

2/16/2014 – Idaho –Frenchman Creek

Published by Scott Savage, SAC

Location:

Place Frenchman Creek drainage, Smoky Mountains
State Idaho
Date 2/16/2014
Time 2:00pm
Summary 4 snowmobilers buried, 1 killed, 1 injured

Number:

Caught 4
Fully Buried 4
Injured 1
Killed 1

Avalanche Details:

Type SS
Trigger AF
Subcode u
Size D3/R4
Weak Layer Faceted Crystals
Aspect NW
Elevation 9100 ft
Slope Angle unknown
Character Concave/planar slope at ridgeline
Crown Width Over 1500 feet, involving several starting zones
Crown Height 2-5 feet

Accident Summary:

Four experienced snowmobilers rode up the Frenchman Creek drainage from the parking area at the trailhead on Highway 75 near Smiley Creek. One other group of riders had been up the Frenchman Creek drainage previously that day. The trail generally follows the creek in flat terrain. The off-trail riding conditions were unsupportable and the riders were frequently sinking deep into the snowpack and getting stuck. Approximately 2.3 miles from the trailhead, the trail leaves the forest and enters open meadows and avalanche path runouts. The tracks from the group that had been up Frenchman Creek previously disappeared at this point. The group decided to turn around and return to the trailhead due to the difficult riding conditions and a lack of familiarity with the area. After turning 2 machines around – which involved getting stuck and digging out machines – the riders walked back to their sleds, sinking knee to waist deep in the unsupportable snow. Riders 1 and 2 were near their sleds, rider 4 was sitting on top of his machine in a riding position, and rider 3 was catching her breath near rider 4's sled when rider 3 heard and saw the avalanche approximately 75' away coming towards the group. She yelled to warn the others. Riders 1 and 2 were hit and buried roughly where they stood.

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Rider 3 turned away from the avalanche, laid down face first, and was buried. Rider 4 was knocked off his sled and buried. Three of the 4 snowmachines were buried in the avalanche.

Avalanche and Terrain Summary:

The soft slab avalanche released on a NW facing slope near treeline and ran to the valley floor. The slide was likely triggered when 3 members of the group were walking in the runout zone, punching through the slab into the weak faceted snow lower in the snowpack; we cannot state this with certainty but other similarly-triggered avalanches occurring close to this event and the lack of loading or triggers in the starting zone at the time of the event make us confident this was a foot-triggered avalanche. The slope angle at the crown was not measured due to hazardous conditions following the accident but was estimated to be 35-45 degrees. The alpha angle (the angle from the crown to the farthest extent of the debris) was 30 degrees. The crown was 2-5 feet deep and over 1500 feet wide. The portion of the avalanche that buried the party released in a sparsely treed area just below a prominent ridge, ran into a confined gully, ran from 9100 feet to 7550 feet in elevation (1550 vertical feet), and created a 500 ft x 1000 ft debris field. The toe of the avalanche was on flat ground on both the west and east sides of Frenchman Creek. The debris was 1-10 feet deep, averaged 4-6 feet deep, and was 1-5 feet deep near the toe where the riders were buried. The avalanche broke some mature timber and created a significant powder cloud or possibly an air blast that struck the victims.

Rescue Summary:

All 4 riders were wearing beacons and had shovels stored in or on their snowmachines. All 4 members of the group were fully buried on their sides or with their heads above their feet, and all their heads were within 1 foot of the surface. Rider 1 was able to dig himself out using his hands in 45 minutes. Rider 2 was buried less than 10 feet away from rider 1 and was able to initially move some snow away from her face and chest, allowing her to breath. She was unable to extricate herself and remained partially buried with 1 arm free and her face partially exposed. Once freed, rider 1 retrieved a shovel from the one unaffected snowmachine, but, due to extremely cold hands, he was unable to use it to extricate rider 2. Instead, he dug with his hands and finished excavating rider 2 approximately 1 hour after the avalanche struck. The two freed victims were both unable to use their cold hands and struggled to turn on their beacons. They managed to switch one of their beacons to receive, immediately acquired and followed a signal, and saw rider 4's head and arm when they were a few feet away. Rider 4 had moved snow away from his head but was ashen and determined to be deceased. Riders 1 and 2 were getting multiple confusing beacon signals (riders 3 and 4 were buried about 5-8 feet from each other) with their single antennae beacon at the deceased's location. Due to the difficult close-proximity double burial scenario and their inability to use their hands effectively, they decided to ride out to the trailhead on the one machine that wasn't buried and seek assistance. They reached the trailhead and flagged down a passing motorist who drove to Smiley Creek Lodge a few miles away to call 911. While at the lodge, 2 snowmobile skiers were alerted of the situation. They unloaded their machines and rode to the trailhead, passed riders 1 and 2, and arrived at the accident scene. They began a beacon search, got a signal of less than .7m, and began digging with their hands while putting a

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shovel together. One of the rescuers bumped rider 3's helmet, eliciting a noise from her. This happened approximately 105 minutes after the avalanche struck. After extricating rider 3, a third rescuer from Smiley Creek Lodge transported the conscious but injured rider to the trailhead where emergency personnel were beginning to arrive. The rescuers, rider 1 (who had returned to the scene), and a Sawtooth Avalanche Center forecaster (2 avalanche center staff happened to be in the next drainage to the east and learned of the accident when they returned to the Frenchman Creek parking area just before rider 3 arrived at the trailhead) unsuccessfully performed CPR on rider 4 until paramedics arrived at the scene and pronounced the victim.

Snowpack and Weather Summary:

Infrequent storms and extended dry spells in December and January created well-developed, weak faceted layers in the snowpack. A series of storms impacted central Idaho beginning January 29th, depositing approximately 60" of snow (6" SWE) near the accident site through February 16th. Roughly half of that precipitation fell from February 11-16th. Human triggered and natural deep persistent slab avalanches released in nearby mountains the day before (February 15th). Activity peaked during a period of moderate precipitation, moderate to strong winds, and warming temperatures the evening and night before the accident. Nearby remote weather installations recorded temperatures in the upper 20's to lower 30's F, 20-40 mph SW-SE ridgetop winds, and 6" of snowfall overnight. At the time of the accident, the temperature was 21 degrees F, winds were light from the NW, and skies were mostly cloudy to overcast. Significant snowfall and avalanche activity continued in the days following the accident.

The starting zone is somewhat exposed to prevailing winds and probably had a relatively thin, weak snowpack compared to surrounding avalanche paths. Periods of moderate S and SE winds the night before the accident likely transported a significant amount of snow into the starting zone just below the ridgeline.

Analysis:

This was a tragic accident that resulted in a fatality. However, considering the number of full burials, it is also an amazing survival story that defies several general rules of thumb:

- multiple burials result in multiple fatalities
- people do not dig themselves out of avalanches
- people do not survive extended burials
- people should never leave the scene to go for help

Two of the riders showed tremendous grit digging themselves out with only their hands. When they realized that they were physically unable to affect an adequate search and rescue operation for rider 3, they did not waste precious time but instead quickly made an extremely difficult decision to leave the scene to go for help. Fortunately, one of the snowmachines was not buried in the avalanche.

Fortunately, a motorist almost immediately came by the trailhead on HWY 75, a lightly traveled road.

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Fortunately, 2 skilled rescuers (strong, experienced skiers and riders who had recently completed an avalanche level 1 course) were at the Smiley Creek Lodge and were able to immediately respond. Fortunately, all those involved were buried in softer debris with their heads less than a foot from the surface, preventing their airways from becoming packed with snow. While a life was lost, determination, decisive action, and some good fortune prevented this avalanche from claiming more lives.

As in most human avalanche involvements, there were several contributory factors:

- **Avalanche runout zone recognition:** The group read the avalanche advisory, knew the danger was rated HIGH, and observed several fresh natural avalanches while driving from Bellevue to the trailhead. They were experienced riders who had never triggered an avalanche and had no intentions of climbing hills or entering avalanche terrain that day. They were trying to be safe by riding in flat terrain but did not recognize that they were in an avalanche runout zone. In their words, “we heeded [the advisory’s travel advice] and it didn’t work out. We thought we were in a safe zone.”
- **Terrain unfamiliarity:** The group was riding in unfamiliar terrain. Some of the creek bottoms in this area are not affected by avalanches, but the Frenchman Creek drainage is steep, narrow and V-shaped; avalanches from both sides of the valley can reach Frenchman Creek in this location.
- **Remote triggering:** The riders did not understand that they could remotely trigger avalanches from gentle or flat terrain below or to the side of starting zones. Weak, sugary faceted layers are notoriously unpredictable and are often responsible for remotely triggered avalanches.
- **Rescue gear:** While the deceased rider could not have been saved due to the time that had elapsed before beginning to search for him, a full complement of modern rescue gear (beacon, shovel, probe) carried on the riders and not on the snowmachines would have helped recover rider 3 more quickly if rider 1 and 2’s hands were functional. In close-proximity multiple burials, avalanche probes are invaluable tools. It is imperative for snowmobile riders to carry rescue gear on their bodies; avalanches frequently bury snowmachines in addition to people and make equipment stored under hoods or on machines unreachable.

This accident also demonstrates the sometimes fine line between “safe” and “unsafe”; if the group had stopped 20-30 feet farther away from the slope, none would have been buried in the avalanche. If the group had stopped 20 feet closer to the steeper slope, all 4 would likely have been buried deeper and all 4 members of the group may have perished.

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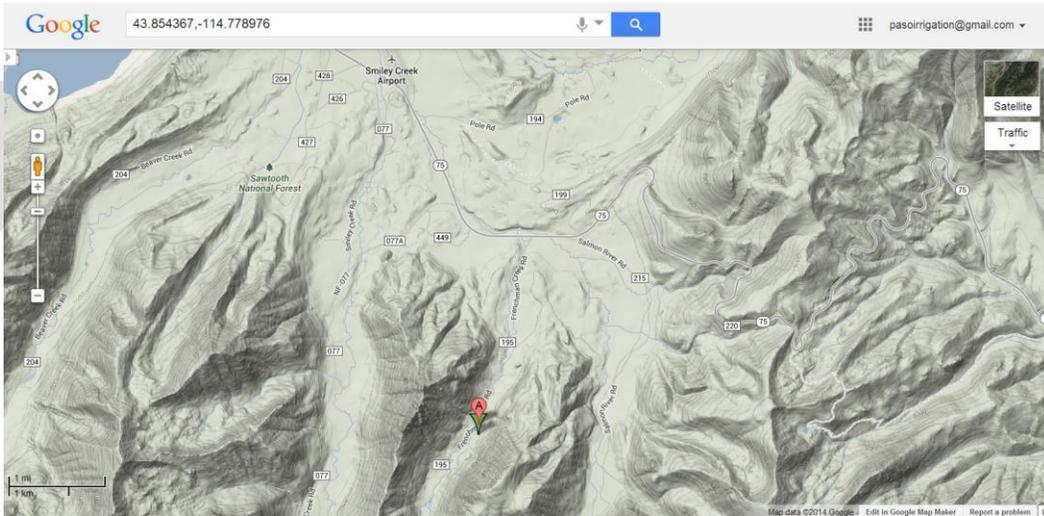


Figure 1. Overview of accident location (burial site marked 'A').



Figure 2. Starting zone/crown that caused the accident is marked in **RED**. Black line indicates crown extending to the southwest, beyond the edge of the photo.

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Figure 3. Overview of the NW facing slopes that released in Frenchman Creek drainage on 2/16/2014.

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Figure 4. Overview from the toe of the debris. The burial locations are out of view to the right of this photo.

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Figure 5. Overview from 500 vertical feet above the toe, about 1/3 of the way up the path. Burial locations of the riders are numbered 1,2,3,4. The snowmachine tracks to the left of the burial locations are from the group turning around two machines and indicate their relative position when the avalanche released.



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Figure 6. Photo shows debris traveled past Frenchman Creek on flat ground.



Figure 7. Rider 1 extricated himself from this burial site in 45 minutes using his hands.



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Figure 8. Snow plastered over 30' high on the uphill side of mature trees in the avalanche track.



Figure 9. Sawtooth Avalanche Center Director Simon Trautman examining the snowpack in a sheltered location in the Salmon River headwaters area (the next drainage to the east) a couple hours before the Frenchman Creek accident occurred. The 30" slab is the settled snowfall from January 29th-February 16th. The pictured storm slab failed on a sensitive layer of faceted snow crystals that formed during dry spells in January. This site is located at the same elevation and 1.5 miles east of the accident burial site. The ridge where the fatal avalanche released separates the Salmon River headwaters and Frenchman Creek drainages.

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