Northwest Avalanche Center

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West Slopes Central - Skagit River to South of I-90

Issued: 6:00 PM PST Sunday, December 25, 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.

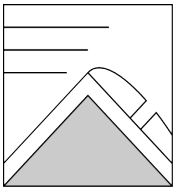
The Bottom Line: Pay attention to changing weather and avalanche conditions late in the day! New wind slab will develop near and above treeline by late Monday afternoon and may be particularly sensitive on lee slopes with an underlying crust. The avalanche danger will ramp up quickly Monday evening, so plan accordingly for deteriorating conditions.

Elevation	Monday		Outlook for Tuesday
Above Treeline	Moderate	Heightened avalanche conditions on specific terrain features. Evaluate snow and terrain carefully; identify problem features.	High
Near Treeline	Moderate	Heightened avalanche conditions on specific terrain features. Evaluate snow and terrain carefully; identify problem features.	High
Below Treeline	Low	Generally safe, watch for unstable snow on isolated terrain features.	Considerable

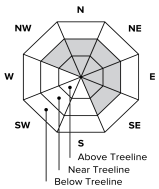
Avalanche Problems for Monday

Wind Slab

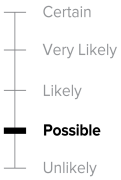
Wind slabs can take up to a week to stabilize. They are confined to lee and cross-loaded terrain features and can be avoided by sticking to sheltered or wind scoured areas.



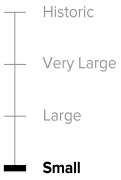
Avalanche Problem



Aspect/Elevation



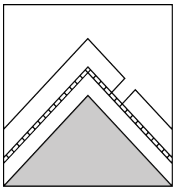
Likelihood



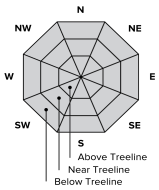
Size

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.

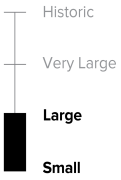


Avalanche Problem



Aspect/Elevation

Likelihood



Size

Snowpack Analysis

Weather and Snowpack

Strong westerly flow directed two Pacific frontal systems across the Northwest last Sunday night and again Monday night (12/18-12/19) with generally 1 to 2 inches of water accumulating along the west slopes through early Tuesday morning. A period of rain during this storm cycle allowed crust layers to form in the Baker area from 4000-4500 feet, the Passes up to around 5000 feet (Stevens) to 6000 feet (Snoqualmie) and 6000-7000 feet in the Paradise area. In most areas the crust is strong enough to support a skier's weight.

After a fair weather period midweek another front crossed the Northwest on Thursday followed by an upper trough on Friday with low snow levels. About 20 inches of snow accumulated at Mt. Baker over this period with about 2-8 inches accumulating elsewhere along the west slopes including the Passes.

Scattered snow showers, sunbreaks and generally light winds summed up the weather on Saturday with fair and cold weather seen on Christmas Day.

Recent Observations

Observations received over the last several days from across the west slopes of the Cascades regarding the 12/17 persistent weak layer (PWL) showed no avalanches or direct signs of deeper instability. However, the 12/17 PWL still shows some propensity for propagation in snowpack tests.

The Alpental pro-patrol on Friday and Saturday reported shallow wind slab on wind loaded areas which was poorly bonded to the crust formed last week. Elsewhere new snow was not cohesive and was sluffing on the crust. Sensitive and shallow wind slab was also reported in the Silver Basin area of Crystal Friday.

Pro-observer Ian Nicholson was at Mt. Snoqualmie Saturday morning. Ian identified shallow wind slab as his greatest potential concern on steeper wind loaded slopes where it had bonded poorly to a graupel layer overlying the uppermost crust. The 12/17 PWL was showing signs of propagation in snowpit tests, but was requiring more load and showed signs of rounding versus earlier in the week.

Dallas Glass was in the below tree-line band of the Snoqualmie Pass area on Christmas Day and observed 6" (15 cm) of weak snow poorly bonded to the crust, setting up a likely weak snow and bed surface combo heading into the upcoming storm cycle.

Crusts in the Snoqualmie Pass and Paradise area have been reported as especially stout with ski crampons helpful on steeper slopes.

Detailed Avalanche Forecast for Monday

After a benign start to Monday, an incoming frontal system will quickly spread light to moderate rain and snow over the Cascades with precipitation beginning around mid-day for the north Cascades and Monday afternoon for the south and central Cascades. Above treeline winds will quickly ramp up in the afternoon. Expect stormy conditions Monday night with increasing avalanche danger.

Fresh wind slab should begin to develop Monday afternoon near and especially above treeline. Wind slab will likely be the most sensitive in areas where it poorly bonds to an underlying crust.

Shallow storm slabs may develop in the Mt. Baker area by Monday afternoon as the storm intensifies.

The latest tests of the December 17th PWL in the Cascades don't seem to indicate a regionally reactive layer. However, since this layer is still showing the ability to propagate in snowpack tests throughout much of the range, we still advise observing the snowpack structure in your local area and skiing or riding on lower angled slopes until there is more certainty that this layer is no longer a problem. While triggering this layer seems unlikely, remember that persistent weak layers are generally involved in larger avalanches.

The surface crust formed last week is strong and hard enough in some areas of the west slopes to present an out of control fall danger. Avoid steep slopes where the slide for life hazard is present.

Mountain Weather Synopsis for Monday & Tuesday

A quiet morning in the Pacific Northwest will soon change into an active next 36 hours as a very strong westerly jet stream in the eastern North Pacific begins to carry Pacific moisture inland later Monday. Winds should increase later Monday with precipitation initiating in the Olympics and NW Washington Cascades, by late morning, spreading to the remainder of the forecast region through the day. The first wave will bring heavy snowfall at low, but slightly rising freezing levels in all the west slope areas and volcanoes overnight Monday, with light to moderate precipitation along the east slopes. Strong and moist westerly flow Tuesday and Tuesday night will maintain moderate to heavy precipitation along the west slopes and volcanic peaks with significantly less precipitation expected along the east slopes, especially further east, away from the crest. Freezing levels should remain relatively low through this event, well below pass levels.

24 Hour Quantitative Precipitation ending at 4 am

Location	Tue	Wed
Hurricane Ridge	.50	.50 - .75
Mt Baker Ski Area	1.00 - 1.50	1.00
Washington Pass	.50 - .75	.50
Stevens Pass	.75 - 1.00	1.00
Snoqualmie Pass	1.00	1.00 - 1.50
Mission Ridge	.25 - .50	.25
Crystal Mt	.75	.50 - .75
Paradise	1.50	1.50
White Pass	.75 - 1.00	1.00
Mt Hood Meadows	1.00	1.50 - 2.00
Timberline	1.00 - 1.50	2.00

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
Monday Morning	2000'	500'	500'	1000'	1500'	*
Monday Afternoon - Monday Evening	2500'	1500'	500'	1500'	2000'	*
Monday Night	3000'	2500'	1500'	2500'	3000'	*
Tuesday - Tuesday Night	2000'	2000'	1000'	2000'	2000'	

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.