Backcountry Weekly Summary

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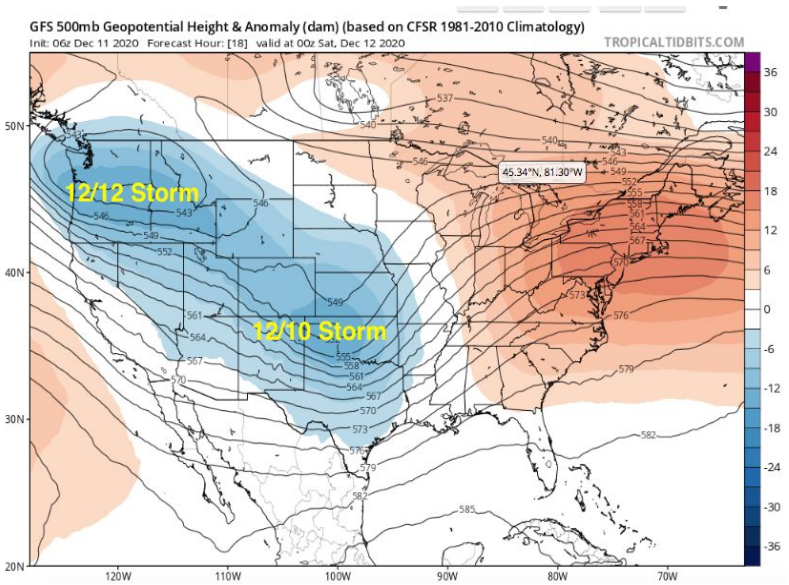
Week and Year	12/12/20-12/18/20
Backcountry zone:	Crested Butte Area

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



This period started with much-needed moisture **FINALLY** entering our forecast area. As the high-pressure ridge broke down, we welcomed the arrival of our first low-pressure trough in 2.5 weeks! Snow started falling on Thursday the 10th, and we woke up with 1-3" of snow across our forecast area early Friday morning. As the day went on, the trough parked right above the Crested Butte area causing storm totals to surpass predicted amounts. Under a west/northwest flow, we received 6-12" throughout our forecast areas with isolated areas of the Ruby Range seeing a bit more! Here's an observation from the Purple Palace area showing a foot and a half of new snow!

Another storm under westerly flow passed through our forecast zone again on Saturday. Light precipitation continued throughout the day until about midnight when the storm tapered off. This storm provided us with 3-7" throughout our forecast zone with areas near Paradise Divide and Irwin favored. These back to back storms left us with a much-needed reset for the Crested Butte area.

Unfortunately, late-night winds returned with vengeance. Northerly winds around 30-40 mph and ridgetop gusts up to 55 mph blasted late Saturday night and early into Sunday morning. The winds died down around 9 am on Sunday making for a beautiful bluebird pow day (as long as you weren't skiing recently generated breakable windboard). Early Sunday morning, a transient ridge began to set up over our forecast area closing out our weekend with a cold, but sunny day.

After an eventful weekend of weather, another Pacific Trough associated with snowfall began making its way into our forecast area on Monday morning. This storm brought us 2-6 inches of snow throughout our forecast zone. Schofield Pass Snotel Station received 4" of new snow with .4" SWE. Clouds cleared up Tuesday morning as the Pacific trough ejected eastward.

Throughout Tuesday, Wednesday, and Thursday, the weather was quite pleasant. Mostly sunny skies, occasional light snow, and light northerly winds. As the sunset on Tuesday night, the jet stream sagged over the Elk Mountains, and we saw much stronger winds than expected. Northerly winds began to increase speed around 5 pm Tuesday afternoon, continuing into Wednesday morning. The Cinnamon Mountain weather station saw consistent winds greater than 30 mph with gusts up to 65 mph during the peak of the wind event. As the sun came back out Wednesday morning, we saw calm clear weather through Thursday.

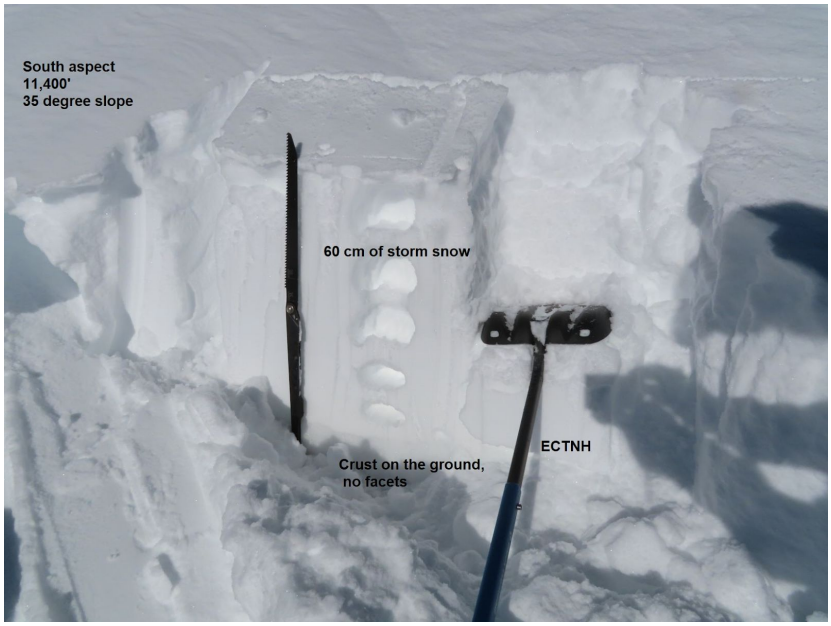
Snowpack (weak layer date(s) and status, structure, stability trends)

12/10 Interface

Before this storm, the Crested Butte area suffered through high pressure from Thanksgiving until Thursday the 10th. The 12/10 interface marks the end of our high-pressure spell. The dry weather event rotted nearly all snow surfaces in our forecast zone. The facets are larger on shaded aspects and associated with crusts on sunny aspects. The only areas where near-surface facets did not develop were on the sunniest aspects where all snow had melted down to the ground. This interface is acting as a widespread persistent weak layer at all elevations on W through N through E through SE aspects. As new snow buried this layer on Friday, we predictably saw widespread natural and human triggered avalanche activity on this layer.

Northwest Mountains

Snowfall totals favored the deepest areas of the northwest mountains from Irwin through Paradise Divide through Schofield pass. 1.5 to 2.5 feet of storm snow developed into a soft slab which initiated widespread failure of the 12/10 persistent weak layer. The most stable skiing in the northwest mountains is found on the sunniest aspects near and below treeline, where all previous snow had melted away before this storm. However, thin conditions still exist and early season hazards can be dangerous. Unfortunately, the wind must have heard that south-facing aspects supplied a stable snowpack, and it decided to ruin that too. Northerly winds drifted new storm snow onto SW-S-SE aspects which built up small wind slabs on leeward ridges above treeline. Recreating in low angle, protected terrain below treeline will be the best way to avoid avalanche hazards and enjoy new snow until the snowpack begins to heal.



The snowpit here shows a south-facing aspect near treeline after the first storm on Friday. It shows a confidence-inspiring stable snowpack. These very sunny aspects are the only areas in our backcountry that hold stable snow in isolated areas. If you can find enough snow to ride on these sunny aspects, they will be the safest. The rest of the compass other than S and SW holds a variety of different buried persistent weak layers.

It is important to note that this pit was dug in the earlier part of this period before wind events. On Tuesday night, northerly winds loaded wind slabs on top of south-facing terrain near ridgelines.

Southeast Mountains

Before the storm Thursday, the southeast mountains had a thin, cohesionless, faceted snowpack on the northern half of the compass. As the compass rose rotated east of north, thin layers of melt-freeze crust with near-surface facets resting above plagued the surface snow and the midpack. On the southern side of the compass, much of the snow either melted to the ground or developed a faceted crust. This makes for a **persistent slab problem** at all elevations on **W-NW-N-NE-E-SE** aspects as it now has a 1.5-2 foot slab resting on top of a variety of persistent weak layers. On Friday, after our first initial storm, CBAC forecasters found that an estimated 90% of North and East facing avalanche paths in the Happy Chutes, Climax Chutes, and Schuylkill Ridge avalanched. It is worthy of noting that Schuylkill Ridge is in the Northwest Mountains of our forecast zone whereas the Happy and Climax Chutes off Mount Emmons are in the Southeast mountains. These areas on the border of our two zones such as Mount Emmons, Coneys, and Snodgrass contain snowpack characteristics of each zone. If you plan on recreating in these areas, plan on reading both zone forecasts before you go out each day.

Avalanches

Persistent Slabs

During this period, we saw our first major avalanche cycle of the season. Widespread natural and human triggered avalanches defined the beginning of a very dangerous winter in the Crested Butte backcountry. As the first bit of accumulation built up on Friday, many avalanches naturally initiated with very little weight.

Early signs of instability the morning after the first storm.

As the transient ridge set up over Crested Butte on Sunday, the sun came out allowing us to see the damage from our back to back storms Friday and Saturday. An estimated 90% of all avalanche paths facing NE in the Slate River drainage ran naturally. Here are a couple of pictures showcasing the carnage of the Slate River. Avalanche crowns are highlighted in red.

Naturals

Natural Persistent Slabs on Schuylkill Ridge

Climax Chutes

Remotely Triggered Persistent Slabs:

During the weekend many recreationists flooded into the Crested Butte backcountry to take advantage of the fresh snow. With a touchy persistent slab problem on all but the sunniest aspects, skier triggered avalanches were a common theme of the week. Many of these avalanches were triggered remotely from ridgelines or connected terrain.

Remotely triggered avalanche on Coneys (southeast Mtns)

Small, remotely triggered slabs from 1200 ft away

Wind Slabs

With strong northerly wind events on Saturday and Tuesday nights, as well as a healthy amount of westerly winds throughout the week, many alpine riglines became scoured and/or cross loaded. On Wednesday morning, wind slab avalanches were added to our problem list joining persistent slabs. Gusty winds generally coming from the north transported snow onto SW-S-SE facing aspects near and above treeline. Below are a couple examples of windloaded slabs failing naturally.

Natural Wind slab on Red Lady Bowl (SE aspect)

Avalanches in cross-loaded areas of Mt. Baldy

While our windslab problem was visually less obvious than our persistent slab problem, it is still a dangerous issue worthy of consideration while traveling in the backcountry. Winds died down on Wednesday night after wind slabs stiffened up, becoming more stubborn to trigger. However, these small wind slabs are still lingering on alpine leeward ridgelines, and could have the potential to step down into a persistent weak layer if you find the right recipe for both avalanche problems.

Incident, accidents, close calls

During this period we had our first reported avalanche related injury of the season. On Tuesday, December 15th a snowboarder triggered a persistent slab avalanche on the north face of Snodgrass near 1st bowl. He was caught and carried into a tree, injuring his leg. The party was able to call 911 and was assisted out of the field by organized rescuers. The avalanche occurred on a below treeline slope at 10,000 feet on a northeast aspect.

Site of avalanche. Crown is shown in green and the tree where the snowboarder was injured is shown in red

This incident, along with all the other natural and human triggered avalanches this week, serves as a reminder of our very fragile snowpack. Wise terrain selection and conservative decision making are a must until our current dangerous snowpack can start to heal.

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

Looking ahead, we will get another storm on Friday, followed by sunny weather throughout the weekend. Our next chance of a storm will be next Tuesday. After our storm Friday, the dry period over the next 4 days may give our snowpack sufficient time to settle and avalanche danger to trend to a safer rating. As of now though, our incredibly weak snowpack has not had adequate time to heal after this initial large loading event this past week. Conservative decision making will be a must throughout the weekend. Patience will be key this season… Go enjoy some low angle pow!