

Backcountry Weekly Summary

Author:	Jared Berman
Week and Year	1/16/21 - 1/22/21
Backcountry zone:	Crested Butte Area

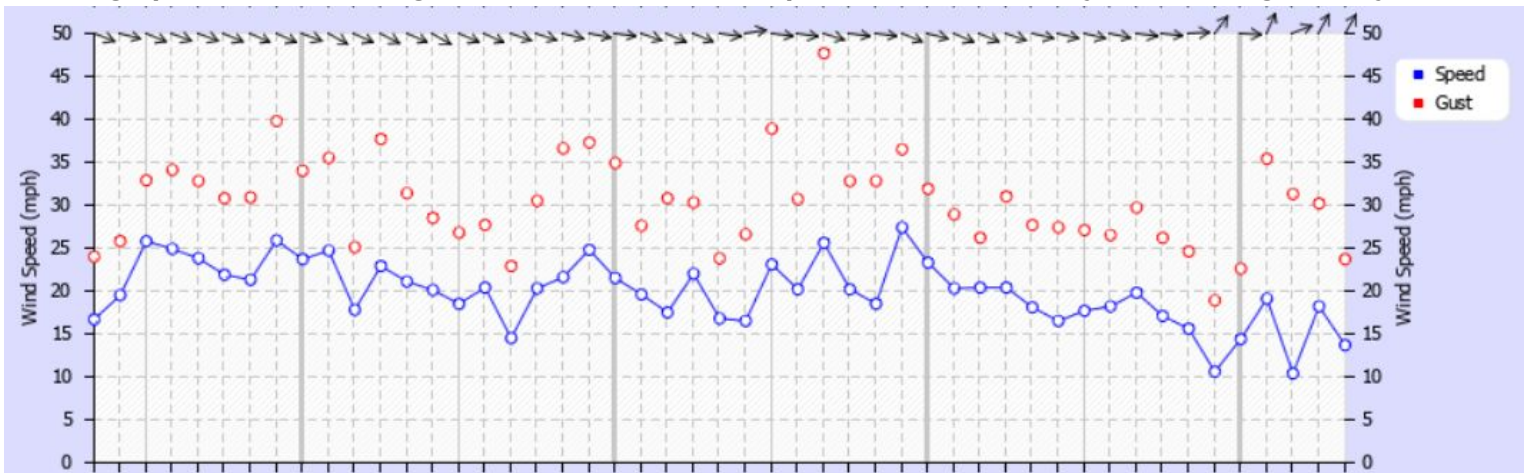
Notable Weather Events (snowfall, SWE, winds, temps, etc.)

The highlight of this week was several periods of incremental loading **on Tuesday (1/19) and Thursday 1/21 through Friday evening (1/22).**

This start of the week was fairly uneventful and the dry spell plaguing the Central Mountains persists. Saturday (1/16) brought continued strong winds from the week prior accompanied by extreme gusts out of the northwest. This event continued to strip snow from windward aspects near and above treeline. By the end of this event on **Sunday (1/17)**, the alpine was stripped of snow (and slab structure) and many slabs were wind eroded on most aspects. Just take a look at the [Elkton weather station \(11,100'\)](#), where snow height dropped 8" as winds scoured the area of snow.

Following this event on **Tuesday (1/19)**, a weak storm moved into the Crested Butte area from the West dropping only small amounts of snow to the Central Mountains. This small event **favoring the South East mountains** with 2" of snow reported at Crested Butte Mountain and only Trace amounts at Irwin. Moderate and steady winds from the west from Wednesday through Friday transported available snow near and above treeline.

This graphic shows the ridgeline wind direction and speed from Wednesday(1/20) through Friday (1/22)



Wednesday (1/20) the storm passed but skies remained cloudy and winds once again picked back up from the West but this time with new snow to transport. **Thursday morning (1/21)** brought yet another weak storm from the North West bringing only **0-1"** inches of snow to the Northern mountains and **2-3"** of snow to the southern mountains accompanied by **moderate winds** from the West. Thursday afternoon snow took a short break before another band of moisture moved in **Thursday night (1/21) through Friday (1/22) morning** bringing only 1" of snow to the mountains surrounding Crested Butte. By Friday afternoon (1/22) 5"-6" of snow had accumulated across the Crested Butte area. Snowier days are on the horizon, as models are showing stronger precipitation events after midnight Friday (1/22) through late morning Saturday (1/23).

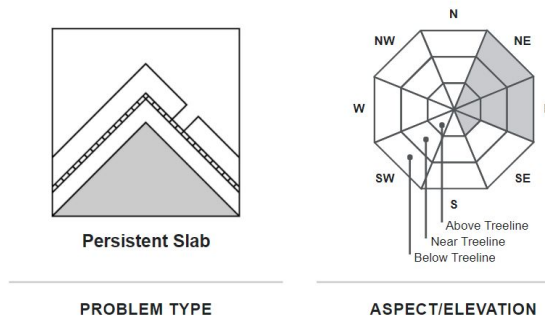
Snowpack (weak layer date(s) and status, structure, stability trends)

The good (and bad) news is that the small amounts of new snow this week did not do much to change our snowpack. The biggest changes resulted from the extreme wind event, eroding the snowpack on many west to northwest to north facing slopes at mid to upper elevations. That snow was then loaded onto a few isolated slopes on the lee sides of ridgelines and cross-loaded terrain features, but most of it was simply sublimated and blown to Oklahoma.

There are two flavors of Persistent Slab avalanche problem scattered across the landscape around Crested Butte. The first are thin, hard slabs that formed from last week's extreme wind event. You can find this structure at all elevations, but it is isolated across the landscape, tucked into nooks and crannies on leeward breaks in the terrain. A good example can be found in [this observation of a skier-triggered avalanche on Monday](#). The second flavor of Persistent Slab comes from old, weak snow at the bottom of the snowpack.

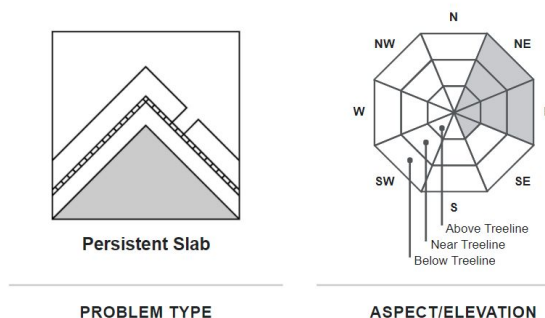
As the Central mountains snowpack remains thin, continued faceting in the snowpack are decaying slabs and forming weak layers at the surface. Signs of instability are becoming more isolated each passing day without new snow. Unstable test results and occasional collapses suggest that human triggering remains a concern on some slopes.

Persistent Slab distribution in the NW mountains on Thursday (1/21).

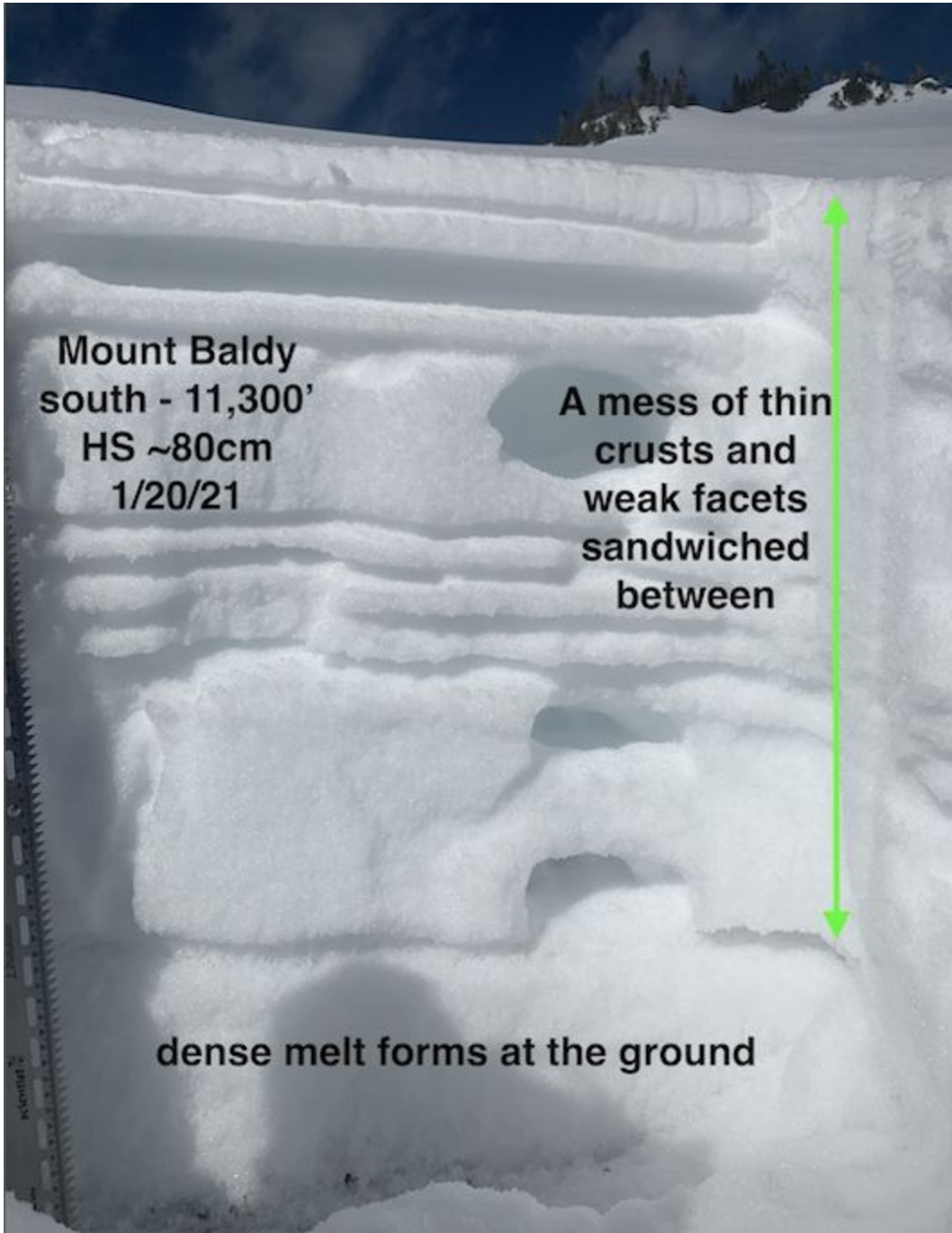


Multiple periods of wind events have continued to strip snow in the alpine on westerly aspects leaving terrain in some areas down to rock. This is especially relevant in the SE mountains. Persistent slabs at all elevations are more isolated, especially in the SE mountains where the snowpack is thinner. With new snow on the horizon we can expect to see an active avalanche cycle by early next week. The alpine snowpack on south easterly facing terrain above treeline remains on the persistent slab distribution due to facets associated with thin melt/ freeze crusts. Due to the amount of solar radiation received, SE facing slopes have slightly thinner (weaker) crust layers compared to S and SW facing slopes. Recreating in areas that face S and SW are your best options to avoid persistent slab structure.

Persistent slab distribution in the SE mountains on Thursday (1/21)



Test profile on a South facing slope near treeline on Mount Baldy on 1/21



Our last major loading event occurred on 1/22, and although there isn't enough snow to change conditions yet, there is now 5" of new snow resting on top of various persistent weak layers which will most likely be sensitive to avalanche after our next big storm the evening of Friday 1/22 into Saturday 1/23.

In the **Southeast Mountains**, snow is thinner and therefore the faceting process is taking place faster. Slabs are harder to find although still present especially on alpine terrain where winds have retributed new snow into fresh slabs near and above treeline of North East, East, and South East facing slopes.

In the **Northwest Mountains**, where there is significantly more seasonal snow, slabs have also lost strength. In many places in and around sheltered terrain near and below treeline slabs are becoming less reactive. However as you move deeper or higher into the mountains, slabs are still intact resting on various persistent weak layers and are capable of propagating wide enough to create a dangerous avalanche.

Our new concern is recent snow this week falling on a generally weak and faceted snowpack. 5"-6" of new snow that has fallen since Tuesday (1/19) is resting on top of a mix on wind-board in the alpine to sun crusts on sunny aspects to weak and faceted snow on North - East facing slopes. Accompanying winds with these storms have exaggerated the problem further stressing our snowpack on easterly facing slopes. New snow and snow available to transport heightened avalanche danger to MODERATE near and above treeline on Friday 1/22.

See below for a breakdown of concerning weak layers in our snowpack.

12/10 Interface

The Crested Butte area, along with most of Colorado, suffered through high pressure from 11/23 through 12/9. During this dry period, all areas where snow didn't [melt away](#) aggressively faceted. On shadier aspects, this interface has consisted of 1-2 feet of cohesionless faceted grains. These faceted grains have developed into depth hoar near the ground in some areas. On aspects with more solar radiation, these facets are associated with melt-freeze crusts. On 12/10, new snow buried this assortment of persistent weak layers. This interface has caused widespread avalanche activity over the past month, such as this [helicopter evacuation](#) and this [fatality](#). This persistent weak layer of basal facets/ depth hoar is the worst we've seen in many years. We are nearing a month after it was buried, and we continue to see failure in snowpit tests. Natural and human triggered avalanche activity on the 12/10 layer waned this week as a result of quiet weather.

12/22 and 12/26 Interface

These are two moderately weak interfaces in the upper snowpack, caused by brief dry spells during late December. With the upper snowpack faceting and a lack of recent loading, these two layers have become unreactive and have mostly faceted away.

1/19 Interface

Continued dry periods with another round of strong inverted temperatures down low and heavy winds up high, during the first 2 weeks of January continued to weaken our snowpack in the Central mountains. As all aspects experienced continued faceting, winds stripped snow off west and northerly aspects redistributing the snow into dense slabs on easterly facing terrain near and above treeline. On sunny South, South-East, and East facing slopes, thin melt-freeze crusts formed resting on top of weak facets down to the ground. On 1/19-1/23, several storms buried this assortment of persistent weak layers. This interface has not shown much activity as of this week, but will be our layer of most concern as storms early next week will continue to test our fragile snowpack.

Avalanches

Persistent Slabs:

Monday (1/18): A skier triggered an avalanche on an East facing open slope where cross loading occurred.



Incident, accidents, close calls

During this period, danger dropped to **low** for most of the week, however low danger doesn't mean avalanches are impossible. Wind drifts from last week into early this week created very stiff slabs in isolated areas. [The avalanche incident](#) below shows a skier triggered avalanche on a small yet steep cross-loaded feature with debris ending in a terrain trap.



Although small (D1.5) in size, abrupt changes in slope angle such as this can cause snow to pile up high enough to bury a person (terrain trap).

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

We are currently at MODERATE danger following an uptick in danger at the end of this week. This trend will continue as snow accumulations ramp up into Saturday morning (1/23) and throughout the weekend. Expect conditions to become dangerous, with a widespread natural avalanche cycle if storms in the forecast verify. In the meantime, keep in mind that persistent slab avalanches are a tricky beast. Direct feedback hinting at danger may be non-existent and snowpits may show stable results but recognize that danger is starting to rise and slopes may catch you by surprise. Some slopes are stable while others can still be triggered. Stay vigilant and safe out there!

The graphic below shows snow totals predicted for the Crested Butte area by Sunday (1/24).

Forecast hour: 84

Valid: 2300 MST, Sun, Jan 24, 2021

