



East Slopes North - Canadian Border to Lake Chelan

Issued: 7:15 PM PST Wednesday, December 28, 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.

A solo skier was killed in triggered 8-10 inch x 200 yard wide slab avalanche in the back country at White Pass on Tuesday. The accident was near the pass level on a run locally called the Grand Couloir and apparently due to a terrain trap into which the victim was carried and where avalanche debris was deeper. The White Pass Ski Patrol and the NWAC will compile an accident report and make it available on the NWAC web site as soon as the report is completed.

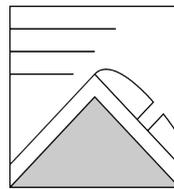
The Bottom Line: Recent or new wind and storm slab is expected on Thursday. Continue to avoid steeper slopes in areas where you still find the 12/17 PWL in snow pits or especially if you experience direct observations of this layer such as whumpfung or shooting cracks.

Elevation	Thursday		Outlook for Friday
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

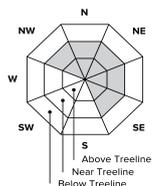
Avalanche Problems for Thursday

Wind Slab

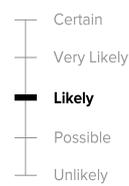
Wind slabs can take up to a week to stabilize. They are confined to lee and cross-loaded terrain features and can be avoided by sticking to sheltered or wind scoured areas.



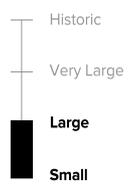
Avalanche Problem



Aspect/Elevation



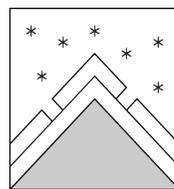
Likelihood



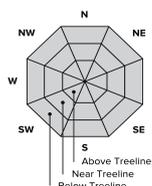
Size

Storm Slabs

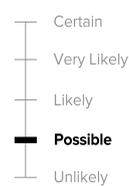
Storm slabs usually stabilize within a few days, and release at or below the trigger point. They exist throughout the terrain, and can be avoided by waiting for the storm snow to stabilize.



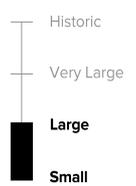
Avalanche Problem



Aspect/Elevation



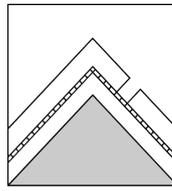
Likelihood



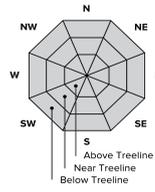
Size

Persistent Slab

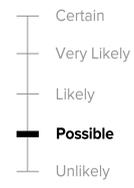
Persistent slabs can be triggered by light loads and weeks after the last storm. You can trigger them remotely and they often propagate across and beyond terrain features that would otherwise confine wind and storm slabs. Give yourself a wide safety buffer to handle the uncertainty.



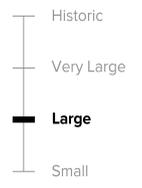
**Avalanche
Problem**



Aspect/Elevation



Likelihood



Size

Snowpack Analysis

Weather and Snowpack

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

A system Thursday and Friday 12/22-12/23 deposited about 1-5 inches of snow along the east slopes.

Scattered snow showers, sunbreaks and generally light winds summed up the weather on Saturday with fair and cold weather seen on Christmas Day and early Monday, before a strong front arrived late Monday.

A strong front and strong west flow aloft was seen over the Olympics and Cascades on Monday and Tuesday. NWAC stations along the crest had strong west winds Monday and Tuesday with .5-1 feet of new snow for the 48 hours ending Wednesday morning with a cooling trend.

Recent Observations

NWAC pro-observer Jeff Ward was in the Icicle Creek area up to about 6300 feet on Wednesday 12/21 and saw evidence of a widespread natural wind slab avalanche cycle during the Solstice storm with one very large crown seen on a north aspect. The December 17th persistent weak layer (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 on Friday and Saturday at Washington Pass had some planar hand shears in wind affected snow, but the only instability directly noted was small loose dry avalanches in steep rocky terrain. The 12/17 interface was found to be unreactive in several snowpack tests.

NWAC observer Tom Curtis was on DirtyFace Peak near Lake Wenatchee Saturday and found the 12/17 PWL 15-25 cm down, but not propagating in snowpack tests on N-E-SE aspects between 4000-5500 feet. Tom also found shallow and stubborn wind slab in the near treeline band.

On Monday the NCMG at Washington Pass reported ski tests and cornice drops did not produce avalanches. Wind slab from around the Solstice seemed stabilized. A new snow surface of near surface facets and surface hoar was noted which would have been buried by the system later Monday and Tuesday.

A report on Turns All Year for Diamond Head at Blewett Pass on Monday indicated shallow snow.

The NCMG was on Delancey Ridge on Wednesday and reported good conditions with low quality shears in the recent snow which were cleaner on sun crusts on SSW slopes.

A different story continues to evolve in the Mission Ridge area. On Wednesday avalanche mitigation produced 1.5 -3 ft hard slab avalanches in 3 separate paths! These avalanches were releasing on basal facets about 15 cm from the ground. On Thursday, snowpits on W-N-E slopes at 6500 feet continued to show hard slab layers giving hard compression test results with moderate quality shears on facets about 15 cm from the ground with about 120 cm (4 ft) of total snow. On Saturday, 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. While deep, persistent slabs in this area are unlikely to trigger it will be best to avoid avalanche terrain in the Mission Ridge area!

Detailed Avalanche Forecast for Thursday

West southwest flow aloft will carry the next front across the Northwest on Thursday afternoon and night. Winds should increase in most areas on Thursday but significant new snow during the daylight hours is expected mainly in the Olympics and northwest Cascades. A warming trend should also be seen with temperature inversions possible Thursday in the central west and southwest Cascades.

Further snow should be seen in the Washington Cascades Thursday night.

Recent and renewed west to southwest winds make wind slab most likely on northwest to southeast aspects on Thursday. Wind slab may build further anywhere there is still snow available for wind transport in wind exposed areas.

New storm slab is also most likely in the Northwest zone due to new snow and the warming trend on Thursday. Storm slab is less likely in the central west and southwest zone but lingering storm slab is possible there.

The 12/17 PWL persistent slab problem still warrants attention in the Cascades and especially in the Mission Ridge area where recent full depth avalanches have occurred. Recent and new loading may make this layer more sensitive to triggering where it is still present. 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 Thursday & Friday

Warm frontal moisture will continue to ride over flat upper level ridging that is centered over the Pacific Northwest today. This will mean continuing light rain and snow for the north Cascades and Olympics with decreasing clouds and precipitation further south. There is a large north to south snow level gradient over our region as well, with much milder temperatures expected down in Oregon. The frontal boundary will quickly sag south this evening, producing a period of moderate to heavy precipitation especially for the west slopes of the central Cascades. There will be a slight warming trend today. A shift from east to west winds should allow snow levels to bump up to 3500 feet for Snoqualmie Pass area this evening. A brief period of strong westerly winds should accompany the

frontal passage late this afternoon and evening. Showers should continue overnight in a period of NW flow, with perhaps a convergence zone forming downwind of Vancouver Island. The trailing longwave trough will swing through the area on Friday, keeping the air mass unstable enough to support scattered showers mainly along the west slopes of the Cascades. Weak ridging will flop over the area Friday night as we get a break between weather systems.

24 Hour Quantitative Precipitation ending at 4 am			Snow Level/Freezing Level in feet						
Location	Fri	Sat						Easterly	
			Day	Olympics	Northwest Cascades	Northeast Cascades	Central Cascades	South Cascades	Flow in Passes
Hurricane Ridge	.50 - .75	lt .10	Thursday Morning	3000'	1500'	1000'	2000'	7500'	*
Mt Baker Ski Area	1.00 - 1.50	lt .10	Thursday Mid-day	4500'	2500'	2000'	2500'	7500'	*
Washington Pass	.75	lt .10	Thursday Afternoon	3000'	2500'	2500'	3000'	6000'	*
Stevens Pass	1.00 - 1.50	lt .10	Thursday Evening	2000'	2000'	2000'	3500'	5500'	
Snoqualmie Pass	1.00 - 1.50	lt .10	Thursday Night - Friday	1500'	1500'	500'	1500'	2000'	
Mission Ridge	lt .25	0	Friday Night	1500'	500'	0'	500'	1500'	
Crystal Mt	lt .25	lt .10	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.						
Paradise	.50	lt .10	* Note that surface snow levels are common near the passes during easterly pass flow and may result in multiple snow / freezing levels.						
White Pass	.25 - .50	lt .10							
Mt Hood Meadows	lt .25	lt .10							
Timberline	lt .25	lt .10							
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.									