



# West Slopes North - Canadian Border to Skagit River

Issued: 11:16 AM PST Friday, December 23, 2016 by Garth Ferber

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.

**Storm slab added to Northwest Cascades zone 1120 am Friday.**

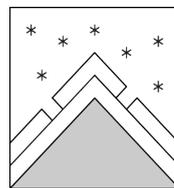
**The Bottom Line:** Recent or new wind slab is expected to be the main avalanche problem on Friday. But there is a lot of uncertainty regarding the December 17th PWL and skiing or riding on lower angle slopes is the safest bet until there is more certainty that this layer is no longer a problem. Update 1120 am Friday: Expect reactive new storm slab within new snow on steep slopes in all 3 terrain bands in the Northwest Cascades zone.

Elevation	Saturday		Outlook for Sunday
Above Treeline	Considerable	Dangerous avalanche conditions. Careful snowpack evaluation, cautious route-finding and conservative decision-making essential.	Moderate
Near Treeline	Considerable	Dangerous avalanche conditions. Careful snowpack evaluation, cautious route-finding and conservative decision-making essential.	Moderate
Below Treeline	Considerable	Dangerous avalanche conditions. Careful snowpack evaluation, cautious route-finding and conservative decision-making essential.	Moderate

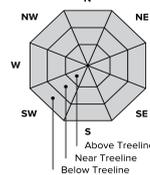
## Avalanche Problems for Saturday

### Storm Slabs

Storm slabs usually stabilize within a few days, and release at or below the trigger point. They exist throughout the terrain, and can be avoided by waiting for the storm snow to stabilize.



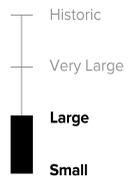
Avalanche Problem



Aspect/Elevation



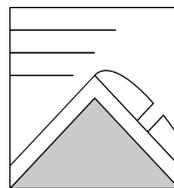
Likelihood



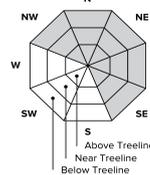
Size

### Wind Slab

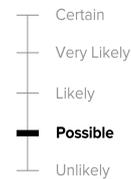
Wind slabs can take up to a week to stabilize. They are confined to lee and cross-loaded terrain features and can be avoided by sticking to sheltered or wind scoured areas.



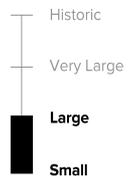
Avalanche Problem



Aspect/Elevation



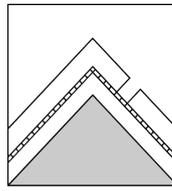
Likelihood



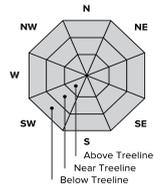
Size

## Persistent Slab

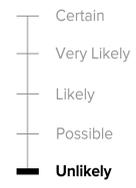
Persistent slabs can be triggered by light loads and weeks after the last storm. You can trigger them remotely and they often propagate across and beyond terrain features that would otherwise confine wind and storm slabs. Give yourself a wide safety buffer to handle the uncertainty.



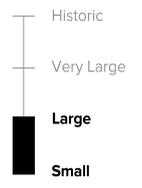
**Avalanche  
Problem**



**Aspect/Elevation**



**Likelihood**



**Size**

# Snowpack Analysis

## Weather and Snowpack

Clear and cold weather from Wednesday, December 14th to Friday, December 17th allowed widespread surface hoar and near surface faceted snow to develop in the Olympics and Cascades. Thin sun crusts formed on steeper solar slopes during sunny periods. In many areas, these persistent grain types began to get buried intact December 17th during a period of light snowfall and light winds.

Strong westerly flow directed two Pacific frontal systems across the Northwest Sunday night and again Monday night with generally 1 to 2 inches of water accumulating along the west slopes through early Tuesday morning. Storm snow totals varied quite a bit due to a mix of precipitation types during the storm cycle. The Snoqualmie Pass area developed more than one crust due to freezing rain and rain Monday. The Monday night system was warmer and wetter as rain reached above 6200 feet in the south Washington Cascades (Paradise) and at least briefly to 5000 feet at Stevens and Snoqualmie. In the Baker area, a rain crust of various thicknesses has been found up to about 5000 feet.

A sharp cooling trend Tuesday morning was followed by 2-5 inches of snow in post-frontal showers Tuesday. Many areas experienced a natural avalanche cycle involving either shallow, loose wet or storm slabs Monday night or early Tuesday morning. A strengthening and often supportable rain crust was confirmed Wednesday in many areas with the arrival of colder air.

## Recent Observations

The pro-patrol at Alpental on Tuesday reported that the new storm snow had layered upside down but was sandwiched between two rain crusts and generally not sensitive with crusts varying from supportable to breakable.

NPS rangers at Paradise Wednesday found strong 5 cm rain crust on all aspects travelling up to 6200 feet, with visual evidence of a crust up to 7000 feet presenting an out of control fall danger.

NWAC pro-observer Lee Lazzara was in the Mt Baker, Glacier Creek, Grouse Ridge area in the 5000 foot range Wednesday and found the December 17th PWL at 40-45 cm below the surface was not reactive. Locally moderate winds actively transported surface snow and building shallow new wind slabs on all slopes on the north half of the compass, W-N-E facing terrain.

NWAC pro-observer Dallas Glass was back out at Stevens Pass on Wednesday and found new hard wind slab on N-SE slopes. Tests of the December 17th PWL seen at 20-45 cm below the surface indicated a potential for propagation but cornice tests did not give avalanches.

NWAC pro-observer Ian Nicholson was in the Alpental Valley on Wednesday and found a 4 cm thick surface crust which made for challenging travel without crampons. The December 17th PWL at 15 cm down was not as reactive as previously giving hard extended column tests.

Several worthwhile observations are available for Wednesday via the NWAC Observations - Recent Observations tab.

**Update 1120 am Friday: Pro-observer Lee Lazzara is the Mt Herman area near Mt Baker on Friday and reporting reactive new 15 cm storm slab within new snow on steep slopes.**

## Detailed Avalanche Forecast for Saturday

A weak front will move across the Northwest Cascades late Thursday. This should cause southwest winds and a cooling trend. Snowfall should be pretty light except with 5-10 inches looking likely in the Mt Baker area. By Friday a large digging trough offshore should cause much lighter winds and but with renewed snow mainly over the south Cascades with low snow levels.

Wind slab should be the primary problem Friday. Southwest winds in the last storm cycle and for the late Thursday system make this most likely on north to southeast slopes. Watch for firmer wind transported snow mainly north to southeast slopes.

**Update 1120 am Friday: Expect reactive new storm slab within new snow on steep slopes in all 3 terrain bands in the Northwest Cascades zone.**

The latest tests of the December 17th PWL in the Cascades don't seem to indicate a regionally reactive layer. There is a lot of uncertainty regarding this layer and there still may be a lot of variability from area to area and location to location. Snow pits valid for slopes you intent to ski or ride may give some indication of the presence and reactivity of this layer. But skiing or riding on lower angle slopes is the safest bet until there is more certainty that this layer is no longer a problem. While triggering this layer seems unlikely remember that PWL's generally cause larger avalanches.

Mostly light new snow amounts and the cooling trends in the Olympics and Washington Cascades make a significant new storm slab problem seem unlikely on Friday.

The surface crust formed in some areas following the storms early this week is reported to be strong and hard enough in some areas of the west slopes to present an out of control fall danger. Avoid steep hard slopes where there will be fall consequences if you are not confident you can manage this problem by walking or using ski or boot crampons.

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## Mountain Weather Synopsis for Saturday & Sunday

A longwave trough axis is centered over the West Coast this morning. Light snow that had rotated up from the south Friday out ahead of the trough, generally produced 2-4 inches of new snow throughout the Olympics and Cascades, except locally up to 9 inches for Mt. Baker. As the trough slowly passes through

today, scattered snow showers should mostly be confined to the west slopes. Most areas will see a partial clearing trend this afternoon, except with clouds staying banked up mainly against the west slopes of the central and south Washington Cascades. Christmas Day looks mostly sunny and cold. An upper ridge will move over the PNW on Monday providing us with a dry day with fairly light winds. An incoming Pacific frontal system will spread high clouds over the area Sunday night but precipitation should hold off until Monday.

24 Hour Quantitative Precipitation ending at 4 am			Snow Level/Freezing Level in feet						
Location	Sun	Mon						Easterly	
			Day	Olympics	Northwest Cascades	Northeast Cascades	Central Cascades	South Cascades	Flow in Passes
Hurricane Ridge	lt .10	0	Saturday	1000'	500'	0'	500'	1000'	
Mt Baker Ski Area	lt .10	0	Saturday Night - Sunday Night	1000'	0'	0'	0'	500'	
Washington Pass	0	0	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.						
Stevens Pass	lt .10	0	* Note that surface snow levels are common near the passes during easterly pass flow and may result in multiple snow / freezing levels.						
Snoqualmie Pass	lt .10	0							
Mission Ridge	0	0							
Crystal Mt	lt .10	0							
Paradise	lt .10	0							
White Pass	lt .10	0							
Mt Hood Meadows	lt .10	0							
Timberline	lt .10	0							
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.									