Skier-Triggered Avalanche

Washington, North Cascades, Slate Mountain

On Wednesday, March 15, a skier and a snowboarder departed from Heather Meadows near the Mt. Baker Ski Area, planning to climb and descend both Herman and Slate mountains. They climbed the south side of Mt. Herman to 6,000 feet (about 250 feet below the top) and then descended an eastern aspect. During the descent, the snowboarder triggered a shallow slab avalanche atop a short, steep rollover just above the traverse to Slate Mountain.

The pair then climbed the east side of Slate to its 6,209-foot summit. At around 1 p.m., they began their descent by a series of connected chute and ramp features on the southeast face, a line known locally as the Dog Leg or Z Couloir. The skier descended first and triggered a size D2.5 slab avalanche at the very top of the run. He was caught and quickly carried out of sight. The avalanche pushed him through very steep, rugged terrain and over a 200-to-250-foot terraced cliff. He came to rest on a low-angle slope below the face.

The snowboarder called for the skier on a radio and searched the path visually and with his avalanche transceiver. He found his partner on the snow surface, verbally responsive but not alert to person, place, time, or events. The skier had sustained significant injuries, including a deep head wound with an associated concussion, an open femur fracture, and a pelvis fracture.

The snowboarder used his phone to initiate rescue efforts within 10 to 12 minutes of the avalanche. He assessed and stabilized the skier as well as possible, given the location, available resources, and extent of injuries. A rescue helicopter from Naval Air Station Whidbey Island arrived at about 3:30 p.m., and both the skier and snowboarder were evacuated. The skier spent extensive time in the hospital for treatment of his injuries, which led to an amputation above the knee on the injured leg.

ANALYSIS

The southeast face of Slate Mountain consists of rocky, sparsely treed terrain broken by numerous cliffs. All lines of descent require extensive travel on 35°–45° terrain, in addition to navigation around rock buttresses and large cliffs.

The month prior to the avalanche was marked by extended periods of snowfall at cold temperatures, alternating with high pressure. March 6 to 9 brought sun, near-freezing mid-day temperatures, and light winds. This combination allowed for surface warming on southerly aspects. Rollerballs and other signs of warming were observed during this period.

From March 10 to 14, a series of storms produced two to three feet of new snow at a similar elevation and aspect to the avalanche site. Gradually clearing skies and mild temperatures on March 14 were followed by a few inches of new snow in the early morning of March 15, transitioning to partly cloudy skies and mild temperatures by midmorning.

A sun crust had formed during the high pressure from March 6 to 9, and the new snow formed a slab on top of it. The avalanche bed surface is believed to have been the crust buried on March 10. The avalanche began on a slope estimated at 40° and left a crown estimated at 1.5 to 2 feet high, approximately 50 feet wide at the start zone. (Source: Northwest Avalanche Center.)

***Editor's Note:** The avalanche hazard was rated "moderate" for the day of the slide (the second highest of five levels). The first lines of the forecast read, "You can still trigger slab avalanches in steep terrain. Stick to moderately angled slopes and navigate around trigger points like convex rolls, unsupported terrain above or around cliffs, or wind loaded slopes just below ridgeline."

Images

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