Backcountry Weekly Summary

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Week and Year	December 21-27, 2018
Backcountry zone:	Crested Butte Area

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

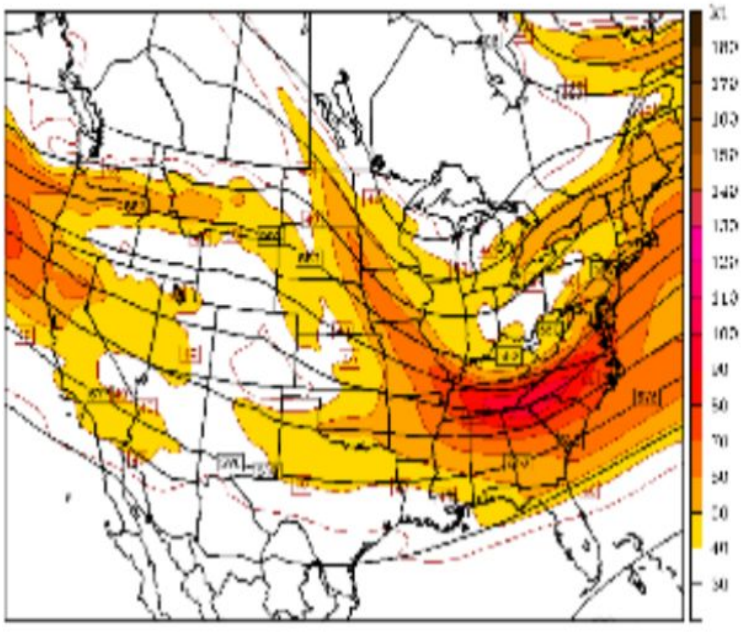
This week starts out with the overall weather pattern transitioning into an unsettled period with colder temperatures and incremental snowfall. This snowfall was not continuous, it came in waves associated with multiple shortwave troughs originating from the Pacific NW. These shortwaves were quick hitters, packing some moisture, cold air and moderate WSW-WNW winds which was favorable for our area especially North and West of town. The first storm was 12/21-12/22 and laid down 8" snow/.55 SWE at Irwin but only 1" snow at CBMR and area east.

12/23 saw a transitory ridge passing through with fair weather ahead of the strongest shortwave which hit on Christmas Eve. Orographics, driven by the left exit region of a 90K jet, played a big role in this storm with WSW winds dropping down ~12" snow from Paradise Divide down the Ruby Range and in the Kebler Pass area. An intense band of precip set up along the Kebler corridor into town where snow totals were similar to the high country. Not a surprise with WSW winds and jet support, however this band did not stretch far enough north to give CBMR similar totals, as they only reported 5" snow.

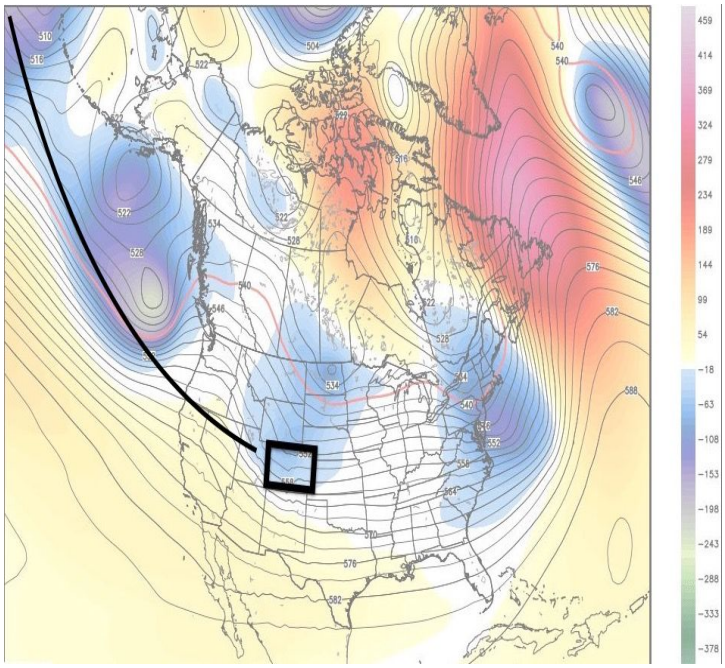
On 12/25-12/26 a larger system dug down into AZ/NM closing off and slowing. Unfortunately this setup does not favor our area with a lack dynamics and minimal orographics under SE flow. Short-lived S-N oriented band passed through providing a few inches favoring our Western zones. This was the warmest day of the period with southerly flow in place. Freezing level rose to ~ 11,000' during the day.

The week ended with another low pressure system dropping south over Arizona, with light snow in this part of CO.

500 mb pressure and winds prior to the 12/24 storm showing a somewhat zonal flow with the jet oriented directly at Colorado.

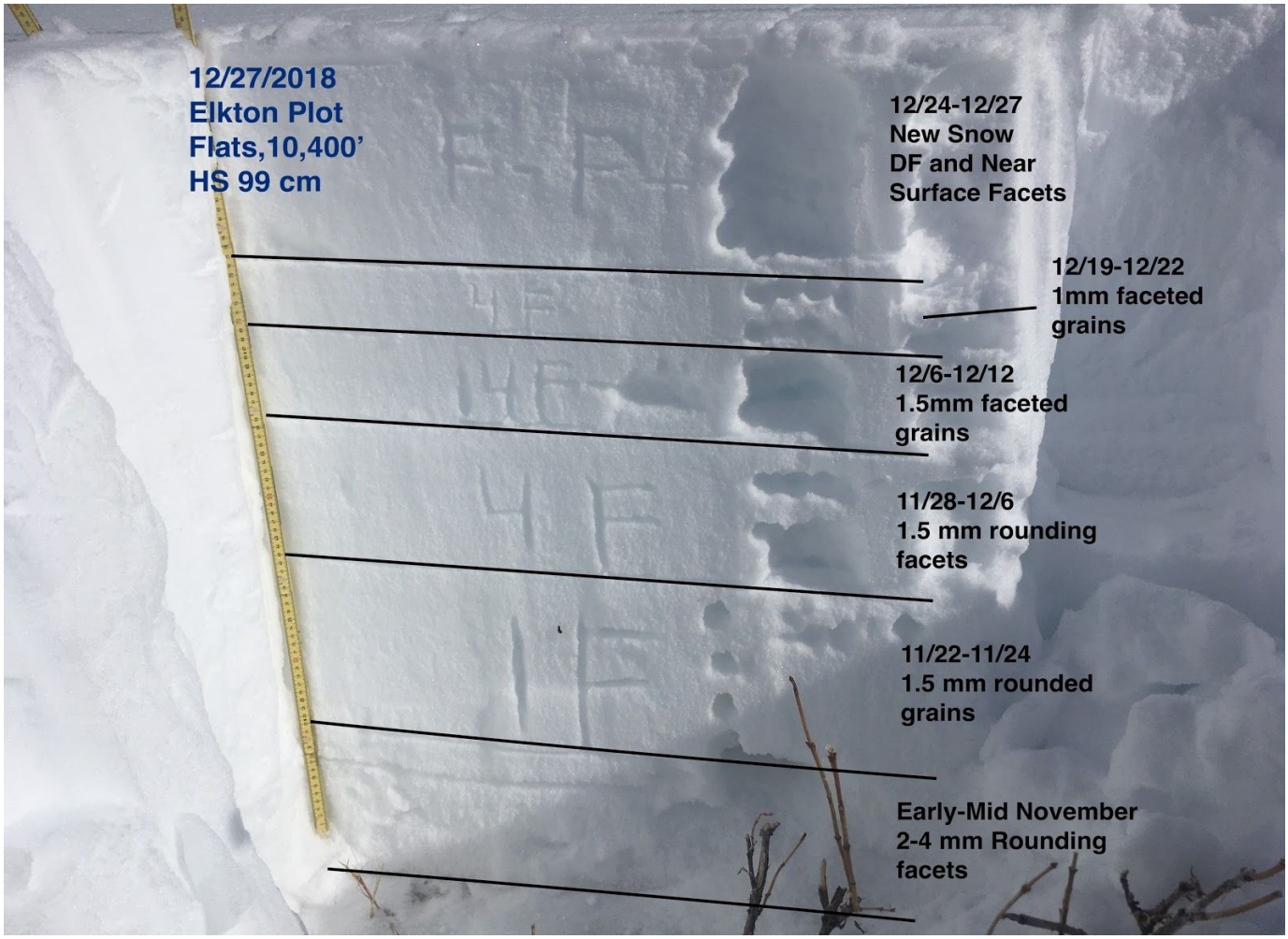


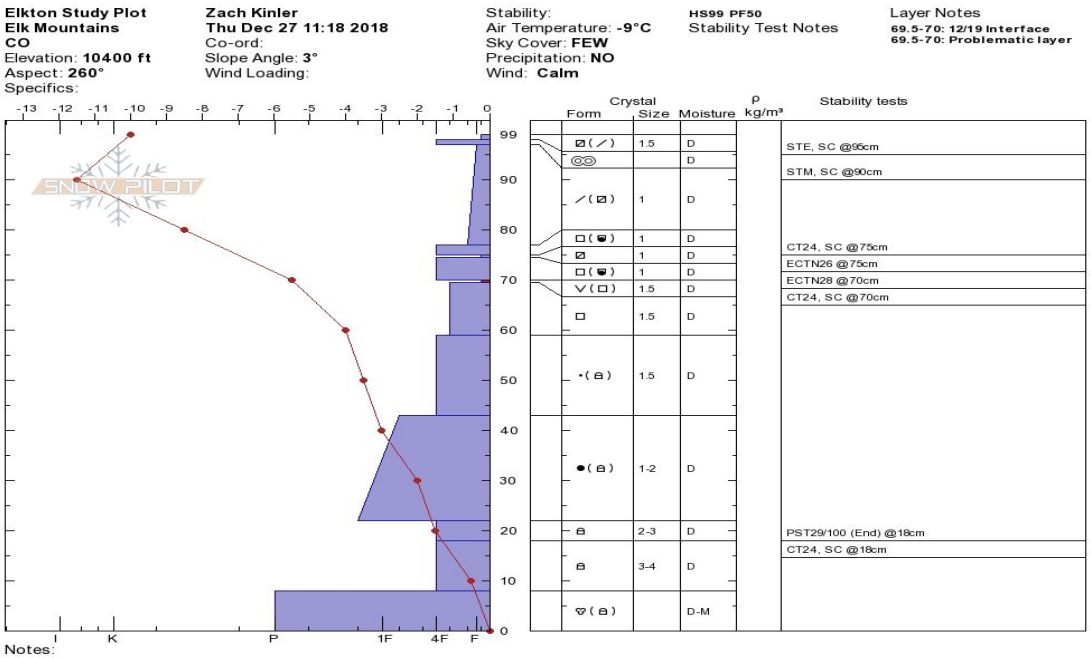
Larger scale view from early this week illustrating the 3 shortwaves that passed through originating from the Arctic.



Snow Totals from this week: Irwin: 21” snow/ 1.35” SWE
Schofield: ~15” snow/ 1.2” SWE
Upper Taylor: ~8”/.7 SWE
CBMR: 10” snow/ .725 SWE

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





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. During the second week of December, 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 after continued winds and snowfall.

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 continuing to consistently show no results on this layer. These facets and depth hoar are still showing signs of rounding and sintering and are at least 4F hardness in many places with deeper locations in the alpine at 1F hardness.

In our Eastern zones, this layer was alive and well in early-mid December and has produced “plenty of old avalanches” as seen in this observation from the Cement Creek zone where the snowpack is much thinner. It has now been weeks since an avalanche has been reported in these zones, however there have not been any observations from these areas. Because of the shallower snowpack, this interface may be slower to heal than in our deeper snowpack zones.

There is no doubt that this layer has been Stubborn-Unreactive for a couple weeks now but can it hold a large loading event or the weight of an avalanche releasing in the upper snowpack? This layer will not be dropped from the list just yet.

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 now buried between ~45-65 cm with softer F-4F slabs in protected areas to 1F slabs on certain leeward features near and above tree line. Recently, this layer has been less reactive in tests however it is very close to the 12/19 interface and it would be hard to rule it out on a few of the recent slab avalanches that have released in the upper snowpack. Will need to continue to monitor for this one.

12/19/2018 Interface: This is our most recent and widespread weak layer which developed over the second week of December with high pressure, sunny skies and cold overnight temperatures. This layer is now buried ~40-60 cm with softer F-4F slabs in protected areas to 1F slabs on certain leeward features near and above tree line. 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. Three recent D2 avalanches observed here (p-divide-shaded-treeline-structure and north-below-treeline) show slabs breaking in the upper snowpack, quite possibly on this interface. This activity remained isolated with ~1-1.5” SWE spread out over the last week. This layer remains quite weak, getting sudden results in small and large column tests and will be tested with future loading.

12/21/2018 Interface: This ob from Irwin highlights this layer as a crust and small and long column tests from the Elkton Study Plot this week (profile linked in the Snowpack discussion) had failures on this layer which now sits 5 cm above the 12/19 interface at this site. Time and investigation have more to provide on this layer but it will be watched.

Avalanches

At Irwin on 12/22 after 8” snow and moderate winds, multiple wind slabs were released with ski cutting. More info on that at: http://cbavalanchecenter.org/irwin-cat-ski-obs-6/. Another small D1 was reported after the same event on 12/23. Our Christmas Eve storm, which dropped ~12” snow with moderate WSW winds pushed our most recent interfaces but only managed to release 3 D2 slabs which all ran mid slope in the upper snowpack more than likely on or around the 12/19 interface.
These avalanches were on S, SE and ESE aspects where crusts/facet combos are likely. This week, the 11/22 interface had enough strength to support the additional loading while the 12/19 interface is starting to fail with ~1-1.5” additional SWE.

12/27 ESE aspect- Whetstone D2 slab releasing in upper snowpack.

Incident, accidents, close calls

No incidents, accidents or close calls were reported in the CBAC forecast zone this week.

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

Overall this was a great week with accumulating snow and cold temperatures. Our snowpack continues to grow and is pacing right at normal for this time of year. The 6-10 day and 8-14 day forecasts show moisture pushing up from the WSW as the storm track may shift and hopefully bring more moisture to the area.