

## **GNFAC Avalanche Advisory for Sun Dec 19, 2010**

Good Morning. This is Eric Knoff with the Gallatin National Forest Avalanche Advisory issued on Sunday, December 19, at 7:30 a.m. The Northern Lights Trading Company, in cooperation with the Friends of the Avalanche Center, sponsors today's advisory. This advisory does not apply to operating ski areas.

### Mountain Weather

Over the past 24 hours 3-4 inches of new snow has fallen in the mountains around West Yellowstone and Cooke City while the northern ranges picked up 1-2 inches. Mountain temperatures are in the mid-teens to low twenties F and winds blowing out W-SW at 10-20 mph with a few gusts reaching into the 30's. Southwest Montana will see a break in the weather this morning, but another wave of moisture will arrive into our area by this evening. Winds will increase throughout the day as this next storm system gets closer. The southern half of our advisory area will likely pick up an additional 4-6 inches by tomorrow morning while the northern half will pick up 3-4 inches.

### Snowpack and Avalanche Discussion

#### The northern Madison Range, the mountains around Cooke City and the Washburn Range:

A series of storms over the past few weeks, which have been interrupted by cold and clear conditions, have produced a layered snowpack that now resembles an outrageous holiday cake; one that is better to look at than to bite into. However, the temptation to enjoy that cake can prove irresistible, setting backcountry travelers up for consequences they may not expect or be prepared for.

In the mountains around Big Sky and Cooke City there are multiple layers that now exist in the snowpack that are capable of delivering an unpleasant surprise. In the northern Madison Range, a layer of surface hoar sitting 1-1.5 feet below the surface is our biggest concern and will most likely be found on sheltered north and east facing slopes ([photo](#), [video](#)). This layer has produced multiple natural and human triggered avalanches over the past week and presents a delicate challenge to backcountry users. The trickiest part about this surface hoar layer is it will not be found on all slopes, making careful snowpack evaluation a critical step when riding steep terrain. Although slopes steeper than 35 degrees and/or wind loaded slopes will be the most prone to activity, triggering a slide on a lower angle slope is not out of the question. On this note, just this past Thursday, The Yellowstone Club ski patrol triggered a slide on a 22 degree slope, delivering a poignant reminder of just how weak this surface hoar layer can be ([photo](#), [video](#)).

In the mountains around Cooke City, a combination of surface hoar and weak faceted crystals can be found 2-3 feet below the surface. The buried weak layers around Cooke City exist on many different aspects and elevations and have produced natural and human triggered avalanches over the past few days. A skier in Cooke City observed a natural avalanche that broke up to two feet deep on a northeast facing slope in the Pebble Creek drainage near Wolverine Mountain on Friday ([photo](#)). Snowmobilers also reported triggering slides last week in the Henderson Bench area.

The combination of new snow and wind has likely pushed the snowpack in these areas to its breaking point. Human triggered avalanches will be very likely on all wind loaded slopes and the avalanche danger is rated **HIGH**. A **CONSIDERABLE** avalanche danger exists on all slopes that have not received wind loading.

#### The southern Gallatin and Madison Ranges and the Lionhead area near West Yellowstone:

3-4 inches of new snow has accumulated in the southern mountains over the past 24 hours. Prior to this latest shot of snow, clear and calm conditions allowed for a small layer of faceted crystals to form on or near the snow surface. I observed this facet growth when I was in the Lionhead area on Thursday and Friday. This layer should not present a problem on non-wind loaded slopes due to a lack of load, but all slopes that have received wind deposited snow will likely produce avalanches with a human trigger.

Today wind loaded slopes are the main avalanche concern, but triggering a deeper slab is still possible. Layers of buried surface hoar and small grained facets do exist 1-2 feet below the surface, warranting careful snowpack evaluation and cautious route finding. Today human triggered avalanches are likely on wind loaded slopes and the avalanche danger is rated CONSIDERABLE. All slopes that are void of wind loading have a MODERATE avalanche danger.

#### The Bridger Range and northern Gallatin Range

A trace to one inch of snow fell in the Bridger Range and northern Gallatin Range over the past 24 hours preventing a rapid increase in the avalanche danger. However, some areas of instability do exist. High probability zones such as shallow areas near rock outcroppings and the leeward side of ridgelines will be likely areas to trigger a slide. Skiers in Hyalite canyon found this out on Thursday when they triggered a wind slab near a ridgeline that broke close to two feet deep.

Today, isolated pockets of instability make human triggered avalanches possible and the avalanche danger is rated MODERATE.

I will issue the next advisory tomorrow morning at 7:30 a.m. If you have any snowpack or avalanche observations, drop us a line at [mtavalanche@gmail.com](mailto:mtavalanche@gmail.com) or call us at 587-6984.

#### Upcoming Avalanche Education

There are many upcoming avalanche classes in the month of January. Check them on our education page at: <http://www.mtavalanche.com/workshops/calendar>

#### Other News

This year REI has chosen Friends of GNFAC as their charity of choice. By making a donation through REI you can help The Friends continue to support the Avalanche Center and promote avalanche education throughout southwest MT.