

Kirkwood Ridge Avalanche Accident

1 snowmobiler triggered, caught, not buried
S. Madison Range, MT
Custer-Gallatin National Forest – March 7, 2018

Synopsis

Two snowmobilers accessed the south end of Kirkwood Ridge from the Red Canyon trail on Wednesday, March 7th. This area is north of Hebgen Lake, approximately 12 miles northwest of West Yellowstone. One rider ascended a steep gully, and while descending triggered an avalanche on a slope above him. The slide was 2' deep, 100' wide and carried the rider approximately 100' and he deployed his airbag. He was able to ride out of the debris before the slide stopped. The slide is classified AMu-SS-R2-D2-O.

GPS Coordinates:

Approximate location of slide: N 44.84853° W 111.21677°

Video: <https://youtu.be/yriwILDWCJE>

Weather

Snow and precipitation data are from the Carrot Basin SNOTEL site, located 8 miles north of the accident site. Wind speed and direction data are from the Taylor Fork weather station, 10 miles north-northwest of the site. Snow depth at Carrot Basin on March 1st was 85" equal to 24.7" of snow water equivalent (SWE) and on March 7th, the day of the accident, snow depth was 88" equal to 26.1" of SWE. Snowfall at Carrot Basin averaged a couple inches of snow each day from March 1st to 5th, which totaled 1.4" of SWE. The area did not receive any new snow for approximately 36 hours prior to the accident.

One week prior to the accident, wind at Taylor Fork was southeast to east at 15-25 mph, and three days prior shifted to the north to northwest at 15-20 mph with gusts to 40 mph. Over the 24-hours before the avalanche, wind was south to southwest at 10-15 mph with gusts of 20-25 mph. Temperatures the morning of the accident were 10 F at Taylor Fork and 11 F at Carrot Basin, and in the afternoon reached 21 F and 32 F, respectively.

Snowpack

The avalanche occurred on a southwest aspect (210°) at 8,600' elevation. Maximum slope angle of the starting zone was 38°. The slide averaged 2' deep, 100' wide, and ran 300' vertical. The

total height of snow on the slope was 115cm, and the avalanche broke on a layer of facets below a crust 60cm above the ground. The slide is classified AMu-SS-R2-D2-O.

Two days prior to the accident, avalanche danger was rated considerable on wind loaded slopes due to fresh drifts of snow being easy to trigger. Danger decreased to moderate on wind loaded slopes the next day. On March 7th, the day of the accident, the avalanche danger was rated low for the decreased likelihood of triggering avalanches due to a lack of new snow and wind-loading, and a generally stable snowpack with no known widespread persistent weak layers. The advisory mentioned concerns of large cornices, wet-loose avalanches and wind loaded slopes, and warned of small and isolated instabilities.

Avalanche Advisory from March 7th, 2018: <https://www.mtavalanche.com/advisory/18/03/07>
Snowpit from avalanche flank: <https://www.mtavalanche.com/images/18/red-canyon-profile>

Avalanche

Two snowmobilers accessed the south end of Kirkwood Ridge from the Red Canyon trail on Wednesday, March 7th. This area is north of Hebgen Lake, approximately 12 miles northwest of West Yellowstone. One rider ascended a steep gully, and while descending triggered an avalanche on a slope above him. The slide carried the rider approximately 100' and he deployed his airbag. The rider wrote, "Air bag kept my head above the snow and I was able to keep my sled under me the whole time. [The sled] was completely buried, but I was able to pop it out and ride over the toe of the slide before the snow came to a stop." He added, "Got very lucky, but was also prepared with proper gear and my riding partner watched and was ready to respond as soon as the slide stopped." Both riders had an avalanche transceiver, shovel and probe, and neither had formal avalanche training.

Investigation

Eric Knoff of the Gallatin National Forest Avalanche Center went to the accident site on March 9, 2018. Details of the event were gathered from interviews with the riders. Please contact Eric Knoff, Alex Marienthal or Doug Chabot at the Gallatin National Forest Avalanche Center if you have questions:

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