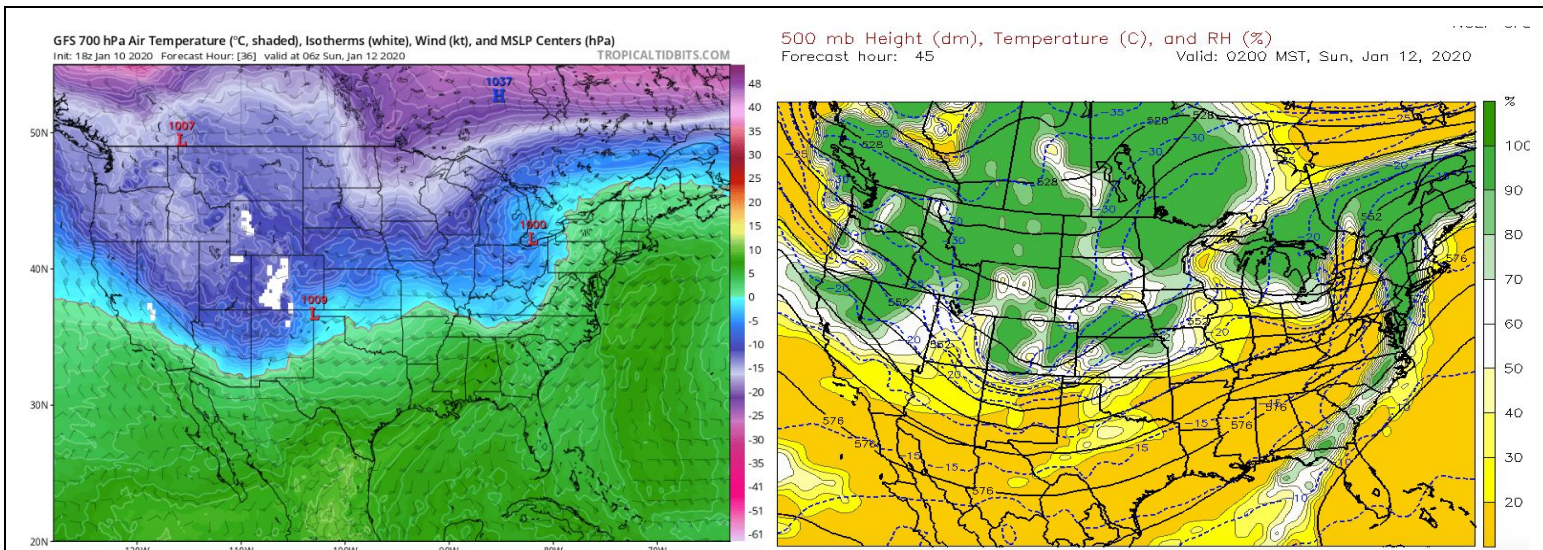


# Backcountry Weekly Summary

Staff:	Zach Kinler
Week and Year	January 10-16, 2020
Backcountry zone:	Crested Butte Area

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



With cold air in place we saw multiple shortwaves pass through with surges of moisture and wind accompanying each wave.

This period began with a series of shortwave troughs, each splitting off from a larger area of low pressure which was situated over most of the western US. 1-4" of snow fell on the last day of the previous cycle which started a five day event. Snowfall on 1/10 heavily favored the Kebler Pass area with ~8" snow while other places received a trace to a couple inches. Light to moderate westerly winds accompanied this wave. 1/11 started with clear skies and sub-zero temps which gave way to increasing clouds and light snowfall by early afternoon. Winds migrated from NW-SW during the day with speeds in the 20s gusting to 40 mph. Light snow moved through overnight. On 1/12, very cold temps were in place with mountain highs only reaching single digits and increasing SW winds in front of the final main trough passage.

Light snow began around 13:00 and continued through the night before gaining intensity on 1/13 as a strong SW jet stream ushered in the last round of moisture. Gusts reached 66 mph on Scarps Ridge while Cinnamon Mt saw gusts into the 50s. Widespread heavy snow fell from around 07:00-11:00 with moderate snow continuing in the mountains for a few hours after. Clearing began by late afternoon. Benign weather closed out this period with mostly clear skies, valley lows near 0F and highs in the upper 20s to near 30F. Clouds increased under moist SW flow on 1/16 ahead of yet another shortwave trough. Freezing level was around 10,500' as we saw the warmest day of the period.

## Snow Total Jan 10-14

**Irwin:** ~24" snow

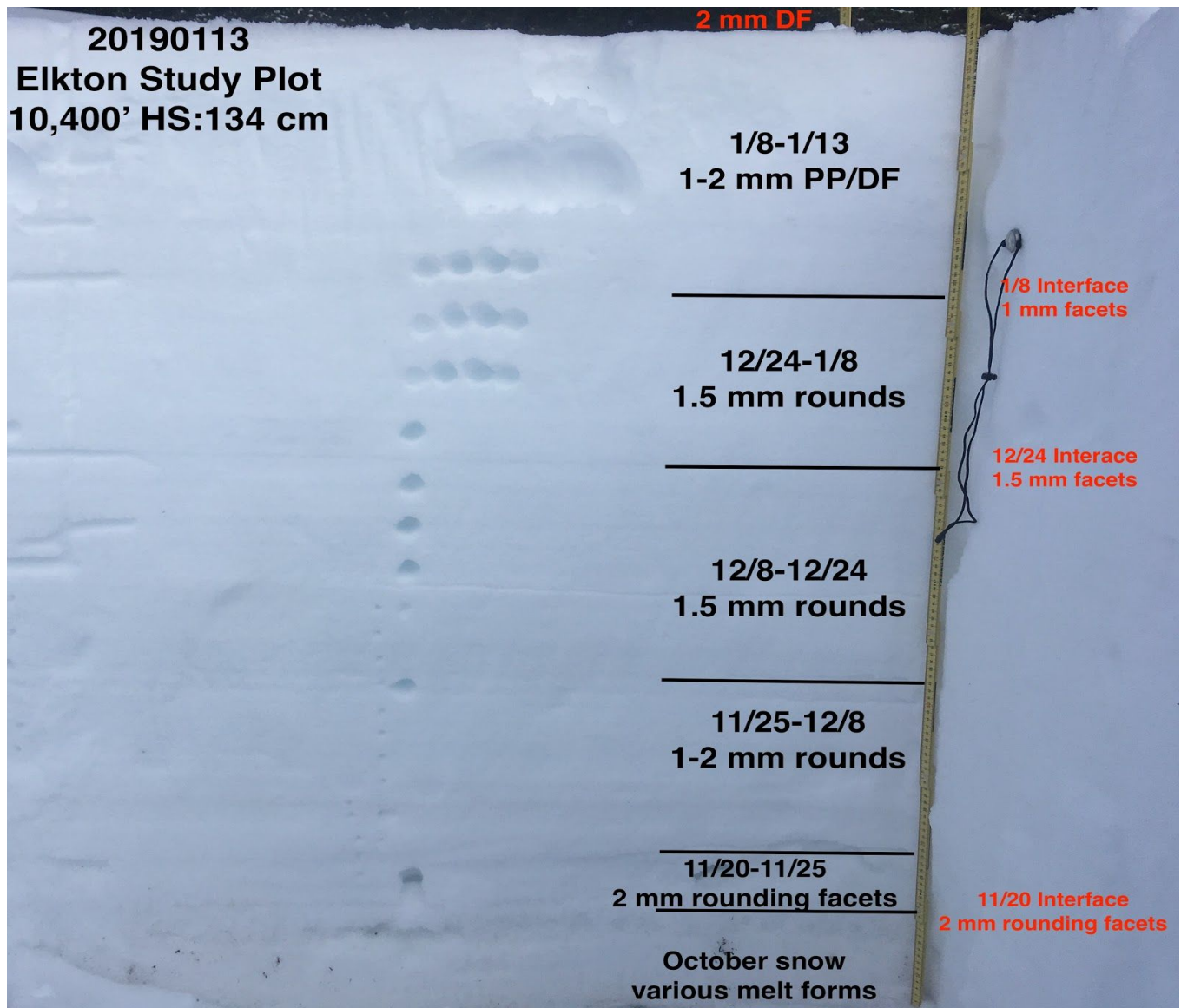
**Schofield snotel:** 1.6"SWE/ 14" snow

**Gothic:** 0.78" SWE/10" snow

**Butte snotel:** 0.8"SWE

**Upper Taylor snotel:** 0.6"SWE

**CBMR:** 10" snow(cam)



[Click here to view the full profile with test results](#)

**11/20/19 Interface:** Multiple early season storms dropped 1-2 feet of snow throughout our area in October. An extended dry period followed for most of November with warm temps and sunny skies which left the southern half of the compass mostly bare while continuous old snow remained on shady aspects facing N-E from around 10,000 ft. and up. Sheltered areas free of wind and sun harbor the weakest grains. This old snow was buried on 11/20 and is now our layer of most concern. Initially, a thin crust was observed on top of this old snow as seen in this [Paradise Divide Ob](#) with facets and early stage Depth Hoar growing to 4mm underneath. This [Kebler Pass ob](#) highlights this interface and where it was found west of town. Moderate snow and wind loading stressed this layer leading to our first widespread avalanche cycle around 11/30 as seen [here](#). This [Cement Creek Ob](#) shows this layer is more isolated but present at upper elevation drifted spots near and East of town. This continues to be our layer of most concern as most avalanches are releasing on this layer or stepping down to this layer. Check out this [natural avalanche ob](#) from Kebler Pass area highlighting large, persistent slabs failing on this layer. A widespread natural avalanche cycle followed the 12/12 cycle with large avalanches breaking near the ground on this interface. No avalanches were reported to fail on this interface from mid-December through early January until strong northerly winds cross-loaded Westerly slopes near treeline. This put a slab on very weak layers near the ground and led to several large avalanches. At this point it will take loading shallow weak areas that previously lacked a slab or a heavy precipitation event to keep this layer going. This layer is now buried ~100-200 cm deep.



**11/25/19 Interface:** Following the 11/20 cycle, the area saw 2 days of sunny skies and cold clear nights which effectively melted or crusted the recent snow from the southerlies while near surface facets and large grain Surface Hoar were able to form on the northern half of the compass. This weak snow is observed on the surface in this [Photo](#) and this [Photo](#). A ski cut released a very small avalanche on this layer in this [Ob](#), and time will tell if this layer remains active with additional loading. At the [Elkton Study Plot](#) on 12/4, propagating results were observed on this layer as the slab on top has settled into a 1F slab with warmer temps. On 12/5 a [rider-triggered D2](#) avalanche failed on this layer. This interface is near the ground where October snow did not exist, and rests on melt forms or large grain facets where snow remained from October. On 1/8 at the Elkton Study Plot, further rounding of the 2 mm facets was observed as well as consolidation into 1F hardness from 4F. PST results are still less than 50cm with propagation to END. This interface is generally ~90-140 cm deep.

**12/24/19 Interface:** After a week of sunny and warm weather, crusts formed on south aspects as well as small surface hoar and near surface facets on the shadier aspects. On 12/26 at the Elkton Study Plot, 1 mm near surface facets were observed at this interface with CT9 Q3 results and ECTN10 results. This [Kebler Pass](#) ob and this [Coon Basin](#) ob highlight this interface on southerlies while this [Paradise Divide area](#) ob illustrates the issue on shady aspects. On 1/1 at the Elkton Plot, this layer was observed as 1.5 mm near surface facets 28 cm below the surface with 1.5" SWE resting on top and hard Q2 CT results. Non-propagating ECT results were seen in this [ob](#) and on 1/8 at the Elkton Study Plot CT and ECT test revealed no failure here while a PST (40/100) SF was observed. Rounding and sintering of grains is occurring in these areas. On 1/14 at the Elkton plot, PST END results less than 50 cm were observed. It is now buried ~40-80 cm.

**1/9/20 Interface:** Following the New Year's storm, skies cleared Colorado style with very cold nights and sunny skies during the day with freezing level pushing to 11K. This created thin crusts on southerly slopes while near surface facets and surface hoar formed on shady slopes. This [Kebler Pass area](#) ob highlights this layer on each side of the compass. This [Paradise Divide](#) ob documents propagating ECT results on a crust/facet combo. This interface is a scary [Surface Hoar](#) layer which produced an intentionally triggered avalanche in the Anthracite range this week. This layer is buried ~ 30-70 cm.

## Avalanches

This large avalanche on Whetstone stepped down to near ground in a path that has slid previously this season





**This large avalanche on a Cinnamon Mt demonstrates a persistent slab avalanche problem that is expanding to southerly aspects.**



**This avalanche on Gibson Ridge released as a soft slab and gouged into a very weak snowpack**



This period began with 3 days of light intermittent snowfall and light to moderate winds leading up to a period of heavy snowfall and strong to extreme winds. Small storm and wind slabs were reported during the first part of this event, all being D1 in size and relatively harmless. After peak loading and winds began to move snow, then things got interesting as we saw a widespread natural D1-D2.5 avalanche cycle. Aspects N-E near and above treeline were the hottest for avalanche activity however cross-loading of southerly slopes is building a slab over very weak snow leading to increased activity on these aspects. Continued westerly winds after the event drifted recent snow with many avalanches breaking in the new drifted snow 1-3 feet deep. As fragile crust/facet combos became stressed on the southern side of the compass we saw a trend of avalanches on S and SE aspects. These were again driven by wind breaking into upper snowpack weak layers. Another trend we saw was avalanches breaking on slopes that have already avalanched this season. In general, wherever the snowpack is shallower and wind affected, that is the avalanche bullseye.

Incident, accidents, close calls

On 1/13 several small storm slabs were triggered by riders just after peak instability. These slides broke in new snow and were relatively harmless.

On January 14th in the Irwin cat ski tenure, a snow safety member triggered a D2 avalanche on a SSE aspect near treeline. This was a previously wind-loaded slope, with failure occurring beneath a stiff wind slab where weak snow around multiple crusts existed. This avalanche was coded: SS-ASu-R2-D2-O FC with dimensions of 50cm x 10m x 100m. The skier was able to ski off of the slab into a safe area just outside the start zone. The slide occurred in a previously un-mitigated terrain feature.

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

The Crested Butte area continues to receive incremental loading accompanied by strong winds. Avalanche activity this week made more of an appearance on southerly slopes as this trend may continue. Many areas on this side of the compass have a thin and weak snowpack which will be stressed by any future storms. A reactive layer of surface hoar was discovered as forecasters continue to pin down distribution of this interface. Looking ahead, another small period of storminess looks to move in by late in the week.

