

## GNFAC Avalanche Forecast for Sun Feb 14, 2010

Good Morning. This is Eric Knoff with the Gallatin National Forest Avalanche Advisory issued on Sunday, February 14, at 7:30 a.m. **Indulgence**, in cooperation with the **Friends of the Avalanche Center**, sponsor today's advisory. This advisory does not apply to operating ski areas.

### Mountain Weather

In the past 24 hours 4-6 inches of new snow has fallen in the Northern Madison and Gallatin Ranges as well as the Bridger Range while 1-2 inches fell in the southern ranges. Winds have calmed significantly blowing at 5-15 mph out of the W-NW. This moist weather system will be pushed to the east by a building ridge of high pressure which will bring our area calm conditions and partly cloudy skies through the remainder of the day. Colder air will be associated with this ridge dropping temperatures into the twenties for highs and teens for lows. Another weak weather disturbance will move into southwest Montana early Monday morning bringing cloudy skies and a chance of precipitation.

### Snowpack and Avalanche Discussion

#### The Bridger Range

Twenty four inches in 24 hours has made for some great riding conditions in the Bridgers, but has dramatically increased the avalanche danger in a very short period of time. Two main factors have contributed to the elevated danger. One, a significant load has been deposited in a very short period of time. This type of quick loading event does not allow the snowpack time to adjust to the weight of the new snow, creating an enormous amount of stress on the pack. As gravity pulls on this new load, the snowpack becomes more susceptible to avalanches as it tries to find equilibrium.

Second, high winds during and after this storm have added stress and instability to an already strained snowpack. Yesterday Mark and his partner traveled into the northern Bridger Range near Fairy Lake and witnessed many natural avalanches that occurred during the storm. Some of these avalanches were caused by wind loading while others failed under the weight of the new snow. Mark did mention that slopes do not need to be wind loaded in order to produce an avalanche, but slopes that are wind loaded are very sensitive and will fail under the weight of a skier or rider.

For this reason the avalanche danger is rated:

**HIGH** on all wind loaded slopes.

COSIDERABLE on non wind loaded slopes steeper than 35 degrees

**MODERATE** on non wind loaded slopes less than 35 degrees

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

With over a foot of new snow in the past few days accompanied by strong winds, the avalanche danger has risen significantly. Multiple weak layers within the snowpack all have the ability to fail and produce avalanches. The main layer we are concerned about is a layer of near surface facets that formed prior to the past storm and has produce extremely sensitive conditions mainly on slopes that have received recent wind loading. Yesterday on

Buck Ridge, 4 human triggered avalanches were reported, all on wind loaded slopes. The most surprising avalanche was one that was remotely triggered from the bottom of the slope and propagated over 200 ft across ([photo](#)). This indicates buried weak layers are a real problem and all avalanche run out zones should be viewed as avalanche terrain.

On Friday I found sensitive conditions on Mt Blackmore, triggering numerous avalanches on wind loaded slopes. Although these avalanches were not large in size, they propagated easily and ran a long distance. With 6-8 inches of new snow since Friday followed by strong winds, there is no question these slopes have reloaded and are capable of producing much larger avalanches. Similar conditions have been reported in the Cooke City area. A foot of new snow and strong winds have made for dangerous avalanche conditions mainly on wind loaded slopes at upper elevations.

For this reason the avalanche danger is rated:

**CONSIDERABLE** on all wind loaded slopes and non wind loaded slopes steeper than 35 degrees

**MODERATE** on less steep slopes that have not received wind loading.

*The southern Madison Range, southern Gallatin Range and the Lionhead area near West Yellowstone:*

Although this recent storm did not deliver as much snow to the southern portions of our advisory area, light continuous snowfall and strong winds have gradually added stress to a structurally weak snowpack. A strong and often supportable slab 2-4" thick is now sitting over multiple weak layers that are all capable of failing and producing avalanches. The weakest and most susceptible is a layer of buried surface hoar that now sits roughly 2 feet below the surface ([video](#)). This layer will not be found on all slopes, but exists mainly on slopes sheltered from the sun and wind. Since these protected slopes now hold the best riding conditions a careful evaluation of slope angle and snow stability should be conducted before exposing yourself to avalanche terrain.

Another weak layer that sits below the surface hoar is a persistent layer of buried facets that exists on all slopes. This layer is becoming harder to trigger as the snowpack becomes deeper, but will likely fail when an avalanche that initiates on the surface hoar layer steps down, producing a large and climactic avalanche. Wind slabs that have formed over the past few days may also be the trigger for larger and more destructive avalanches. With weak layers and wind slabs human triggered avalanches remain likely.

For today the avalanche danger is rated:

**CONSIDERABLE** on all wind loaded slopes and non wind loaded slopes steeper than 35 degrees

**MODERATE** on non wind loaded slopes and slopes less than 35 degrees

The Avalanche Center wants to send out a huge thanks to all who participated in making this year's King and Queen of the Ridge the most successful to date. We also want to say Happy Valentine's Day to the wives of the avalanche center: Marcie, Amy and Genevieve, we couldn't do it without you.

I will issue the next advisory tomorrow morning at 7:30 a.m. If you get out in the backcountry let us know what you find. You can reach us at 587-6984 or email us at [mtavalanche@gmail.com](mailto:mtavalanche@gmail.com)

## **Avalanche Education**

### **1. Bridger Bowl**

AAI Level 1 Avalanche Course - Friday, February 19<sup>th</sup> to Sunday, February 21<sup>st</sup>

[www.americanavalancheinstitute.com](http://www.americanavalancheinstitute.com)

## **2. Bridger Bowl**

AAI Level 2 Avalanche Course - Monday, February 22<sup>nd</sup> to Thursday, February 25<sup>th</sup>

[www.americanavalancheinstitute.com](http://www.americanavalancheinstitute.com)

## **3. Moonlight Basin**

Comprehensive avalanche awareness class - Thursday, March 4<sup>th</sup> to Saturday, March 6<sup>th</sup>

[events@moonlight.com](mailto:events@moonlight.com) or 406-993-6026