

## **GNFAC Avalanche Advisory for Mon Nov 17, 2014**

This is Doug Chabot with early season snowpack information issued at 7:30 a.m. on Monday, November 17. Today's information is sponsored by the [Montana Import Group](#) in partnership with the Friends of the Avalanche Center. This information will be updated as conditions change.

### Mountain Weather

The cold snap ended and 25F never felt so warm. Who needs a hat? Five days of frigid temperatures (minus teens in the mountains) with a few snow storms cured me of wondering when winter would arrive. It's here, like it or not. The first half of this week looks to be sunny with mountain temperatures in the teens to upper 20s and a sweltering mid-thirties in the valleys. Ridgeline winds are out of the northwest and will blow 20-30 mph for the next few days. Later in the week clouds will return with a chance of light snowfall.

### Snowpack and Avalanche Discussion

The snowpack in the mountains is slowly building. Eight to 10 inches of snow is covering the ground from the Bridger Range to the Big Sky area with the mountains south of Big Sky to West Yellowstone having 16 inches. Cooke City, always one to lead the pack, is showing 2 feet on the ground.

A thin snowpack and wickedly cold temperatures are a bad combination. Together they have the power to change perfectly formed snowflakes into angular snow that falls out of your hand like sugar. You cannot make a snowball out of it. It is weak and may avalanche as winter begins building the snowpack. The difference of 0 Celsius at the ground to very cold air temperatures in a few inches creates a steep temperature gradient which changes the structure of the snow crystals. We call the result depth hoar. Mark took three photos in his yard to illustrate the process. [Picture 1](#) + [picture 2](#) = [picture 3](#).

Last season was a bad one for avalanches because we grew depth hoar, a very weak, unstable foundation to the winter's snowpack. Last week's cold weather created similar conditions and we will be monitoring this base layer of snow carefully in the coming month. Unlike Mark's backyard, skiers outside of Cooke City found the snow to be dense and strong. The only avalanche activity were some fast moving point release slides ([photo](#)) on steep slopes. In ranges with less than a foot of snow on the ground I am expecting depth hoar.

In most areas the dangers from skiing are related to obstacles: rocks and logs thinly buried. With winds moving snow at the upper elevations avalanche danger will be a concern where the skiing is deepest: gullies, couloirs and other terrain depressions that catch the snow. For ice climbers the danger can be acute because small slides can push us off of cliffs. Hunters are also at risk since they can be solo and not focused on the snow. These dangers are not hypothetical. Hunters and ice climbers have died in avalanches southwest Montana.

Travel protocol in avalanche terrain is the same no matter what you are doing. The snow doesn't care if you're carrying a rifle, ice tools or wearing skis. Travel one at a time into avalanche terrain and watch one another. If you are out searching for turns you should also carry a beacon, shovel and probe. Don't cut corners because it's early season.

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We will update this information as conditions change. In the meantime tune up your avalanche knowledge with a class. Take a look at our [Education Calendar](#) for a current list of offerings.

Some highlights:

November 18, 7 p.m.: Big Timber, Sweet Grass County HS

November 19, 7 p.m.: Big Sky, Grizzly Outfitters

November 20, 6 p.m.: Bozeman, MSU, Roskie Hall

November 24, 7 p.m.: Bozeman, Northern Lights Trading Company

**MSU - Introduction to Avalanches with Field Course**

The workshops are held on Wednesday and Thursday evenings, with a field course on Saturday. Different topics are presented each evening. Topics include: avalanche terrain recognition, the affect weather has on avalanche hazard, the development of the mountain snowpack, decision making skills, and basic search and rescue procedures.

December 3, 4 and 6 or 7, 2014: <https://www.ticketriver.com/event/13089>

**Snowmobiler Introduction to Avalanches with Field Course**

Five hours of lectures are followed by a full day field course. Topics covered include: avalanche terrain recognition, the affect weather has on avalanche hazard, the development of the mountain snowpack, decision making skills, and basic search and rescue procedures.

[West Yellowstone: Dec 18 and 19, 2014](#)