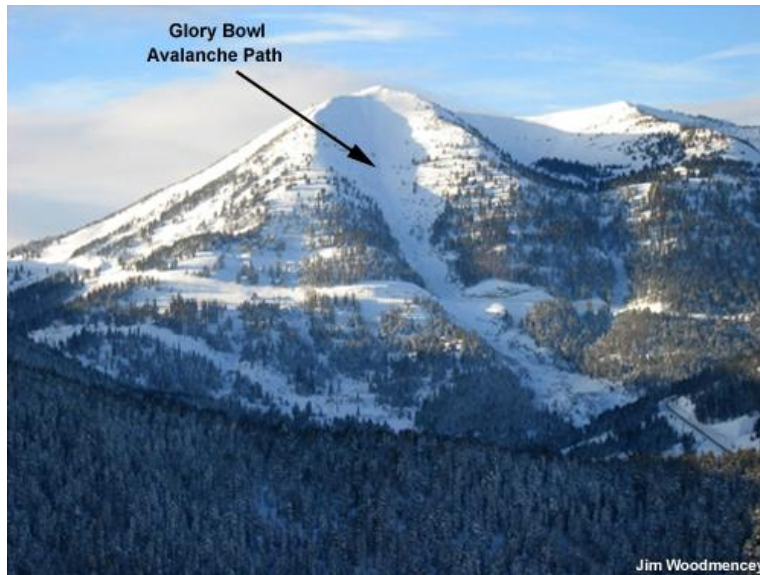


## Glory Bowl Avalanche Incident

In the early morning of December 1, 2000, a 28-year old snowboarder named Joel Roof began his ascent of Mt. Glory, intending to snowboard down from the summit of the main Glory Bowl run, a large east-facing bowl.



Mt. Glory is at the southern end of the Teton Mountain Range in western Wyoming. It's a popular backcountry destination for skiers and snowboarders due to its relatively easy access from the top of Teton Pass. The bowl is fairly wide, with aspects ranging from southeasterly to northeasterly. Its average steepness is just over 35 degrees (the slope angle of a challenging, black diamond, ski run).

Glory Bowl received 22 inches (56 cm) of snow during the week prior to the incident, with 3 inches (8 cm) falling the evening before. Joel was greeted with a fresh blanket of snow and clear skies when he began his ascent of the bowl early in the morning on December 1. He started down from the summit around 8:00 AM, choosing a bold line almost directly down the center of the east-facing bowl. Veering slightly to the right with his first few turns, he moved onto the more northeast-facing aspect.

When Joel was only several hundred feet (100 m) below the summit, he triggered an avalanche, which took down almost the entire right side of the bowl. Joel was carried approximately 2,000 vertical feet (600 m) and buried under four to five feet (1 to 2 m) of snow at the bottom of the avalanche, just short of the highway. The avalanche actually ran across and blocked the road, which was busy with commuter traffic. Backcountry skiers and snowboarders who saw what happened started searching for him almost immediately. Joel's body was found within one and a half hours using probes and search dogs. He was not wearing an avalanche transceiver.



### Glory Bowl's weather history

The avalanche had been in the making since early October, when the first snow fell and stayed on the ground in the mountains. Several days of warmer temperatures in mid-October led to a few melt/freezing cycles, which created a thick crust near the ground. By the end of October, the upper reaches of the northeast-facing slope had less than a foot (30 cm) of settled snow. The adjacent southeast-facing aspect was almost bare of snow, which is noteworthy because that half of the bowl didn't avalanche.

Another brief warm up in early November created a new crust on the snow surface. Light snow fell during mid-November, adding less than a foot (<30 cm) of new snow to the pack. Since temperatures were unusually cold for the time of year, 0° to 20° F (-18° to -7°C) at 10,000 feet (3,000 m), the snow density was very low. The light snows were followed by several days of clear and even colder temperatures, 0°-5° F (-18° to -15°C) at 10,000 feet (3,000 m).

A week before the avalanche, the snowpack was shallow, with less than 2 feet (60 cm) of settled snow on the ground at 9,000 to 10,000 feet (2,700-3,000 m). Recall the two crusts that formed earlier in the season; these were now covered with mostly unconsolidated, poorly bonded, cold snow crystals.

From November 24 to 30, just under two feet (60 cm) of new snow were recorded at 9,500 feet (2,900 m) at the nearby Jackson Hole Mountain Resort. The snow contained almost 1.5 inches (38 mm) of water, making it moderately dense. The heaviest 24-hour total occurred on November 27 when seven inches (18 cm) of new, very dense snow fell containing 0.71 inches (18 mm) of water. During the storm, ridge-top winds were primarily out of the west, although there were periods of south-to-southwest winds. The winds loaded much more snow onto the leeward east- and northeast-facing aspects of Glory Bowl. By the end of November, the avalanche was "ready to go," needing only a little provocation, which the single snowboarder provided.