

[GNFAC Avalanche Advisory for Sat Dec 18, 2010](#)

Good Morning. This is Mark Staples with the Gallatin National Forest Avalanche Advisory issued on Saturday, December 18, at 7:30 a.m. The Big Sky Ski Patrol, in cooperation with the Friends of the Avalanche Center, sponsors today's advisory. This advisory does not apply to operating ski areas.

Mountain Weather

This morning temperatures were only a few degrees above zero F and calm SW winds were blowing 5-10 mph with a few gusts reaching 20 mph. Things should change today as a strong Pacific storm system moves inland mostly through CA, NV and UT. Winds will increase to 15-30 mph from the SW and temperatures will reach the mid teens F. Snowfall should begin this afternoon with about 4 inches accumulating by tomorrow morning in the northern half of the advisory area and 4-6 inches in the southern half.

Snowpack and Avalanche Discussion

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

Fragile weak layers exist in the snowpack near Big Sky and Cooke City. In the mountains near Big Sky including the Buck Ridge area, the primary weak layer is surface hoar though other faceted crystals have been found on some slopes. The surface hoar is buried 10-17 inches deep ([photo](#), [video](#)) mostly on aspects and elevations sheltered from strong westerly winds that occurred 9 days ago. Surface hoar has a deadly reputation for existing in pockets and catching people off guard when they didn't think it existed on a given slope. It is also very weak and created a small avalanche on a 22 degree slope on Thursday just out of bounds at the Yellowstone Club ([photo](#), [video](#)). When avalanches occur on 22 degree slopes, I get very nervous.

Near Cooke City, a similar layer of surface hoar exists about 2 ft deep, but it was buried before winds could destroy it and exists on many slopes. These mountains also have a layer of radiation recrystallized facets on slopes with a southerly aspect which includes many popular areas like Scotch Bonnet Mountain and Mt. Abundance which have both repeatedly produced deadly avalanches.

With these weak layers present and producing avalanches, human triggered avalanches are likely and dangerous avalanche conditions exist. Snow and wind today will only make the situation worse, requiring cautious route-finding and careful snowpack evaluations. Some stable slopes can be found, but it will take hard work and multiple snowpits to find them. For these reasons, today the avalanche danger is rated [CONSIDERABLE](#).

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

The mountains near Bozeman and West Yellowstone including the southern Madison Range lack widespread faceted layers like surface hoar; however, some areas of instability do exist. Skiers in Hyalite Canyon yesterday triggered a pillow/slab of wind deposited snow with a large cornice and reported finding some buried surface hoar "up high" and mostly on north aspects. Skiers near the Bacon Rind drainage in the southern Madison Range also found buried surface hoar. On Thursday at Lionhead, Doug and I clocked over 40 miles on our sleds and dug numerous pits in the hunt for surface hoar. We didn't find it but in on pit on a north facing slope, we found a sensitive layer of very small faceted crystals.

These instabilities are not widespread but give good reason to carefully evaluate stability. After digging a snowpit in a representative location, we sometimes assume that our findings mirror the conditions on our chosen

slope. Without widespread weak layers we can do this with a reasonable level of confidence, and today the avalanche danger is rated MODERATE.

Eric 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.

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.