

## **GNFAC Avalanche Advisory for Fri Mar 18, 2011**

Good morning. This is Mark Staples with the Gallatin National Forest Avalanche Advisory issued on Friday, March 18, at 7:30 a.m. Alpine Orthopedics, in cooperation with the Friends of the Avalanche Center, sponsors today's advisory. This advisory does not apply to operating ski areas.

### Mountain Weather

Low level moisture and lingering instabilities yesterday produced an additional 1-2 inches of snow in the mountains near Big Sky and Bozeman. Further south 2-3 inches fell. Winds shifted to the S and SW blowing 15-30 mph this morning with temperatures in the low teens F. In Hyalite Canyon ridgetop winds were blowing 30-45 mph. A brief ridge of high pressure will provide mostly sunny skies with temperatures around 32 F though it should feel warmer. Winds will continue S and SW at 15-30 mph. Light snowfall should start tomorrow morning with a bit more coming tomorrow evening.

### Snowpack and Avalanche Discussion

The Bridger, Madison and Gallatin Ranges, the Lionhead area near West Yellowstone, the mountains around Cooke City and the Washburn Range:

More snow = more avalanches. With SWE ([snow water equivalent](#)) totals ranging from 1.6 - 3.3 inches from this week's storm, the snowpack was pushed to its breaking point in a few places, and several large avalanches were observed.

- One just south of Sacajawea in the northern Bridger Range. This one occurred on a N/NE aspect and was estimated to be 4 feet deep and 600 feet wide.
- 2 natural avalanches just south of Cooke City ([photo](#)) on wind loaded E aspects. One appeared to have broken in older layers of snow. Another occurred on the Fin of Mt. Republic on Tuesday morning ([photo](#)).
- At Moonlight Basin two avalanches occurred very early yesterday morning on aprons underneath chutes. These were likely triggered by the weight of sluffing snow.

Smaller avalanches breaking in the storm snow occurred as well. The Bridger Bowl Ski Patrol triggered numerous pillows 6 – 24 inches deep by breaking cornices and using explosives. The Big Sky Ski Patrol saw several small avalanches in the adjacent backcountry terrain on S aspects.

So what? Snow is like any structure. Provide enough load (i.e. new snow) and it will break. This storm exposed the few slopes that contained some weakness. Keep in mind that weak is a relative term. Fortunately there are no widespread persistent weak layers in the snowpack. There was a faceted layer in the southern Madison Range, and Eric and I went to Teepee Basin to reassess this layer. To our delight, it had gained strength during warm weather prior to the storm. We saw numerous sluffs in the new snow (a good sign) and no slab avalanches. Additionally this layer no longer propagated fractures in any of our extended column tests. To get an avalanche, a fracture needs to not only initiate in a weak layer but then propagate across a slope.

Now what? Winds increased overnight and the primary avalanche concerns remain fresh wind slabs and pillows which will likely break on steep slopes. A secondary concern will be larger avalanches in isolated areas. These will become less likely with each passing day, but recent natural avalanche activity is Mother Nature's warning to remain conservative in your decision making. The more time we allow the snowpack to adjust to the weight of new snow, the stronger it will be. Today the avalanche danger is rated [\*\*CONSIDERABLE\*\*](#) on wind loaded slopes

steeper than 35 degrees. All other slopes have a [MODERATE](#) danger.

**WET SNOW:** With bright sunshine, warm temperatures, and plentiful new snow, watch for wet snow avalanches today mostly at low elevations. Slopes with exposed rock bands can get especially warm. This avalanche problem is a major concern for ice climbers where even a small avalanche can have serious consequences.

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.

Avalanche Video Clip from Utah

<http://youtu.be/1ynAm5Wao1I?hd=1>

This is a great clip of a snowmobiler triggering a slide on March 9<sup>th</sup> in the Uinta Mountains, UT. He hurt his leg, trashed his machine, but should recover fine. Watching the clip a few things stand out:

1. Small slopes can be dangerous, especially when slides push you into trees.
2. His helmet cam shows how fast even a small slide accelerates.
3. Partners watching from a safe zone are worth their weight in gold.