GNFAC Avalanche Forecast for Mon Dec 21, 2009

Good Morning. This is Eric Knoff with the Gallatin National Forest Avalanche Advisory issued on Monday, December 21 at 7:30 a.m. **Hans Saari Memorial Fund**, 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 three inches of new snow has fallen in the Bridgers with two inches falling in the northern Madison Range and the mountains around Cooke City. Only a trace of new snow fell in the northern Gallatin Range and mountains around West Yellowstone. Ridgeline winds have been out of the W-SW at 25-35 mph. Temperatures are in the high 20's to low 30's.

Today we can expect more warm weather with valley temperatures climbing into the 40's with upper elevations getting well above freezing. A chance of valley rain and mountain snow will continue through the day. Winds will remain constant along the ridgtops at 15-25 mph out of the W-SW. Another storm is scheduled to move into southwest Montana tomorrow bringing a better chance of measureable precipitation.

Snowpack and Avalanche Discussion

The southern Gallatin Range, the entire Madison Range, the Lionhead Area near West Yellowstone, the mountains outside Cooke City and the Washburn Range

Two weeks ago I imagined a linear progression of the snowpack from good in the northern Madison Range to terrible in the south near Lionhead. My vision held true for a short period of time, but now has disintegrated as weak and unstable conditions have formed across the entire Madison Range.

Yesterday Doug and I toured around the Taylor Fork area and found widespread instability. We encountered settling slopes and numerous natural avalanches. These natural avalanches varied in size and occurred on a variety of aspects with east facing being the most predominant. The largest natural avalanche we studied occurred on an E facing slope at 9,100 ft. This slide broke 200 feet across, two feet deep and consisted of a hard wind slab sitting over a very weak layer of facets. Cohesionless, sugary facets are pervasive throughout the bottom half of the snowpack, which is now capped by a thick slab ranging from 10-18 inches in thickness.

Photo of Taylor Fork avalanche: http://www.mtavalanche.com/images/09/taylor-fork-natural-avalancheSnow profile: http://www.mtavalanche.com/images/09/taylor-fork-crown-profil

Conditions in the southern Madison Range outside of West Yellowstone are no different. A thick slab sitting over 12-18 inches of rotten, faceted snow has made for extremely unstable conditions. All slopes steeper than 35 degrees should be avoided.

In the northern part of the Madison Range a skier in Beehive Basin reported an avalanche on the east facing slope that sits between Beehive and Middle. This slide broke 30 feet across and ran 400 vertical feet. It appeared to be triggered by a skier initiated cornice drop. Large surface hoar was also observed in this area. With more snow and wind on the way this surface hoar layer could add more problems to this already troubled snowpack.

The mountains outside of Cooke City seem to be a bit more stable. Snowmobilers riding steep slopes indicate the snowpack has some strength. However, thick slabs sitting over weak layers do exist. With more snow and wind on the way we can expect the avalanche danger to increase.

Today, human triggered avalanches are likely and the avalanche danger is rated **CONSIDERABLE.**

The Bridger and northern Gallatin Ranges:

Stability is a shade better in the Bridgers and northern Gallatin Range, but not by much. The waiting game is on to see if small amounts of new snow and warmer weather and will help heal the snowpack or if a large snowfall will move the snowpack past the tipping point. I'm guessing it will take a major load, 2-3 feet of new snow, to create a large scale natural avalanche cycle. Only time will tell.

In the meantime, the structure of the snowpack has the ingredients necessary to produce avalanches. Steep slopes, slabs and weak layers are prevalent throughout both ranges. The final ingredient needed to produce avalanches is the proper trigger. Wind loaded slopes steeper than 35 degrees will like produce avalanches with a human trigger. With more snow and wind on the way the avalanche danger will increase.

Today a **COSIDERABLE** avalanche danger exists on all wind loaded slopes. All other slopes have a **MODERATE** avalanche danger.

Mark will issue the next advisory tomorrow morning at 7:30 a.m. If you get out in the backcountry give us a call or email with your observations. You can reach us at 587-6984 or email us at mtavalanche@gmail.com.