



AAC Publications

Steep Skiing Fall – Variable Snow Conditions

Canada, Alberta, Banff National Park, Mt. Temple

Our party of three arrived at the Moraine Lake parking lot around 7:30 a.m. on December 28. The focus of the day was to ski the Pinnacle-Eiffel Couloir in Paradise Valley. We expected to cover the roughly 12-kilometer approach in three to four hours. Temperatures were reasonable (-10°C to -8°C), with no precipitation expected, and the light was good. We felt there were no issues from an avalanche or weather perspective.

We found an old skin track once we reached Paradise Creek, which we followed to the base of the north face of Mt. Temple (about two hours from the car). We were making decent time, but we could tell the conditions would not be ideal for skiing the Eiffel line, so we decided we would try to return later in the week for that, and we would head to the Cobra Couloir on Mt. Temple instead.

As we approached the line, the snow was pretty much bulletproof. We transferred to boot-packing fairly low because skins were inefficient without ski crampons, due to the hard snow surface. As we boot-packed up the line, we discussed the variability in the snow. Depending on which runnel we chose to follow, it varied from almost ice to knee-deep soft snow. We knew the skiing would not be great, but we decided to push on.

We reached the top of the couloir roughly 1.5 hours later and transitioned to ski. As two skiers watched from above, the first skier started down, and it was obvious the snow was variable. We had discussed regrouping at a certain feature in the line, but the skier decided to continue past that point. As the skier crossed the slope to make a turn, they were pushed slightly uphill and thrown toward the tails of their skis. The momentum could not be stopped, and they slid backward down the couloir. We lost sight of the falling skier as they went around a small corner. We heard a loud bang seconds later and then heard nothing.

We waited approximately 10 to 15 seconds and then started to descend, moving very cautiously. We came across one pole, then another, and a ski, at which point we were able to see the skier, roughly 300 vertical meters below us on the slope, and make vocal contact.

The skier's face showed some blood from a split lip, and they expressed concerns about knee and shoulder injuries. An initial assessment for head trauma was made, and the helmet was checked for signs of impact. Both were negative. The fallen skier was wrapped with additional warm layers and stabilized in position. We then sent an SOS on our inReach device. We knew a helicopter would not be able to maneuver into the space where we were located, as we were fairly close to the wall of the couloir, so we decided to move the skier to the middle of the couloir after a platform was cleared. There, we continued to treat the skier with hot liquid, energy gels, and a couple of painkillers. The helicopter crew was able to fly into the area and remove the skier via long-line rescue. From the SOS signal to the extraction of the skier, the time was roughly one hour and 40 minutes.

With enough daylight remaining, the two others skied back to the car. The injured skier was later released from the hospital with a reset shoulder and a knee injury that was expected to heal with physical therapy. This was a lucky outcome, considering the potential injuries from a fall in this location. (Source: Member of the ski party.)

ANALYSIS

Inherent in skiing a steep, big mountain couloir is the risk of falling and not being able to stop. There are several things people can do to mitigate this risk. First, wait for optimal surface conditions (i.e., softer snow or consistent snow). Often it is tricky to balance avalanche risk with the risk of falling. Second, ensure that all party members are expert skiers. Further, ensure the equipment is appropriate and will function properly (appropriately adjusted ski bindings, boots and skis free of ice buildup, helmets secured). At a certain level, all party members must be willing to accept that it will be very difficult or impossible to arrest a fall. Usually, when people fall in a steep couloir like this, they end up at the bottom on flatter terrain. Stopping partway down likely contributed to the injured skier's positive outcome.

From the rescuer's perspective, the party did a good job of moving the injured skier to a location that was accessible with a helicopter long line. They also did well to shovel a large, flat landing area for the rescuer to detach from the long line and package the patient. One thing to consider when choosing a spot for a helicopter pickup is any overhead hazard. In this case, it was a cool day with minimal winds, so nothing was moving in the couloir. However, when possible—and when it allows enough clearance for a helicopter to fly overhead—it is better to be situated where there is more shelter from snow or rocks that may fall down the couloir. (Source: Banff, Yoho & Kootenay National Parks Visitor Safety Team.)

Images



Overview of the Cobra Couloir and the skiers' position after a long fall. The party dug a platform in the middle of the couloir for helicopter access and moved the injured skier from the original location by the steep right wall.

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