Northwest Avalanche Center

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

## 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/***

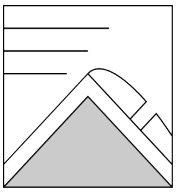
**The Bottom Line:** Lingering wind slab should be the primary avalanche problem and mainly found near and above treeline Saturday. Wind slab should be less likely to trigger throughout the Cascades but look for wind loaded slopes further downslope than usual particularly in the Mt. Baker area. Also be aware of locally weak cornices in the Alpental backcountry Saturday.

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

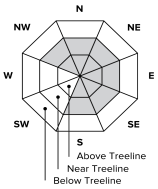
## Avalanche Problems for Saturday

### 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.

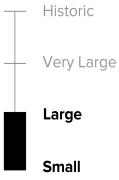


**Avalanche Problem**




**Aspect/Elevation**

**Likelihood**




**Size**

## Snowpack Analysis

**Weather and Snowpack**

Strong storms around the Solstice deposited generally 1 to 2 inches of water equivalent along the west slopes. A period of rain or freezing rain (Snoqualmie) 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. The crust(s) were especially stout in the Snoqualmie and Paradise areas and very thin in the Crystal backcountry.

A strong front and strong west flow aloft was seen over the Olympics and Cascades on Monday and Tuesday. The White Pass avalanche fatality involving a skier triggered storm slab failing on the Solstice crust occurred on Tuesday afternoon. NWAC stations along the west slopes and crest had strong west winds Monday and Tuesday with 1-3 feet of new snow for the 48 hours ending Wednesday morning with a cooling trend.

A warm front kept light snow and strong winds going through much of day in the Mt. Baker area Thursday before pushing south Thursday night. Up to 12 inches of snow fell around Mt. Baker, Stevens Pass and above 5000 feet in the Snoqualmie Pass area. Less snow was seen further at lower elevations at Snoqualmie Pass due to rain at the onset of precipitation which formed a thin breakable crust below the new storm snow. A thin rain crust was also found up to 6000 feet above Paradise Friday morning with 4" snow on top.

**Recent Observations**

NWAC pro-observer Ian Nicholson was at Stevens Pass on Wednesday and reported no signs of instability on east slopes to 5800 feet. Ian found the Solstice crust at 65-70 cm. The 12/17 PWL was strengthening and unlikely to be triggered. We are removing persistent slab from the set of avalanche problems as we have good confidence that the 12/17 PWL is not a reactive layer along the west slopes.

The rangers at Paradise reported extensive new wind slab near and above treeline Wednesday. The Solstice crust was seen at 135 cm with good bonds to the snow above.

The weather system that affected the area Thursday night generally layered new snow right side up and avalanche control results from Stevens, Alpental and Mt. Baker Friday morning only observed shallow pockets of storm slab generally in the 6-12" range. One natural avalanche likely involving the new storm snow had occurred Thursday night off the Shuskan Arm in the Baker backcountry.

However, at Alpental on Friday, newly formed cornices were weak with natural cornice fall observed in the afternoon. One cornice break in the Back Bowls of Alpental triggered a large slab up to 4' deep, 100' wide, 300' vertical, that broke down to the Solstice crust.

NWAC observer Lee Lazzara was in the Mt. Baker backcountry Friday. Lee found wind affected snow surfaces well into the below treeline band. Wind slab was stubborn on test slopes but reactive in test pits. The uneven distribution of large wind slab on varied aspects dictated more conservative terrain choices Friday.

NPS rangers at Paradise found the 4 inches of new snow well bonded near treeline with minimal wind slab concerns but observed ongoing wind transport of new snow on the upper volcano above 9000 ft.

## 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 north Cascades by late morning and spread south to the central and south Cascades in the afternoon. New snow amounts through 4 pm will generally be light to insignificant, but westerly winds, especially above treeline, are expected spike up by mid-day.

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

Newly formed cornices have been reported sensitive in the Alpental backcountry, with one cornice fall triggering a large avalanche down to the Solstice crust Friday afternoon. Give cornices a large berth as they often break back further than expected and don't travel below slopes with large overhanging cornices.

The 12/17 PWL persistent slab problem is becoming more deeply buried and less sensitive in snowpack tests and has been removed from the avalanche problem set. Continue to identify and test this layer in snowpit tests.

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## 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.