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   (iii) THE ANCHOR MUST BE BOMBPROOF

3. Attach the rope to the anchor and make your way to the edge (using a prussik, or a klemheist on a sling works well). Communicate with the victim in the crevasse if possible. If unconscious, or seriously injured, abseil into the hole and give First Aid.

4. Before any hauling or prussiking starts, make sure you prepare the edge of the crevasse as well as you can. Try and kick away as much snow and ice as possible to make the edge rounded. Warn the victim before you potentially shower them in snow and ice. If there is likely to be a lot of debris, prepare the edge slightly to one side of the victim rather than straight above them. Then reinforce the edge using whatever you can – spare ski, rucksack, ski poles etc etc underneath the rope to prevent the “cheesewire effect”.

5. If the person can extract themselves, lower the rope to them and ask them to attach their skis, poles and rucksack which can then be hauled out. They can then prussik out. If the person is unable to self rescue, either lower an end of the rope (with knot pre-tied) for them to clip into, or abseil in and attach them yourself.

6. If hauling, move back to the anchor and place the live rope through a krab attached to the anchor via a long sling. Then attach an “autobloc” french prussik on the live rope and the thin end of a pear shaped krab . Move back towards the edge and attach another prussik onto the live rope near to the edge and attach the rope back through this to form a 3:1 Z pulley.

7. To haul effectively, attach the rope to your harness, straddle the ropes and use your thighs to pull yourself towards the anchor. You can also pull with your arms at the same time by pulling the rope moving towards you from the anchor. Even with a 3:1 pulley system this will be very hard work. Each time you reach the anchor, re-set the autobloc if using a prussik, then move back towards the edge, moving the prussik back down the live rope if required. Re-tie a knot in the hauling rope and repeat the process.

8. If you are with a group then assign one person to the anchor to re-set the autobloc (if reqd), and use the rest for hauling. One person should co-ordinate the hauling, and re-set the prussic on the live rope when required.

9. Be aware that victims will likely be suffering from shock, hypothermia, and trauma injuries. They must be kept warm and evacuated at the earliest opportunity.

10. Efficiency in hauling: Efficiency is key to succeeding in hauling someone out of a crevasse. There is a vast amount of friction in the system. Consider replacing the classic prussic on the live rope with a “Ropeman” device or tibloc if you have one. Also add a pulley at the same point if you have one. Remember that specialist devices such as “Petzl Mintraxion” can be very efficient instead of the autobloc, but it is almost impossible to release these when under load, whereas an autobloc can easily be released if required.

NB: This picture does not show that the edge should be kicked away and reinforced.

The above notes have been prepared as an “Aide Memoire” by Stuart Macdonald, IFMGA Mountain Guide. They are not a substitute for proper training and practice.