

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

Published 2014/12/29 by Sarah Carter and Kevin Salys - Alaska Avalanche Information Center

---

### Avalanche Details

- **Location:** Rainbow Ridge area, Delta Range
- **State:** Alaska
- **Date:** 2014/12/06
- **Time:** 1:30 PM
- **Summary Description:** 2 backcountry tourers caught, 1 injured, 1 killed
- **Primary Activity:** Backcountry Tourer
- **Primary Travel Mode:** Ski
- **Location Setting:** Backcountry

### Number

- **Caught:** 2
- **Partially Buried, Non-Critical:** 0
- **Partially Buried, Critical:** 2
- **Fully Buried:** 0
- **Injured:** 1
- **Killed:** 1

### Avalanche

- **Type:** SS
- **Trigger:** AS - Skier
- **Trigger (subcode):** u - An unintentional release
- **Size - Relative to Path:** R3
- **Size - Destructive Force:** D2.5
- **Sliding Surface:** I - New/Old Interface

### Site

- **Slope Aspect:** NW
- **Site Elevation:** 5500 ft
- **Slope Angle:** 38 °
- **Slope Characteristic:** --

### Avalanche Comments

This was a soft wind slab avalanche, triggered by two skiers and a dog ascending up the slope. It was medium size relative to the avalanche path where a new wind slab released on facets on top of an melt freeze crust bed surface (SS-AS-R3-D2.5-I). The avalanche start zone was a NW facing bowl feature that funneled into a gulley and down into a narrow creek bed. The crown face, about 600 ft above the trigger point, was estimated to have a maximum height of 1 meter and average height of 0.75 meters. The avalanche was close to 150 feet wide and ran nearly 1100 feet vertically down to the creek bed. All numbers here are estimates from the air, since direct ground access to the accident site was not possible due to the avalanche conditions and terrain trap location.

### 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, but the light was flat. Temperatures rose during the day from about 8 degrees F 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 SE winds. 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 full 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 avalanches were seen on several aspects. Stability was determined to be poor given the snow structure, natural and human-triggered avalanche activity and easy test results.

## Events Leading to the Avalanche

Two men and a dog toured up and into the Rainbow Ridge area from the Richardson Highway. 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 northwest 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 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 critically, partially buried, with only his hand and attached ski pole above the snow surface. Utilizing the pole and wrist movement, Skier 2 was able to slowly expose his face and access his pack. He had his shovel attached to the outside of his pack and was able to get it to aid in extracting 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, 20 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 was asked to aid in the rescue hazard evaluation and drove up from Valdez to do a fly-over of the area Dec 8th. The avalanche, burial location and excavated hole were identified from the helicopter.

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. Therefore, at the time of writing this, plans were still in the making for a safe and effective recovery of Skier 1. The dog involved in the avalanche is believed to be in the debris as well.

## Comments

Skier 2 had no lower leg injuries despite his skis not releasing. He required a hospital stay for cold injury to his upper airway and snow inhalation.

## Media

### Images

**Figure 1:** Avalanche in Rainbow Ridge area. Sarah Carter photo. ([see full sized image](#))





### Snowpits

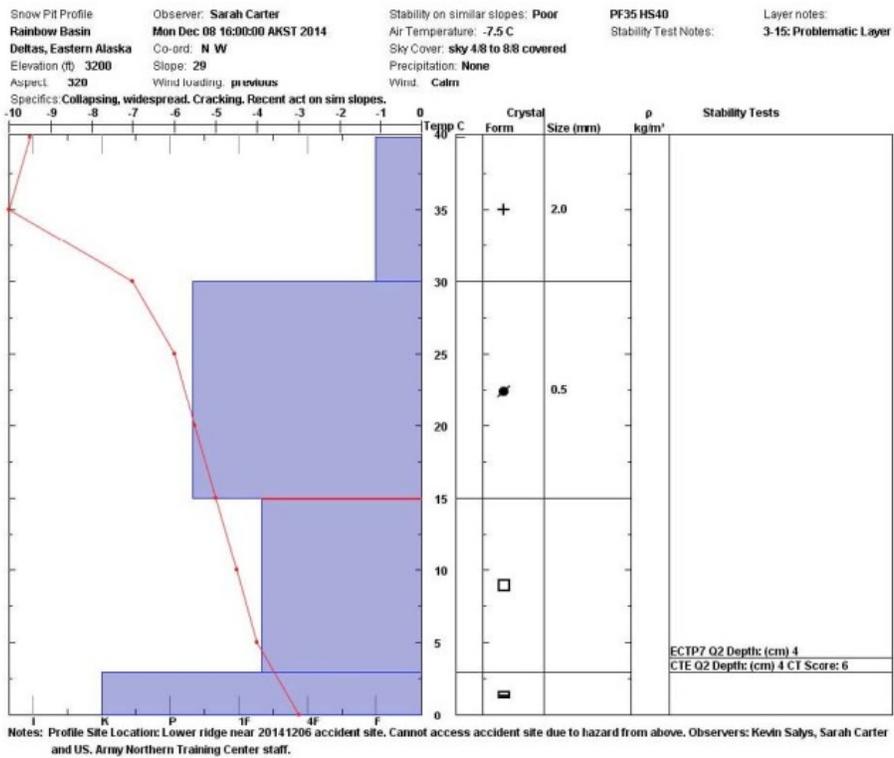


Figure 3: Full profile from just outside the accident drainage.