Northwest Avalanche Center

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East Slopes North - Canadian Border to Lake Chelan

Issued: 7:41 PM PST Friday, December 30, 2016

by Dennis D'Amico

NWAC avalanche forecasts apply to backcountry avalanche terrain in the Olympics, Washington Cascades and Mt Hood area. These forecasts do not apply to developed ski areas, avalanche terrain affecting highways and higher terrain on the volcanic peaks above the Cascade crest level.

A preliminary incident report completed by the White Pass Ski Patrol and NWAC for the avalanche fatality that occurred on Tuesday December 27th,2016 is finished and will be uploaded to the accidents page Friday night. http://www.nwac.us/accidents/accident-reports/

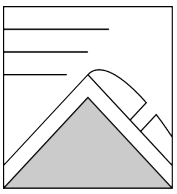
The Bottom Line: Wind slab should be the primary avalanche problem and mainly found near and above treeline Saturday. Wind slab should be less likely to trigger throughout the Cascades but look for wind loaded slopes further downslope than usual particularly in the Mission Ridge/Blewett area. Also, the persistent slab problem still warrants attention in the Mission Ridge/Blewett area where several PWLs represent a touchy snowpack. Avoid all avalanche terrain of consequence in this area.

Elevation	Saturday		Outlook for Sunday
Above Treeline	Considerable	Dangerous avalanche conditions. Careful snowpack evaluation, cautious route-finding and conservative decision-making essential.	Considerable
Near Treeline	Considerable	Dangerous avalanche conditions. Careful snowpack evaluation, cautious route-finding and conservative decision-making essential.	Considerable
Below Treeline	Moderate	Heightened avalanche conditions on specific terrain features. Evaluate snow and terrain carefully; identify problem features.	Moderate

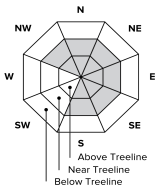
Avalanche Problems for Saturday

Wind Slab

Wind slabs can take up to a week to stabilize. They are confined to lee and cross-loaded terrain features and can be avoided by sticking to sheltered or wind scoured areas.

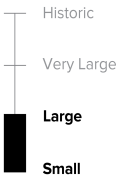


Avalanche Problem



Aspect/Elevation

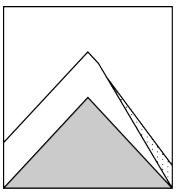
Likelihood



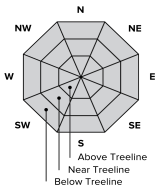
Size

Loose Dry

Loose dry avalanches exist throughout the terrain, release at or below the trigger point, and can run in densely-treed areas. Avoid very steep slopes and terrain traps such as cliffs, gullies, or tree wells.



Avalanche Problem



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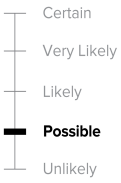

Likelihood

Size

Snowpack Analysis

Weather and Snowpack

Strong storms around the Solstice deposited generally half to 1 inch of water equivalent along the east slopes. Storm totals generally ranged from 6 to 12 inches.

A strong front and strong west flow aloft was seen over the Cascades on Monday and Tuesday. NWAC and Snotel stations along the east slopes had 4 to 18 inches of new snow through 48 hours ending Wednesday morning along with a cooling trend. The higher amounts were seen closer to the crest while the lower amounts represented the Blewett/Mission area.

A warm front kept light snow and moderate winds going through much of day in the Washington zone Thursday before pushing south Thursday night. 8-12 inches of snow fell in the Washington Pass zone, Holden and Lake Wentachee while 1-2 inches accumulated further east toward and Blewett/Mission area and further south.

Recent Observations

In the Delancey Ridge area in the Northeast zone Thursday, NCMG reported the new snow totaled 15-20 cm (6-8 inches) through the afternoon but was lacking a slab structure near and below treeline. In the same area Friday, small loose dry avalanches were the primary avalanche problem but wind affected snow surfaces were visible above treeline. Besides loose dry avalanches in steep terrain, no evidence of natural avalanche activity was observed. In the Washington Pass zone, the 12/17 PWL has been found to be unreactive and has been removed from the set of avalanche problems.

A different story continues in the Mission Ridge/Blewett area.

Last week Mission Ridge ski patrol produced 1.5 to 3 ft hard slab avalanches during control work. These avalanches were releasing on basal facets about 15 cm from the ground.

On Saturday 12/24, a backcountry ski tourer in the Lake Clara area near Mission Ridge reported a huge whumpfing noise, likely indicating a collapse of the basal facets. While no avalanche occurred, the terrain where the collapse occurred connected to a large avalanche path that was NE facing near treeline.

Two reports from the NWAC observation page tell the continuing story of a much shallower snowpack with multiple persistent weak layers in this portion of the central-east zone.

Tom Curtis was out at Mt. Lillian Friday and found reactive wind slab along ridges with shooting cracks and whumpfing on north aspects near 5900 feet. The wind slab was likely collapsing down to the 12/17 Persistent Weak Layer (buried surface hoar) about 25-35 cm down. Wind slabs were found on NW-E-SE aspects with some wind loading apparent well below treeline.

Detailed Avalanche Forecast for Saturday

After a mostly clear start to Saturday for much of the Cascades, a fast moving frontal system will bring light snow to the northeast Cascades by late morning and spread south to the central and southeast Cascades in the afternoon. New snow amounts through 4 pm will generally be light to insignificant, but westerly winds above treeline are expected spike up by mid-day. There is ample new snow available for transport along the east slopes closer to the crest.

Wind slab should be the primary avalanche problem and mainly found near and above treeline Saturday. Wind slab should be less likely to trigger throughout the Cascades but look for wind loaded slopes further downslope than usual particularly in the Mission Ridge/Blewett area.

The persistent slab problem still warrants attention in the Mission Ridge/Blewett area where several PWLs represent a touchy snowpack. Remember that persistent weak layers are generally involved in larger avalanches. Avoid steeper slopes in areas where you still find this layer in snow pits or especially if you experience direct observations of this layer such as whumpfing or shooting cracks.

Mountain Weather Synopsis for Saturday & Sunday

An east to west oriented upper trough is developing across northern B.C. early Saturday morning. This disturbance is tracking southward along with the developing surface low pressure circulation and should spread increasing cloud across the NW Washington Cascades and Olympics Saturday morning and bring light precipitation to those areas by late morning or midday. The trough and surface low should be over western Washington by early Sunday morning and continue to slowly move south and east through the day. This disturbance will provide a shot of light to moderate precipitation mainly from Saturday evening through early New Year's Day. Showers should gradually diminish through the day Sunday, ending most areas by late morning or early afternoon, with the exception of the Mt Hood area and east slopes of WA Cascades where snowfall may persist into the evening Sunday. A cold north to northeasterly flow will develop over the region in the wake of the disturbance on New Year's. This drop the snow level to near sea level overnight and Sunday. Dry and cold conditions are expected Sunday night and through much of the upcoming week.

24 Hour Quantitative Precipitation ending at 4 am

Location	Sun	Mon
Hurricane Ridge	.25 - .50	lt .10
Mt Baker Ski Area	.25 - .50	lt .10
Washington Pass	lt .25	lt .25
Stevens Pass	.25 - .50	lt .25
Snoqualmie Pass	.25 - .50	lt .25
Mission Ridge	lt .25	.25
Crystal Mt	.25	lt .10
Paradise	.25 - .50	lt .25
White Pass	.25 - .50	lt .25
Mt Hood Meadows	.25 - .50	.25 - .50
Timberline	.25 - .50	.25 - .50

LT = less than; WE or Water equivalent is the liquid water equivalent of melted snow in hundredths of inches. As a rough approximation 1 inch of snow = about .10 inches WE, or 10 inches of snow = about 1 inch WE.

Snow Level/Freezing Level in feet

Day	Olympics	Northwest Cascades	Northeast Cascades	Central Cascades	South Cascades	Easterly Flow in Passes
Saturday Morning	1500'	1500'	500'	1000'	2000'	
Saturday Mid-day	2500'	1000'	500'	1000'	4500'	
Saturday Afternoon	1500'	1000'	500'	1500'	1500'	
Saturday Night - Sunday Night	0'	0'	0'	0'	500'	

Cascade Snow / Freezing Levels noted above refer to the north (approximately Mt Baker and Washington Pass), central (approximately Stevens to White Pass) and south (near Mt Hood). Freezing Level is when no precipitation is forecast.

* Note that surface snow levels are common near the passes during easterly pass flow and may result in multiple snow / freezing levels.