East Slopes North - Canadian Border to Lake Chelan

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.

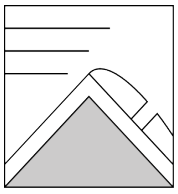
The Bottom Line: Recent or new wind slab is expected to be the main avalanche problem on Friday. But there is a lot of uncertainty regarding the December 17th PWL and skiing or riding on lower angle slopes is the safest bet until there is more certainty that this layer is no longer a problem.

Elevation	Saturday		Outlook for Sunday
Above Treeline	Moderate	Heightened avalanche conditions on specific terrain features. Evaluate snow and terrain carefully; identify problem features.	Moderate
Near Treeline	Moderate	Heightened avalanche conditions on specific terrain features. Evaluate snow and terrain carefully; identify problem features.	Moderate
Below Treeline	Moderate	Heightened avalanche conditions on specific terrain features. Evaluate snow and terrain carefully; identify problem features.	Moderate

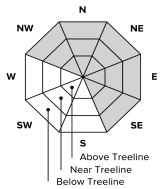
Avalanche Problems for Saturday

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.

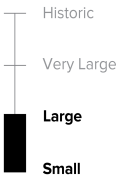


Avalanche Problem



Aspect/Elevation

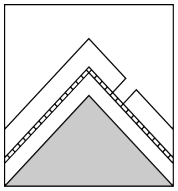
Likelihood



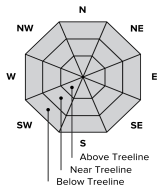
Size

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.

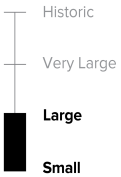


Avalanche Problem



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 Cascades. Thin sun crusts formed on steeper solar slopes during sunny periods. In many areas, these persistent grain types were buried intact December 17th or by December 18th, 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 half to 1 inch of water accumulating along the east slopes through early Tuesday morning. Storm totals generally ranged from 6 - 12 inches along the east slopes during this cycle. A brief warming trend peaked mid-morning for many east slope stations before a sharp cooling trend ensued by mid-day. A period of rain and freezing rain were likely seen at lower elevations along the east slopes prior to the sharp cooling trend Tuesday.

Westerly winds were especially strong with the 2nd system late Monday night and into Tuesday with gusty winds mixing down into usually more wind sheltered terrain. West winds at Mission Ridge gusted over 100 mph for several consecutive hours Tuesday afternoon!

Recent Observations

NWAC pro-observer Jeff Ward was in the Icicle Creek area up to about 6300 feet on Wednesday and saw evidence of a widespread natural wind slab avalanche cycle during the last storm, with one very large crown seen on a north aspect. The December 17th PWL was found at 15-30 cm below the surface on W to N to E slopes. The layer was unreactive both in large column snowpack tests, ski tests and cornice drops.

The NCMG were on Delancy Ridge Wednesday and Thursday. By Thursday they were finding moderate to hard shears at the interface of the recent storm snow and the previous or faceted surface. While wind slab was not showing signs of propagation it remains the main concern in the ATL.

A somewhat different story was reported Wednesday and Thursday by the Mission Ridge pro-patrol. On Wednesday avalanche control produced 1.5-3 foot hard slab avalanches in 3 paths. These avalanches were releasing on basal facets about 15 cm from the ground. On Thursday on W-N-E slopes at 6500 feet in snow pits they continue to find hard slab layers giving hard compression tests with moderate quality shears in facets about 15 cm from the ground with about 120 cm total snow.

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.

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.

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

Location	Sun	Mon
Hurricane Ridge	lt .10	0
Mt Baker Ski Area	lt .10	0
Washington Pass	0	0
Stevens Pass	lt .10	0
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.

Snow Level/Freezing Level in feet

Day	Olympics	Northwest Cascades	Northeast Cascades	Central Cascades	South Cascades	Easterly Flow in Passes
Saturday	1000'	500'	0'	500'	1000'	
Saturday Night - Sunday Night	1000'	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.