**Backcountry Weekly Summary**

**Intern:** Zach Kinler

**Week and Year:** November 14-20, 2018

**Backcountry zone:** Crested Butte Area

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

Sunny skies, a strong inversion followed by the warmest high temperatures of the season highlight this week in weather. High Pressure re-established itself over our area for most of this week as our two + week stretch of snow and/or wind came to an end. Along with the high pressure, a strong inversion developed in the Gunnison Basin and this pattern was locked in, as is the case many times when there are cold temperatures and continuous snowpack down to valley bottoms with a lack of mixing under strong high pressure. During this time we also saw highs climb above freezing up to ~12,000’ with clear skies and strong solar radiation.

The week ended with a quick, cold shortwave riding the backside of the ridge and dropping 1”-4” of snow and strong Northwest winds. Not a big storm in itself but it signals the start of a pattern change that may allow several more storms to impact our area during this next week.

Below on the left is a screenshot of the weather stations in our area on the morning of Dec 17th with the temperature profile clearly showing much warmer temps as you gain elevation and colder temperatures at low elevations. On this day, a 32F difference in low temperature is present. Below and right is 500mb pressure for Dec 17-21 showing the high pressure trend over the western US during this time.
**11/22/2018 Interface:** This interface has already been given several names, Gobbler interface, Turkey Day interface, Thanksgiving interface. Early November snowfall provided a mostly continuous snowpack in our snowbelt North and West of town, and continuous snowpack on N-E aspects near and above treeline in the Eastern/Southern zones. This snowpack faceted away during our mid November dry spell and is now well developed facets and early Depth Hoar. Once buried this layer was immediately reactive with modest loads and easy propagation. During the first week of December after continued snow and winds, several large (D2-D3) natural avalanches in the alpine and near tree line failed on this layer as well as a skier triggered D2 avalanche on a West aspect in an area where explosives had been used prior with no results. This highlights the tricky nature of this PWL. Last week, this layer produced another small skier triggered slide on a West aspect BTL and two large (D2-D3) slides on E-SE aspects in the alpine.

We have not seen a natural or human triggered avalanche on this layer since Dec. 13th. Reports of cracking and collapsing on this layer have decreased and long column tests are starting to consistently show no results on this layer. These facets and depth hoar are still showing signs of rounding and sintering but are still only 4F hardness in most places. With up to 1F slabs resting on top, the structure is ugly but failure is becoming less likely.

In our Eastern zones, this layer appears to be alive and well and has produced “plenty of old avalanches” as seen in this observation from the Cement Creek zone where the snowpack is much thinner but has a growing slab over well developed facets. Below treeline, the slabs are quickly faceting out in these shallow zones with isolated slabs still possible near and above treeline.

**12/12/2018 Interface:** There were multiple nights of Surface Hoar formation during this week which finally got completely buried on 12/12 across the zone by several inches of snow. Distribution is fairly widespread and has been found in the Kebler Pass, Paradise Divide and Crested Butte areas as seen in these obs( [Wolverine Basin](#), [kebler-pass-buried-surface-hoar](#), [below-and-near-treeline-obs-out-slate-river-valley-and-buried-SH](#)). This layer is very shallow in the snowpack (~10cm) with very little slab on top. Shovel Tilt tests have revealed easy to moderate results on this layer which indicate it may be a problem with future loading.

**12/19/2018 Interface:** This is our most recent and widespread weak layer which developed over the last week of high pressure, sunny skies and cold overnight temperatures and is now buried by 1”-4” of snow or possibly exposed, where the wind has scoured the new snow. On sunny aspects, we are dealing with a variety of crust/facet combos; shady aspects have surface hoar down low and near surface facets as you get near and above treeline as seen here: [se-s-sw-ntl](#) and [afternoon-lap-skook](#). With an entire week of punishment, weak surface forms are well developed and it is quite possible that this will be our next layer of most concern. The profile below shows the large temperature gradient in the top 20 cm, the 12/12 SH and the 12/19 interface above.

![Temperature Gradient Profile](#)
Avalanches

On 12/20 after 1”- 4” snow and strong winds, one small windslab on a westerly aspect was reported here. The only other natural avalanches reported in our zone this week were a few loose wet dribblers from steep sunny terrain during peak heating.

At the ski resort and Irwin, explosives were able to pry out a few small slabs which ran on the 11/22/18 interface but all was quiet other than that.

Incident, accidents, close calls

No incidents were reported in our area, however just to our North in the Aspen zone, a large, human-triggered avalanche most likely occurring on Dec. 15th. This slide was above 12,000’ on an East aspect in complex avalanche terrain. It propagated quite far and illustrates the type of avalanche that is still possible around our area which has a similar snowpack. Below is a picture of that slide from Josh Vogt.
With a return to snowy weather on the horizon, it looks like we will get back to building our early season snowpack. Continued snowfall will bury our basal weak layers deeper and hopefully continue the healing process that we have seen on these layers. Our attention will be on our latest weak layer(s) near the surface as these may be more sensitive and come to life with smaller loads, however we will still pay close attention to our deepest and potentially most destructive weak layer.