

# 2014/12/06 - Eastern Alaska Range, Delta Range, Rainbow Ridge Area

Published 2014/12/30 by Sarah Carter & Kevin Salys, AAIC

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## Avalanche Details

- Location: Eastern Alaska Range, Delta Range, Rainbow Ridge Area
- State: Alaska
- Date: 2014/12/06
- Time: 1:30 PM
- Summary Description: 2 skiers caught, 1 injured, 1 killed
- Primary Activity: Backcountry Skiing
- Primary Travel Mode: Ski
- Location Setting: Accessed backcountry from Richardson highway MP 206

Number	Avalanche	Site
<ul style="list-style-type: none"><li>• Caught: 2</li><li>• Partially Buried, Non-Critical:</li><li>• Partially Buried, Critical:</li><li>• Fully Buried: 2</li><li>• Injured: 1</li><li>• Killed: 1</li></ul>	<ul style="list-style-type: none"><li>• Type: SS</li><li>• Trigger: AS - Skier</li><li>• Trigger (subcode): u - unintentional release</li><li>• Size - Relative to Path: R3</li><li>• Size - Destructive Force: D2.5</li><li>• Sliding Surface: I - New/Old Snow Interface</li></ul>	<ul style="list-style-type: none"><li>• Slope Aspect: WNW</li><li>• Site Elevation: 5500 ft</li><li>• Slope Angle: ~38 °</li><li>• Slope Characteristic: Bowl</li></ul>

## Avalanche Comments

While ascending, two ski tourers and a dog triggered this soft windslab avalanche. The slope the skiers were climbing released and sympathetically triggered an adjacent slope. It is suspected that both slopes had new wind slab that released in facets on top of a melt freeze crust bed surface (SS-AS-R3-D2.5-I). The slope the skiers were on was a southwest slope at the head of a creek drainage. The sympathetic avalanche start zone was a westnorthwest facing bowl that funneled into a gulley and down into a narrow creek bed. One crown face was estimated to have been 2-3 feet deep and 150 feet wide. It is not known if the fracture lines connected between the two slopes over a sub-ridge. The combined avalanches ran nearly 1000 feet, channeled down into the creek bed,

forming a single debris pile. All numbers here are estimates from the air - direct ground access to the accident site was not possible due to avalanche hazard at the time of investigation. The terrain trap location, with several similar slopes, threatened recovery efforts.

## **Weather Summary**

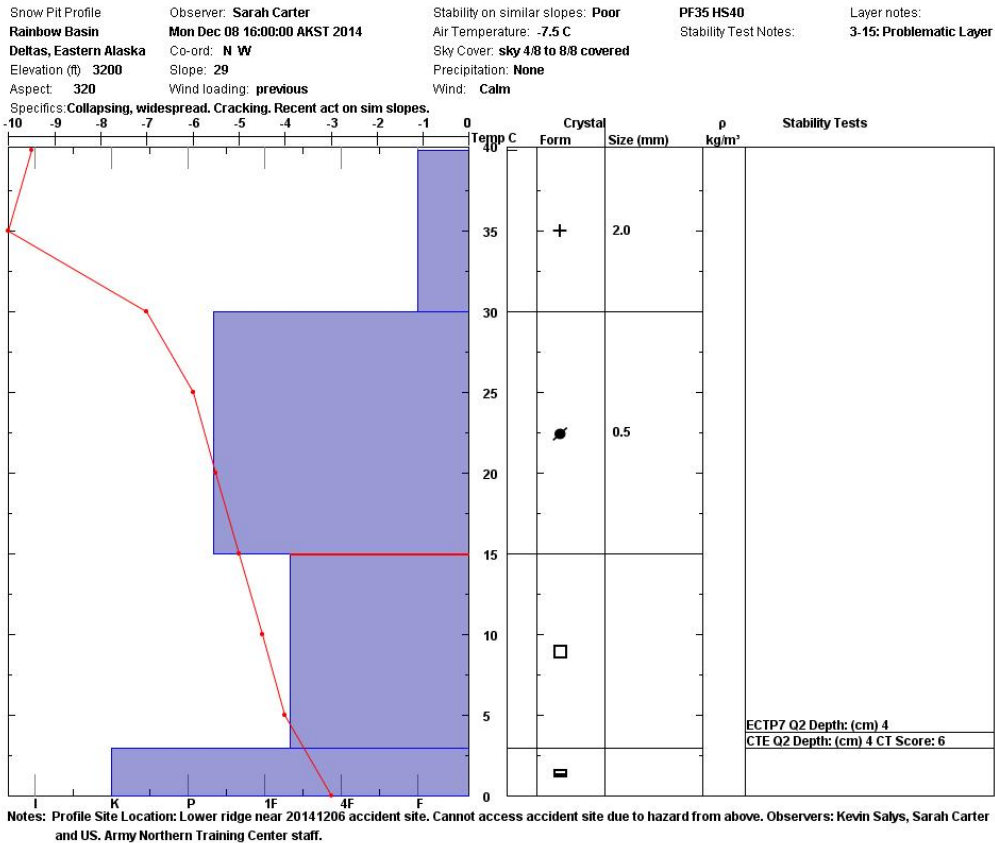
Preceding the accident, 10-30cm of storm snow, combined with moderate to strong southeast winds, fell between December 1 and 4.

The day of accident, skies were broken with flat light. Temperatures rose during the day from about 8 degrees Fahrenheit to well above freezing that evening.

## **Snowpack Summary**

Due to the remote nature of this area with no avalanche forecast and limited recreational users, there is limited historical knowledge of the conditions prior to the incident. It is known that the region had not seen a lot of snowfall for the season with abnormally warm temperatures. Reports from those few that were working and recreating in the area prior to the accident noted a basal crust throughout the region. This melt freeze crust was found at lower elevations in the area during the investigation and also was acknowledged to be in the slide path on the day of the accident by the survivor. A few days prior to the accident, a storm moved in with moderate to strong southeast wind. Wind effect in the area was evident from the air December 8 (2 days after the accident)– many wind lines, lips, cornicing, and windloaded start zones were observed.

A profile of the snowpack, just outside the accident drainage, revealed 5-10cm new snow over a pencil hard windslab sitting on facets and a basal melt freeze crust (see profile below). While flying over the area two days after the accident, multiple natural slab and loose avalanches were seen on multiple aspects. Stability was determined to be poor given the snow structure, natural and human-triggered avalanche activity and easy test results.



## Accident Summary

Two men and a dog toured up and into the Rainbow Ridge area from the Richardson Highway MP 206. They felt whumphing multiple times on the approach. Both had skied in this area early season in years past. It was their first time to tour there this year. Their objective was to ski a slope near the head of a side valley.

About 1.5 miles from the highway they came upon a previous natural destructive size 2 slab avalanche with an icy bed surface and rock protruding near the top. They decided to continue, thinking it was old, lower elevation than their objective, and that they have seen a lot of activity in those steep, rocky gully walls in the past.

After turning and ascending up into a side creek drainage, they ski toured about 1/3 the way up their slope, when Skier 1, in the lead, noticed that the snow felt more slabby with an icy layer underneath. After discussing a plan for turning around, they decided to turn toward a nearby sub-ridge. As Skier 1 traversed to the ridge, they heard a whumph, Skier 1 asked, "Did you hear that?" as Skier 2 looked uphill to see a "wave" of snow coming toward them.

Skier 1 and Skier 2 were about 10 feet apart when caught. Since Skier 1 had traversed out of the heart of the path, Skier 2 believed Skier 1 was clear of the avalanche and yelled for him to watch the dog that was between them, since it had no beacon.

They were all caught, carried, and buried. Skier 2 believes he was in motion in the avalanche for about 10 seconds before coming to rest.

## **Rescue Summary**

Skier 2 was fully buried. He was able to wiggle his hand, with ski pole still attached until it poked a 'window' out to the surface. His burial location was near the toe of the debris – he was able to poke out snow and it mostly fell away instead of back in on him. Utilizing the pole and rotating wrist movement, Skier 2 was able to slowly expose his face, chest, and other arm. After a time, he was able to reach back to his shovel attached to the outside of his pack, free it and shovel to extract the rest of his body. Once releasing from his still attached telemark skis - about a 2 hour process - Skier 2 found the exposed hand of Skier 1, 10 feet away, and dug down to his face, but found no signs of life. Due to troubles assembling his probe, Skier 2 marked the site with the sectioned probe before skiing out 2 plus miles to the highway where he flagged down a passing vehicle after 2-3 hours of no traffic. Their vehicle's key was still with Skier 1, still buried up in the snow. Skier 2 asked the driver to get to phone service (none at the trailhead) and notify help while he remained at the trailhead.

The State Trooper, two rural fire department crews with an ambulance, and an Army unit from the Northern Warfare Training Center were all dispatched at 18:00 to respond to the accident. With spotty accident details, at about 19:00, a unit of six Army personnel headed toward the accident site on snowshoes. Given the lack of daylight, persistent snowfall, and rising temperature, all rescue groups decided to stand down at 20:30.

The Alaskan Avalanche Information Center assisted in the rescue hazard evaluation and flew over the area Dec 8th. The avalanche, burial location and excavated hole were identified from the helicopter. It was not known at that time that the larger avalanche was not the slope that the skiers directly triggered.

Due to the nature of the steep, narrow creek bed with numerous other avalanche paths surrounding the site, poor snow structure, and recent avalanche activity, a recovery effort was determined to be too risky. Two weeks after the accident, the victim and one partner went back to the site. They recovered Skier 1 and Skier 2's dog, who was found curled up, buried behind Skier 1.

## **Comments**

Skier 2 required three emergency room hospital visits addressing pulmonary damage due to snow inhalation. His knee was a bit tweaked trying to unbury himself, but no permanent injury was incurred, despite his telemark skis not releasing.



## Media

- **Friends, Family Mourn Avalanche Victim; Expert Advises Recovery Operation Delay**

By [Tim Ellis, KUAC - Fairbanks](#) | December 15, 2014

<http://www.alaskapublic.org/2014/12/15/friends-family-mourn-avalanche-victim-expert-advises-recovery-operation-delay/>

- **Alaska Range avalanche sweeps experienced skier to his death**  
[www.adn.com/article/20141208/alaska-range-avalanche](http://www.adn.com/article/20141208/alaska-range-avalanche)  
Dec 08, 2014 · Looking back on it now, Mike Hopper said, he and backcountry skiing partner Erik Peterson missed a key warning sign about the avalanche danger they face...
- **Alaska skier recounts avalanche that killed his friend** Fairbanks Daily News-Miner December 8
- **Avalanche Survivor Says Mountain Gave Warning Sign** ABC News December 8
- **Skier Killed in Avalanche in Unstable Alaska Mountains** NBC NEWS December 7

## Images



Figure 1: Uptrack and trigger location of direct and sympathetic avalanches



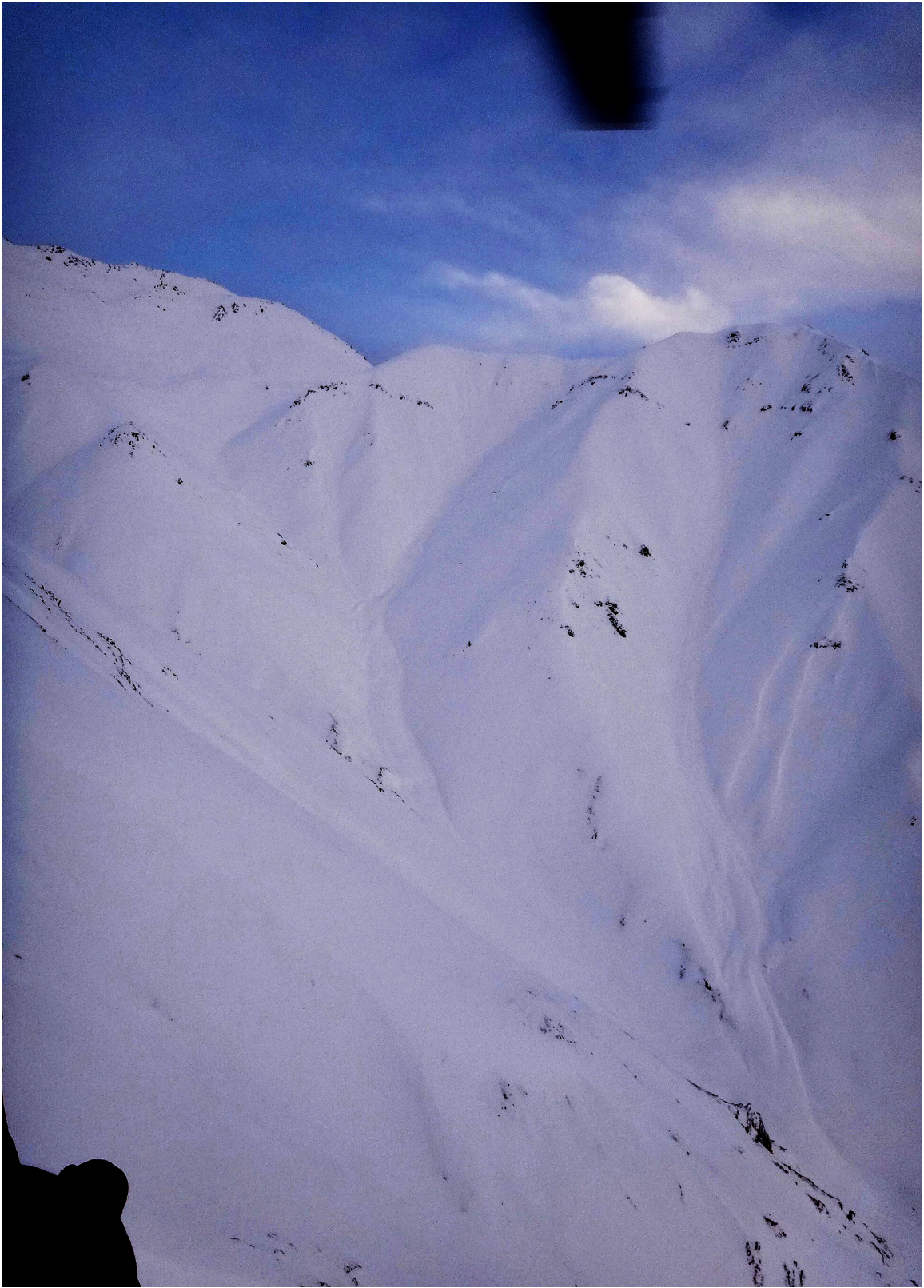


Figure 2: Avalanche in Rainbow Ridge area. Sarah Carter aerial photo.





Figure 3: Sympathetic fracture line near ridge.



Figure 4: Larger sympathetic avalanche drawn in. Sarah Carter aerial photo.