

Red Mountain Avalanche Fatality

April 11th, 2017

NWAC Report by Dennis D'Amico and Jeremy Allyn

Incident snapshot

Occurrence Time and Date: 1026 am on April 11, 2017

Lat/Lon: 47.45426, -121.39259

Location: Red Mountain, Commonwealth Basin, King Co., Mt Baker-Snoqualmie NF, WA State

Number in Party: 1 solo skier

Number Caught: 1

Number Partially Buried, Not-Critical: 1 (*not-critical means the head was exposed*)

Number Killed: 1

Avalanche type: Soft Slab (Wind)

Trigger: Unknown (likely human trigger)

Size: R1/D2 (estimated)

Start Zone Aspect: WSW

Start Zone Angle: 38-40 deg average (estimated)

Start Zone Elevation: 5037 feet

Height of Crown Face: 4 inches (average) to 12 inches (maximum)

Width of Fracture: Unknown

Vertical Fall: 400 feet

Vertical Fall of Party: 243 feet

Slab Characteristics: Decomposing/Fragmented Particles, Unknown Hardness and Grain Size

Weak Layer Characteristics: Unknown Grain Hardness, Type and Size

Bed Surface Characteristics: Pencil Hardness, Rain Crust

Burial involved a terrain trap: Trees

Avalanche occurred during: Ascent

Location of group in relation to start zone during avalanche (estimated): High

Avalanche Safety Gear Carried: avalanche transceiver, shovel, probe

Avalanche Training and Experience: Avalanche Level 1 and 2 training. 10 years of backcountry experience. Ski and Avalanche Course Instructor.

Cause of Death (from Medical Examiner's report): Blunt force trauma to the head and trunk with possible compressional asphyxiation.

NWAC Forecast Zone: Snoqualmie Pass

Avalanche Danger Rating (near tree-line): Moderate

NWAC extends special thanks to Seattle Mountain Rescue (SMR), Ski Patrol Rescue Team (SPART), and the King County Sheriff's Office for their assistance with this incident report.

Weather

On April 8th, a thin rain crust (1-2 cm) thick formed on the snow surface well up and into the near treeline elevation band in the Snoqualmie Pass area.

Subsequent light snow overnight and into the morning of April 9th deposited 6 inches of storm snow at the top of Alpental (5400 ft) with 0.26 inches water equivalent (WE) at Alpental Base (3100 ft), along with a cooling trend and diminishing WSW winds.

Observations in the general Snoqualmie Pass area on the morning of April 9th noted limited wind affects near treeline, variable but generally good bonds to the April 8th crust, and very strong solar inputs on sunny aspects by mid-morning.

On April 10th, increasing W-SW winds were recorded by area weather stations. The Alpental summit wind direction was unreliable during this time, so the prevailing wind direction was reconstructed using other stations and forecast data. On the 10th, winds peaked during the afternoon and late evening hours with sustained winds around 20 mph and with 30-50 mph gusts before winds subsided after midnight. On the 10th, another 5" of snow was measured at the top of Alpental (5400 ft) with 0.16 inches WE at the Alpental base station (3100 ft). Less snow was measured at the mid station and almost no snow was recorded at the base. The Alpental summit site was likely wind affected, somewhat inflating new storm totals. The new snow fell with a slight cooling trend as temperatures dipped into the lower 20s near treeline overnight.

Skies cleared during the morning of April 11th with winds further diminishing and switching to Easterlies by mid-morning. By noon, temperatures at 5470 feet climbed to above 32F, and to 46F at 3100 feet. The corresponding Alpental weather graph has been included at the end of this report.

Avalanche and Snowpack Observations

No natural slab avalanches had been observed in the Snoqualmie Pass area that day (or in the days prior) and few, if any, trees were present in the vicinity of the start zone that could have released snow thereby triggering the slope. Wind slabs were noted to be very isolated and stubborn to trigger in the days prior.

The GPS data, elevation, aspect, slope angle and slope configuration all support the likelihood that Miller triggered an isolated pocket of fresh wind slab that had formed overnight. Strong winds from the previous evening would have loaded the upper elevation W-SW aspects of Red Mtn.

Once near treeline, intense solar radiation and a strong warming trend likely weakened bonds to the underlying April 8th rain crust and rapidly undermining stability. Field observations from the preceding days indicated that surface conditions on all solar aspects were breaking down quickly and significantly by mid-late morning. NWAC Professional Observers were noting that slope angles that pushed 40 deg and the presence of the April 8th crust were two key factors in the capability for slopes to produce either loose wet or wind slab avalanches.

Given the darkness on scene, SMR was not able to observe the total width of fracture with confidence. They did note that the crown appeared to have propagated beyond the small, slightly convex, terrain feature they observed and that it extended further to the south. Estimated avalanche classification: SS-ASu-R1-D1.5-O.

Unfortunately, due to time constraints, deteriorating weather and increasing avalanche danger, NWAC staff was unable to conduct a fracture line profile in the days following 4/11.

Accident and Rescue Summary

At approximately 720 am on April 11, 2017, 36 year-old Morgan Miller left his car at the Summit West Ski Area Parking Lot at Snoqualmie Pass intent on climbing and skiing the West Face of Red Mountain, a prominent, pyramidal peak at the head of Commonwealth Creek, approximately 3.5 miles from Washington State I-90. He had made a trip plan and was tracking his route via GAIA GPS on an iPhone 5s. This data logged successfully and NWAC has been provided the track with full trip statistics: distance, moving time, speed, and elevations. Given his objective, Miller left his dog in his car, notifying friends of his plan and a proposed return time. He was reported to have obligations in the town of Redmond (60 min away from Snoqualmie Pass) at 230 pm.

Notably, one other party was on Red Mt (a solo snowshoer) during the morning of April 11th. The snowshoer's route deviated from the standard West Face by taking the NW Ridge to the summit. Given their terrain choice and trip timing, there is no guarantee the two would have seen each other. In an online statement, the snowshoer reported not seeing any up or down tracks other than his own on the upper slopes of Red Mt that morning.

As verified by Miller's GPS time and elevation data, the avalanche was triggered at 1026 am on a SW aspect at 5037 feet. (See topo map below)

Seattle Mountain Rescue (SMR) received their initial call-out at 523 pm. A party of two SMR personnel deployed on skis at 700 pm and made it quickly to the lower SW slopes of Red Mt by following the same standard winter approach route up Commonwealth Creek that Miller had used. A thin debris field was observed around 4600 feet, as well as a series of surface clues (ski strap, one ski). Initially a beacon signal was acquired, but then subsequently lost by both SAR members, suggesting Miller's beacon might have damaged or was malfunctioning. Searching uphill of the surface clues, Miller was located at 900 pm, at 4780 feet, uphill of a tree and primarily on the surface

of shallow avalanche debris. One ski and one ski pole were strapped to his backpack and he had one boot crampon on. His ice axe was not found and reported missing.

Both these findings support the conclusion that he was ascending on foot when the avalanche occurred. He was not wearing a helmet and was assessed on scene as having died of traumatic injury. Vertical fall between his high point and where he was found was 243 feet. The lower section of this slope is lightly treed and characterized by the transition between the “near treeline” and “above treeline” NWAC forecast elevation bands.

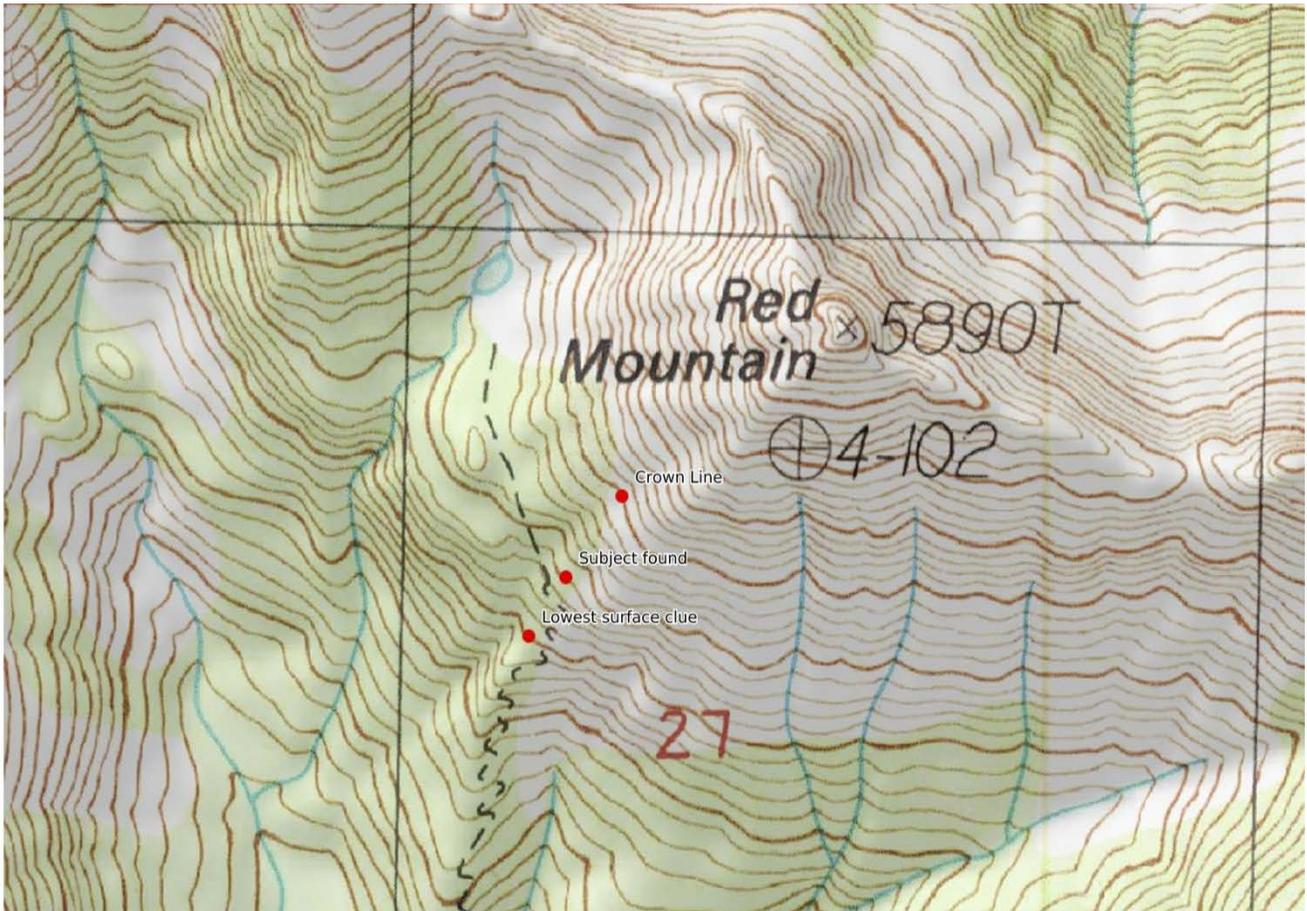
Once further personnel arrived on scene, SMR personnel located the avalanche crown at around 1200 am. No surface clues were noted in the vicinity of the crown or bed surface. Accounting for slight inaccuracies in GPS units, the crown elevation SMR noted was almost exactly the same as the high point which was logged by Miller’s GAIA GPS. This data further supports our conclusion that Miller likely triggered the avalanche versus it occurring naturally.

Comments from NWAC Professional Observer, Jeremy Allyn

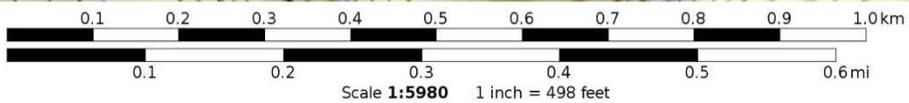
This weather and snowpack structure presents a very typical challenge for backcountry recreationists during the spring transition; quick and cool wintry storms bookended by periods of strong warming and sun. Timing and slope aspect are critical factors to consider in managing avalanche terrain during these periods. When new snowfall is accompanied by strong winds, instability can rise very quickly before surface layers have a chance to settle and stabilize. Solar exposure will rapidly undermine snowpack instability.

This incident highlights the increased risk and often thin margin for error associated with solo travel in avalanche terrain. By definition this was a small slab avalanche. Unfortunately, it serves to illustrate that even small avalanches can be deadly when terrain traps such as trees, cliffs or gullies are present. Miller was a skilled climber and backcountry skier which further illustrates how difficult it can be to stop a fall on steep terrain when pushed by even a small avalanche, especially when a hard bed surface is present. The fact that he was wearing crampons indicates he was taking steps to increase his security while ascending and that he was penetrating through new snow to the April 8th crust. SMR reported foot penetration while on the avalanche bed surface as generally supportable on the April 8th rain crust. Surface conditions had already begun to refreeze while they were in field, but SMR observations indicated that the surface had been previously weakened by daytime warming and sun affects with variable foot penetration in moist snow grains to 45-50 cm while they were on scene.

Red Mountain has a long history of accidents and near misses and presents significant avalanche risk in a variety of snowpack conditions, especially in the above scenario. The April 13, 2013 multi-party incident and avalanche death of Joy Yu, as well as the death of Monica Johnson in a February 1, 2011 cornice collapse both serve to further illustrate the wide variety of risks associated with Red Mt. Both these incident reports can be found here: <http://www.nwac.us/accidents/accident-reports/>



Mercator Projection
 WGS84
 USNG Zone 10TFT
 CalTopo.com



© 2016 Google
 Image Landsat / Copernicus

Google Earth

1998

Imagery Date: 6/8/2015 47°27'14.48" N 121°23'33.05" W elev 5036 ft eye alt 5660 ft

Avalanche Crown Face



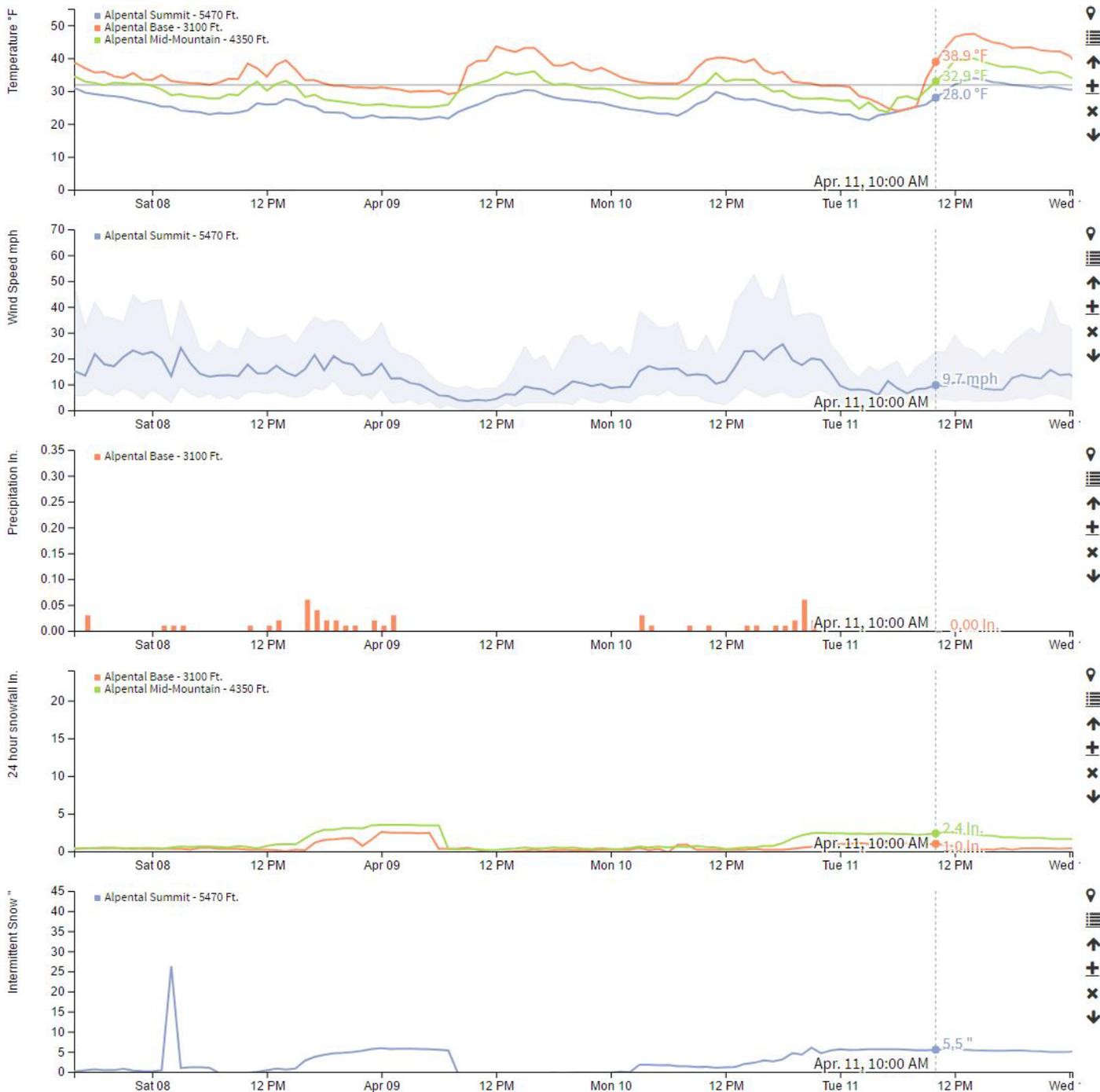
Photo by Seattle Mountain Rescue 4-11-17, taken during recovery efforts

Weather Stations List — Alpental

Legacy Graphs

[Click here to bookmark your custom graph](#)

Save Graph



All NWAC weather data is in PST



Snoqualmie Pass

Issued: 6:18 PM PST Monday, April 10, 2017 by Garth Ferber

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.

The NWAC will issue daily mountain weather and avalanche forecasts through Saturday, April 15th. Mountain weather and avalanche forecasts will be issued during the spring transition April 20-22nd and April 27-29th. Weekend outlooks will be issued Thursdays, May 4th, 11th, 18th and 25th.

Special advisories, watches and warnings will be issued throughout the spring for unusual or dangerous avalanche conditions. You can find out what constitutes a special advisory, watch or warning [here](#).

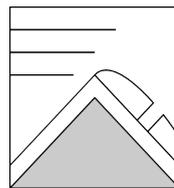
The Bottom Line: Watch for recent and new wind slabs on lee slopes in steep terrain mainly above treeline. Sun breaks can quickly create loose wet avalanche conditions on steep solar slopes. Give cornices a wide safety margin.

Elevation	Tuesday		Outlook for Wednesday
 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.	 Considerable
 Below Treeline	 Moderate	Heightened avalanche conditions on specific terrain features. Evaluate snow and terrain carefully; identify problem features.	 Moderate

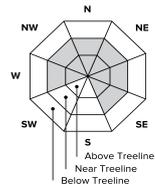
Avalanche Problems for Tuesday

Wind Slab

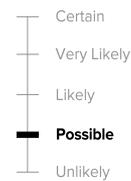
Wind slabs can take up to a week to stabilize. They are confined to lee and cross-loaded terrain features and can be avoided by sticking to sheltered or wind scoured areas.



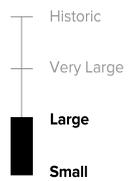
Avalanche Problem



Aspect/Elevation



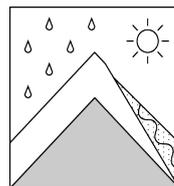
Likelihood



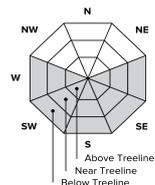
Size

Loose Wet

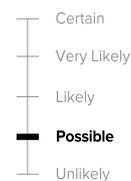
Loose wet avalanches occur where water is running through the snowpack, and release at or below the trigger point. Avoid terrain traps such as cliffs, gullies, or tree wells. Exit avalanche terrain when you see pinwheels, roller balls, a slushy surface, or during rain-on-snow events.



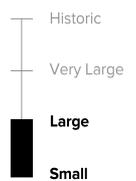
Avalanche Problem



Aspect/Elevation



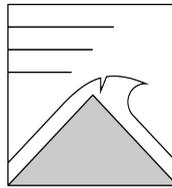
Likelihood



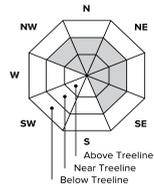
Size

Cornices

Cornices are easy to identify and are confined to lee and cross-loaded ridges, sub-ridges, and sharp convexities. They are easiest to trigger during periods of rapid growth (new snow and wind), rapid warming, and during rain-on-snow events. Cornices often catch people by surprise when they break farther back onto flatter areas than expected.



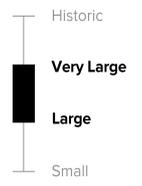
**Avalanche
Problem**



Aspect/Elevation



Likelihood



Size

Snowpack Analysis

Weather and Snowpack

Heavy rain in mid March has left behind a well consolidated old snowpack with one or more strong melt freeze crusts in the upper snowpack.

A series of strong spring storms was seen last week. For the 4 days ending Saturday morning the Mt Baker area received over 5 inches of water equivalent. Most or all of this fell as snow near and above treeline.

A low pressure system moved north along the coast on Friday. About 4-9 inches of snow were seen at some NWAC stations near and west of the crest. Very strong winds built large wind slabs and fresh cornices during sustained SE-SW winds averaging over 35 mph with gusts over 80 mph! These winds were so strong that wind slabs were less widespread and formed lower on leeward slopes than typical.

A calmer, cooler pattern was seen Saturday and Sunday with about 3-7 inches of snow each day at a few locations near and west of the crest and light amounts of new snow otherwise. A period of fair weather and sunshine or filtered sun Sunday allowed for more consolidation and some surface snow melt on all but steep shaded slopes in higher terrain.

A front and upper trough is crossing the Northwest on Sunday night and Monday. This will cause moderate southwest to west alpine winds and up to a few inches of snow to higher elevations at further cool temperatures. This may build some fresh wind slab above treeline.

Recent Observations

North

NWAC's Lee Lazzara traveled to the Hidden Lakes Peak area in the North Cascades Sunday, 4/9. Recent storm snow ranged from about 1 foot near treeline to about 2 feet above treeline. Recent wind slabs were noted as well as some fresh wind transported snow on many cross loaded features. Storm snow remained cold and dry on steeper shaded terrain at higher elevations. Wind slabs appeared to require a bit more settling time before venturing into steeper committed terrain. Solar affects caused many natural small loose wet avalanches on steep solar slopes.

Central

The Alpental pro-patrol in a pit on the upper mountain reported alternating layers of stable crusts and wet snow in the upper snow pack on Friday. Below about 3500 feet, the snowpack was characterized by deep layers of large grains of wet snow.

A report via the NWAC Observations page for Friday indicated easily triggered, loose wet avalanches on Tonga Ridge west of Stevens Pass on Friday.

NWAC's Jerney Allyn was in the Alpental Valley, Sunday 4/9. Recent storm snow of about 6-8 inches was hanging in there on shaded terrain, over a very strong crust. On all but the steep shaded terrain at high elevations, shallow surface snow became wet and cohesive by midday as solar affects took hold. There was no evidence of wind slabs in this terrain, but no observations were made in true above treeline zones. Less storm snow and lighter winds have been the rule in the passes, however, so wind slabs are less likely in these zones.

South

NWAC's Matt Schonwald was in the Cement Basin area near Crystal Mountain on Sunday. North slopes had about 25-30 cm of F snow well bonded to an underlying crust, with shallower recent snow on other aspects. Warming was helping settle recent snow but was creating loose wet surface snow on W facing slopes.

Detailed Avalanche Forecast for Tuesday

A relative break between systems should be seen most of Tuesday. Clouds should increase and SE winds should begin to pick up mainly in the south Cascades as the next system approaches from the south in the afternoon. Rain or snow from this system should spread north over the Olympics and Cascades on Tuesday night.

Watch for recent and new wind slab mainly on NW-SE slopes above treeline. Keep an eye out for firmer wind transported snow that is a sign of wind slab.

The sun will be out or there will at least be solar effects on Tuesday and loose wet avalanches will be emphasized on solar slopes. But watch for surface wet snow deeper than few inches on all aspects. Initial rollerballs or small natural releases signal a developing loose wet avalanche danger. Initial small loose wet slides may entrain snow in steeper sun exposed terrain and cause large loose wet avalanches.

Recent cornices are very large and resulting slab avalanches are dangerous and unpredictable. Five people were tragically killed by a cornice release in BC on Saturday. Give cornices a wide berth if traveling along ridge-lines and avoid slopes below large cornices. See a blog post regarding cornices [here](#).

Mountain Weather Synopsis for Tuesday & Wednesday

Following a beautiful spring morning, high clouds have spread from south to north across the forecast area ahead of the next approaching low pressure system to the SW. A developing surface low pressure system has formed off the northern CA coast Tuesday afternoon. This low pressure system is expected to lift northward just offshore of the PNW overnight to be along the central WA coast early Wednesday morning. This disturbance will be moving northward under southerly flow aloft. This will cause some rise in freezing levels through Wednesday morning. Frontal moisture will rotate across the area overnight and early

Wednesday bring a period of light to moderate precipitation. Increasing southeast winds at crest level, ahead of the approaching disturbance, are already being seen in the Cascades, reflected by the increased winds at the top of the Crystal Mountain Tuesday morning. High clouds should increase from the south through the afternoon Tuesday as the low offshore works northward. Precipitation and increasing winds should begin over the Mt Hood area by late Tuesday afternoon or evening then quickly spread northward across the forecast area overnight Tuesday. Precipitation will be favored over the volcanoes with less along the Cascade crest due to southerly flow aloft running parallel to the crest. The frontal precipitation should lift north of the area by midday Wednesday with a period of diminishing showers Wednesday afternoon. Another disturbance should lift across the area Wednesday night with the stronger portion moving inland across northern CA. A broad upper trough over the area later Wednesday along with another frontal passage should renew precipitation across the area late Wednesday and Wednesday night. Again, this disturbance should move from south to north and favor the volcanoes.

24 Hour Quantitative Precipitation ending at 4 am			Snow Level/Freezing Level in feet						
Location	Wed	Thu	Day	Northwest Olympics	Northeast Cascades	Central Cascades	South Cascades	Easterly Flow in Passes	
Hurricane Ridge	lt .10	.25 - .50							Tuesday Afternoon
Mt Baker Ski Area	lt .10	.75	Tuesday Night - Wednesday Morning	4500'	4500'	3500'	4500'	5500'	*
Washington Pass	lt .25	.25 - .50	Wednesday Afternoon	5000'	5000'	5000'	5500'	6000'	
Stevens Pass	lt .25	.25 - .50	Wednesday Night	3500'	3500'	3500'	3500'	3500'	*
Snoqualmie Pass	lt .25	.25 - .50	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.						
Mission Ridge	lt .25	.50	* Note that surface snow levels are common near the passes during easterly pass flow and may result in multiple snow / freezing levels.						
Crystal Mt	.25 - .50	.75							
Paradise	.50	.75 - 1.00							
White Pass	.25 - .50	.50							
Mt Hood Meadows	.25 - .50	.75							
Timberline	.50	.75							
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.									



**American Avalanche Association
Forest Service National Avalanche Center
Avalanche Incident Report: Short Form**



Occurrence Date (YYYYMMDD): 20170411 and Time (HHMM): 1026 Comments: Please see the full NWAC incident report on our website for supporting documents and comments.

Reporting Party Name and Address: Northwest Avalanche Center, 7600 Sand Point Way NE, Seattle, WA 98115

Avalanche Characteristics:

Type: SS Aspect: WSW
 Trigger: U Slope Angle: 38-40 est
 Size: R 1 \ D 2 Elevation: 5037 m / ft
 Sliding surface (check one):
 In new New/old In old Ground

Location:

State: WA County: King Forest: Mt. Baker-Snoqualmie
 Peak, Mtn Pass, or Drainage: Red Mountain, Commonwealth Basin
 Site Name:
 Lat/Lon or UTM: 47.45426, -121.39259

Group	Number of People	Time recovered	Duration of burial	Depth to Face <input type="checkbox"/> m / <input type="checkbox"/> ft
Caught	1			
Partially Buried— Not critical	1			
Partially Buried-- Critical				
Completely Buried				
Number of people injured:		Number of people killed: 1		

Dimensions <input type="checkbox"/> m / <input checked="" type="checkbox"/> ft		Average	Maximum
Height of Crown Face		0.33	1
Width of Fracture		N/Av	
Vertical Fall		400	
Snow	Hardness	Grain Type	Grain Size (mm)
Slab	N/Av	DF	N/Av
Weak Layer	N/Av	N/Av	N/Av
Bed Surface	P	MFcr	
Thickness of weak layer: N/Av <input type="checkbox"/> mm / <input type="checkbox"/> cm / <input type="checkbox"/> in			

Burial involved a terrain trap? no yes → type: Trees
 Number of people that crossed start zone before the avalanche: N/Av
 Location of group in relation to start zone during avalanche: high middle low below all unknown
 Avalanche occurred during ascent descent

Subject	Name	Age	Gender	Address	Phone	Activity
1	Morgan Miller	36	M	N/Av	N/Av	Ski
2						
3						
4						
5						

Equipment Carried

1	2	3	4	5	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Transceiver
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Shovel
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Probe
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Experience at Activity

1	2	3	4	5	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Unknown
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Novice
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Intermediate
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Advanced
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Expert

Avalanche Training

1	2	3	4	5	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Unknown
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Some
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Advanced
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Expert

Signs of Instability Noted by Group

- Unknown
- None
- Recent avalanches
- Shooting cracks
- Collapse or whumphing
- Low test scores

Injuries Sustained

1	2	3	4	5	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	First Aid
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Doctor's care
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hospital Stay
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Fatal

Extent of Injuries or Cause of Death

1	2	3	4	5	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Asphyxiation
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Head Trauma
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Spinal Injury
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chest Trauma
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Skeletal Fractures
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:

Damage Number of Vehicles Caught: Number Structures Destroyed: Estimated Loss: \$

Accident Summary Include: events leading to accident, group’s familiarity with location, objectives, route, hazard evaluation, etc. At approximately 720 am on April 11, 2017, 36 year-old Morgan Miller left his car at the Summit West Ski Area Parking Lot at Snoqualmie Pass intent on climbing and skiing the West Face of Red Mountain, a prominent, pyramidal peak at the head of Commonwealth Creek, approximately 3.5 miles from Washington State I-90. He had made a trip plan and was tracking his route via GAIA GPS on an iPhone 5s. This data logged successfully and NWAC has been provided the track with full trip statistics: distance, moving time, speed, and elevations. Given his objective, Miller left his dog in his car, notifying friends of his plan and a proposed return time. He was reported to have obligations in the town of Redmond (60 min away from Snoqualmie Pass) at 230 pm.

As verified by Miller’s GPS time and elevation data, the avalanche was triggered at 1026 am on a SW aspect at 5037 feet.

Rescue Summary Include: description of initial search, report of accident, organized rescue, etc.

Seattle Mountain Rescue (SMR) received their initial call-out at 523 pm. A party of two SMR personnel deployed on skis at 700 pm and made it quickly to the lower SW slopes of Red Mt by following the same standard winter approach route up Commonwealth Creek that Miller had used. A thin debris field was observed around 4600 feet, as well as a series of surface clues (ski strap, one ski). Initially a beacon signal was acquired, but then subsequently lost by both SAR members, suggesting Miller’s beacon might have damaged or was malfunctioning. Searching uphill of the surface clues, Miller was located at 900 pm, at 4780 feet, uphill of a tree and primarily on the surface of shallow avalanche debris. One ski and one ski pole were strapped to his backpack and he had one boot crampon on. His ice axe was not found and reported missing.

Rescue Method					
1	2	3	4	5	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Self rescue
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Transceiver
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Spot probe
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Probe line
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Rescue dog
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Voice
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Object
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Digging
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other: SAR-found victim mainly on surface

Both these findings support the conclusion that he was ascending on foot when the avalanche occurred. He was not wearing a helmet and was assessed on scene as having died of traumatic injury. Vertical fall between his high point and where he was found was 243 feet. The lower section of this slope is lightly treed and characterized by the transition between the “near treeline” and “above treeline” NWAC forecast elevation bands.

Once further personnel arrived on scene, SMR personnel located the avalanche crown at around 1200 am. No surface clues were noted in the vicinity of the crown or bed surface. Accounting for slight inaccuracies in GPS units, the crown elevation SMR noted was almost exactly the same as the high point which was logged by Miller’s GAIA GPS. This data further supports our conclusion that Miller likely triggered the avalanche versus it occurring naturally.

Cause of death determined from the Medical Examiner’s report: Blunt force trauma to the head and trunk with possible compressional asphyxiation.

Attach additional pages as needed. Include weather history, snow profiles, reports from other agencies, diagram of site, photographs, and any other supporting information

<http://www.nwac.us/accidents/accident-reports/>

See NWAC accident page for incident report, weather and snowpack history and maps. www.nwac.us

Please send to: CAIC; 325 Broadway WS1; Boulder CO 80305; caic@state.co.us and to the nearest Avalanche Center.