

Harts Pass Avalanche Accident—12-28-2008

Preliminary Report

Time: 28 December 2008 (Search teams responded at approximately 1600 hrs PST)

Location: NE flank of Tatie Peak, near Harts Pass, northern Washington Cascades

Activity: Snowmobiling

Caught: 1

Buried: 1 completely buried

Injured: 0

Killed: 1

Preliminary Summary: prepared by Larry Goldie, North Cascades Heli Ski Guide.

On December 28, 2008, four snowmobilers from Colville came to ride near Harts Pass. They ranged in age from 25 to approximately 60 years old. None of the riders had any avalanche training, though “they knew the danger was extreme”. They were carrying avalanche rescue gear.

After leaving the Harts pass area, they rode over to the NE side of Tatie peak. They spent most of the day riding in the trees below 6300 ft. Later in the day after not seeing any signs of avalanche activity, they decided to ride up higher onto some open slopes below some steep cliffs at the top of the bowl.

When they began to highmark the slope, they went up slightly staggered, but were on the slope all at once. The 3rd highest rider saw the slope break, turned down and rode out into the trees. The fourth rider (it’s unclear whether he was aware of the avalanche taking place) stayed on the throttle and continued to head uphill.

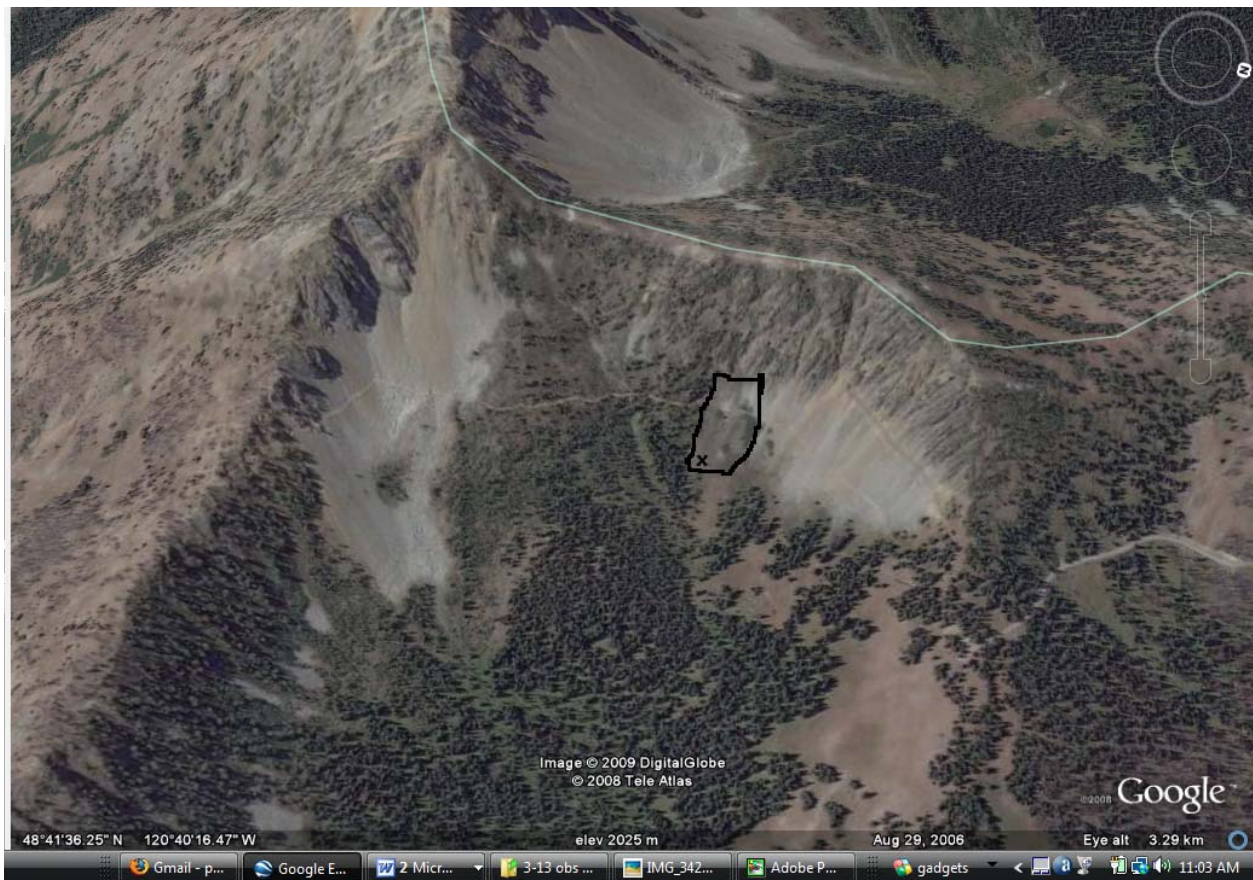
When the avalanche stopped, the fourth rider was missing and the remaining 3 riders began a beacon search. They reported having the victim located approx 1 meter deep in 12 – 15 minutes. The victim was unresponsive. They began CPR and sent someone out for help.

The slope was NE facing, 6500-6300 ft elevation. It was a talus slope that measured 38 degrees at the fracture line. The crown was just below some steep cliffs 2-3 feet in depth and approx 400 feet across. The failure layer appears to have been facets on the Melt freeze crust at the ground. The size of the slide is estimated as SS-AM-D2-R1.

Also of note is in a separate incident nearby, earlier in the day, another snowmobiler triggered and was caught in a slide. He wound up on the surface, though his machine was buried. He had previous avalanche training and with his group, thought they could manage the hazard.

Ancillary Information:

A Google Earth map of the approximate accident location is shown below:



Avalanche forecasts:

The forecast issued by the NWAC for the preceding day and for the day of the accident are given below. While the avalanche warnings issued and noted below were confined to the Olympics and areas near and west of the Cascade crest, a high avalanche danger was forecast for the Harts Pass area above 5 to 6000 feet (as the snowmobilers were aware), with the avalanche apparently involving faceted snow near the base of the snowpack.

Forecast issued on 12-27-08

BACKCOUNTRY AVALANCHE FORECAST FOR THE OLYMPICS WASHINGTON
CASCADES AND MT HOOD AREA
NORTHWEST WEATHER AND AVALANCHE CENTER SEATTLE WASHINGTON
9 AM PST SAT DEC 27 2008

This forecast applies to back country avalanche terrain below 7000 feet and does not apply to highways or operating ski areas.

WAZ513-518-519-019-042-501-502-ORZ011-281700-

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ZONE AVALANCHE FORECASTS

* OLYMPICS—

...AVALANCHE WARNING FOR SATURDAY AND SUNDAY...

Saturday morning: significantly increasing danger, becoming high above 4000 feet and considerable below Saturday afternoon: slightly decreasing danger Saturday night and Sunday: further increasing danger, becoming high below 7000 feet Sunday night: high danger continuing below 7000 feet

* WASHINGTON CASCADES NEAR AND WEST OF THE CREST NORTH OF STEVENS PASS-

* CASCADE PASSES NORTH OF STEVENS PASS—

...AVALANCHE WARNING FOR SATURDAY AND SUNDAY...

Saturday morning: significantly increasing danger, becoming high above 3 to 4000 feet and considerable below

Saturday afternoon: slightly decreasing danger

Saturday night and Sunday morning: further increasing danger, becoming high below 7000 feet

Sunday afternoon and night: high danger slightly decreasing in the south, but little change expected in the north.

* MT HOOD AREA—

* WASHINGTON CASCADES NEAR AND WEST OF THE CREST FROM STEVENS PASS SOUTHWARD-

* CASCADE PASSES FROM STEVENS PASS SOUTHWARD—

...AVALANCHE WARNING FOR SATURDAY THROUGH SUNDAY MORNING...

Saturday morning: significantly increasing danger, becoming high above 3 to 4000 feet and considerable below

Saturday afternoon: slightly decreasing danger

Saturday night and Sunday morning: further increasing danger, becoming high below 7000 feet

Sunday afternoon and night: slightly decreasing avalanche danger

* EAST SLOPES WASHINGTON CASCADES—

Saturday morning: significantly increasing danger, becoming high above 5 to 6000 feet and considerable below

Saturday afternoon and night: slightly decreasing danger

Saturday night and Sunday morning: further slowly increasing danger, becoming high above 5 to 6000 feet and considerable below

Sunday afternoon and night: high danger above 5 to 6000 feet slightly decreasing in the south, but little change expected in the north

SNOWPACK ANALYSIS

Increasingly heavy snowfall was received in most areas overnight along with increasing winds and slow warming. This has begun the transition toward a much more unstable snowpack as increasing accumulations of more cohesive snow layers are deposited over a variety of current snowpack weaknesses. The relatively shallow and very delicate snowpack...which may be the weakest snow structure at this time of the winter in the past 10-20 seasons ...includes previous

low density snow received last week, buried surface hoar and increasingly faceted snow, especially near or just above the ground. Many field reports of wading or wallowing in the snow at or near the ground when one steps off packed trails seem to corroborate this assessment. Prior to this most recent snow late Friday through early Saturday, the only positive aspects of the current snowpack in terms of BC avalanche danger were the relatively lack of cohesion in the near surface snow and the still relatively shallow depth that was still allowing for some vegetation and terrain anchoring of the snowpack below about 4 to 5000 feet. However, with the arrival of the increasing amounts of more dense surface snow layers early Saturday, even these positive aspects are rapidly disappearing.

The most recently developing wind slabs and more cohesive snow layers are being deposited over some pre-existing 6 to 18 inch soft slabs developed by intermittent moderate winds during the past week. These lee slopes were predominantly northeast to southeast exposures near higher ridges and west facing slopes near the passes. Field reports received late Friday from the Hurricane Ridge area in the Olympics indicate that several skier triggered soft slabs were released, some running an estimated 800 vertical. A variety of natural, explosive and human triggered slides have also been reported including:

- * small natural and explosive triggered slides releasing near Snoqualmie Pass overnight and early Saturday

- * avalanche control at Mt Hood Meadows on Friday releasing slabs from 3 to 5 ft deep on north and northeast exposures

Suffice it to say that weak layers within our still relatively shallow snowpack are many and very significant and it is poised for a rapid and dramatic increase in the danger when loaded by heavier and more normal Cascade snowfalls.

In order to start putting the daily impact of these persistent weak layers of facets and surface hoar behind us, we need substantial loading by heavy dense snow, high winds and/or rain. Although this kind of weather is underway, the current magnitude of frailty that our snowpack embodies may take many such storms to build a strengthening bridge over these buried weaknesses...and even then these flimsy layers may re-emerge as problems next spring. In short, this weekend and especially Saturday may be an excellent time to risk your health away from the mountains by shoveling driveways and cars, exchanging gifts at the mall, or trying out new high-tech lowland gear.

DETAILED FORECASTS

SATURDAY MORNING

Increasingly heavy snowfall, significant warming and strong winds spreading to most areas late Friday should continue Saturday morning, along with further brief warming and continued strong winds. This should produce increasingly dense snow or briefly change it to rain or freezing rain at lower elevations and near the Cascade passes. Such weather should deposit potentially large accumulations of increasingly cohesive snow over a variety of buried weak layers, including very weak near surface snow, previous soft slabs, buried surface hoar and substantially weak and faceted snow within the lower part of the existing snowpack. As a result, a significant increase in the danger is well underway, with a high avalanche danger developing on most steeper avalanche terrain. Natural or human triggered soft slabs should become increasingly likely on wind loaded terrain late Friday night and Saturday morning, with shooting cracks, whumpfung and remote triggering probable in many locations, especially on northeast and east exposures near higher

ridges and west exposures near the Cascade passes. A generally shallower snowpack along the Cascade east slopes should combine with less expected snowfall to produce a slightly lower danger; however, the snowpack structure is similar and quite fragile and although vegetation and terrain anchoring should help limit the danger increase at lower elevations, a very unstable snowpack should develop at higher elevations near the crest.

Initially, most slide activity should involve only the most recently received wind transported snow releasing on very low density snow received Wednesday and Thursday. However, as warming and loading increase the stress on more deeply buried weak layers should also ramp up, and slides beginning in near surface weaknesses may start to trigger deeper slide releases with some larger slabs possibly reaching very weak faceted snow near or just above the ground. As a result, back country travel in avalanche terrain is not recommended and travelers should confine travel to more gentle terrain well away from avalanche path runouts.

SATURDAY AFTERNOON

While gradually lowering freezing levels are likely, moderate to heavy snow showers and moderate winds should limit any decrease in the danger. Hence, considerable to high avalanche danger should generally persist, greatest on wind loaded southeast to northeast aspects at all elevations. This weather should also continue the potential for some large slide releases that could involve all of this winter's snowpack. With this weather it should be prudent to confine travel within developed ski areas where active avalanche control significantly limits avalanche potential.

SATURDAY NIGHT, SUNDAY AND SUNDAY NIGHT

Strong winds and moderate to occasionally heavy snow or snow showers should spread northward overnight and Sunday morning. Along with a slight warming trend, this should help to maintain or increase the existing danger. As a result, back country travel in steeper wind loaded terrain is still not recommended, especially on leeward slopes showing no evidence of recent avalanche activity. Although briefly decreasing showers Sunday afternoon in the south should allow for a slight decrease in the danger, increasing snowfall and increasing winds spreading southward late Sunday should produce another increase in the danger, mainly in the north.

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Moore/Northwest Weather and Avalanche Center

Forecast issued on 12-28-08

BACKCOUNTRY AVALANCHE FORECAST FOR THE OLYMPICS WASHINGTON
CASCADES AND MT HOOD AREA
NORTHWEST WEATHER AND AVALANCHE CENTER SEATTLE WASHINGTON
900 AM PST SUN DEC 28 2008

This forecast applies to back country avalanche terrain below 7000 feet and does not apply to highways or operating ski areas.

WAZ513-518-519-019-042-501-502-ORZ011-291700-

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ZONE AVALANCHE FORECASTS

* OLYMPICS—

...AVALANCHE WARNING FOR SUNDAY AND MONDAY...

Sunday and Sunday night: High avalanche danger above 4000 feet and considerable below, slowly decreasing overnight. Monday: Increasing high avalanche danger above 3-4000 feet and considerable below. Monday night: Slowly decreasing high avalanche danger above 4 to 5000 feet and considerable below.

* WASHINGTON CASCADES NEAR AND WEST OF THE CREST- CASCADE PASSES—

...AVALANCHE WARNING FOR SUNDAY AND MONDAY...

Sunday and Sunday night: High avalanche danger above 4000 feet and considerable below, slowly decreasing overnight. Monday: Increasing high avalanche danger above 3-4000 feet and considerable below. Monday night: Slowly decreasing high avalanche danger above 4 to 5000 feet and considerable below.

* EAST SLOPES WASHINGTON CASCADES—

Sunday: High avalanche danger above 5 to 6000 feet and considerable below.

Sunday night: High danger above 5 to 6000 feet and considerable below but slightly decreasing.

Monday and Monday night: Increasing high avalanche danger above 5000 feet and considerable below, slowly decreasing overnight.

* MT HOOD AREA

...AVALANCHE WARNING FOR SUNDAY AND MONDAY...

Sunday and Sunday night: High avalanche danger above 5000 feet and considerable below, slowly decreasing overnight. Monday: Increasing high avalanche danger above 4-5000 feet and considerable below.

Monday night: Slowly decreasing high avalanche danger above 5000 feet and considerable below.

SNOWPACK ANALYSIS

Additional heavy amounts of new snow have accumulated at warmer temperatures and strong winds. New snow amounts have ranged from 10-20 inches along the west slope areas of the Cascades, Olympics and Mt Hood area at higher elevations. Significantly warmer temperatures occurred Saturday with the heavy loading changing snow to rain in the central Cascades to near 4000 feet and above 5000 feet at Mt Hood. Above 4000 feet in Cascades and Olympics and 5000 ft in the Mt Hood area, this has created increasing amounts of dense snow deposited over a very weak underlying snowpack. These unusually unstable snow pack conditions have caused a generally high avalanche danger, especially above 4000 feet. Backcountry travel in avalanche terrain is not recommended until the snowpack has stabilized.

Significant cooling is occurring early Sunday and has allowed previous wet snow to begin refreezing and forming a crust under the most recent snow at lower elevations, mainly below

4000 feet. At these lower elevations, this has caused a brief decrease in danger; however the continued moderate to heavy snowfall early Sunday should continue to stress the weak underlying layers.

Strong winds and continued heavy amounts of recent snow over the past few days continue to stress and overburden a very weak underlying snowpack structure. The cold weather from mid December until recently has recrystallized and faceted much of the snowpack above the ground, especially in areas where strong winds in late December scoured much of the low density surface snow that was easily available for winds transport.

There have been numerous avalanches reported over the past few days from natural, human or explosive triggers. Some natural slides have released down to the ground or near ground on the weak basal snow.

The lack of trip reports on the Turns-All-Year website is a good thing, hopefully meaning that even anxious backcountry travelers are heeding the warnings and awaiting safer conditions. Though with continued strong storms expected that may yet be a bit longer.

DETAILED FORECASTS

SUNDAY AND SUNDAY NIGHT

Strong winds and moderate to heavy snow showers are expected Sunday at cooling temperatures. While cooling should allow for refreezing and strengthening of the snowpack below 4000 feet, a continued high danger is expected in avalanche terrain above 4000 feet Sunday. Decreasing winds and snow showers overnight Sunday should allow for a slow decrease in danger. Less recent snow and a shallower snowpack east of the Cascade crest is maintaining slightly lower danger along the east slopes.

MONDAY AND MONDAY NIGHT

Increasing winds and increasing moderate to heavy snow Monday morning should again cause an increasing danger. The significant amounts of dense new snow should continue to overload and burden weak underlying snow. This should cause a high danger in most areas and backcountry travel in avalanche terrain is not recommended Monday. Slightly decreasing snow showers and winds overnight should allow for a slight decrease in danger.

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Kramer/Northwest Weather and Avalanche Center