

Weekly Review: January 19 - 25, 2012

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Weather

The week started with the end phase of the first arctic outbreak of the season as a warm, wet, windy storm ushered in a return to a zonal (westerly) flow containing a series of systems.

The initial storm that started pushing out the polar airmass was strongest on the South Coast and southern interior mountains. The North Coast also got a decent hit but inland areas in the north and northern Columbias were less affected. This storm was accompanied by above freezing layers (AFLs) and inversions (warmer air at upper elevations), which resulted in some high elevation rain and low elevation freezing rain in the South Coast and Cascades as well as very southern interior. Eventually the airmass reverted back to a more normal temperature profile and a cooling trend following passage of the cold front late Saturday/ Sunday.

The next system of the zonal flow arrived Monday/Tuesday and once again raising freezing levels, provided a slug of precipitation, and was accompanied by a decent wind event in most areas. Again, the coastal mountains and southern interior were more in the bulls-eye although central and northern areas saw a decent dose of snow. As is common in a zonal flow, this second storm was short-lived and was followed by a cooling and clearing trend Wednesday.

Snowpack

Persistent weak layers (PWLs) remain an issue in the Purcells (mid-December interface and basal facet layers in shallow areas) and the Kootenay-Boundary where the mid-December layer is less deeply buried and has had less overlying weight on it than in other areas. While dormant in the K-B, I think this layer can't be written off here yet. It needs a bit more weight and time to see if it will die out completely or stay as a low-probability/high-consequence problem for a while.

In other areas of the province, the mid-December and basal weaknesses are essentially no longer an issue. That said, it remains on the radar in select locations where it was a significant problem earlier in the winter—the central Selkirks and northern Monashees in particular come to mind, where folks are saying they're not seeing any reactivity but are still thinking about it in certain terrain (shallow or variable snowpack areas especially where combined with steep, convex, and unsupported features).

The January 19/20 surface that got covered up by the first warm storm consists of cold, dry, loose settled storm snow, perhaps with some faceted grains mixed in. I personally think the faceting is not as well developed as many people thought because, while the temperature gradients in the surface layers were significant, faceting is slower at colder temperatures and the gradients just weren't there for very long in most cases. This is a fairly thick layer and all things being equal, it's my experience that thick layers tend not to be as reactive and don't persist as long as thinner ones. The first storm definitely produced instability on this layer as warm, dense, and often windloaded snow was laid over the colder, lighter stuff below but things righted themselves, settled, and bonded up fairly quickly in most places. By the time the second storm arrived, the lack of reactivity at this level was a bit of a surprise to many.

As the week closed out, storm and windslab instabilities on the January 19/20 layer looks like it's dying out quite quickly and concerns are shifting to new wind/storm instabilities or deeper layers such as the mid-January surface (a crust in many places sometimes with surface hoar or faceting). I understand the concern about potential stepdown from storm or windslabs to Jan 13th or other post-Christmas deeper layers or perhaps even stress concentrating there as upper layers settle and bond, but in my opinion it's a long shot that some of these might reactivate—and if they do, I think stepdown is the most likely scenario.

Avalanche Activity

Avalanche activity consisted almost entirely windslab and storm snow problems for the majority of the period, especially in the latter stages. I'm calling avalanches on the January 19/20 layer storm or windslab problems—I personally don't think that layer will persist and even if it does, the first round on this layer has been entirely related to the storm and windloading.

Even in places with PWL concerns, non-persistent problems dominated the picture. That said, as is to be expected, there were a few large, deep avalanches in the far south that sound like they might be the mid-December layer at play.

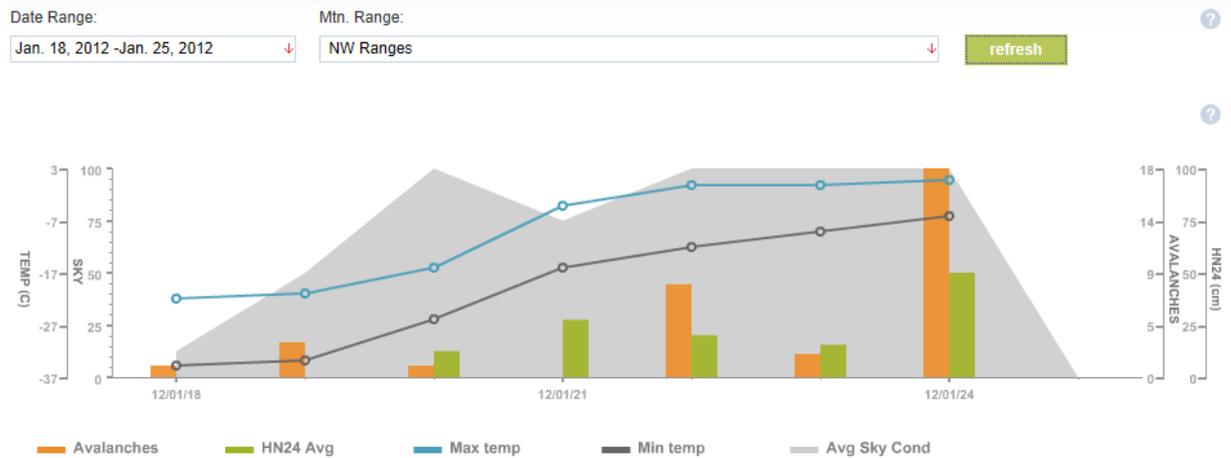
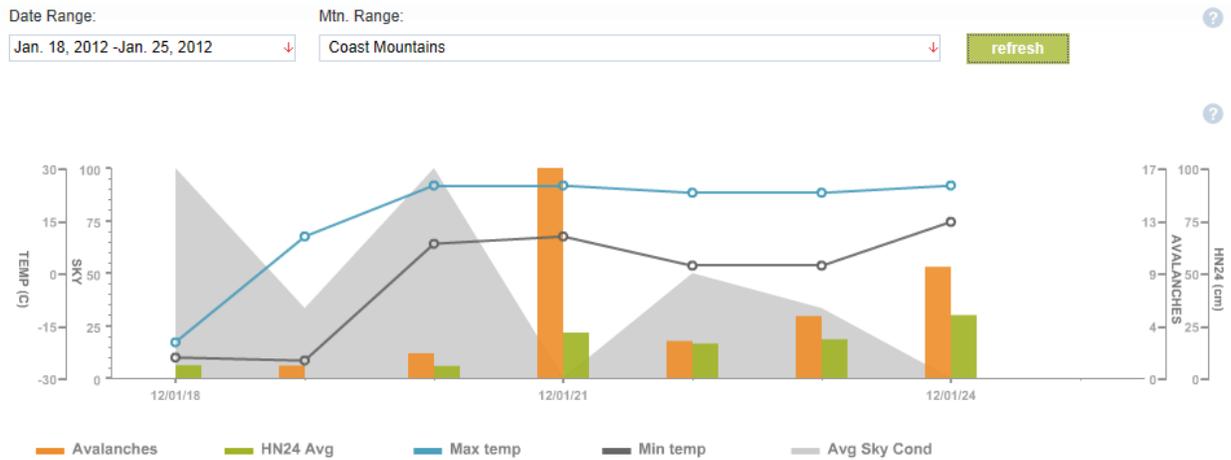
Incidents

A notable incident involving a full burial occurred in the Northwest Coastal region. You can view a [report in the incident database](#).

A number of close calls involving partial burials and surprises were reported in various locations as the first warm, wet, windy storm loaded new snow on top of the January 19/20 layer.

Graphical Overview

Ignore the Coast Mountains temperature graph, there's an error in the data there. I'd view all the temperature data with a grain of salt.



Date Range:

Mtn. Range:

Jan. 18, 2012 -Jan. 25, 2012

All Columbia Ranges

refresh

