

Hyalite Avalanche Fatality 10 December 2009

Synopsis:

An avalanche caught and killed an ice climber in Hyalite Canyon in the northern Gallatin Range of southwest Montana. This avalanche was triggered by a separate party of two climbers above the victim. The slide was 40 feet across at its widest point, 18-20 inches deep, and the slide ran almost 1,000 vertical feet. The avalanche initiated on a 38-degree slope and failed on a layer of facets over a firm bed surface. The victim was approximately 500 ft slope distance below the party who triggered the slide. He was swept down the gully and over a 400 ft frozen waterfall, Silken Falls. The victim died of trauma and was pronounced dead at the scene. The avalanche classification is HS-AO-D2-R3-O.

GPS Coordinates for the slope:

N 45.42433

W 110.95404

Elevation of the crown is approximately 9,500 feet.

Video of the investigation: <http://www.youtube.com/watch?v=H1yaiLI5LXc>

Pictures of the avalanche terrain: <http://www.mtavalanche.com/photo>

Weather:

The last significant snowfall in the northern Gallatin Range occurred on Friday, December 4th, 2009 when 4-6 inches fell with a SWE of .4 inches at Shower Falls SNOTEL site. The nearest wind data is at Bridger Bowl (approx. 20 miles to the north) where winds blew 20-30 mph out of the W-NW during this period of precipitation. From Saturday the 5th to Wednesday the 9th low temperatures plummeted to minus 25 and highs were in the single digits above or below zero. These temperatures were accompanied by strong winds blowing 15-25 mph out of the E-NE. Temperatures remained cold on Wednesday the 9th, but winds switched to W-NW at 15-20 mph. On Thursday the 10th temperatures climbed to 5 above zero by mid-morning with sporadic, gusty winds reported at mid-elevations.

Avalanche:

On Thursday morning, December 10th, at 0700 a group of 24 (12 teams) participants lined up in the Grotto Falls parking lot for the 4th annual Ice Breaker ice climbing competition. Each team climbs as many difficult routes as possible in a day. Around 0845, competitors A2 and A1 completed the ice climb *The Dribbles* and traversed into the gully leading up to *The Climb Above the Dribbles*. During this time, competitors X1 and X2 were climbing *The Dribbles* with the same objective, although they approached it after climbing a separate set of nearby routes. At 0900, A1 triggered a small avalanche (6" deep) that caught both he and his partner, carrying them approximately 300 feet down the gully and over a 25 foot ice step where they stopped. A2 ended up going over this precipice head first while A1 cascaded over the cliff on his back. Both climbers were shaken up but unharmed. They continued back up the gully.

X1 and X2 finished *The Dribbles* and moved into the gully that A2 and A1 were ascending after the first slide. A2 and A1 had no idea anyone was below them, while X1 and X2 thought the party above was already on the ice much higher. Knowing the avalanche danger, A2 and A1

hugged the edges of the gully on rocks as much as possible. A2 wrote in an email, “We assessed the gully above and decided we could continue up and stay out of harm’s way. We had not, however, considered that someone may be below us. We were already up there so we might as well go for it, we thought. We decided to at least have a look at the gully above the last crown. Continuing up, we skirted the right side of the gully staying mostly on the rocks. We heard no collapsing and saw no cracking, thus deciding to continue up.” They reached a point where the gully narrowed and forced them away from the edge. This tapering of the gully forced A1 to step towards the center where he triggered the second slide around 0930.

This second avalanche broke 40 feet across and 18 inches deep on a firm bed surface. A1 and A2 were able to avoid being caught, but the slide picked up momentum as it moved down the gully towards X2 and X1. A2 yelled “avalanche!” as he looked down and saw X1 cresting the second ice bulge. A2 recounts, “Worse than the sound of collapsing snow was the sound of someone below us, who turned out to be X1 yelling to X2.” X1 had five seconds to respond to this warning and barely got out of the way. Unfortunately, X2 was in the middle of the second ice step and was unable to avoid the avalanche. X2 was swept about 1,000 vertical feet to his death, the last 400 feet being the steep ice cliff of Silken Falls.

X1 descended the gully and rappelled the falls in search of X2. Before descending, X1 directed A2 and A1 to probe the debris uphill of the falls to confirm that X2 was swept over the edge. Halfway down the rappel X1 saw X2’s boot sticking out of the snow at the bottom of the climb. He alerted A2 and A1 of his discovery. X1 continued down and found X2 with his head down hill and fully buried except for one boot sticking out of the snow. X1 dug X2 out and was unable to revive him. A1 and A2 rappelled down and were on the scene within minutes. X1 left A2 and A1 with the body and he descended to alert SAR about the accident.

Search and Rescue:

X1 drove to the bottom of Hyalite Canyon in order to get cell phone coverage. At 1140 X1 called 911 and at 1150 Gallatin County SAR started to mobilize. Doug Chabot and I spoke with X1 minutes later by phone and were informed that X2 died from trauma and his body was in non-technical terrain. We proceeded to coordinate with the Gallatin County SAR and started walking in with SAR personnel from the Grotto Falls Trailhead at 1400. The body was placed in a collapsible Cascade toboggan and was hauled through the forest to the trail below. Three snowmobiles assisted in transporting the victim to the parking lot by 1630.

Snowpack:

Doug Chabot, Mark Staples and I investigated the avalanche on Friday, December 11th. The avalanche that struck the victim consisted of pencil hard wind slab, 18 inches thick, sitting on 5-20 cm of weak facets. Hyalite experienced cold temperatures, strong winds and light precipitation over a four day span before the event. The steep, narrow gullies of Hyalite Canyon were loaded with windblown snow and from snow cascading down its steep faces. On Thursday, December 10th numerous human triggered avalanches were reported in Hyalite over the course of the day, most of them small pockets of wind slab triggered by other Ice Breaker climbers crossing slopes.

The advisory on December 10th read “Today, the primary concerns are wind slabs formed by recent west and northwest winds. While these wind slabs do not appear very sensitive they are widespread and human triggered avalanches are possible. For this reason the avalanche danger is rated **MODERATE**.”

Please contact us if you have any questions. We can be reached at 406-587-6984 or at mtavalanche@gmail.com

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