Backcountry Weekly Summary

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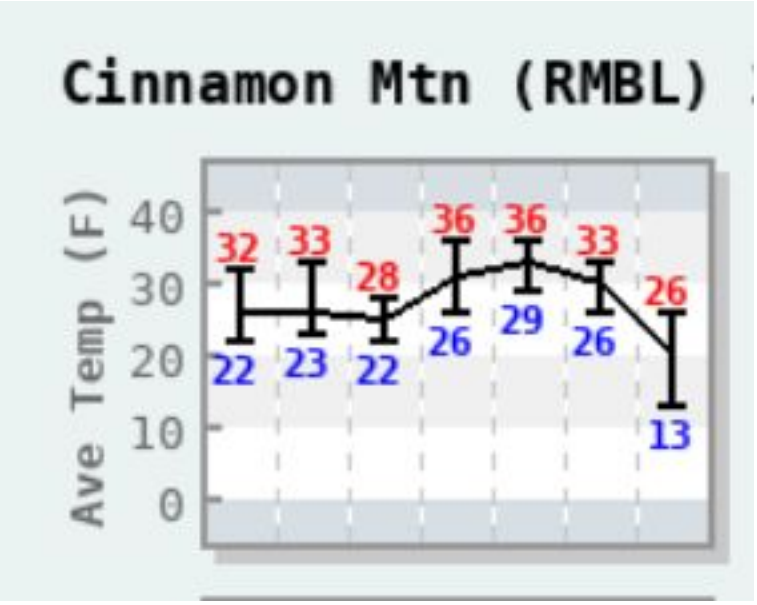
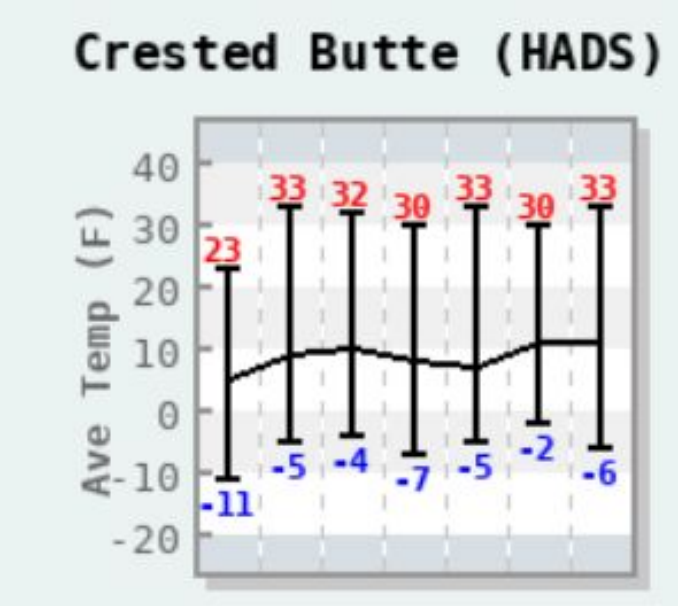
Week and Year	12/5/20-12/11
Backcountry zone:	Crested Butte Area

Notable Weather Events (snowfall, SWE, winds, temps, etc.)

The beginning of this period began where last week left off. High pressure, warm mountain temperatures, and clear skies. With a high-pressure ridge blocking any potential moisture from entering Colorado, temperatures in the mountains near Crested Butte rose to well above average for this time of year. Mountain temperatures in Elkton (11,100') and CBMR (11,300') reached up to 50 degrees throughout the week, while the freezing level rose to above 12,000 ft. Cinnamon mountain weather station (12,293') saw a high of over 32 degrees from December 7th through December 9th. Strong inversions developed in valley bottoms: throughout the week, overnight lows in valley locations were 20 to 30 degrees lower than 11,000 ft. The inversions generally burned off by 10 am with max temperatures in Crested Butte and Gunnison reaching near freezing each afternoon. The mild weather combined with calm to light winds allowed for gorgeous days spent in the backcountry. With low avalanche danger across much of the forecast area throughout the week, it has been a great time to get out and enjoy the sunshine.

Here is a Meteogram contrasting upper elevation temperatures with valley temperatures. The Cinnamon Mtn weather station (12,293') frequently rose above freezing levels during this period. The Crested Butte weather station (8,860') in town shows how valley temperature inversions have been prevalent.





On Thursday, a low-pressure system FINALLY began to move along the US-Mexico border. The storm made its way into our zone Thursday night. We woke up Friday morning with 1 to 3 inches of snow, with 3-5 inches expected throughout the day. Light westerly winds with moderate gusts are expected to transport small amounts of snow on leeward ridges. Saturday we get storm number 2. A low-pressure trough dropping in from the northwest will close off and pass over Colorado. This looks like a quick-hitting, but a much stronger storm. It's about time we finally got some snow!

Snowpack (weak layer date(s) and status, structure, stability trends)

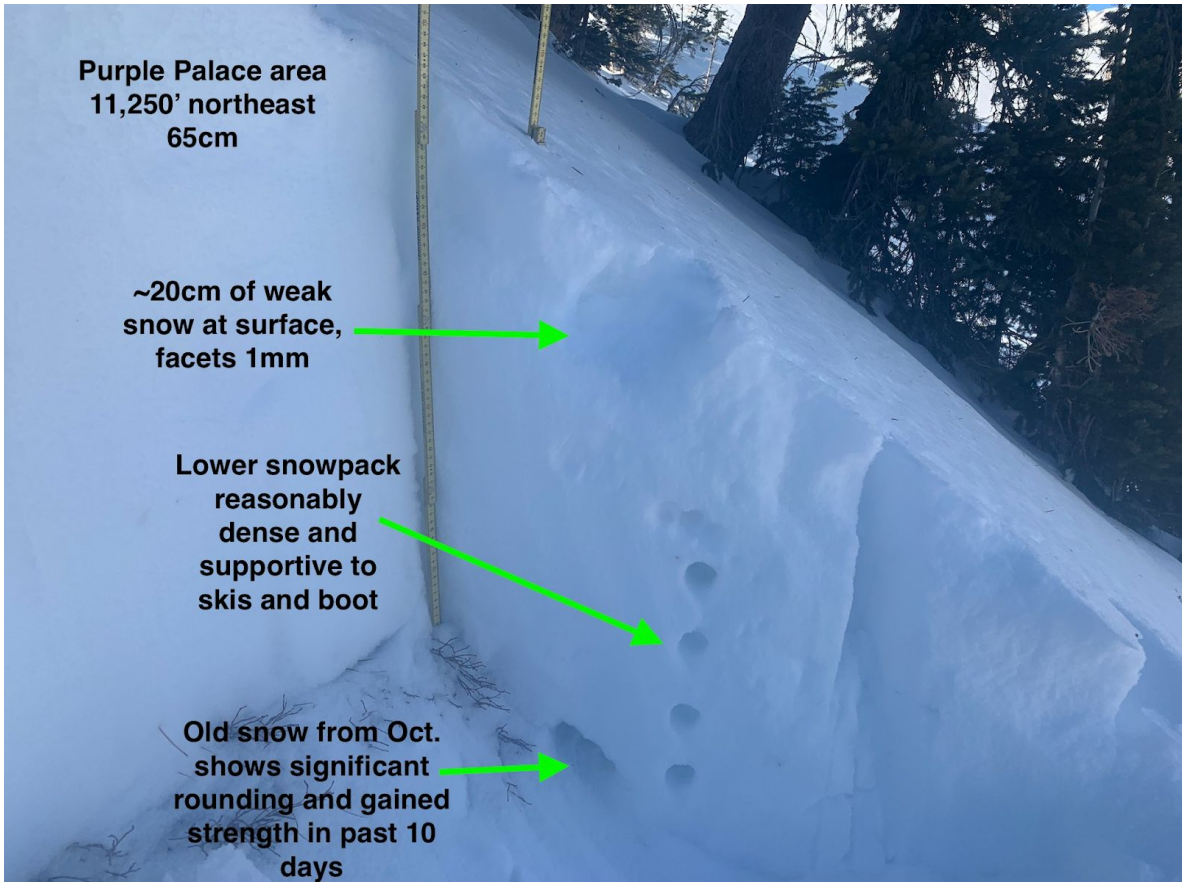
Southeast Mountains

Without any slab avalanche activity within the last week, our main avalanche problem has remained as dry loose avalanches. Due to high pressure, much of the snowpack near Crested Butte on the Northern half of the compass has faceted away from top to bottom with facets up to 2mm in size. In areas closer to the Crested Butte inversion, with a shallower snowpack, facet sluffs have gouged to the ground with the potential to knock riders off their feet into rocks, stumps, and other early-season obstacles. In the shallow areas of our forecast zone, near-surface facets are widespread on the surface.

On east-facing aspects, a thin 1-2cm melt-freeze crust is sitting on top of 15-20 cm of facets. Below the facets lies another melt-freeze crust from our dry period from 11/14 through 11/21. These crusts in the midpack have developed aggressive facets above and below them which will prove to be an efficient weak layer/ bed surface for producing avalanches once we get a new loading event. Much of the snow on south-facing aspects has melted to the ground at near and below treeline elevations; where snow remains, it consists of a stout crust often with small near-surface facets above it.

Northwest Mountains

The snowpack in the northwest mountains is deeper and generally allows for more supportive skiing and riding, with a 1 finger mid/lower pack remaining at many mid to upper elevations. As in the Southeast Mountains, the snow surface is exceptionally weak: 10-25cm of fist hard facets are widespread at the top of the snowpack. While this has been fine to ski, for now, a new loading event such as the one predicted this weekend will likely stress this very weak upper snowpack to failure. Similar crusts exist as you turn towards more southerly aspects.



The more supportive, "right-side-up" snow structure in the Northwest Mountains has made for fun skiing under blue skies over the past week in the Crested Butte backcountry. While the dry, clear weather has been nice and allowed us to access the alpine relatively easily, this new storm will cause us to change our travel methods and revert to safer terrain as our current surface snow will create a widespread avalanche problem with the new snow event.

12/11 Interface

Dry pressure the last two weeks has rotted away nearly all snow surfaces in our forecast zone. The 12/11 interface marks the end of our high-pressure spell. The layer is characterized by well-developed facets. The facets are larger on shaded aspects and are associated with crusts on sunny aspects. With the new storms coming in from Thursday-Saturday, along with potential incremental loading every couple of days throughout the rest of the month, the current weak surface snow will act as a widespread persistent weak layer... As a new slab builds on top of this widespread weak layer, slab avalanches will become more common. Even small slabs will have the ability to entrain more snow than expected if they gouge through the entire, rotten snowpack. This persistent weak layer will likely be a problem to haunt us for a long time.

Avalanches

All of our avalanches in the Crested Butte forecast zone during this period have been dry loose avalanches. Valley inversions, cold temperatures, and dry weather have weakened the snowpack for much of the area. In the areas closer to the inversion area of Crested Butte, the snowpack is weak top to bottom on shady aspects. In these areas we have seen dry loose facet sluffs entrain most of the snowpack in steep, funneling avalanche paths. You can check out these observations from Happy Chutes and Climax Chutes to give you an idea of this avalanche problem.

Skier triggered a dry loose avalanche on Schuykill Ridge

Dry loose avalanche on Climax chutes.

In the northwestern mountains, where the snowpack is a little deeper and further from the inversion zone, there is a more supportable 1F midpack with about 15 to 25 cm of facets on top. This is causing only the top 15-25cm to sluff out into a dry loose avalanche.

Dry loose avalanche off Schuylkill Peak

Long-running dry loose avalanche on steep N aspect

Comments (anything unusual/noteworthy, thoughts on the near future)

Finally! The high-pressure ridge has broken down and we are getting some new snow. As storm totals increase throughout the weekend, expect avalanche danger to increase with it. This new snow is falling on top of a **very very weak snowpack.** The dry loose avalanches of the past week are clear indicators of how poor the snow structure is. It will not take much of a new load to cause failure in this snowpack. When uncertain, it's best to err on the conservative side. Stay safe this week! Below is an expected snowfall forecast for this weekend!