

Very Large Avalanche – Riding Alone, Inadequate Gear

Colorado, Front Range, Mt. Trelease

Just after 8 a.m. on February 14, 2021, Rider 1 parked at the trailhead for Mt. Trelease and noticed one car already in the parking area. As Rider 1 ascended the skin track, he deduced there was one backcountry tourer ahead of him (Rider 2), based on the tracks in the fresh snow. At about 9 a.m., Rider 1 got his first view of Pat's Knob, a steep slope on the east side of Mt. Trelease, and saw the aftermath of a large and recent avalanche. There was no sign of the person ahead of him. Rider 1 noticed a skin track higher than normal on the slope. Most of it had been destroyed by the avalanche, but there was a small portion left.

Two skiers also approaching the area got their first view of the avalanche just before 9:30 a.m. Skier 1 called 911, reported the slide, and then raced ahead of Skier 2 to begin searching the debris. When Skier 1 arrived at the avalanche debris, Rider 1 was already searching with his transceiver below the remaining skin track. Skier 2 arrived, and the three tourers coordinated rescue efforts. They searched a large portion of the debris field and never got a transceiver signal. The team was worried about overhead hazard, and without finding a signal, they decided to discontinue their search.

The riders remained nearby and talked by phone with the 911 dispatch center, Loveland Ski Patrol, and Alpine Rescue Team. Meanwhile, the Clear Creek County Sheriff matched vehicle registrations of cars in the parking area with all people in the area. They identified one missing person and tried reaching him on his cell phone. After repeated calls went unanswered, the Sheriff's Office used the cell signal to obtain the coordinates of the phone. These were relayed to the riders at the scene. Using Google Maps on his phone, Skier 2 directed the group to the coordinates, where they saw an avalanche airbag sticking out of the snow. Rider 2 was buried on the downhill side of a few trees. Skier 1 dug out the subject's head, cleared his airway, and monitored the patient for breathing and a pulse but found neither.

Alpine Rescue Team members and Colorado Avalanche Information Center (CAIC) forecasters arrived on scene at about 12:35 p.m. They determined they could not provide additional care to Rider 2. They searched the avalanche debris with transceivers, by spot probing, and with a Recco detector, but did not find additional people in the debris.

ANALYSIS

The crown face of this avalanche was up to 20 feet deep and 850 feet wide, and debris ran 500 vertical feet. The avalanche broke in a layer of faceted snow about two feet from the ground before stepping down to the ground, taking the entire season's snowpack with it. The avalanche ran into relatively flat terrain, covering tracks of riders from previous days, and it snapped numerous trees up to five inches in diameter. The slope angle of the bed surface was generally 35 degrees, but as steep as 42 degrees in places.

During the 11 days preceding this accident, the nearby Loveland Ski Area recorded 39 inches of snow, with measurable snowfall 10 out of 11 days. There were consistent westerly winds throughout this period.

The CAIC rated the backcountry avalanche danger in the Front Range zone at Considerable at all

elevations on the day of the accident. A Special Avalanche Advisory (SAA) had been issued for the Front Range zone on February 12. It read, in part, "Avalanche conditions are unusual. Backcountry travelers can trigger avalanches that may break very wide and run the full length of the avalanche path. Your normal routes and safety habits may not keep you out of a dangerous avalanche."

Early snowfall in this area followed by dry weather had produced a layer of very weak depth hoar snow. Snowfall from mid-December to early January buried this weak snow layer and built a slab of stronger snow on top. Subsequent periods of dry weather allowed weak faceted snow to form on the snow surface, which was then buried by the next snowstorm or wind-loading event. This pattern repeated, and by the second week of February, the snowpack contained several weak layers of faceted snow between harder, strong slabs. All of these layers were resting on the very weak layer of depth hoar near the ground.

This avalanche ran over a well-used skin track. During unusual snowpack conditions, "normal" routes and what are considered safe spots must be re-evaluated.

Traveling alone in avalanche terrain increases the consequences if you are caught. Although this was a very large avalanche, Rider 2's head was buried only a foot beneath the snow surface. A partner that was not in the avalanche may have quickly rescued Rider 2. However, the rider did have traumatic injuries, so we don't know if a speedy recovery would have produced a different outcome.

The subject was wearing an avalanche airbag but no avalanche rescue transceiver. It is likely Rider 1 would have recovered Rider 2 much faster if the rider was wearing a transceiver. We recommend you always wear a transceiver when you are traveling in avalanche terrain, even if you are by yourself. There is always a chance another group could rescue you, and it will help search and rescue groups find you and return your remains to your family if you are killed in the mountains.

Rider 2 deployed his avalanche airbag, which may have kept him from being buried deeper, but it did not keep his head from being buried under the snow. When rescuers found Rider 2, he was wearing the sternum strap on his airbag pack but not the leg loop. The sternum strap was pushed up against his neck. As with any safety device, it is important to follow the manufacturer's instructions. Most airbags come with a leg loop to prevent the pack's sternum strap from sliding up and posing a choking hazard. It also keeps your upper body closer to the bag.

The other backcountry tourers in the area on this Sunday morning made valiant efforts. Skiers 1 and 2 and Rider 1 alerted 911 immediately and coordinated their own rescue effort before organized rescue arrived. The three tourers' actions led to the relatively quick recovery of the victim and an efficient clearing of the accident site. (Source: Colorado Avalanche Information Center.)

Read the full report from the Colorado Avalanche Information Center.

Images



This avalanche overran a well-used skin track and other skier tracks. Position of Rider 2 after the slide is shown.

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