

## Backcountry Weekly Summary

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| Author:           | Jack Caprio        |
| Week and Year:    | 3/27/21- 4/2/21    |
| Backcountry zone: | Crested Butte Area |

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

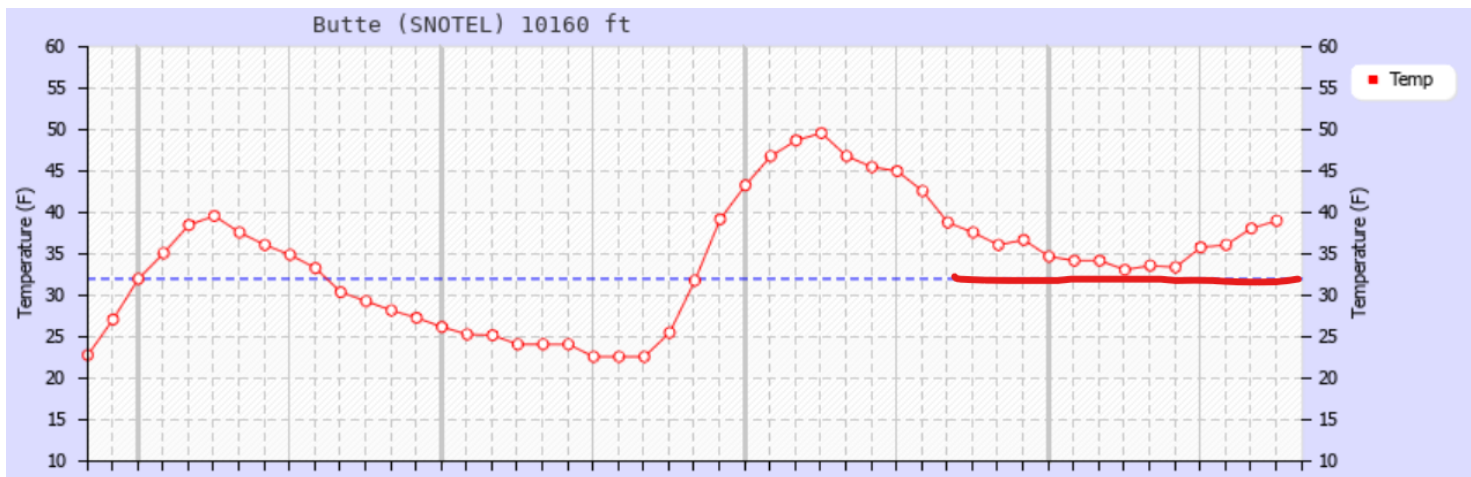
To start this summary period, a high-pressure ridge slid right over the Crested Butte zone Saturday (3/27). Initially, the ridge came in under a northwesterly flow producing moderate wind speeds with high gusts. On Sunday (3/28), the wind direction flipped around to southwest as speeds decreased. Temperatures increased as well on Sunday making for a beautiful spring day.

Monday (3/29) was a windy one in the alpine as wind speeds increased ahead of a small quick-moving trough which was set to land in Colorado Monday night. Southwest wind speeds averaged in the 20-35 mph range with gusts of 70 during the day. As the sun went down, winds continued to increase with max gusts just shy of 90 mph on Scarp Ridge at 10 pm Monday.

The trough Monday (3/29) night gave us our only precipitation of the summary period. Unfortunately, it was not very much snow. Gothic reported the most with 3 ½ inches of new snow. Other areas such as Irwin and Elkton were in the 2-3 inch range. CBMR ended up with an angry inch.

As the trough slid eastward on Tuesday (3/30) a high-pressure ridge with exceptionally warm air parked directly over Colorado. Tuesday stayed cool under a northwesterly flow but a warming trend was moving in. The days following Tuesday brought an increase in max temperature each day. High temperatures reached 50 degrees in many mountain locations Thursday (4/1) afternoon.

Temperatures at the Butte Snotel station (10,160 ft) near Mt. CB show temperatures staying above the freezing level for all of Thursday night (4/1) and Friday (4/2) morning (red line).



Weather stations are an extremely useful tool while planning spring tours. It is always a good idea to check the local weather stations before heading out in the morning. For example, on Thursday night the Butte Snotel station showed temperatures staying above freezing all night. However, the Irwin weather station about 9 miles west showed a much better freeze. These stations can help you decide where to ski for the day based on evolving wet avalanche problems. You can find our local weather stations around CB [here](#) and [here](#).

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

### 3/10 interface

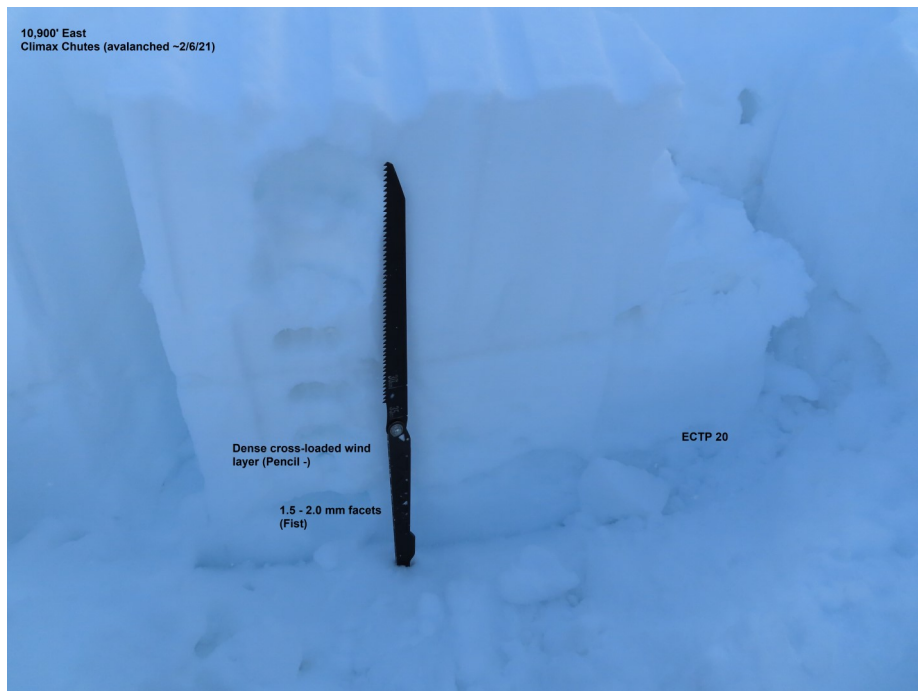
Small incremental loading with long periods of dry weather persisted from mid-February through early March forming a variety of near-surface facets and crust/facet combos in the upper snowpack. This interface was buried by a measurable amount of snow on March 10th. Since buried, we have seen multiple skier-triggered avalanches fail on this interface ([example A](#), [example B](#)). Warm weather has caused meltwater to drip down deep in the snowpack and refreeze on SW, S, SE facing slopes making this interface unreactive on those slopes. This interface is most concerning on shadier N-NE-E facing aspects. On N aspects, this interface consists of 1-2 mm facets. As the compass tilts towards NE-E, crust/ facet combos exist. In the deeper, snow-favored parts of the forecast zone, large slabs sit on top of this 3/10 interface. For example, Irwin has reported 61" of snow since March 10th making for a low likelihood/ high consequence persistent slab issue. The persistent slab likelihood sits at unlikely right now. The best chance of seeing avalanche activity on this interface will be in the form of a wet slab due to warm temperatures and poor freezes.

### 1/19 Interface

A long dry period in early January formed a widespread weak layer of facets and faceted crusts that is now buried in the bottom third of the snowpack. This interface currently can be found buried 2-5 feet deep and caused a large, widespread avalanche cycle in February throughout the state. We have not observed persistent slab activity on this interface in several weeks. During early March heat waves, meltwater reached this layer on southerly aspects in a lot of terrain. With colder temperatures since then, the meltwater has refrozen making this layer unreactive to persistent slab avalanches.

### 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 aggressively faceted where snow didn't melt away. On shadier aspects, this interface consists of large-grained depth hoar near the ground. On 12/10, new snow buried this layer ushering us into a season-long persistent slab problem. This interface caused widespread avalanche activity during the latter half of December and again in February. This layer has shown signs of gaining strength during our late February/ early March dry spell and has been dormant across our forecast area in recent weeks. Several large avalanches failing nearing the ground were reported this week from other regions just outside of our forecast area, generally from shallower regions ([Example](#)). We can expect this interface to become reactive again during our next significant change to our snowpack such as a large loading event or prolonged above freezing temperatures.



### Persistent Slab:

The likelihood of triggering a **persistent slab** is currently listed as **unlikely**. If you were to go hunting for a persistent slab, the best place to go would be an area similar to where this snow profile was dug. This is a path that previously avalanched during our early February cycle. After the avalanche, the remaining shallow snowpack aggressively faceted during the late February/ early March dry spell. Periodic storms and wind-loading over the last 3 weeks of March built a stiff slab on top of the previous bed surface. Snowpit tests produced hard propagating results in this example pit. Protected areas nearby that had not been wind-loaded did not get propagating results due to a lack of a stiff slab.

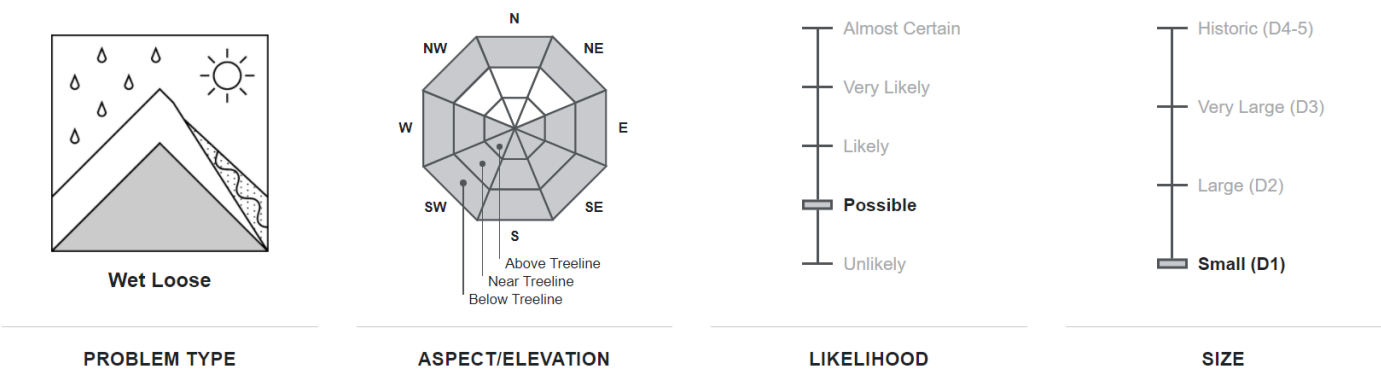
Spring Warm-up

With the highest temperatures of the year heading into the weekend we are preparing for a wet avalanche cycle to start the next summary period. Starting early and ending early is a great strategy to manage wet loose and wet slab avalanche problems.

Problems:

**Wet loose:** Strong April sun has developed wet avalanche activity around the compass. On the Northern quadrant of the compass, this problem is only below treeline at this point, but multiple nights without solid refreezes could expand this problem to northern near and above treeline elevation bands. On east through south through west aspects at all elevations, this problem has produced consistent avalanches daily as temperatures rapidly increase. Avalanche size has generally been small, but as always, even small slides have the potential to do damage to a person in extreme terrain. As temperatures soar, these avalanches could gouge deeply into a wet unsupportive snowpack or trigger a large wet slab avalanche. You can begin identifying this avalanche problem if you see the snow surface producing rollerballs and small sluffs, or you observe a few inches of wet snow on the surface. Move to colder aspects or less consequential terrain when the snow gets hot and mushy.

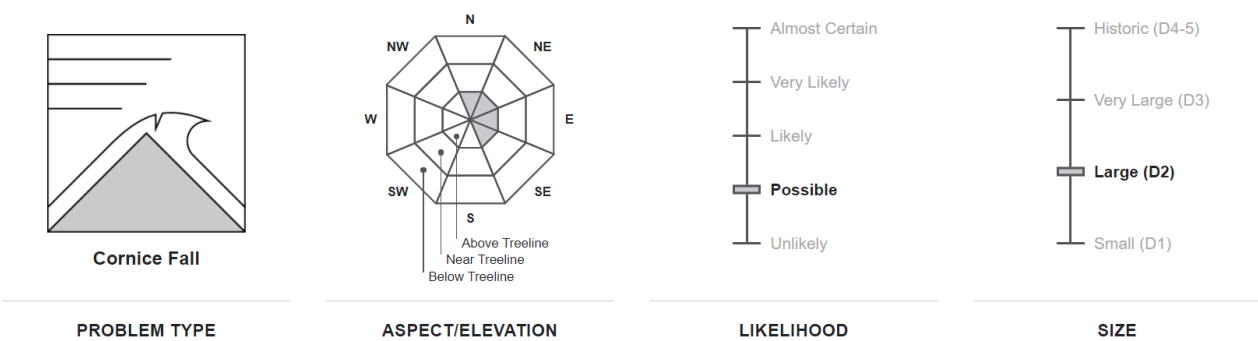
AVALANCHE PROBLEM #1
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Cornice Fall:

Cornice fall was added to the avalanche bulletin on Friday 4/2. Throughout this summary period, falling cornices have produced the largest recent avalanches. Observations include [Whetstone](#), [Mt Emmons](#), and [Owen](#). This is a difficult avalanche problem to predict, as some cornices are just barely hanging on by a thread, and others will never come down until they melt away. Give these overhangs a large berth when traveling above them, and take time to consider your potential overhead hazard when traveling on the terrain below cornices.

AVALANCHE PROBLEM #2
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**Wet Slab:** Expect wet slabs to come into play this weekend as poor refreezes are expected on Friday, Saturday, and Sunday nights. Both wet loose avalanches and cornice falls have the potential to step down to a larger, more dangerous wet slab avalanche.



## Avalanches

***To start the period, moderate NW and W winds loaded snow onto leeward ridges. This natural persistent slab avalanche on Whetstone ran naturally due to wind-loading at some point Friday (3/26) night or early Saturday (3/27) morning.***

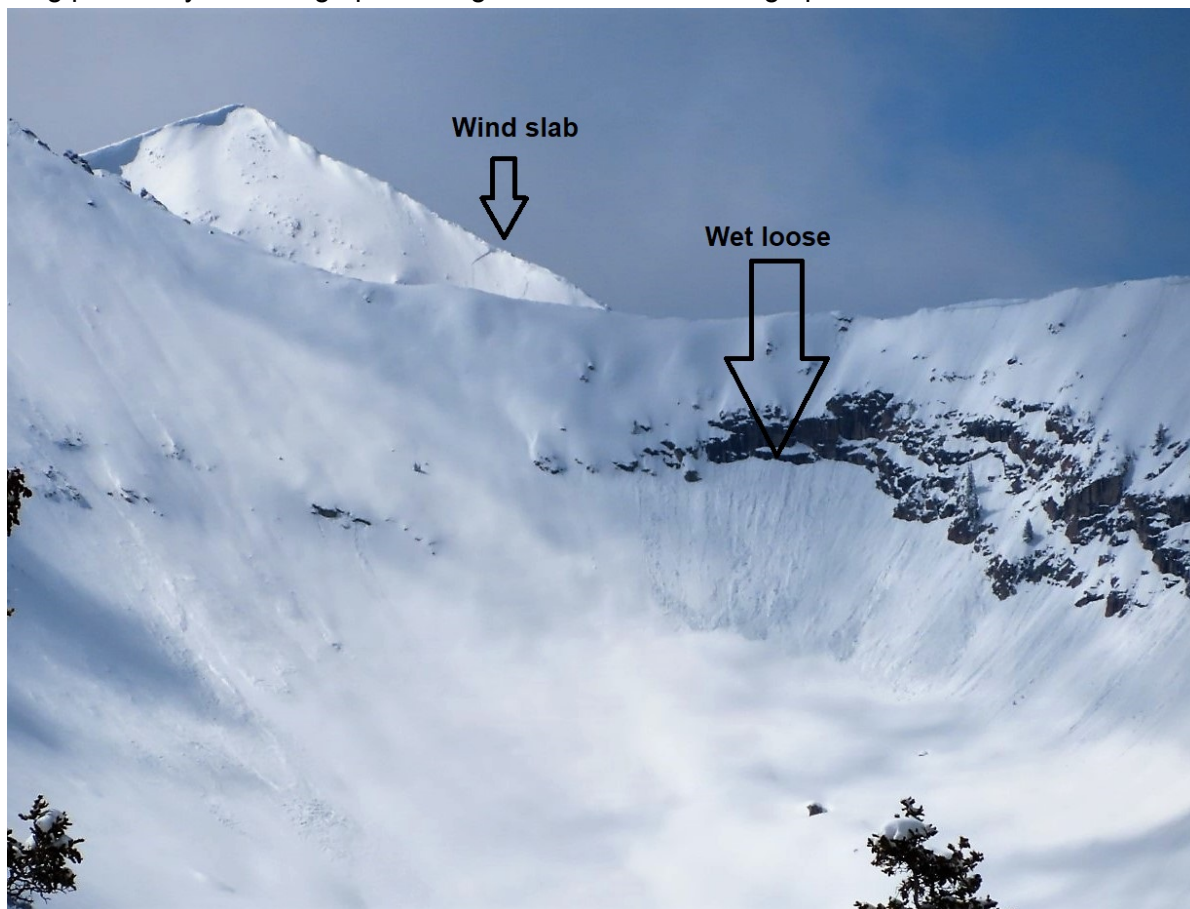


***An intentionally ski triggered wind slab on a small east-facing test slope on 3/27***





Managing several different avalanche problems became the norm during the earlier half of the summary period. A bit of fresh snow Monday (3/29) along with strong winds, followed by plenty of sunshine made for an assortment of different avalanche problems. Backcountry skiers on Tuesday (3/30) and Wednesday (3/31) had to manage both dry and wet surface instabilities in the form of wind slabs and wet loose avalanche problems. On top of that, there was also the looming possibility of waking up the dragon in the form of a large persistent slab.



***Wet loose debris below Cascade Peak***





Temperatures began to soar on Wednesday (3/31) as the heatwave came through town. This rapid warmup caused a handful of cornices to fall

***Large cornice fall in hidden lake bowl on Whetstone (NE aspect)***



***Large skier triggered cornice fall. (Purple arrow)***





## Incident, accidents, close calls

On Saturday, 3/27/21, two skiers were traversing a very small, knife ridge on their way to their ski line. One of the skiers stepped onto the cornice in just the right spot causing a large school bus-sized cornice failure under the skier's left ski. Thankfully, his right ski was far enough on the windward side of the ridge and he was in a good enough position to not be involved in the cornice. The cornice entrained some surface snow and fell about 1000 vertical feet down the slope. This is a great reminder to give cornices a large margin for error, especially with the warm weather heading into the weekend. Thank you to the skiers who submitted the observation to the CBAC.

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

With the warmest temperatures of the season set to hit Crested Butte this weekend, it is a great time to evaluate route plans to avoid being on sunny slopes later in the day. Check weather stations before you leave in the morning to see how overnight temps look. One caveat to the potential poor refreezes this weekend is that the sky will be clear overnight meaning snow near the surface will refreeze due to the radiative cooling effect. This means we will have a short window of traveling up frozen snow and skiing down corn. With that window being so short and hard to predict, early starts and early exits will be important. Temperatures look like they will cool down on Tuesday (4/5). Have a great weekend and enjoy the beautiful weather!

