

UNITED STATES DEPARTMENT OF THE INTERIOR  
NATIONAL PARK SERVICE

**SUPPLEMENTARY CASE INCIDENT RECORD**

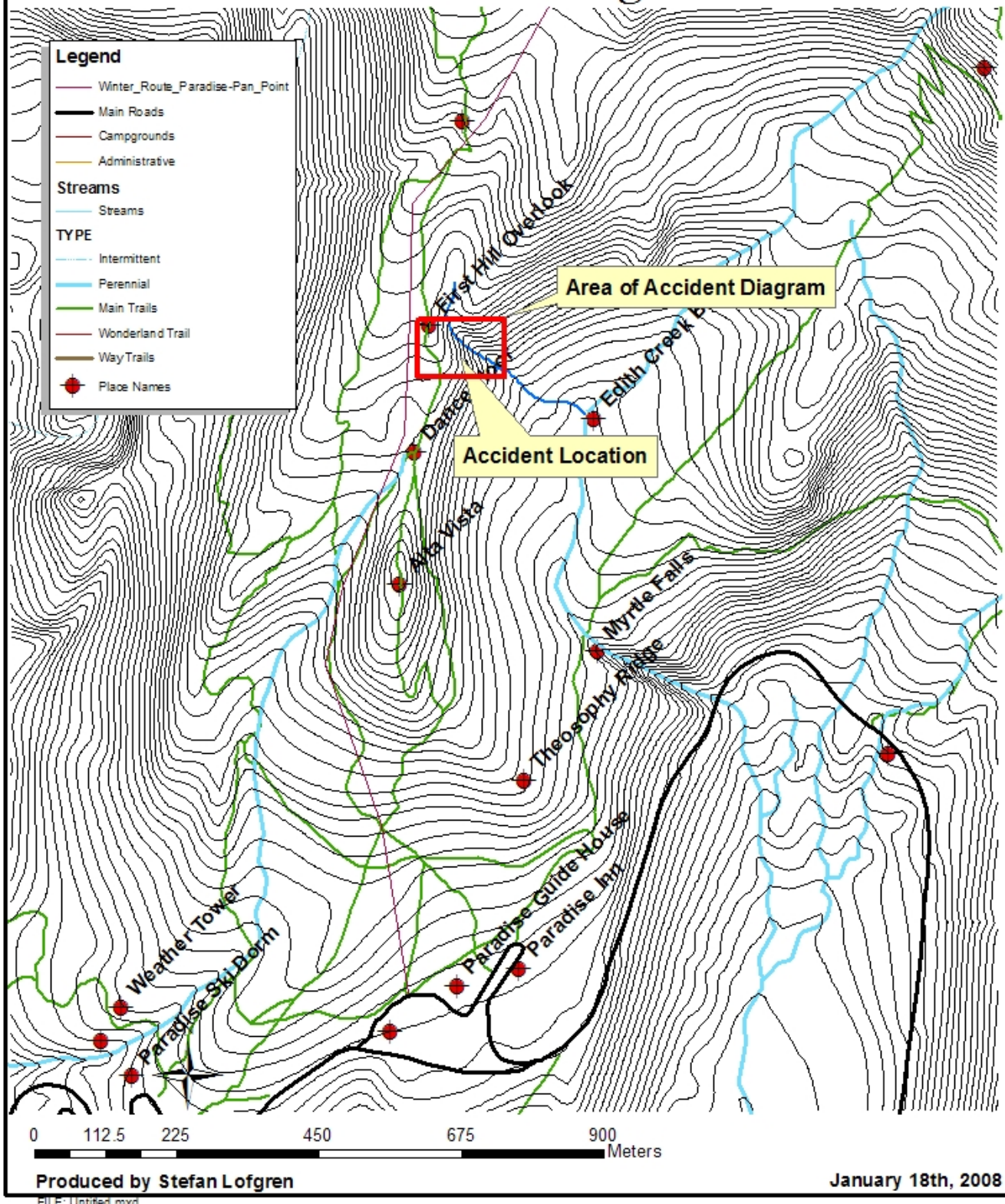
PARK NAME	CASE INCIDENT NO.	INCIDENT DATE	DATE OF THIS REPORT
Mt. Rainier National Park	071163	12-18-07	01-25-08
LOCATION OF INCIDENT		NATURE OF INCIDENT	
Paradise		Avalanche Fatality	

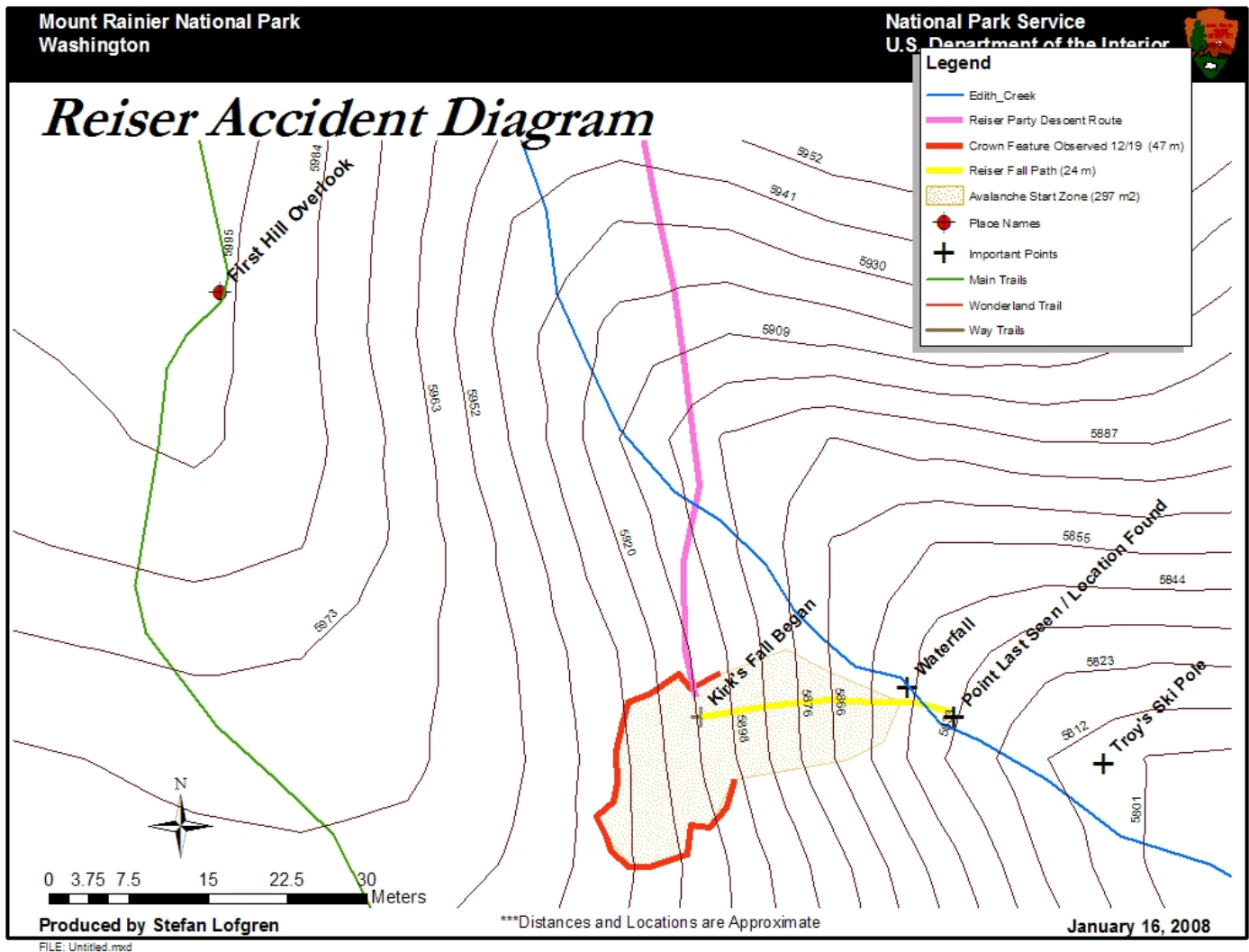
**Avalanche Investigation**

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## Reiser SAR Avalanche Investigation





## Avalanche Terrain

Generally speaking, avalanche terrain is identified in part by slope angle. Slope angles in excess of 30 degrees, but less than 45 are considered the most avalanche prone slopes. These numbers were revealed upon examining 100 large avalanches in Europe, North America, and Japan. However, slope angles greater than 45 degrees are not to be considered safe. There is evidence to suggest that in warmer regions where snowpacks are more moist that the angle of repose is higher given the same amount of snow and depending on bed surfaces below.

Other characteristics of avalanche terrain include terrain and vegetative anchors, convex roll-overs, leeward slopes from normal prevailing winds, and terrain variations that produce an uneven surface.

**\*The slope angle of the area which Troy identified as where Kirk was when the slide began was about 45-50 degrees.**

**\*The terrain characteristics of the area which Troy identified as where Kirk was when the slide began lacks vegetative or terrain anchors, is below a feature that encourages wind-deposited snow to accumulate, and had features on the slope that produced weak spots where fractures in the snowpack were likely to propagate.**

## Avalanche Conditions

The same slope on a given day can produce drastically different avalanche conditions depending on the current and past weather conditions. Current and past weather factors that influence avalanche conditions are:

- Wind
- Wind-transported snow
- Humidity
- Snowfall and Rate
- Snow density
- Crystal Structure of falling snow
- Temperature gradients in the snow pack (or lack thereof)
- Sun and/or rain action on the snow
- Rapid temperature increases or decreases

Potentially the most important weather factor leading up to this accident was the significant rain even early in December that caused forecasted and seen extreme avalanche conditions. The Northwest Weather and Avalanche Center actually called Mt. Rainier National Park and warned them of the extreme conditions. During this period of weather, 5 fatalities occurred in Washington State. After the event, cold weather conditions returned and this caused this top layer that received so much rain to freeze. Four days after the rain event, the low temperature at Paradise reached 18 degrees. Although, not recorded at Paradise by anyone, it is reasonable to assume that a surface hoar layer was produced and subsequently buried thereby creating weak layer on top of the frozen rain crust.

Shortly thereafter, Washington State experienced a heavy snow cycle. Between the original rain event and the morning of Kirk Reiser's accident, 48 inches of new snow was recorded at Paradise, not including 11 new inches that day. To make avalanche conditions worse, high west winds had been recorded during the previous 3 days transporting snow that was already was on the ground to locations like where Kurt started his slide.

Wind can accumulate snow on leeward slopes faster than snow can fall from the sky. Whereas snowfall is often measured in inches per hour, high rates of wind transported snow has been measured in feet per hour. It is difficult to tell how many times the slope at the site of the accident had released before Kirk was there, but it is possible that it may have released several times.

During snowy periods, fog as well as wind blown snow can obscure visibility further making it difficult to find a safe route through the terrain.

One day after the accident, I viewed the gulley where the avalanche occurred from above. I observed a crown feature 6 inches to 24 inches thick about 45 meters long (perimeter). It is likely that this was left over from the avalanche that carried Kirk. Deduced from this crown fracture, the total surface area of the start zone of this avalanche was about 300 square meters. Also, because of the observed crown fracture, one can estimate the thickness of the slab which was about 12 inches average. This would make the total volume of snow about 90 cubic meters. Although, the deposition from the original slide was never observed, we did see how far the avalanche travelled that we triggered when we controlled the slope with explosives. The track and run out zone were pretty much the same and ran between 50 and 100 meters below the bottom edge of the start zone.

**\*Forecast and observable avalanche conditions existed at the time of this avalanche on slope aspects that they were on. Increasing winds, increasing snowfall, and increasing rates of deposition on east-facing slopes all were current trends during Kirk and Troy's hike.**

#### Terrain Traps

Terrain traps are features in an avalanche path that have the potential of trapping objects as they move down with the snow. Terrain traps may be considered one of the most over-looked factors in avalanche hazard awareness. They can take a benign avalanche and turn it into a potentially lethal one. These are generally identified as terrain traps:

- Trees
- Large Rocks
- Curves in the path
- Flat spots in the path
- Moats
- Crevasses
- Structures

**\*Just below where Kirk was when the avalanche occurred was a waterfall about 10 feet tall. Although the high and low temperature on the 18<sup>th</sup> of December was 31 and 18 respectively, liquid water still flowed over the waterfall. This melted snow at the base of the waterfall and created a feature called a moat. A moat is the absence of snow between the bottom of a steep rock feature and the snow. Here the water had melted the snow leaving a gap wide enough for someone to fall into.**

### Triggers

*Finally, there must be an impetus for a fracture to propagate. This can be something as great as explosives, or it can be something as slight as the weight of the snow itself becoming too great for the layers below to support it. Triggers include:*

- *Explosives*
- *Cornices Collapsing*
- *Heavy Snow Deposition*
- *Snow falling from trees*
- *Rain*
- *Sun*
- *Rapid Warming*
- *Animals*
- *Skiers*
- *Snowmobilers*
- *Climbers*

*There is a concept in triggers called the stress bulb. This is the theoretical depth that a trigger affects a snow pack. For example, the effect of a bird landing on the surface of the snow would obviously have less of an effect than a person (weight). The structure of the snowpack contributes greatly to way in which a trigger will affect the snowpack. A thick, dense, well-bonded layer will have a 'bridging' effect on the weight above it, thereby distributing the load from above over a wider area below. These factors explain why the same person would have less of a stress bulb when he skis than when he is just climbing up with boots. His skis would 'bridge' his load and distribute it out over a wider area. This would decrease the distance down into the snowpack that his weight would affect.*

***\*This snowpack was already deep and fresh, making the entire amount of new snow on top of the early December crust susceptible to slabbing. I feel that it is unlikely that the new snow was any more sensitive to a skier than it would be to a snowshoer.***

### Avalanche Reconstruction

*Because of the poor visibility and lack of familiarity with the terrain, Kirk and Troy gradually wandered from the standard route through this avalanche prone area as they descended. Troy told me that just before the avalanche happened, they had swapped leads and Kirk had begun to go out in front. Troy told me that Kirk had just indicated to him that he was traversing to some trees below him and to his right. Just as he was making his way to the trees, the avalanche occurred.*

*This was obviously enough to carry Kirk down with it. He slid for roughly 15-20 meters (horizontal distance) and roughly 20 meters (vertical distance) until he was carried over the 10-foot cliff. Over this cliff poured a small waterfall. Kirk was carried over the waterfall and into the moat below. The snow that carried Kirk over the waterfall likely packed closely in around him in the moat. He was wearing snowshoes, which may have acted as an anchor making it difficult to wiggle free eventually covering him.*

## Appendix A: US Avalanche Reporting Statistics

<u>Parameter</u>	<u>Observation</u>
Date:	20071218
Time:	13:30
Area:	Paradise, Mt. Rainier, Washington State
Size:	D1.5-D2, R3 – Class 2: ½ of path
Trigger:	AI – Artificial Snow Shoe
Type:	SS – Soft Slab
Aspect:	E - East
Elevation:	5850
Slope Angle:	>45
Level of Bed Surface:	I – Old Crust Surface
Hardness of Bed Surface:	Unknown
Weak Layer Grain Form:	Unknown
Weak Layer Hardness:	Unknown
Age of Failure Plane:	12 days old
Slab Width:	15 meters
Slab Thickness:	25 cm
Hardness of Slab:	Unknown
Vertical Fall:	77 meters (max)
Comments:	

### Avalanche Entrapment Statistics

<u>Parameter</u>	<u>Estimation</u>
Avalanche Danger on this slope:	High (Forecasted Considerable by NWAC)
Canadian Avalanche Classification:	Class 2
Distance subject was carried:	24 meters
Width of Avalanche	15 meters
Aspect:	85 degrees (true north)
Slope:	45 degrees
Coordinates:	NAD83 10N 596548mE 5183225mN
Depth of Burial:	80 cm
Snow beneath Burial:	240 cm
Position of Burial:	Horizontal – Head Away from hill
Elevation of Burial:	5850
Elevation of Subject (start of slide):	5920
Vertical Transportation:	70 feet
Number of hours of burial:	74 hours

# Appendix B – Avalanche Forecast 12/18/07

MOUNTAIN WEATHER FORECAST FOR THE OLYMPICS WASHINGTON CASCADES  
AND MT HOOD AREA  
NORTHWEST WEATHER AND AVALANCHE CENTER SEATTLE WASHINGTON  
745 PST TUE DEC 18 2007...CORRECTED

NWAC Program administered by:  
USDA-Forest Service  
with cooperative funding and support from:  
Washington State Department of Transportation  
National Weather Service  
National Park Service  
Washington State Parks and Recreation Commission  
Pacific Northwest Ski Area Association  
Friends of the Avalanche Center  
and other private organizations.

*This forecast is prepared primarily for federal, state and private snow safety programs in Washington and Northern Oregon.*

WAZ513-518-519-019-042-501-502-ORZ011-181700-

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## WEATHER SYNOPSIS FOR TUESDAY AND WEDNESDAY

*An upper level trough and the associated surface low pressure system are centered off the north-central Oregon coast early Tuesday morning. The associated frontal feature is lifting northward across the Pacific Northwest spreading increasing moderate to heavy precipitation to the Olympics and both west and east slopes of the Cascades Tuesday morning. Surface pressure gradients remain easterly across the Cascades Tuesday morning as the low pressure center along the coastal region. The front and low pressure center are expected to track northeastward through the day with an expected shift to westerly pass level flow by late afternoon Tuesday. A brief warm up is expected as the flow shifts to westerly late Tuesday afternoon where there is a chance of rain briefly over the Snoqualmie Pass area. Cooler air behind the front and moderate moist westerly flow should maintain orographic precipitation along the west slopes Tuesday evening and night. This should maintain moderate showers at lowering snow levels overnight.*

*A short wave disturbance offshore is expected to develop early Wednesday and spread increasing frontal moisture into the region early Wednesday. This should renew precipitation across the forecast area as well as causing increasing and very strong crest level winds through the day Wednesday.*

*The strong frontal passage with Wednesday's system is expected to cross the Cascades Wednesday afternoon. This should bring a period of heavy precipitation and lowering snow levels with a shift to strong westerly flow behind the front.*

*The strong flow late Wednesday and Wednesday night should maintain moderate showers, mainly along the west slope areas at further lowering snow levels.*

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## WEATHER FORECAST FOR TUESDAY AND WEDNESDAY

- OLYMPICS-

*Tuesday morning and afternoon: Moderate rain or snow along the south and east slopes and light to moderate snow elsewhere.*

*Tuesday night: Diminishing light to moderate snow showers heaviest west Olympics.*

*Wednesday: Increasing moderate rain or snow early Wednesday becoming moderate to heavy mid-day. Wednesday night: Light to moderate snow showers, heaviest west part.*

- WASHINGTON CASCADES NEAR AND WEST OF THE CREST-CASCADE PASSES INCLUDING STEVENS, SNOQUALMIE AND WHITE PASSES-Tuesday morning and afternoon: Moderate to heavy rain or snow spreading northward morning. Rain or snow changing to moderate showers afternoon.

*Tuesday night: Diminishing light to moderate snow showers.*

*Wednesday: Increasing moderate rain or snow early Wednesday becoming moderate to heavy mid-day. Wednesday night: Light to moderate snow showers.*

- EAST SLOPES WASHINGTON CASCADES-Tuesday morning and afternoon: Light to moderate snow changing to showers afternoon.

*Tuesday night: Diminishing light snow showers. Wednesday: Increasing light to moderate snow early Wednesday becoming moderate.*

*Wednesday night: Light snow showers gradually diminishing.*

- MT HOOD AREA-

*Tuesday: Moderate to heavy rain or snow Tuesday changing to showers and gradually diminishing late afternoon. Tuesday night: Light to moderate snow showers gradually decreasing.*

*Wednesday morning: Increasing moderate snow and very windy.*

*Wednesday afternoon and evening: Moderate to heavy snow and very windy.*

&&

#### SNOW LEVELS-CASCADE MTNS

2000 ft N, 4000 ft S Tue morn

2500 ft N, 4500 ft S Tue aft

Lowering Tue night

1500 ft N, 2500 ft S Wed morn

2000 ft N, 3000 ft S, Wed aft

1000 ft N and S Wed night

...except snow level at the surface Cascade Passes and east slopes, rising to free air levels Tuesday afternoon. Snow level again lowering to surface passes and east slopes Wednesday rising to free air levels late Wednesday afternoon and night.

#### SNOW LEVELS-OLYMPIC MTNS

2500 ft Tue morn

3500 ft Tue aft

Lowering Tue night

2000 ft Wed morn

2500 ft Wed aft

1000 ft Wed night

Cascade Snow/Freezing Levels refer to the northern Washington Cascades (N) through Mt Hood area (S). Central Washington Cascade snow levels (typically near Snoqualmie Pass) are normally midway between indicated N and S levels. Note that surface snow/freezing levels are common near the passes during easterly pass flow and may result in multiple snow/freezing levels.

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#### 24 HOUR FORECAST OF PRECIPITATION IN INCHES OF WATER

EQUIVALENT ENDING AT 4AM

	WED	THU
* HURRICANE RIDGE	.25-.5	.5
* MT BAKER	.75-1	1-1.5
* WASHINGTON PASS	.25	.75
* STEVENS PASS	.5	.75-1
* SNOQUALMIE PASS	.75	1-1.5
* MISSION RIDGE	.5	.25-.5
* CRYSTAL MTN	1	1
* PARADISE	.75	1
* WHITE PASS	.5	.75
* MT HOOD	1	1-1.5

&&

#### WINDS IN MILES PER HOUR (MPH)

\* CASCADE PASS LEVEL WINDS

E 10-20 Tue

W 10-20 Tue aft and night

E 0-10 Wed

W 10-20 Wed aft

W 5-15 Wed night

\* FREE WINDS AT 5000 FT

S-SE 20-30 Tue morn strongest south

S-SW 25-40 Tue aft strongest south

SW 30-40 Tue night strongest south

S-SW 35-50 Wed

S-SW 35-50 N, W-SW 35-50 S Wed aft

SW 25-35 N, W 25-40 S Wed night

\* FREE WINDS AT 9000 FT

SW 30-40 N, 40-60 S Tue morn

W-SW 30-40 N, 35-50 S Tue aft and eve

SW 40-60 Wed

W-SW 30-40 Wed night

&&

## EXTENDED WEATHER SYNOPSIS FOR THURSDAY THROUGH SATURDAY

*Continued cool and moist westerly flow in the wake of a frontal passage Wednesday should maintain showers along the west slope areas Thursday at low snow levels. Showers should diminish as a brief upper ridge of high pressure builds over the region.*

*A transitory high pressure ridge is expected to move across the area Friday to allow for a period of light winds cool temperatures and partly cloudy skies.*

*Another frontal system is expected to approach the area Saturday morning spreading increasing cloud and light precipitation over the forecast region during the morning hours.*

*The front should reach the Cascades by afternoon causing increasing winds and moderate precipitation at gradually rising snow levels.*

*Yet another and stronger system is expected to move rapidly into the area Saturday night and into Sunday. This system is currently expected to cause very windy conditions with moderate to heavy precipitation and significantly rising snow levels by Sunday.*

## EXTENDED FORECAST FOR THURSDAY THROUGH SATURDAY

*Thursday: Light orographic snow showers west slope areas with moderate showers central Cascades in convergence. Friday: Partly cloudy.*

*Saturday: Increasing light to moderate rain or snow early.*

*Becoming moderate rain or snow late.*

### \* SNOW LEVELS

*5-1500 ft N, 1-2000 ft S Thu*

*Near sea level N, 1-2000 ft S Fri*

*2000 ft N, 4000 ft S Sat*

*5000 ft N, 7000 ft S Sat night*

## BACKCOUNTRY AVALANCHE FORECAST FOR THE OLYMPICS WASHINGTON

### CASCADES AND MT HOOD AREA

### NORTHWEST WEATHER AND AVALANCHE CENTER SEATTLE WASHINGTON

*945 AM PST TUE DEC 18 2007...corrected*

*NWAC Program administered by:*

*USDA-Forest Service*

*with cooperative funding and support from:*

*Washington State Department of Transportation*

*National Weather Service*

*National Park Service*

*Washington State Parks and Recreation Commission*

*Pacific Northwest Ski Area Association*

*Friends of the Avalanche Center*

*and other private organizations.*

*This forecast applies to back country avalanche terrain below*

*7000 feet and does not apply to highways or operating ski*

*areas.*

## ZONE AVALANCHE FORECASTS

- OLYMPICS- WASHINGTON CASCADES NEAR AND WEST OF THE

### CREST- MT HOOD AREA-

*Considerable avalanche danger below 7000 feet Tuesday. Danger gradually decreasing Tuesday night. Increasing danger Wednesday becoming high above 4 to 5000 feet and considerable below. Avalanche danger slightly decreasing Wednesday night.*

- EAST SLOPES WASHINGTON CASCADES-Increasing considerable avalanche danger above 5000 feet and moderate below Tuesday. Avalanche danger slightly decreasing Tuesday night. Avalanche danger increasing Wednesday becoming considerable above 4 to 5000 feet and moderate below, gradually decreasing Wednesday night.

## SNOWPACK ANALYSIS

*Additional new snow amounts as of early Wednesday ranged from about 6 to 14 inches in the Olympics, Mt Hood area and both west and east slopes of the Cascades. In general, recent storms over the past five days have deposited some 12 to 40 inches of snow over most Olympic and west Cascade slopes with up to 12 inches over the east slopes.*

*Following the heavy rain event in early December about a ten day period of cool showery weather deposited occasional light snow fall as well as allowed for hoar frost development at times. These weak layers of low density snow or buried surface hoar formed a weak bond to the December crust and now have been loaded with the significant storm cycle snow of the past four to five days. This development has caused an increase in the recent avalanche danger with numerous recent avalanches having been reported over the past several days. Most of these slides have released near or on the old crust with some slides releasing in storm layers and stepping down to the old crust layer.*

*Shear tests over the past couple of days have indicated that a slightly better bond is occurring at the crust interface, but not in all areas. Extra caution is advised as slides initiating in new layers may release to the crust which may be buried now 4 feet or more.*

*A similar but shallower structure might be expected along the Cascade east slopes. The greatest current danger is expected on lee slopes at higher elevations.*

## **TUESDAY AND TUESDAY NIGHT**

*A frontal passage should deposit additional new snow loading over Mt Hood and both east and west of the Cascade crest and Olympics Tuesday along with some strong crest level south to southwest winds. This should add further loading and unstable layers to underlying weak layers. Triggered slab avalanches are likely at higher terrain on lee slopes and increasing caution is urged in steeper terrain Tuesday.*

## **WEDNESDAY AND WEDNESDAY NIGHT**

*Another very strong frontal passage is expected Wednesday. This should bring heavy snow and very strong crest level winds through the day Wednesday. This should cause a significant increase in the avalanche danger with mostly unstable snow developing above 4 to 5000 feet. Travel in avalanche terrain is not recommended above these elevations Wednesday. Decreasing snow and winds Wednesday night should begin to allow for a slowly decreasing danger.*

*Backcountry travelers should be aware that elevation and geographic distinctions are approximate and that a transition zone between dangers exists. Remember there are avalanche safe areas in the mountains during all levels of avalanche danger. Contact local authorities in your area of interest for further information.*

*NWAC weather data and forecasts are also available by calling 206-526-6677 for Washington, 503-808-2400 for the Mt Hood area, or by visiting our Web site at [www.nwac.us](http://www.nwac.us). Also note that field snowpack information is often available on the FOAC website at [www.avalanchenw.org](http://www.avalanchenw.org), and weather and avalanche glossaries for commonly used terms in the forecasts can be found on the NWAC education page.*

### **SUMMARY BACKCOUNTRY AVALANCHE FORECAST FOR THE OLYMPICS AND WASHINGTON CASCADES NORTHWEST WEATHER AND AVALANCHE CENTER SEATTLE WASHINGTON 915 AM PST TUE DEC 18 2007**

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

## **ZONE AVALANCHE FORECASTS**

- *OLYMPICS- WASHINGTON CASCADES NEAR AND WEST OF THE CREST-Considerable avalanche danger below 7000 feet Tuesday. Danger gradually decreasing Tuesday night. Increasing danger Wednesday becoming high above 4 to 5000 feet and considerable below. Avalanche danger slightly decreasing Wednesday night.*
- *EAST SLOPES WASHINGTON CASCADES-Increasing considerable avalanche danger above 5000 feet and moderate below Tuesday. Avalanche danger slightly decreasing Tuesday night. Avalanche danger increasing Wednesday becoming considerable above 4 to 5000 feet and moderate below, gradually decreasing Wednesday night.*

## **SNOWPACK SYNOPSIS**

*Additional new snow amounts as of early Wednesday ranged from about 6 to 14 inches in the Olympics and both west and east slopes of the Cascades. In general, recent storms over the past five days have deposited some 12 to 40 inches of snow over most Olympic and west Cascade slopes with up to 12 inches over the east slopes. This new snow lies over shallow layers of weak snow over a rain crust from early December. Numerous recent avalanches have occurred over the past few days with this current weak snow structure. Extra caution is advised as slides initiating in new layers may release to the crust which may be 4 feet or more.*

*A similar but shallower structure might be expected along the Cascade east slopes. The greatest current danger is expected on lee slopes at higher elevations.*

## **TUESDAY AND TUESDAY NIGHT**

*A frontal passage should deposit additional new snow loading both east and west of the Cascade crest and Olympics Tuesday along with some strong crest level south to southwest winds. This should add further loading and unstable layers to underlying weak layers. Triggered slab avalanches are likely at higher terrain on lee slopes and increasing caution is urged in steeper terrain Tuesday.*

## **WEDNESDAY AND WEDNESDAY NIGHT**

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*Kramer/Northwest Weather and Avalanche Center*

### **SUMMARY BACKCOUNTRY AVALANCHE FORECAST FOR THE MT HOOD AREA NORTHWEST WEATHER AND AVALANCHE CENTER SEATTLE WASHINGTON 915 AM PST TUE DEC 18 2007**

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

## **ZONE AVALANCHE FORECASTS**

- *MT HOOD AREA-*

*Considerable avalanche danger below 7000 feet Tuesday. Danger gradually decreasing Tuesday night. Increasing danger Wednesday becoming high above 4 to 5000 feet and considerable below. Avalanche danger slightly decreasing Wednesday night.*

#### **SNOWPACK SYNOPSIS**

*Additional new snow amounts as of early Wednesday ranged from about 10 to 14 inches in the Mt Hood area. In general, recent storms over the past five days have deposited some 20 to 30 inches of snow. This new snow lies over shallow layers of weak snow over a rain crust from early December. Numerous recent avalanches have occurred over the past few days with this current weak snow structure. Extra caution is advised as slides initiating in new layers may release to the crust which may be 4 feet or more.*

#### **TUESDAY AND TUESDAY NIGHT**

*A frontal passage should deposit additional new snow loading Tuesday along with some strong crest level south to southwest winds. This should add further loading and unstable layers to underlying weak layers. Triggered slab avalanches are likely at higher terrain on lee slopes and increasing caution is urged in steeper terrain Tuesday.*

#### **WEDNESDAY AND WEDNESDAY NIGHT**

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*Backcountry travelers should be aware that elevation and geographic distinctions are approximate and that a transition zone between dangers exists. Remember there are avalanche safe areas in the mountains during all levels of avalanche danger. Contact local authorities in your area of interest for further information.*

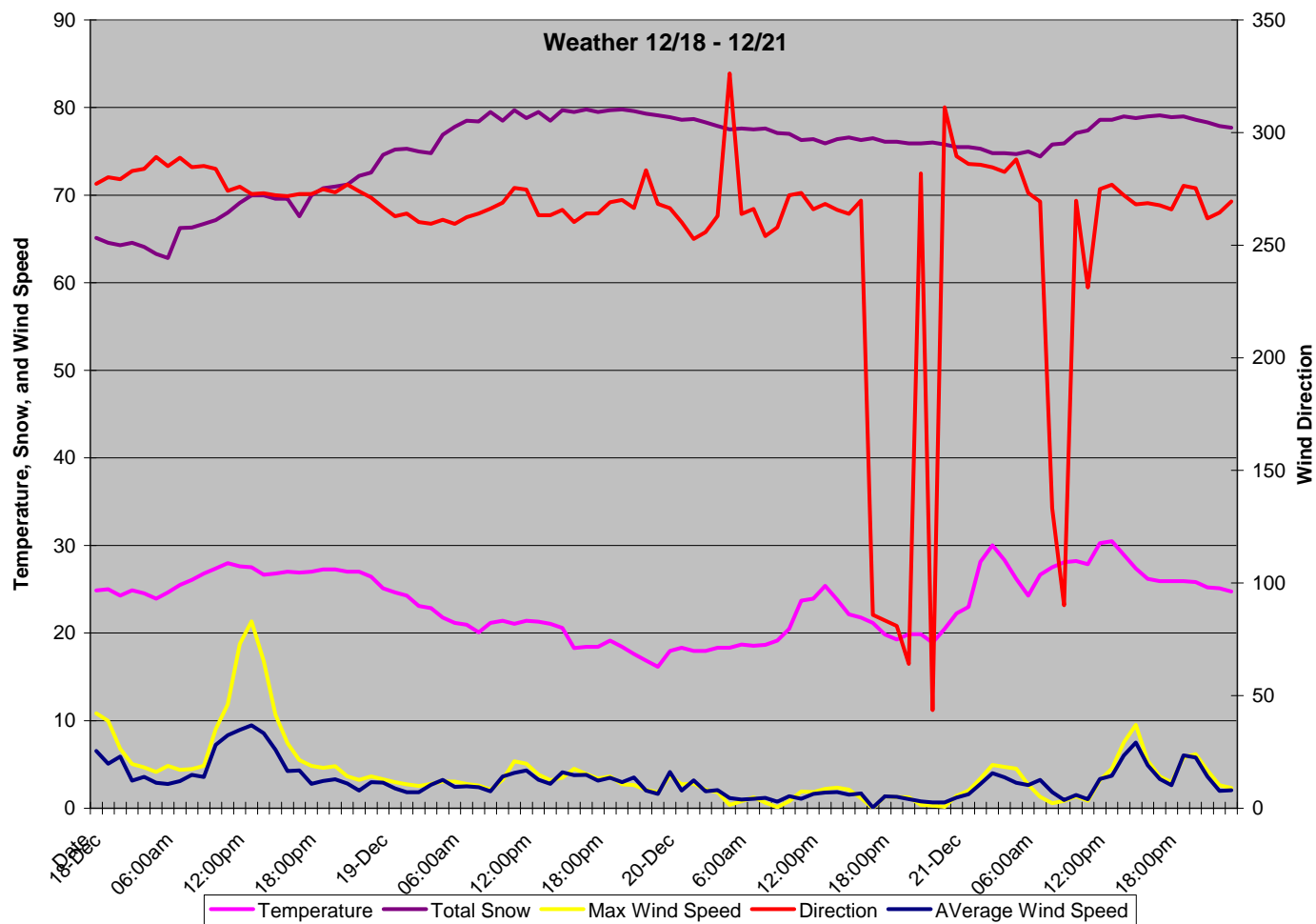
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*Kramer/Northwest Weather and Avalanche Center*

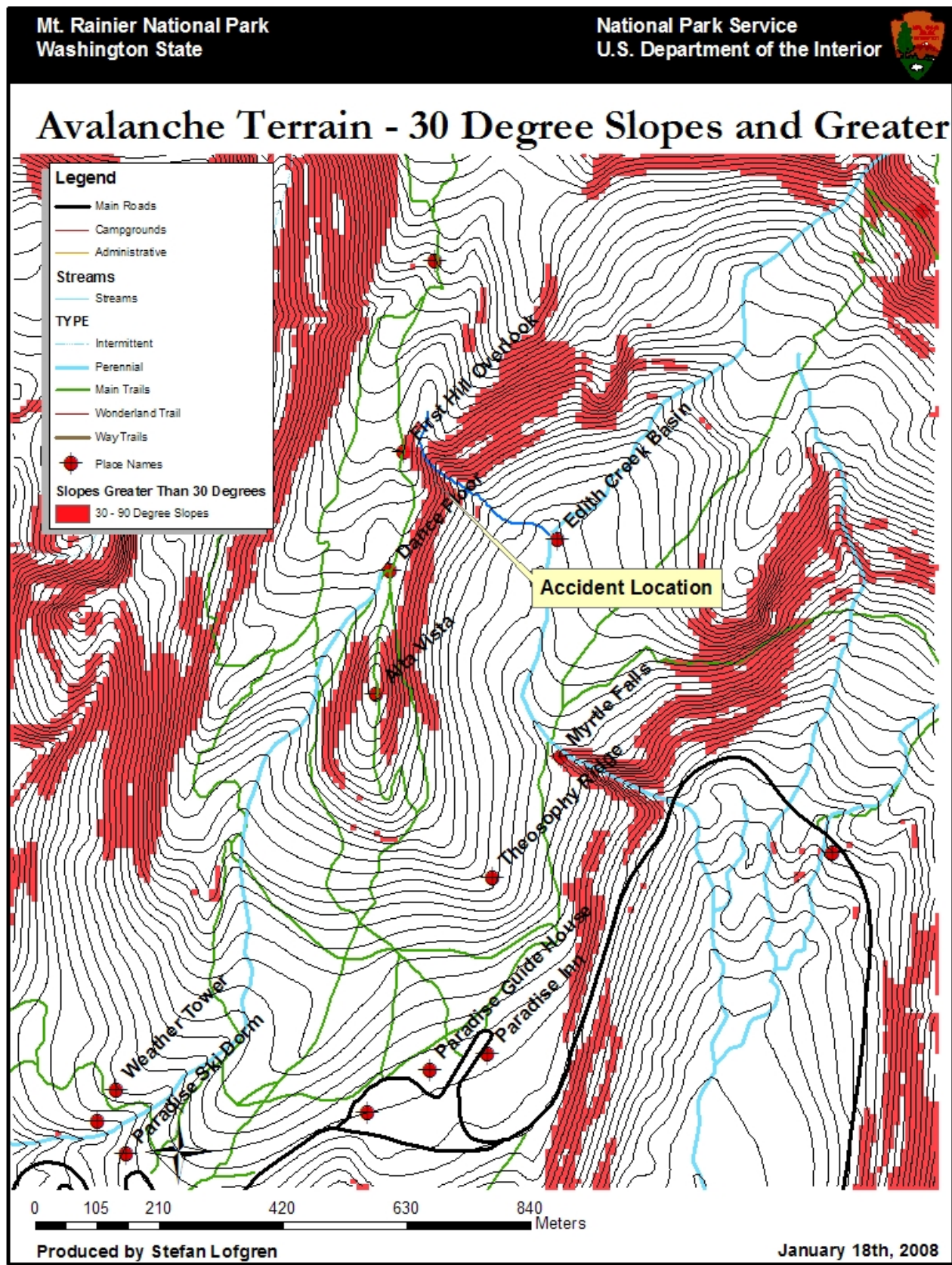
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## Appendix C – Weather Observations – Paradise 12/18-21/08

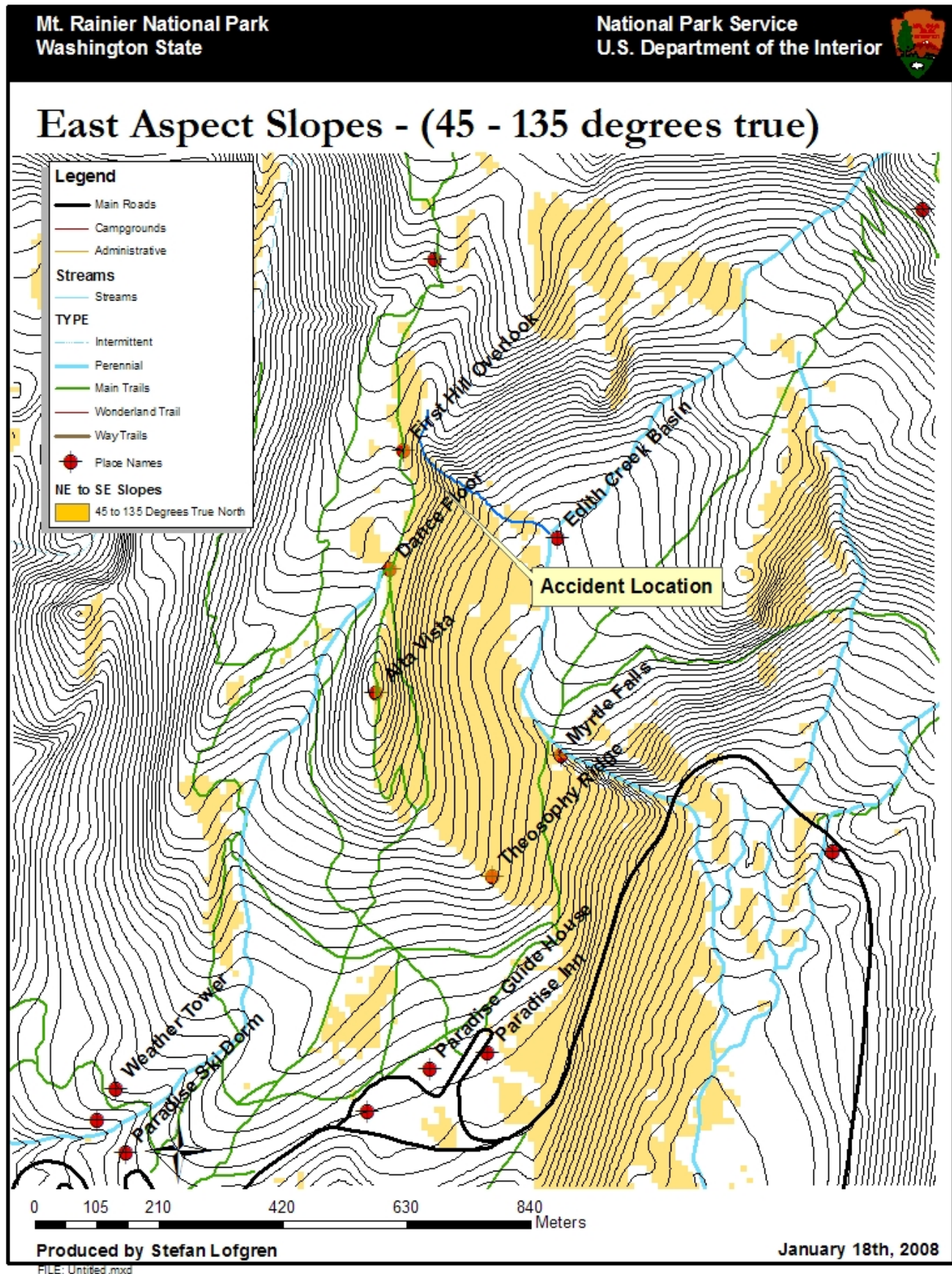
Weather Trends: December 18, 2007 at 00:00 to December 21, 2007 at 24:00



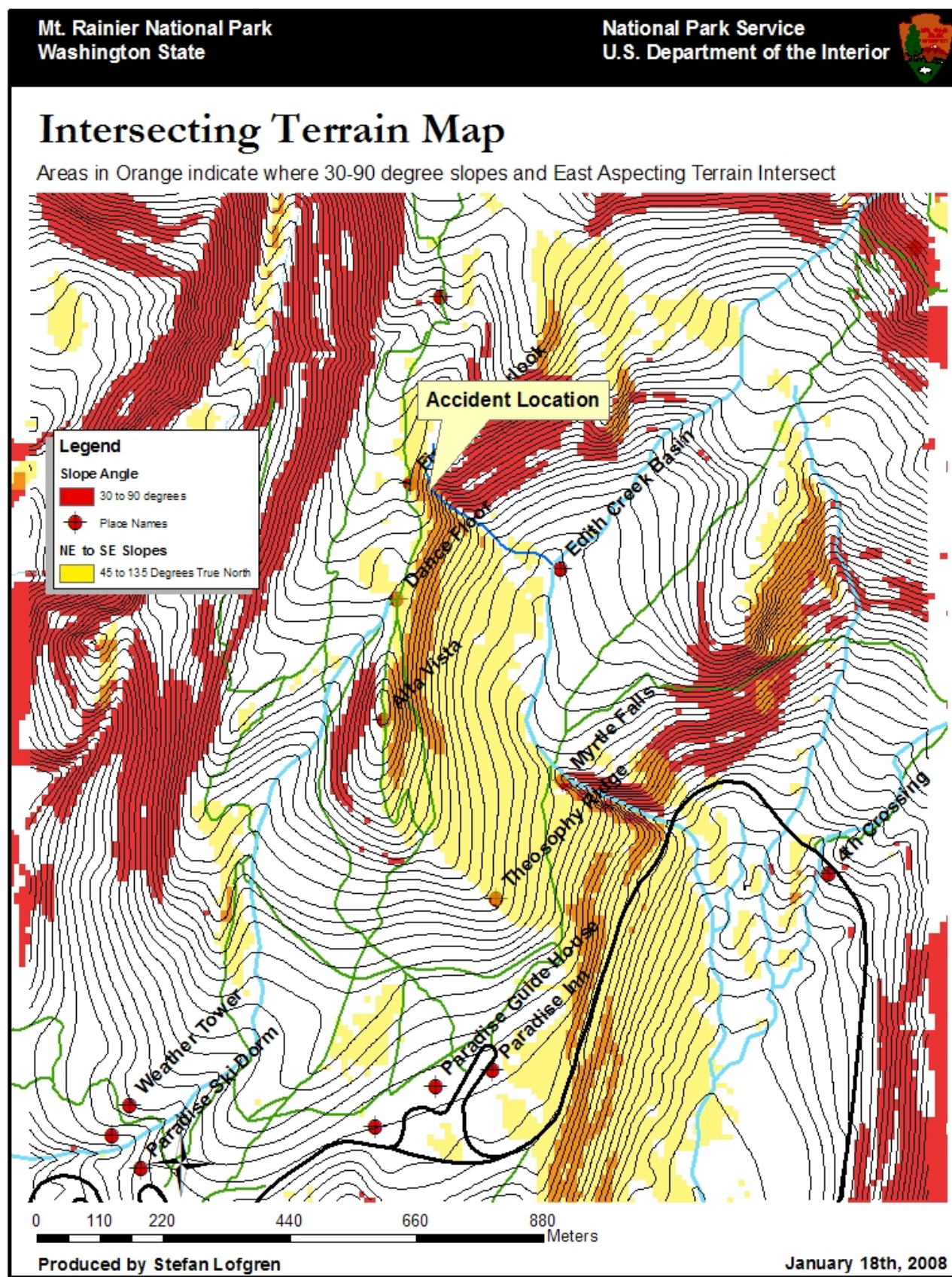
## Appendix D: Avalanche Terrain in the Paradise Area



## Appendix E: East Aspect Terrain – Paradise, Mt. Rainier N.P.



## Appendix F: Overlapping Terrain



# Appendix G: Snow Pits 12/18 – 12/20

Snow Pit Profile

paradise wx twr

mt rainier, WA

Elevation (ft) 5427

Aspect: 200

Activities: Poor pit location.

Notes: in trees 4/8 -- Sorry, I was in a hurry. No crystal obs. No densities.

Observer: Stefan Lofgren

Tue Dec 18 12:07:51 PST 2007

Co-ord: 121.7415 W 46.7864 N

Slope: 31

Wind loading: yes

Stability on similar slopes: Good

Air Temperature: 0 C

Sky Cover: sky 8/8 covered

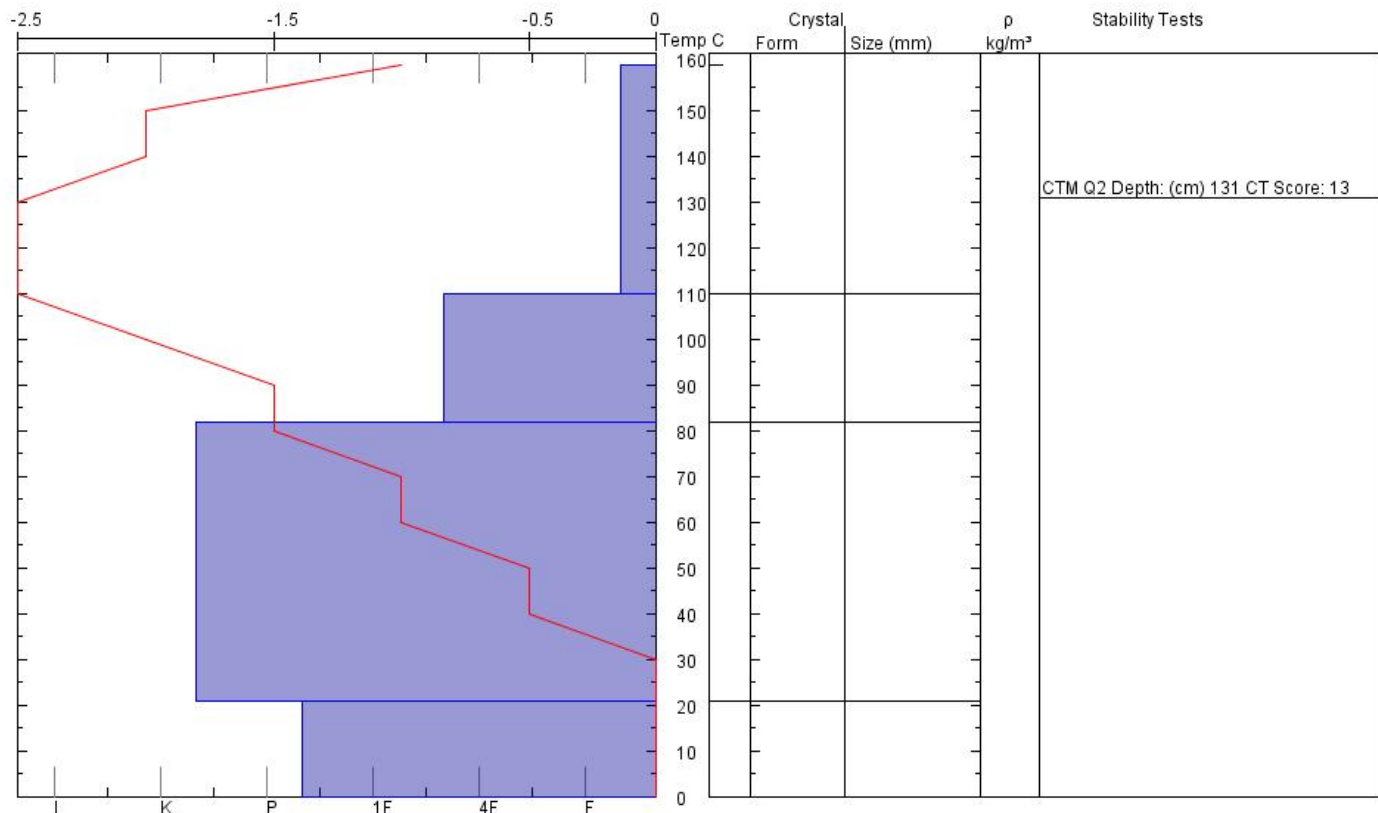
Precipitation: Snow - 2 cm/hr

Wind: SW Light Breeze

Stability Test Notes:

131: slight movement

Layer notes:



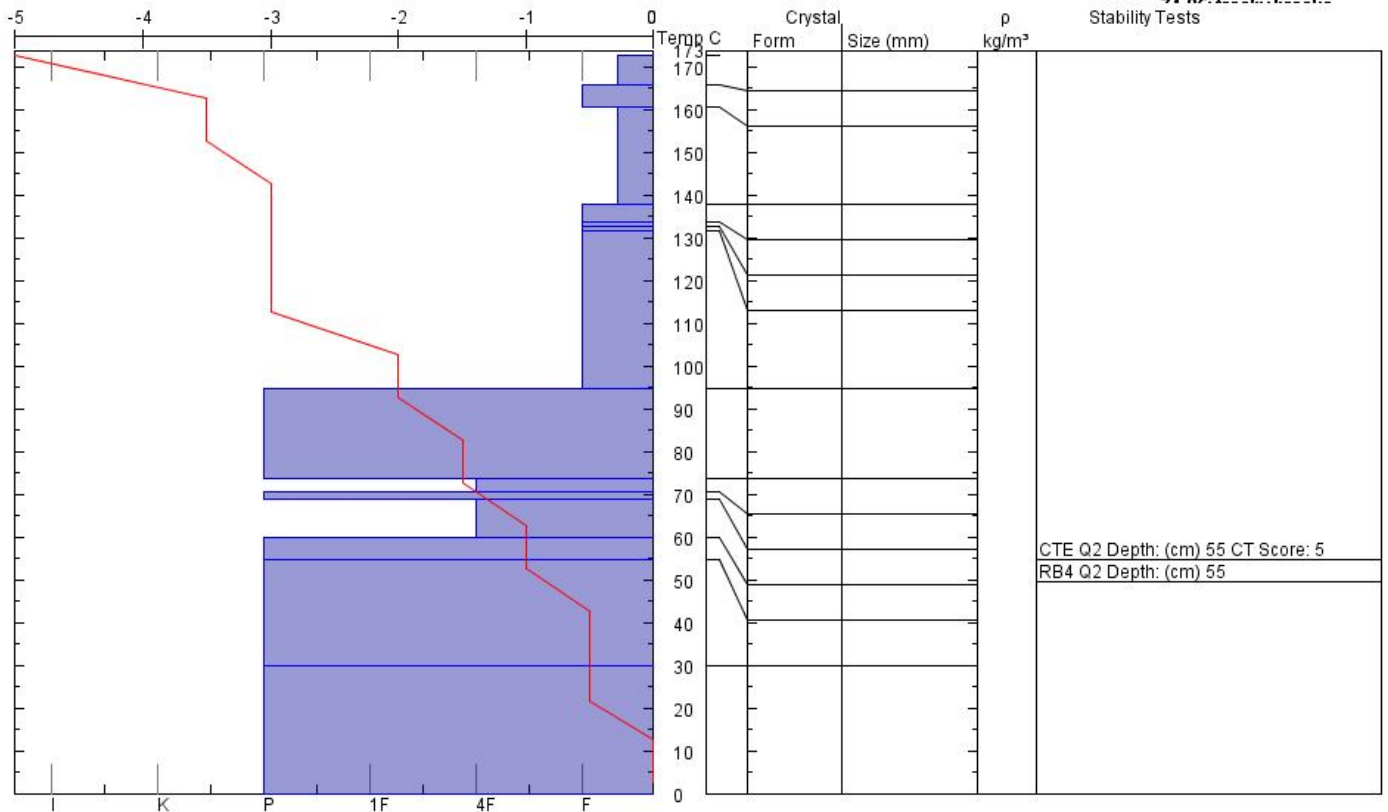
Snow Pit Profile  
**alta vista-reiser sar**  
**mt rainier, WA**  
 Elevation (ft) **5738**  
 Aspect: **160**  
 Activities: **Supportable crust.**  
 Notes: **good wind slab in places**

Observer: **Stefan Lofgren**  
**Wed Dec 19 07:07:24 PST 2007**  
 Co-ord: **121.7361 W 46.7902 N**  
 Slope: **31**  
 Wind loading: **yes**

Stability on similar slopes: **Good**  
 Air Temperature: **-4.0 C**  
 Sky Cover: **sky 8/8 covered**  
 Precipitation: **Snow - 2 cm/hr**  
 Wind: **SW Light Breeze**

Stability Test Notes:  
**55: moved 1/2 cm**

Layer notes:  
**161-166: wind slab**  
**138-161: weaker**  
**134-138: small layer**  
**133-134: weaker**  
**132-133: harder**  
**95-132: no inter layers**



Snow Pit Profile  
**first hill**  
**mt rainier, WA**  
 Elevation (ft) **5933**  
 Aspect: **130**  
 Activities: **Cracking.**

Observer: **Stefan Lofgren**  
**Thu Dec 20 13:36:46 PST 2007**  
 Co-ord: **121.7353 W 46.7953 N**  
 Slope: **42**  
 Wind loading: **yes**

Stability on similar slopes: **Good**  
 Air Temperature: **-6 C**  
 Sky Cover: **sky 8/8 covered**  
 Precipitation: **Snow - 5 cm/hr**  
 Wind: **W Moderate**

Stability Test Notes:

Layer notes:  
**198-250: todays storm**  
**83-85: ice crust**

Notes: **Slight failure: CTV @ 240cm ?windslab?. Also slight failure RB2 @ 240cm. Continued tests to look at deeper layers.**

