GNFAC Avalanche Advisory for Fri Mar 1, 2013

Good morning. This is Mark Staples with the Gallatin National Forest Avalanche Advisory issued on Friday, March 1 at 7:30 a.m. **Montana Import Group** in partnership with the **Friends of the Avalanche Center** sponsors today's advisory. This advisory does not apply to operating ski areas.

Mountain Weather

Since yesterday the Madison Range received 4-6 inches of low density snow. All other areas received 1-2 inches. This morning temperatures were in the low 20s F. Ridgetop winds in most areas were blowing westerly 10-15 mph with gusts up to 30 mph; however, in the Bridger Range and Hyalite Canyon winds were averaging 25 mph and gusting 30-40 mph from the W. Today will start mostly cloudy and dry as the day progresses with a brief ridge of high pressure building for Saturday. Temperatures should rise to the low 30s F and winds shouldn't change much. More snow will come Sunday.

Snowpack and Avalanche Discussion

Bridger Range Madison Range Gallatin Range

Lionhead area near West Yellowstone Cooke City

The combination of some new snow and steady winds means **fresh wind slabs** near ridgetops can be triggered today. Local ski patrols easily ski cut soft wind slabs yesterday. Fortunately this avalanche problem should be predictable. It is also easy to see and avoid.

Buried layers of **weak faceted crystals** are a more difficult problem. These layers are buried up to 3 feet deep and continue to produce avalanches clear warning signs (recent Bridger Range **avalanche**, and **others**). Several things make this layer tricky to manage today:

1. *Spatial variability*: These faceted layers exist throughout the advisory area (Madison Range **video**, Cooke City **video**). However, their distribution is not uniform. On some slopes they remain very weak. On others they are stronger while some slopes do not have these layers at all.
2. *Difficult to trigger*: Last weekend was last significant load of new snow. Since then, it has become more difficult to trigger an avalanche on these layers but the possibility is very real today. Hidden rocks are good trigger points as in this avalanche. Thin areas are also good places to trigger one (example in this **video**)
3. *Good powder and supportable snow*: With good powder on many slopes and very supportable conditions for snowmobiling, it is easy to forget about these layers which may be lurking beneath your skis, snowboard, or track. The only way to know if they exist is to pull out a shovel and dig 3 feet deep.

On Wednesday, Doug and Karl found these faceted crystals in the northern Gallatin Range on Mt Ellis. They had concerns along the ridge where wind-deposited snow added both stress and a cohesive slab. Lacking this slab and this load further down in the burned area, they felt comfortable skiing in avalanche terrain. HOWEVER, yesterday Eric and I investigated a natural avalanche nearby on Mt Wheeler (**photo**, **crown profile**) where the terrain is generally steeper and experiences more wind. This slide likely occurred last Sunday following significant snowfall. More snow is expected this Sunday and similar slides could easily happen if any significant snowfall occurs.

Don’t be discouraged. You can ride all day long on slopes less than 30 degrees with minimal avalanche concerns. Also, you can definitely find stable slopes but it takes work (i.e. several snowpits and multiple stability tests) to ensure you’ve found one. Unfortunately with wind slabs near ridgetops and weak layers of facets in the snowpack, triggering an avalanche remains possible. For this reason today the avalanche danger is rated **MODERATE**.

Minimizing False-Stable Test Results

Stability tests are not always accurate. Getting stable results during unstable conditions happens about 10% of the time. Digging multiple snowpits and performing several stability tests can reduce this occurrence to about 1%. Karl and Doug studied the “false-stable” problem and wrote this **paper**.

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 or call us at 587-6984.