

## Paulina Peak Avalanche Accident on 1-2-2010

Report prepared by Trevor Miller of the [Central Oregon Avalanche Association](#) and Three Sisters Backcountry staff.

On Jan 2<sup>nd</sup>, 2010, a 28 year old male snowmobiler was caught in a large slide and killed near Paulina Peak in an area known as the "roller coaster". Paulina Peak is a popular snowmobile and BC ski area 1.5 hours southeast of Sisters, OR. The buried surface hoar we found was very well preserved and will be persistent in that area.  
(Please click on the photos below for a larger format picture)



Observers: Three Sisters Backcountry Staff

Location:

Newberry Crater, State/Prov: OR, Range: Cascades, Elevation: 7350

Name: Paulina "rollercoaster"

Date/Time: Wed Jan 02, 2010

Elevation Start: (ft) 7350

Elevation Deposit: (ft) 7040

Fracture Width: (ft) 435

Fracture Length: (ft) 400

Avalanche Length: (ft) 300

Primary Aspect: 0 deg (North)

Type: SS

Water Content Start: Dry  
Water Content Deposit: Dry  
Trigger Type: Artificial – Human  
Trigger Code: Snowmobile  
Size relative to Path: R4  
Size destructive force: D2.5  
Average Fracture Depth: (cm) 34  
Max. Fracture Depth: (cm) 40  
Level Of Bed Surface: Within old snow.  
Weak Layer Type: Buried Surface hoar  
Weak Layer Crystal Size: 7.0 mm  
Weak Layer Hardness: F  
Crystal Type Above: Rounded grains  
Crystal Size Above: 1.0  
Hardness above: 4F  
Crystal Type Below: Mixed forms faceted  
Crystal Size Below: 1.0  
Hardness below: 4F  
Snow Pack Typology: 0  
Avg Start Angle: 34  
Max Start Angle: 34  
Min Start Angle: 34  
Width of deposit: 435  
Number of people caught: 1  
Number of people totally buried: 1  
Fatalities: 1

Comments: Solo 28 year old snowmobiler caught in slide and was buried at base of slope in terrain trap and killed. He was located by witnesses in the proximity without the use of a transceiver. Other skiers in the area report triggering slides on the same day. Victim may have had his snowmobile stuck when second party crossed above his location on lower 1/3 of slope, possibly triggering the slide.

## Ancillary Information:

No public avalanche forecasts currently available cover the central Oregon Cascades. The closest area that has daily forecast coverage by a regional avalanche center is the Mt Hood area, about 150 miles to the north-northwest of the accident location. While the forecast issued the day before the incident by the Northwest Weather and Avalanche Center does not directly apply to this accident location, it is included below as it does describe some of the general snowpack features and associated dangers that were found in the resultant accident investigation:

## Detailed Avalanche Forecast

Northwest Weather and Avalanche Center Seattle Washington

1208 PM PST Fri Jan 01 2010

The NWAC program is administered by the USDA-Forest Service and operates out of the National Weather Service Forecast Office in Seattle. NWAC services are made possible by important collaboration and support from a wide variety of federal, state and private cooperators.

WAZ-513-518-519-018-042-501-502-ORZ-011

## Zone Avalanche Forecasts

### Mt Hood area

Danger Trend	Friday		Saturday		Sunday	
	6am-Noon	Noon-6pm	6am-Noon	Noon-6pm	6am-Noon	Noon-6pm
	Slightly Increasing	Strongly Increasing	Slightly Decreasing	Slightly Decreasing	Strongly Increasing	Slightly Increasing
7000'	3	3	3	3	4	4
6000'	3	3	3	3	4	4
5000'	2	2	2	2	4	4
4000'	2	2	2	2	3	3
3000'	2	2	2	2	3	3

Notes: This represents a regional scale avalanche forecast for each elevation and time period shown. For complete information see the detailed avalanche forecast.

[Jump to Danger Scale Legend at bottom of forecast](#)

## Forecast

**Friday and Friday night:** Considerable avalanche danger above 6000 feet and moderate below early Friday increasing by late Friday becoming considerable above 5000 feet and moderate below.

**Saturday and Saturday night:** Considerable avalanche danger above 5-6000 feet and moderate below, gradually decreasing overnight.

**Outlook Sunday:** Considerable avalanche danger above 6000 feet and moderate below early Sunday increasing late Sunday becoming high above 5000 feet and considerable below.

## Snowpack Analysis

Pre-existing snowpack structure prior to Thursday's storm could be characterized by low density snow of 10 to 20 inches that was poorly bonded to the Christmas crust in most areas. In addition, widespread surface hoar formed above the crust during the most recent fair weather and was buried intact in many areas.

Added to that was yesterday's storm that brought moderate to heavy rain or snow at rising freezing levels and very strong winds through the day. This quickly loaded the weak snowpack and produced widespread natural avalanches in most areas. Many of the slides were relatively shallow as the snowpack would not hold much loading before turning to rain by later Thursday.

Cooling as of early Friday morning is now allowing for gradual refreezing of the old wet snow. Increasing snow at gradual cooling early Friday is beginning to reload the surface layers. On slopes that released yesterday, the new snow should be accumulating on or just above the Christmas crust which again may act as a good sliding layer.

In areas that did not release naturally, we still have an unstable snowpack structure, especially at higher elevations that may not have rained but where large amounts of dense snow was deposited over the buried weak layers.

## Detailed Forecasts

### Friday and Friday night

Increasing moderate snow at cooling temperatures with very strong crest level winds will begin to build new slab layers on lee slopes, mainly easterly facing slopes at higher elevations, therefore continue to be extra careful and avoid any large open slopes receiving wind transported snow. It should be essential to assess local snow conditions on slopes of concern, looking

especially for the buried hoar frost layer and bond of snow to the potentially newly forming crust and also the Christmas crust which may now be 1 to 2 feet below the surface at higher elevations.

#### Saturday and Saturday night

Light rain or snow showers with decreasing winds should allow for a slow decrease in danger as unstable layers begin to settle. Unstable slab layers should remain likely at higher elevations where extra caution is advised.

#### Outlook for Sunday

Increasing rain or snow with rising freezing levels Sunday should again cause an increasing danger, especially at mid and higher elevations. Rain or wet snow should cause increasing avalanches Sunday when backcountry travel is not recommended at higher elevations.

Backcountry travelers should be aware that elevation and geographic distinctions are approximate and that a transition zone between dangers exists. Remember there are avalanche safe areas in the mountains during all levels of avalanche danger. Contact local authorities in your area of interest for further information.

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#### Danger Scale Legend

<b>5</b>	= Extreme avalanche danger
<b>4</b>	= High avalanche danger
<b>3</b>	= Considerable avalanche danger
<b>2</b>	= Moderate avalanche danger
<b>1</b>	= Low avalanche danger

Warning = Extreme or high avalanche danger occurring or expected to occur within 12 hours: at or below 4000 feet in the Olympics and/or WA Cascades; at or below 5000 feet in the Mt. Hood Area.

Watch = Warning conditions expected within 12-48 hours.

Special Conditions = Unusual conditions meriting special attention that do not meet Watch or Warning criteria.

Click [here](#) for complete definitions of the avalanche danger scale.

NWAC weather data and forecasts are also available by calling 206-526-6677 for Washington, 503-808-2400 for the Mt Hood area, or by visiting our Web site at [www.nwac.us](http://www.nwac.us). Remember that these avalanche forecasts apply to back country avalanche terrain below 7000 feet outside of developed and operating ski areas or highways.

The NWAC program is administered by the USDA-Forest Service. NWAC forecasts, data and avalanche or mountain weather information are made possible by partnerships between the Forest Service and many important cooperators, including the National Weather Service, Washington State Department of Transportation, Washington State Parks and Recreation Commission, Washington Snowparks and Snowmobile Grants, National Park Service, Ski Washington, Pacific Northwest Ski Area Association, the Friends of the Avalanche Center and others.

This forecast is prepared for cooperators and users of the NWAC, as an aide to transportation and recreational operations, and to help promote public safety in the NW mountains.

Kramer/Northwest Weather and Avalanche Center Seattle Washington