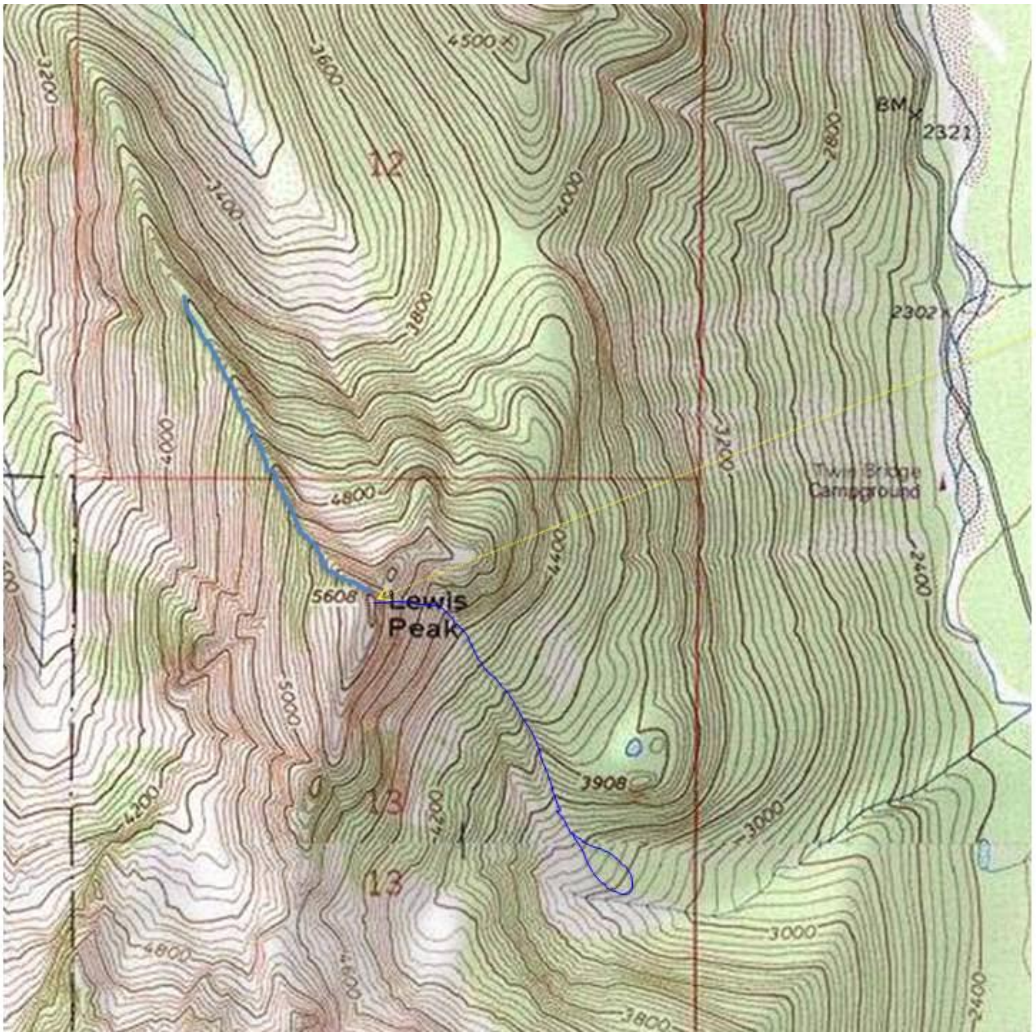
Lewis Peak Avalanche Accident off of Mountain Loop Highway, north central WA Cascades 1-18-14
Accident information and images provided by Oyvind Henningsen, Everett Mountain Rescue
Report prepared by Dennis D'Amico, NWAC and Dave Creeden (member of climbing party)

Report Updated 2-06-14: On 2-05-14, the 3 people listed above sat down at the NWAC office and reconciled different ideas regarding this accident. Many thanks to Oyvind and Dave for collaborating their thoughts, maps and pictures and their commitment to setting the record as straight as possible given the information available. **Revisions:** The summit has been labeled on many of the photos to better illustrate where the accident occurred. Also, it is believed that the climber stepped across a small wind lip along the ridgeline onto the other side of the ridge, onto what the climber thought was a stable platform. While the other climber did not see the accident, a sharp crack was heard as the cornice broke off.

- Everett Mountain Rescue was involved in the search and recovery for one person on Lewis Peak
- The accident occurred approximately 12:15 pm on Saturday 1-18-14
- Party of 2 climbers with 1 person involved in the accident and 1 fatality
- SAR was notified Saturday evening, made first contact with the victim early on the 19th and removed the victim later in the afternoon
- Victim triggered a cornice failure which subsequently triggered a loose wet avalanche roughly 500' below cliff bands (AC, WL)
- Avalanche was on the ESE side of Lewis Peak
- Avalanche size estimated D3/R3 (based on vegetation clues)
- Estimated that the upper snow in the start zone was moist, that the slide began at the top of avalanche path and that the avalanche stopped in the top part of the runout zone. The avalanche path extends another 1000’ vertical from where the slide arrested.
- Bed surface unknown in start zone
- Victim travelled about 2450’ vertical, came to rest about 200’ away from the toe, 80' higher than the toe (on topo) and was partially buried
- Everett Mtn SAR reported evidence of small natural wet-loose activity and ongoing snow shedding on steep southerly aspects of specific terrain features during the recovery Sunday

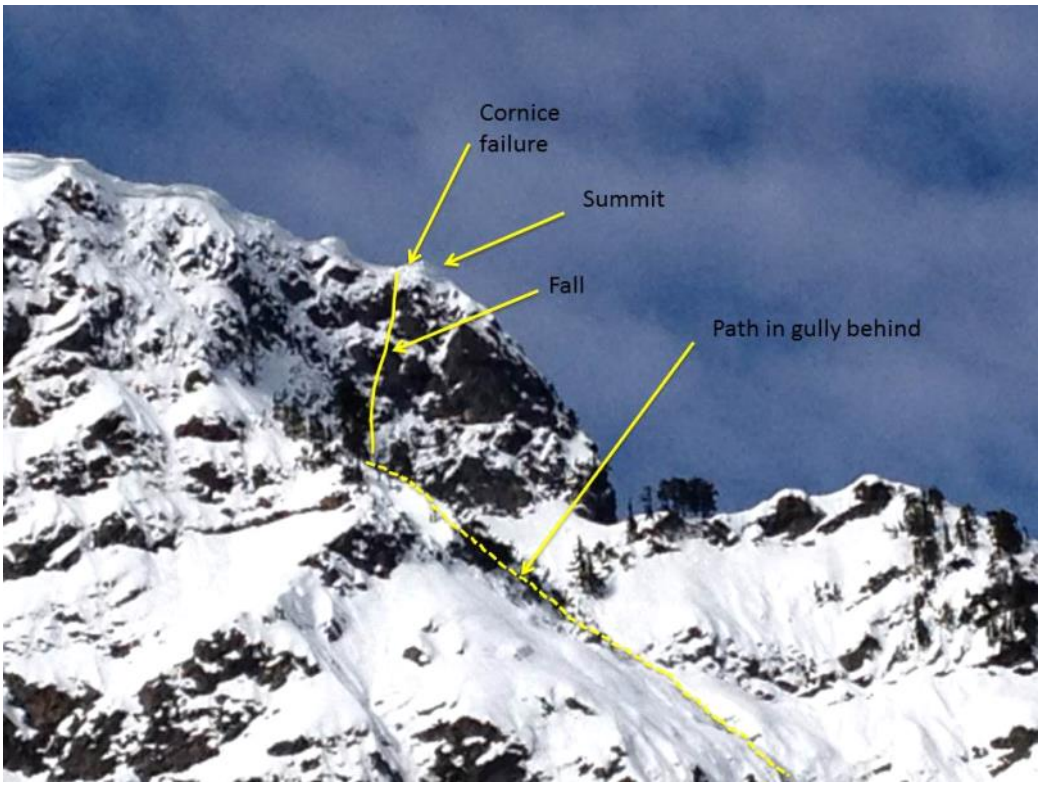
Comments from NWAC: Several days had passed since the last storm cycle and increasingly warm temperatures and freezing levels were seen toward the end of the work week. Temperatures on Saturday were 5-10 degrees cooler than Friday with moderate SW winds and some high clouds. No new storm or wind slab avalanches had been reported since the end of the storm cycle, and little in the way of natural wet-loose activity had been reported since the middle of the week. NWAC Pro-observer Dallas Glass reported very moist snow in the top 50-60 cm on solar aspects on Friday near Stevens Pass. Across the Cascades, widespread cornice growth was not reported following the most recent storm cycle, but from the photos provided, cornice growth on Lewis Peak was locally larger. The night before the accident there was likely a healthy re-freeze of the upper snowpack, as was reported throughout the west slopes of the Cascades despite the warm temperatures. The forecast that was in effect during the accident is attached at the end of the report.

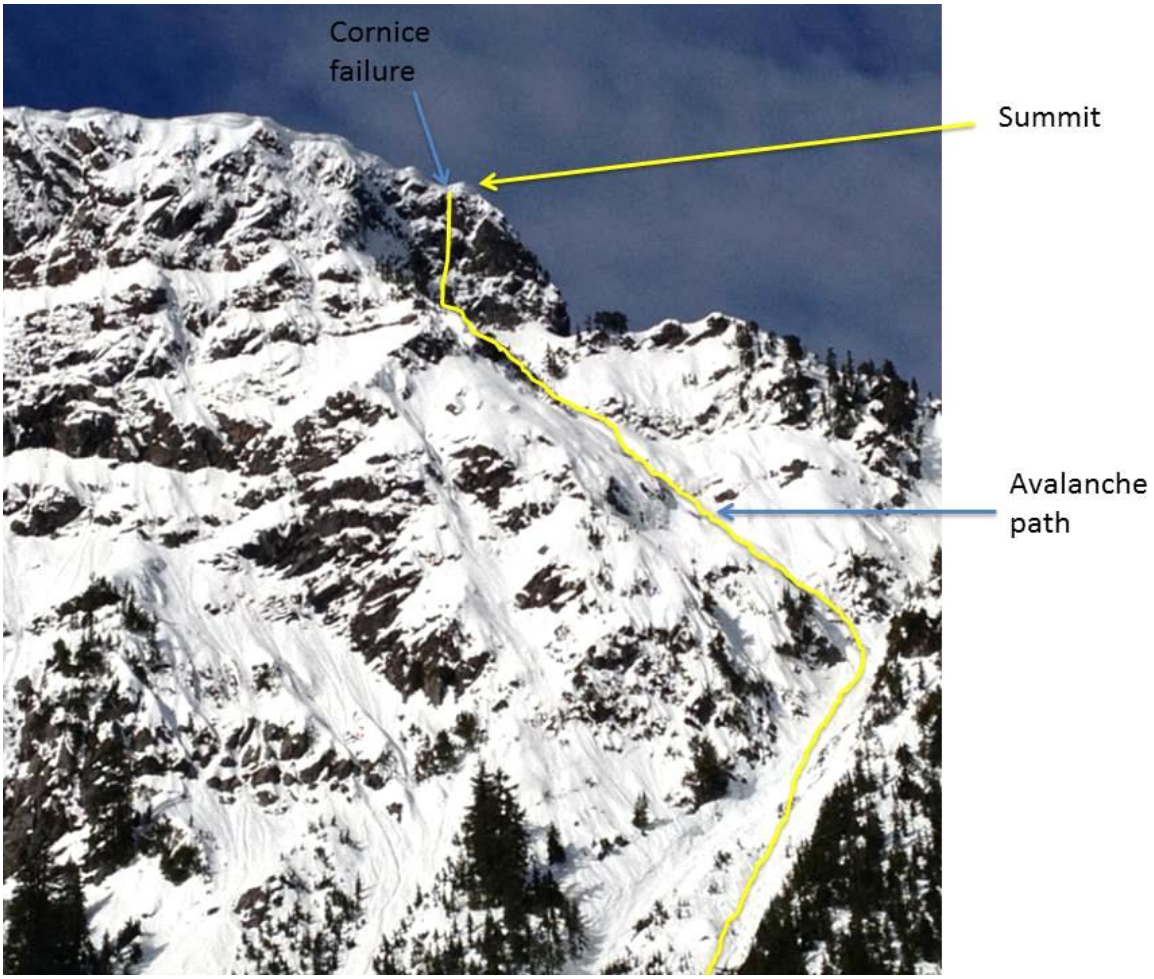


ascent

cornice failure

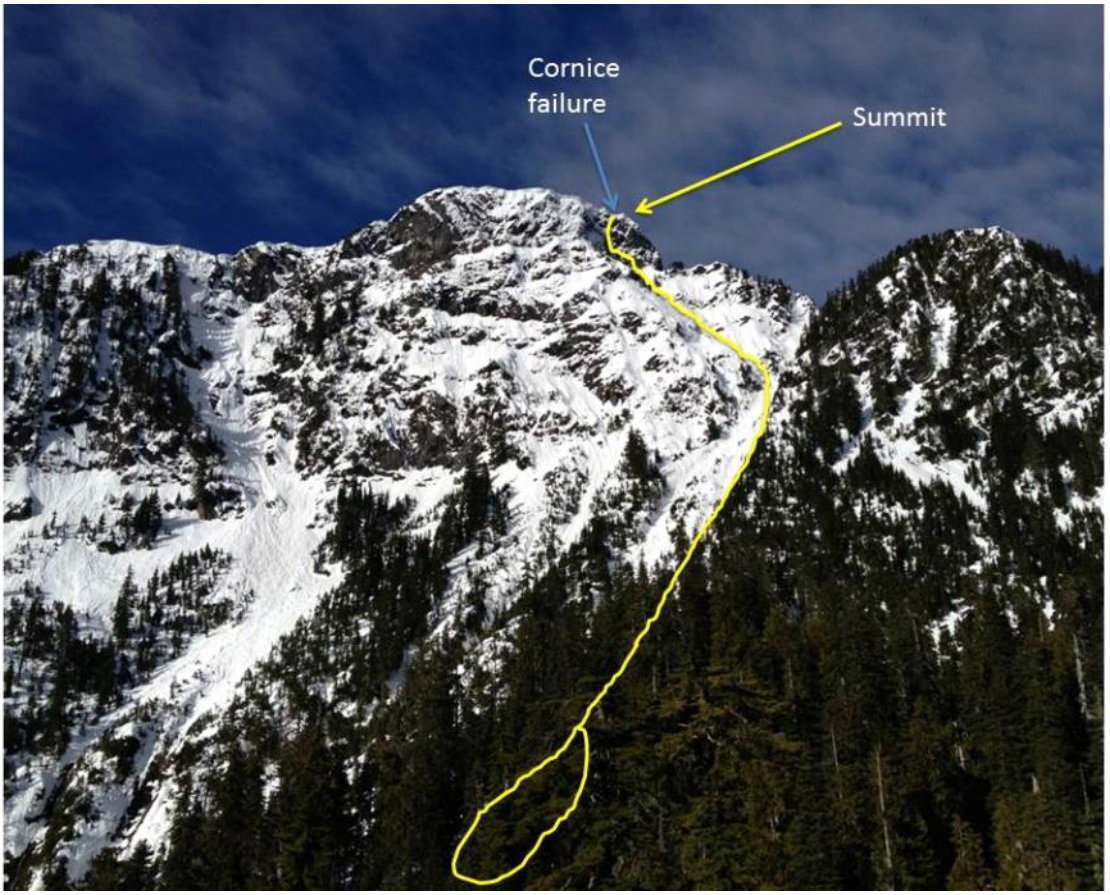
avalanche path




Cornice
failure
Summit
Avalanche
path


Debris pile
Approx 40ft wide x 15-20ft deep


Looking up gully


Cornice
failure
Summit

WA Cascades near and west of crest - north of Stevens Pass

Issued: 6:04 PM Friday, January 17, 2014 by 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.

NWAC Avalanche Forecast in effect for Sat, 1-18-14

Detailed Forecast for Saturday:

Solar influences will once again drive the main avalanche danger on Saturday, however, varying amounts of cloud cover, increasing southwest winds in the afternoon and temperatures 5 or more degrees cooler than Friday should help keep the risk relatively lower on Saturday.

Watch for a poor re-freeze Friday night as sign of greater than expected potential for wet-loose avalanches. Be aware of quickly softening surface snow in the late morning on solar aspects. Natural pin-wheels or sinking in more than ankle deep means it is time to get off that slope and out of the way of steeper southerly slopes and avoid terrain traps.

Continue to approach wind loaded slopes with caution, isolated wind slab may linger on N thru SE aspects near and above treeline zones.

Snowpack Analysis:

The most recent storm cycle to impact the PNW ended Tuesday after lasting for nearly a week with 2 - 4 feet (60 - 120 cm) of snow for the west slopes. A fair amount of westerly wind accompanied the event from Friday through Monday and redistributed new snow onto lee slopes. The tail end of the storm cycle from Sunday afternoon through early Tuesday was accompanied by a warming trend that brought rain to mid elevations. The main avalanche activity with this cycle occurred last Sunday with large to very large D2 to

D3 natural avalanches reported throughout the west slopes with start zones mainly in the near and above tree-line zones on wind loaded aspects. Natural avalanches released within the storm snow with isolated but larger slides up to 5' were produced by local ski patrols with explosives down to older crusts.

Tuesday through Friday featured increasing temperatures and sunshine. The warmer and drier weather has allowed for snowpack settlement of about 6-12+ inches since late Sunday. The new storm snow is generally well-bonded. On higher terrain surfaces vary from dense powder on wind and sun sheltered aspects...to chalky wind board on lee slopes...to sun crusts on solar aspects. Due to the low angle this time of year the somewhat supportable rain crust at low and mid elevations on non-solar aspects remains firm during the day.

NWAC observer Tom Curtis on Wednesday from Jove Peak reported a sudden collapse and a clean shear in a compression test on an east aspect near-treeline. However, this layer did not propagate in an Extended Column Test but suggests there may still be some touchy but increasingly isolated wind slab on lee slopes.

Photo by NWAC observer Tom Curtis on Jove Peak at 5400 ft

The warm and sunny weather activated solar aspects with large wet-loose avalanches reported Tuesday and Wednesday that ran into the below tree-line zone in the Stevens Pass area.

Photo from the Smithbrook area near Stevens on Tuesday by NWAC observer Dallas Glass and a short video of the wet loose slides: http://www.youtube.com/channel/UCXKN3Cu9rnnkukkiUUgjzFQ (http://www.youtube.com/channel/UCXKN3Cu9rnnkukkiUUgjzFQ)

Despite temperatures Friday morning out of the inversion well above freezing most areas reported a healthy re-freeze from radiational cooling. Day-time highs were around 5 F warmer than Thursday but coupled with the low angle mid-Jan sun little wet-loose activity was reported Thursday or Friday on solar aspects. Natural wet loose releases reported near Hurricane Ridge on solar aspects were all D1 or less. A low sun angle and cooler temperatures have diminished the possibility of loose-wet releases on solar aspects below tree-line.

For the Olympics and west slopes of the Cascades a generally favorable mid and lower snowpack exists and is expected to consist of crust layers and melt form crystals. The avalanche danger is locally lower in the Olympics where the snowpack on windward and solar aspects near and below tree-line has less snow and ample terrain anchors.

Local non-avalanche hazard at Snoqualmie: In the Snoqualmie area on Monday, along with rain, a riming event produced a stout, supportable and extremely slick ice crust from about 4500 ft to the Alpental ridgetops above 5500 ft. This crust should break down over time but a slip on this surface would result in a long and dangerous ride!

The Bottom Line: Watch for wet-loose slides once again on solar aspects.

Elevation	Saturday	Sunday
 Above Treeline	 **Moderate** Heightened avalanche conditions on specific terrain features. Evaluate snow and terrain carefully; identify features of concern.	
 Near Treeline	 **Moderate** Heightened avalanche conditions on specific terrain features. Evaluate snow and terrain carefully; identify features of concern.	
 Below Treeline	 **Low** Generally safe, watch for unstable snow on isolated terrain features.	

Danger Scale

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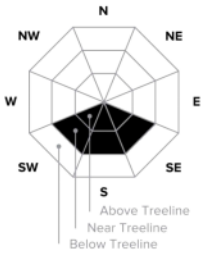
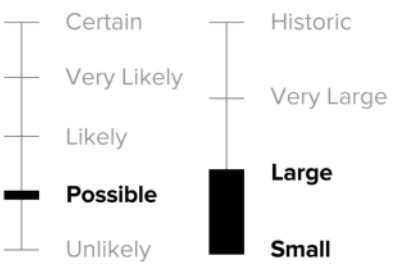
Avalanche Concerns

Loose Wet

Loose wet avalanches occur where water is running through the snowpack, and release at or below the trigger point. Avoid terrain traps such as cliffs, gullies, or tree wells. Exit avalanche terrain when you see pinwheels, roller balls, a slushy surface, or during rain-on-snow events.

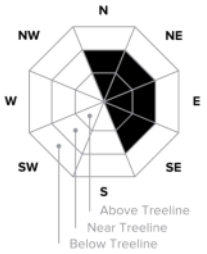


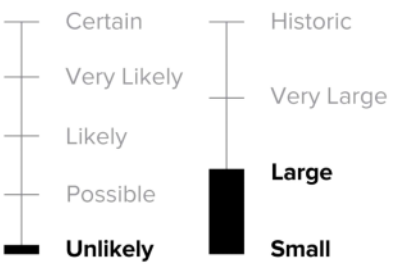


Avalanche Concern	Aspect/Elevation	Likelihood	Size

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 Concern	Aspect/Elevation	Likelihood	Size

Northwest Avalanche Center
Tye Mill Chair (5180'), Skyline Chair (5250')
Stevens Pass Ski Area, Washington

Wind gages unheated and may rime
Prec. gage not heating

MM/DD	Hour PST	Temp F 5180'	Temp F 5250'	Wind Avg 5180'	Wind Max 5180'	Wind Dir 5180'	Hour Prec. 5250'	Total Prec. 5250'	Total Snow 5250'
1 19	400	38	38	3	12	268	0	0	78
1 19	300	39	39	9	27	239	0	0	78
1 19	200	40	39	4	17	242	0	0	78
1 19	100	39	40	6	13	260	0	0	78
1 19	0	41	39	2	10	239	0	0	78
1 18	2300	41	40	1	6	223	0	0	78
1 18	2200	40	38	0	9	217	0	0	77
1 18	2100	41	39	5	20	251	0	0	78
1 18	2000	40	39	1	12	240	0	0	78
1 18	1900	39	34	5	11	312	0	0	78
1 18	1800	38	36	8	16	290	0	0	78
1 18	1700	39	36	13	22	266	0	0	78
1 18	1600	40	39	8	21	271	0	0	78
1 18	1500	43	41	5	16	280	0	0	78
1 18	1400	46	45	8	21	261	0	0	78
1 18	1300	49	48	5	16	266	0	0	78
1 18	1200	51	53	1	11	70	0	0	76
1 18	1100	47	46	1	5	88	0	0	77
1 18	1000	42	43	1	7	91	0	0	78
1 18	900	39	43	4	9	71	0	0	78
1 18	800	35	41	6	9	58	0	0	78
1 18	700	36	40	3	7	69	0	0	79
1 18	600	36	39	4	6	65	0	0	78
1 18	500	37	40	6	10	51	0	0	78

This is the nearest NWAC weather station to the accident site. I chose to include the upper Steven Pass sites that were above the temperature inversion and easterly flow seen at pass level and likely better reflected the above freezing temperatures seen near the summit of Lewis Peak at the time of the accident.