

Pacific Northwest Weather and Avalanche Synopsis - 2008-09

The 2008-09 winter season as a whole in the Pacific Northwest can be characterized as a play with a prologue followed by three dramatically different acts:

Prologue- The MUCH- The LITTLE- The MUCH MORE!

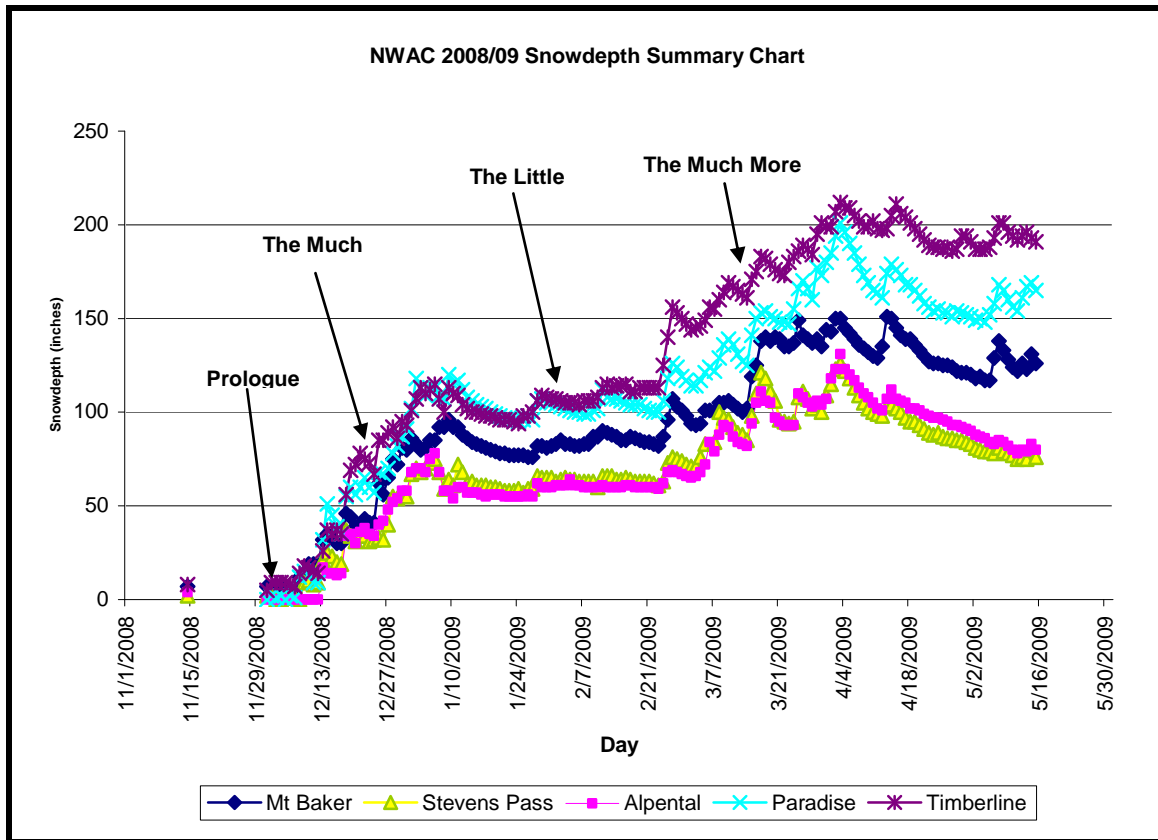


Figure 1. Pacific Northwest Snow depths for 2008-09

The Prologue- The play begins like many that have come before. Underfunded, but snow begins to accumulate in early November anyway as winter enthusiasts hopefully anticipate yet another big season! Mt Hood accumulates 30 inches of snow by November 5th. But Wait! This avalanche opera is set in the Pacific Northwest where the stage can quickly change. Indeed it did on November 12th when some 3 to 6 inches of water arrived in a day, ruining all those carefully arranged sets. Many stage hands abandoned the project and it took another month before the production could begin again.

The MUCH- On December 12th the freezing levels plummeted and snows began to blanket the stage in earnest. By Christmas, Mt Baker in the north Washington Cascades had received 100 inches of new snow and at Mt Hood in the northern Oregon Cascades over 140 inches had fallen! Freezing levels remained extremely low through this period with multiple snowfalls covering Seattle in a deep white, a rarity in these parts. Most ski

areas opened around the 13th or 14th of December with epic deep cold snow. However, with the difficult travel conditions and copious snow in town, many folks could not or did not venture to the mountains.

The very cold temperatures through late December not only deposited lots of low density snow but weakened and faceted the pre-existing shallow but slowly increasing snowpack, as well as the November rain crust basal layer. The deep unconsolidated snowpack that had developed by late December set the stage for the inevitable soprano's entrance. She was big, heavy and loud! Once she started in there was no letting up. Between Christmas and the 6th of January most areas received an additional 7 to 8 feet of snow at warmer but still relatively cold temperatures by Northwest standards.

As "she" was set to come onstage the warnings went out. We warned folks of the dangerous developments that were on the way and many heeded the warnings. Despite the warnings, on December 28th Washington recorded its first avalanche fatality when a snowmobiler was buried and killed after triggering a large slide near Hart's Pass in the North Cascades. The group was untrained in avalanche safety but not unknowing of the dangers they were in. It seems they had a plan to accommodate the conditions but failed to stick by it. After leaving the safety of the lower angled and treed terrain after not seeing any signs of instability, the group of four snowmobilers decided to test the steeper slopes above tree line and on a loaded northeast-facing slope. Besides abandoning the safer terrain, they were all riding on the slope at the same time when it released. Numerous other close calls were reported in the same area that weekend.

Brunhilde was singing loudly now! Those new to the NW avalanche opera scene may have thought that was as loud as she goes. Well, they were truly initiated when she came out for her first encore! Freezing levels climbed to over 8,000 feet on January 7th. Between the 6th and 8th of January most areas had received 6 to 8 inches of water with Snoqualmie Pass recording over 11 inches over those two days! Many folks at that time decided they really couldn't understand the hype about the opera thing. Some were sorry for trying, quickly returning to the steady drone of familiar low-land sounds. Those that stuck it out witnessed some massive activity, including a true ground failure and full-depth mixed mud, rock and slush slide that took out several lifts at the base of the Hyak Ski Area at Snoqualmie Pass, forcing the area to remain closed the entire season. The big rain produced the biggest reactions of the season and in some cases 20 to 30 seasons! The rain crust left behind from this event remained a benchmark in the snowpack the remainder of the season.

A few of the many log entries:

- highway closures—I-90, SR542, US12, US2—due to avalanches, mudslides, slush/debris flows etc.
- large avalanche from Excelsior (second slide of the series) punched through timber and deposited 20 feet of debris on state highway 542, then turned and ran down the road.
- confirmed first hand slide in Wenatchee Bowl near Stevens Pass ski area from storm. W aspect 5600' Slide went to just above ground on old firm layer from

Nov. Failed on facets above that ~25cm above gnd. Avg crown 7 ft. max 8 ft. class 4.

- Varden ridge in the northern Washington Cascades went R5 to the ground, Crown at West summit of Silver Star - looks close to 3m, #14 was at treeline and was 180cm deep!

Following the “big sing”, *Brunhilde* left a few morsels of snow as things cooled, then the big dame left the stage well before her frenzied fans were satisfied. In typical diva fashion she kept them waiting...and waiting!

The LITTLE- The willing left in attendance were unsatisfied by the basically unsuitable conditions for enjoyment in the backcountry as deep wet snow gradually refroze and turned into a death crust. Not all those that decided to stick it out until the concluding chorus would make it however. A big ridge had raised the freezing level bar to above 13,000 feet in mid January in the midst of two full weeks of dry weather. Another rarity in these parts! Following the ridge, a strong split flow developed in the eastern Pacific. The persistent pattern directed storms towards California into late February, most completely missing their usual mark on the region. The combined snowfall totals for January and February equaled about what was received the last three weeks of December. The story that had begun with some real promise had become quite dull. The spectators had become restless, calling out for the slumbering *Brunhilde* to return to the stage. A glimpse of her was caught in the wings the last few days of February. She appeared in full, the word spread and soon the throngs were clambering to the hills once again.

The MUCH MORE! - Aria after aria rang through the mountains...the final act had begun. March proved to be the biggest month of the season. Freezing levels averaged about 2500 feet with snowfall amounts averaging about 140 inches along the Cascade west slopes for the month of March. The second fatality in the NW occurred during this stormy period in the Wallowa Mountains of NE Oregon, outside the forecast area of NWAC. A party of three skiers was caught, two totally buried, one partially. One recovered alive, one not. A warming event around March 18 to 20 produced a big cycle, especially in the Mt Baker area producing some rather impressive slides. Another log entry tells the basic story.

- Crown on Shuksan Arm is 3-4' up to 8' x ½ mile, all knobs released, mostly filled valley with debris up to ½ mile below. Yesterday afternoon north side of Herman slid 4-8' x 400 yards. Pit today at Austin Pass 2-3' storm snow over 4" F snow over hard rain crust from last week.



Figure 2. Shuksan Arm, near Mt Baker WA, 3-20-09, photo, Lief Hazelet

Cool showery weather prevailed through much of April with most areas reaching their peak snow depths in early April. Strong cold upper trough passages in early May deposited some 3 to 6 feet additional snowfall, producing a secondary maximum in snow depths and requiring several special statements to cover the warming and sunshine that followed these storm cycles. The final act appears to be winding down now in mid May as freezing levels should reach their highest levels of the spring at around 14,000 feet. If the models are right, this will carry us into the off season awaiting next season's unfolding dramas in the Pacific Northwest.

Kenny Kramer, NWAC forecaster and amateur opera enthusiast