

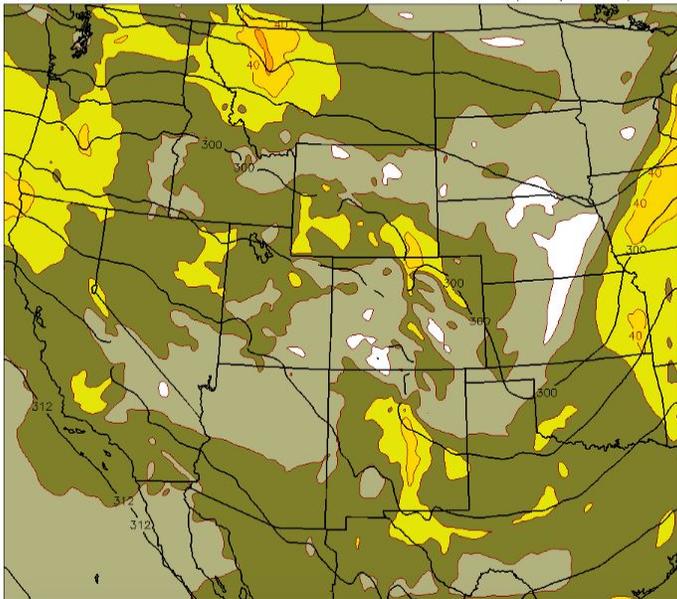
Backcountry Weekly Summary

Staff:	Zach Kinler
Week and Year	January 17-23, 2020
Backcountry zone:	Crested Butte Area

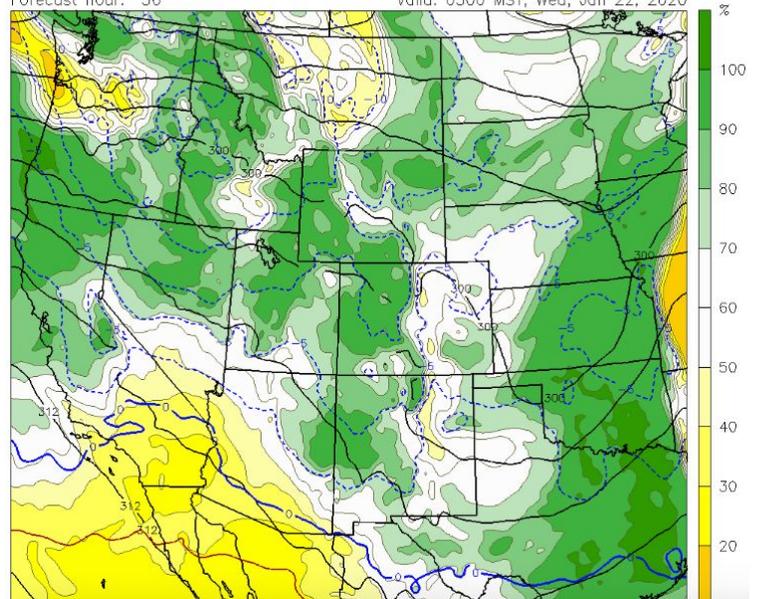
Notable Weather Events (snowfall, SWE, winds, temps, etc.)

700 mb charts showing a light yet favorable WNW jet as well as a stream of moisture keeping snowfall piling up in our favored areas

700 mb Height (dm) and Wind Speed (kt)
Forecast hour: 36 Valid: 0500 MST, Wed, Jan 22, 2020



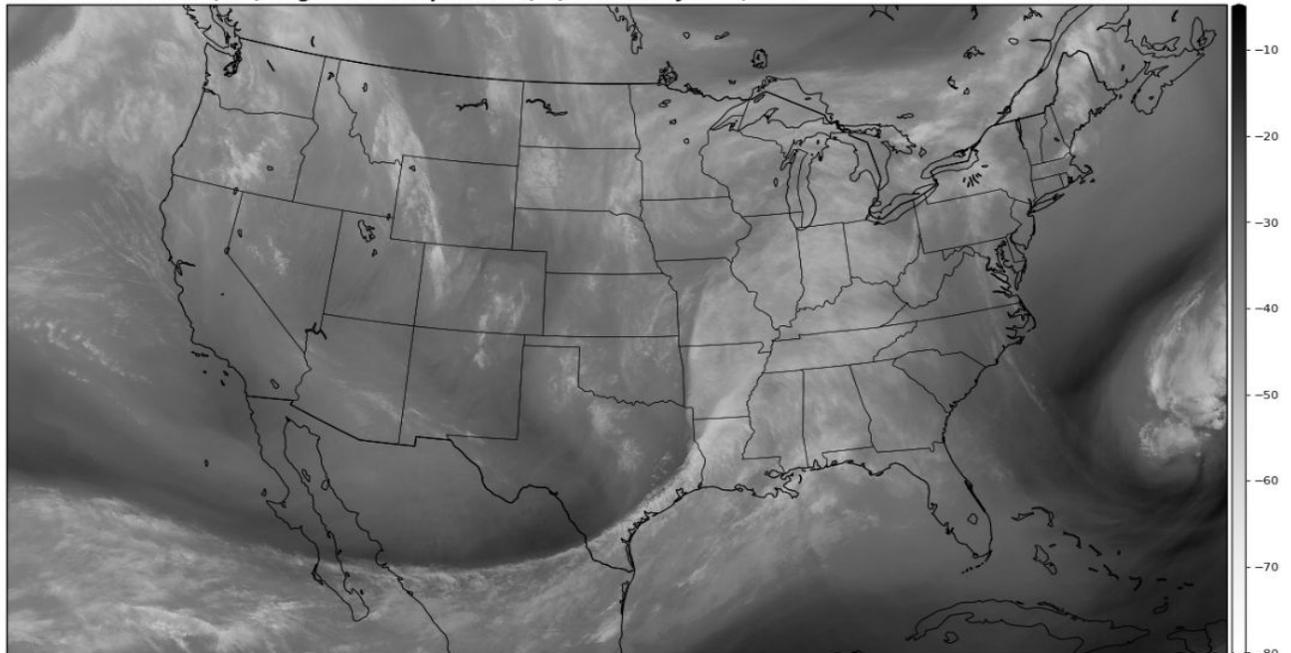
700 mb Height (dm), Temperature (C), and RH (%)
Forecast hour: 36 Valid: 0500 MST, Wed, Jan 22, 2020



Satellite imagery showing a stream of moisture in NW flow directed right at west-central Colorado.

GOES-16 Channel 9 (WV) Brightness Temperature (°C) at 02:15Z Jan 23, 2020

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This period began on 1/17 with a vigorous upper level trough moving in from the southwest US. Snowfall began in the early morning hours and increased in intensity as the day progressed. Strong southerly flow brought the first wave of moisture followed by colder west and northwest flow after frontal passage. Light south winds ramped up quickly by afternoon sustaining 20-30 mph with gusting to 80 mph at both Cinnamon and Scarps Ridge. Highs temps in the teens and twenties early with temps dropping through the afternoon. Clear skies and cold temps early on 1/18 gave way to orographic clouds and light snowfall in west flow from midday on with several inches of additional accumulations. Valley temps started below zero with mountain locations in the single digits.

1/17-1/18 Snow Totals

Irwin: 1.4" SWE/ 15" snow

Schofield snotel: 0.9" SWE/ 13" snow

Gothic: 0.48" SWE/ 6.5" snow

Upper Taylor snotel: 0.6" SWE/ 9" snow

CBMR: 8"(cam)

On 1/19, skies cleared with a cold start in the valleys as strong inversions were in place. All mountain locations stayed below freezing during the day with light and variable winds. Clear skies continued on 1/20 with the inversion gaining momentum from the new snowfall and light winds. Valley locations were well into the -20s while mountain locations remained around +20F. Mountains saw warming under strong solar while the inversion held strong below 9,000'. Freezing level was 11.5K. 1/21 saw SW winds and a warmer air-mass scrubbing the inversion out with valley temps warming and mountain temps remaining steady overnight. Skies were cloudy and light snowfall began around 10:00 with steady S-1 to S1 and brief S2 showers. Winds began to ramp up from the west midday with speeds 10-15 mph gusting to 30mph. West to northwest winds continued to increase on 1/22 as one shortwave departed and another one dropped in from the NW. Winds around 15-20 mph gusting into the 30s and light to moderate snowfall favoring the Kebler Pass area we observed. A favorable NW jet stream and additional lower level moisture kept the orographic snow machine going into the overnight hours and into 1/23. Lows were mild in the teens and lower 20s with blustery conditions prevailing during the day. Clouds and light snowfall continued.

1/21-1/23 Storm Totals

Irwin: 1.8" SWE/25.5" snow

Schofield snotel: 0.7" SWE/~10" snow

Gothic: 0.47" SWE/ 6" snow

Upper Taylor snotel: 0.3" SWE/5" snow

CBMR: 5" snow(cam)

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

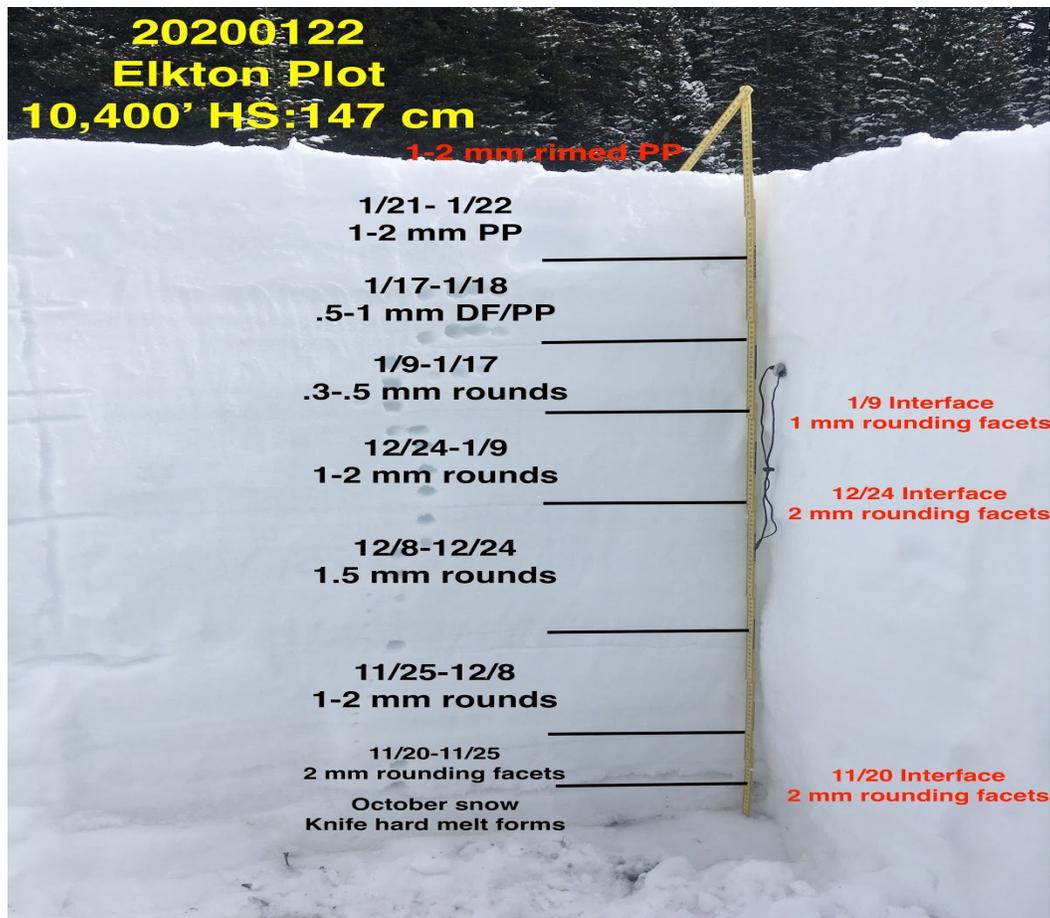
11/20/19 Interface: Multiple early season storms dropped 1-2 feet of snow throughout our area in October. An extended dry period followed for most of November with warm temps and sunny skies which left the southern half of the compass mostly bare while continuous old snow remained on shady aspects facing 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 previously shallow weak areas, [repeater paths](#) 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 on 1/22 at the Elkton plot were 107/121 with propagation to END, marking the first time results greater than 50 were observed. This interface is generally ~90-150 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 [Keble 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. PST END results less than 50 cm were observed the last two weeks at the Elkton plot on this interface which remains somewhat weak. Several human-triggered avalanches in the upper snowpack this week point to this layer as a possible culprit. This large [scary avalanche](#) is the most recent evidence of this weak interface. It is now buried ~50-80 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 [Keble 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 on 1/13. Recent human-triggered avalanches in the upper snowpack point to this layer as the culprit. This layer is buried ~30-70 cm.



[**Click here for complete profile including test results**](#)

Avalanches

Large avalanche on Peeler Pk. This is the largest avalanche reported this week and this path has slid previously this winter.



This avalanche was caught in motion cascading off the cliffs above the town of Gothic. It triggered additional avalanches below.



This was an active week of avalanches following another two rounds of snow and wind. Avalanches during this time were confined to drifted terrain near and above tree line generally from E-S. In areas like this, incremental snowfall has built slabs over multiple weak layers in the upper snowpack and natural avalanches are breaking during peak instability while human triggering similar terrain has remained possible after loading has ended. Avalanches during this time ranged from D1-D2.5 with a couple breaking into weak layers near the ground and one large repeater slide on the east face of Peeler.

This avalanche on White Mountain shows the continued trend of recent avalanches on cross-loaded, shallow terrain.



This snowmobile triggered avalanche is on an East aspect near tree line with previous drifting.



Incident, accidents, close calls



This week there were 4 human-triggered avalanches in a period of four days. Two of these were triggered by snowmobile/snowbike and the other two by skier. Wind-loaded terrain features were common in all of these incidents with E-SE aspects near and above treeline common to all. The [most dangerous](#) incident occurred on 1/19 in Red Lady bowl when a solo skier dropped off the looker's right ridge and triggered a large persistent slab avalanche which failed on a fragile crust/facet combo which formed in late December. For a couple weeks now, incremental loading from westerly winds has built a slab on this interface and others in the upper snowpack. This avalanche stepped down to weak layers near the ground. The skier was hit from behind unaware that he had triggered the slide. This is a very close call with a happy ending and lots to learn.

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

