

Cabin Creek Avalanche Fatality

1 snowmobiler caught, fully buried and killed
Southern Madison Range, MT
Custer Gallatin National Forest – January 2, 2018

SYNOPSIS

On Tuesday, January 2, a snowmobiler was caught and killed in an avalanche in Cabin Creek on the west side of Sage Peak in the southern Madison Range. Earlier in the day, a member of the group triggered a small, non-threatening slide. They all agreed to avoid larger, steeper slopes because of this sign of instability. Soon after, the group entered a gully at the base of a steep slope. The victim was turning his sled around when he triggered the slide 300' above him. He was stopped when the avalanche hit, carried 25' to the bottom of the gully and buried 3' deep under his sled. His partners witnessed his burial, located him quickly and easily with beacons and dug him out in 12-15 minutes. CPR was performed but he did not survive. Every member of the party had proper rescue gear. The avalanche is classified as HS-AMu-R4-D2.5-O with a runout angle of 27°.

GPS coordinates and elevation (Datum NAD27):

Crown/Profile location: 44°55'31.61"N, 111°15'16.76"W (8,852')

Location of victim when caught: 44°55'27.91"N, 111°15'21.67"W (8,574')

Victim burial location: 44°55'27.82"N, 111°15'22.36"W (8,572')

Toe of debris: 44°55'27.71"N, 111°15'22.88"W (8,549')

Air ambulance landing zone: 44°55'9.59"N, 111°15'32.52"W (8,292')

Photos:

<https://www.mtavalanche.com/images/18/cabin-creek-alex-and-crown>

<https://www.mtavalanche.com/images/18/cabin-creek-small-avalanche>

<https://www.mtavalanche.com/images/18/cabin-creek-track>

<https://www.mtavalanche.com/images/18/cabin-creek-sled-and-crown>

<https://www.mtavalanche.com/images/18/cabin-creek-crown>

<https://www.mtavalanche.com/images/18/cabin-creek-crown-close>

<https://www.mtavalanche.com/images/18/cabin-creek-distance>

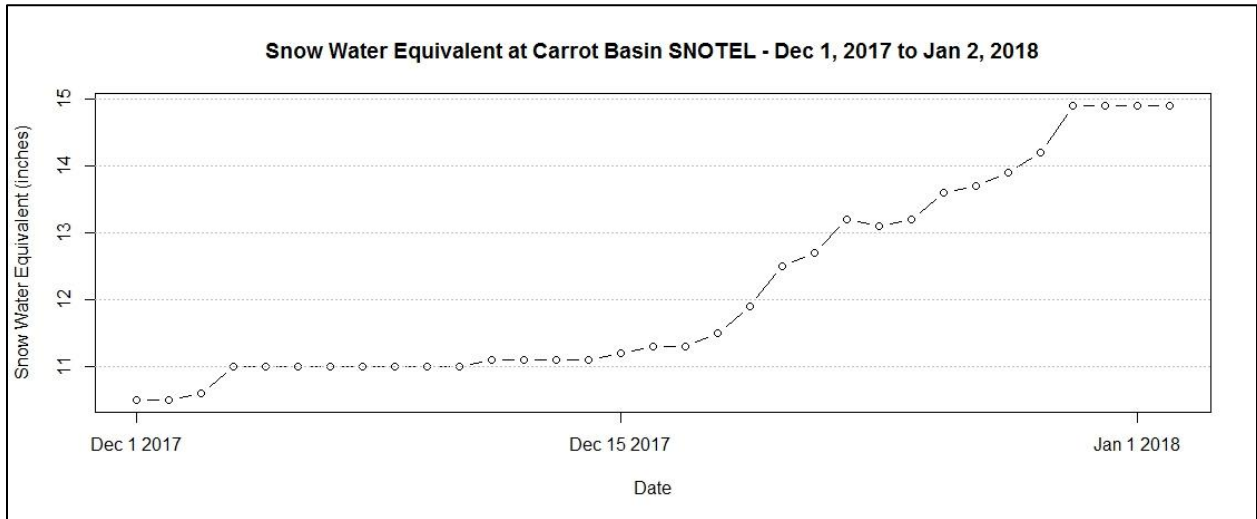
Video:

<https://youtu.be/K8Hzj0bEots>

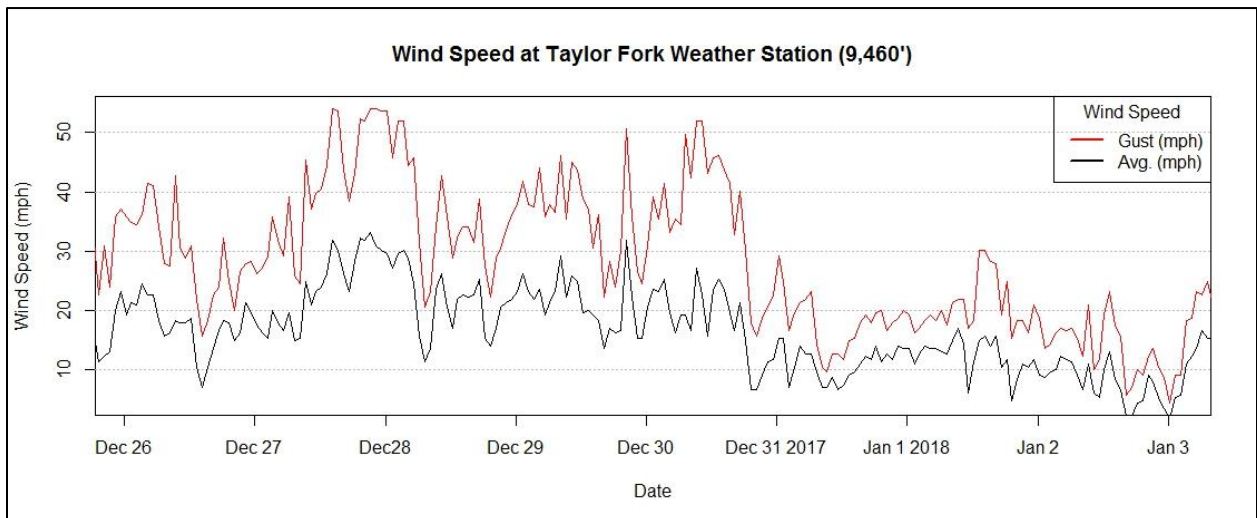
WEATHER

Snow depth and precipitation data were collected from the Carrot Basin SNOTEL site located at 9,000', approximately 3 miles northwest of the avalanche site. Wind speed and direction data were gathered from the Taylor Fork weather station at 9,460', approximately 4.5 miles northwest of the avalanche site.

On December 1st the Carrot Basin SNOTEL station had a snow depth of 42" equal to 10.5" of snow water equivalent (SWE). The station received 4" of snow equal to .5" of SWE on December 3rd. During a mostly dry period through December 16th the station received 2" of snow. Carrot Basin then received 15" of snow equal to 1.9" of SWE from December 17th to 24th, and one foot of snow equal to 1.7" of SWE between December 25th and 30th. There was no new snow in the area from December 30th to the time of the accident on January 2nd.



During the week prior to the accident, wind at the Taylor Fork weather station was primarily west-northwest at 15-30 mph with gusts of 40-50 mph. On December 31st to January 1st, wind was west-southwest at 10-15 mph with gusts of 15-25 mph. On the day of the accident, wind was northerly at 5-15 mph with gusts to 20 mph. Temperatures the week prior were lows in the singles to teens F and highs in the 20s to low 30s F. On the day of the avalanche, temperatures in the morning were 11 F at Taylor Fork and 5 F at Carrot Basin, and in the afternoon reached 30 F and 28 F, respectively.



SNOWPACK

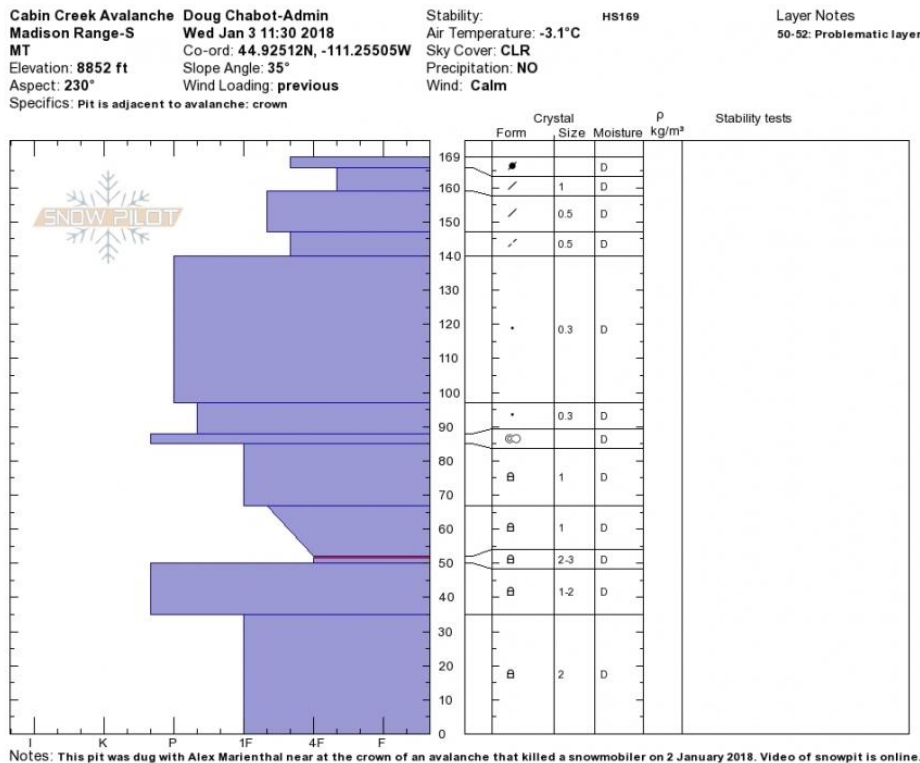
The avalanche occurred in the Cabin Creek drainage, west of Sage Peak in the southern Madison Range. The crown was 2-4' deep at 8,850' elevation. The average aspect of the starting zone was 210°-240° southwest (measured with compass), and slope angle ranged from 36°-40° (measured with inclinometer). The path was 300' wide and 600' long (measured with range finder) with a 300' vertical drop. The avalanche is classified HS-AMu-R4-D2.5-O with a runout angle of 27°.

The avalanche was a 2-4' deep hard slab that broke on a layer of weak faceted crystals 2-3mm in size. The weak layer was 1-2' above the ground on top of hard, rounding faceted snow from September and October.

An avalanche warning was issued for this area on Saturday, December 30th after continuous snowfall and strong wind loaded an unstable snowpack. During and prior to the avalanche warning there were natural and snowmobile triggered avalanches in this area that were 1-3 feet deep and mostly involved snow from the recent storm ([photo](#), [photo](#)). The avalanche advisory on January 2nd rated the avalanche danger as Moderate for the possibility of triggering large avalanches on weak facets that formed prior to the late December storms.

Avalanche Advisory for January 2nd, 2018: <https://www.mtavalanche.com/advisory/18/01/02>

Crown profile: <https://www.mtavalanche.com/images/18/cabin-creek-avalanche-snowpit-profile-3-dec>



AVALANCHE

On the morning of January 2, six male friends from Minnesota rode 2 snow bikes and 4 snowmobiles into Cabin Creek from the Fir Ridge Trailhead parking area, located 9 miles north of West Yellowstone. Two of the riders had been to this area numerous times. Along with the victim, they were the three most experienced snowmobilers in the group. The other three were intermediate riders, all six had a beacon and shovel and three had probe poles. The victim had an airbag vest and avalanche awareness training, the only one in the group to have these.

They rode to an area familiar to one of the group on the lower slopes west of Sage Peak (10,664') in the southern Madison Range. On the day of the accident the slopes of this popular area near the accident site were mostly untracked. A 3.5 mile long ridge runs southeast off the summit of Sage Peak and snowmobilers regularly climb the many southwest facing gullies. There were no avalanches on the entire ridge. The only sign of instability was when one member of the party triggered a small, 10-foot wide avalanche on an east facing slope 900' away from the eventual accident site ([photo](#)). After triggering this slide, the group decided the stability was poor and they would not highmark or play on the larger slopes. Soon after, one snow biker and one snowmobiler rode up a gully below a 300-foot hill. The biker was stopped at the bottom of the hill. The snowmobiler rode past and turned around, stopping about 50' away on a small bench. Moments later the avalanche hit and buried the snowmobiler 25' downhill at the bottom of a gully. The snow biker was at the toe of the debris and although snow piled up a couple feet it did not bury him or knock him off his bike. Another member of the group saw the avalanche happen and arrived at the scene while the snow was still in motion. Those two saw a ski sticking out of the snow and did a beacon search to confirm the rider was with his sled. They began digging and within a couple minutes the other three arrived to dig as well.

The victim was buried 3' deep, the sled pinning him across his midsection. He was facedown, head downhill. He was extricated in 12-15 minutes. His breathing was labored and then stopped, and they began CPR.

RESCUE

At 16:49 a member of the party called 911 which relayed the information to Gallatin County Search and Rescue (GCSAR) in West Yellowstone. GCSAR called him back and gathered details on the accident which occurred 30 minutes prior, including an exact location. GCSAR began mobilizing a team to snowmobile into the site and relayed to the group that it would be approximately 2 hours before they arrived. Taking advantage of clear skies, GCSAR called air ambulance Air Idaho which launched at 17:12 hours. GCSAR then called the group to explain that they needed to get the victim to an open area and stomp out a landing platform for the helicopter. They stopped CPR after 30 minutes, put the victim on a snowmobile and rode him ½ mile downhill to an open area. Air Idaho was over the landing zone at 17:39 and on the ground at 17:45. Their medical staff pronounced him dead and flew him out. The remaining five riders left the victim's sled and their two snow bikes behind, riding double back to the trailhead. They met

seven GCSAR snowmobilers along the way who escorted them out of the backcountry. Everyone arrived at the GCSAR building by 2300 hours.

INVESTIGATION

The onsite investigation occurred on January 3, conducted by Doug Chabot and Alex Marienthal who were accompanied by Deputy Matt Stubblefield, USFS Hebgen Lake District Ranger Jason Brey, Custer Gallatin National Forest Snow Ranger Jim Norlander, two members of incident group and four GCSAR volunteers. At the accident scene, the victim's snowmobile was dug out and ridden out of the backcountry with the two snow bikes that were left behind after the accident. The information in this report came from first hand interviews with the two members that accompanied us into the scene, Brock Kelley of GCSAR, Deputy Matt Stubblefield and other members of GCSAR.

Any questions should be directed to:

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