

Backcountry Weekly Summary

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Week and Year	3/6/21 - 3/12/21
Backcountry zone:	Crested Butte Area

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

We experienced all the flavors of weather this week but the highlight of this period was the new snow and accompanying winds on **Wednesday (3/10)**.

Spring has been in the air since March arrived. The start of the week began with a high-pressure system that brought warm temperatures and clear skies from **Saturday (3/6)** to **Tuesday (3/9)**. Temperatures rose to the mid to high 40's up to 11,000ft under a strong March sun. Winds were light prevailing from the west. This high-pressure system was only interrupted briefly by a small band of moisture that brought a meager 1" of new snow on Monday.

Early in the morning of **Wednesday (3/10)**, a storm finally brought an end to the warm temperatures and dry air that persisted across the central mountains since the beginning of March. Temperatures dramatically dropped to the low 20's at 11,000ft and winds shifted to the southwest as a fast band of moisture pushed across leaving moderate snow totals across the Crested Butte area. Strong to extreme winds accompanied this storm which transported newly fallen snow near and above treeline. See snow totals below:

Schofield: 10" / 0.9" SWE

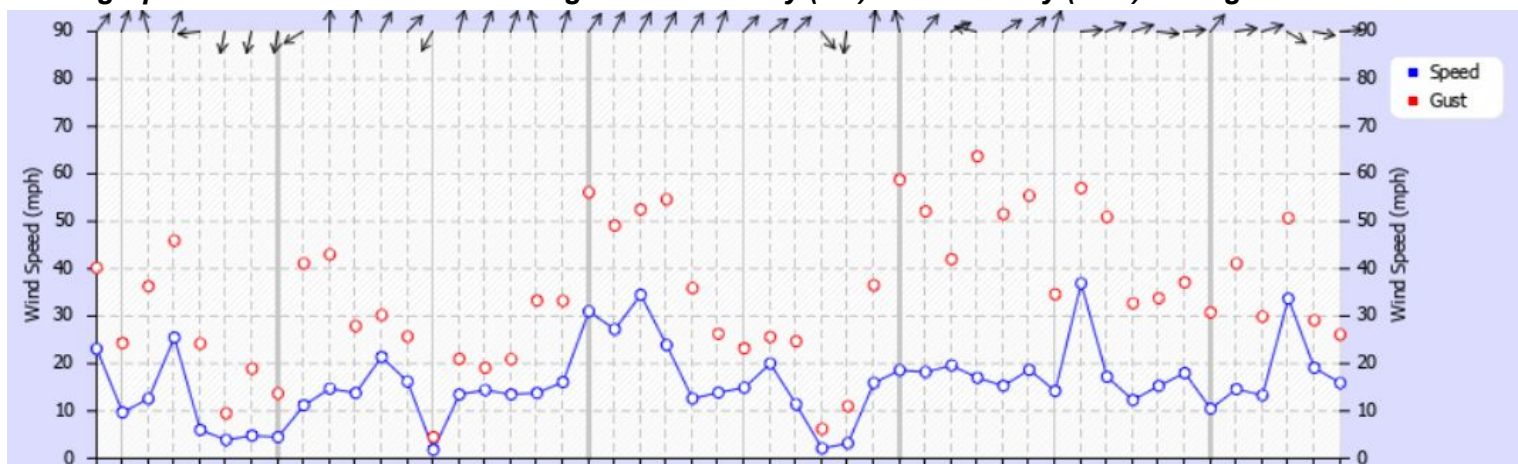
Irwin: 6" / 0.45" SWE

Crested Butte Mountain Resort: 6.5"

Upper Taylor: 7"

Thursday (3/11) - Friday (3/12) brought a brief pause to any action in regards to weather. Temperatures remained below freezing and winds were light with partly sunny skies as a closed low pressure system began to swoop into the state bringing plenty of moisture with it. Snow totals from this storm are expecting to be in the double digits by **Sunday (3/14)**.

This graph showcases moderate/strong winds Tuesday (3/9) - Wednesday (3/10) during this week's storm



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 that were buried this week. Avalanche activity has been limited on this new interface; that is to be expected without a significant load yet on these small grained facets. A few small avalanches, including a remote triggered soft slab, have failed on the March weak layer this week which hints at signs of things to come once new snow creates larger slabs and continues to stress weak faceted grains near the surface. This interface is surely something to keep an eye on in the coming weeks.

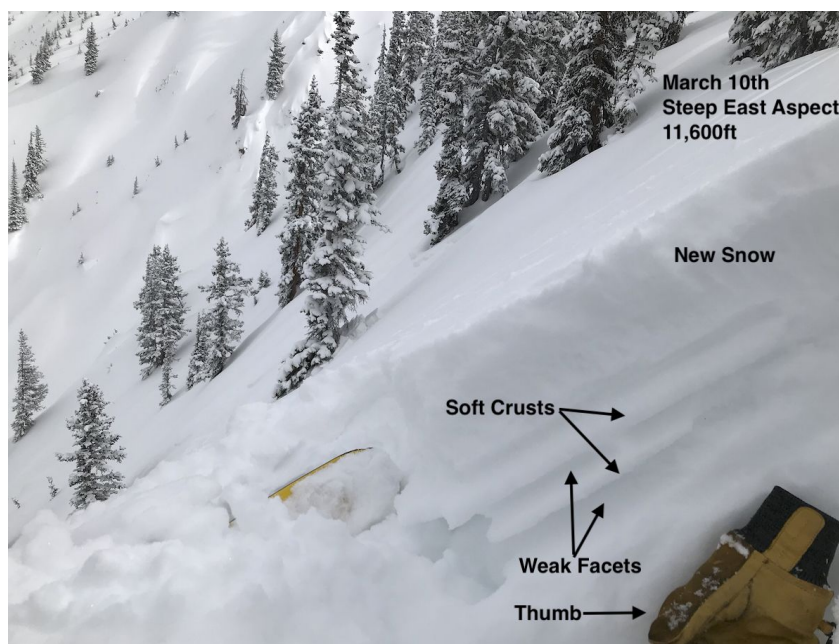
1/19 Interface

A long dry period in early January combined with strong inverted temperatures formed a widespread weak layer of facets and faceted crusts that is now buried near the middle to bottom third of the snowpack. This interface currently can be found buried 2-5 feet deep and has been the cause of very large, widespread avalanche activity in February throughout the state. More recently in a number of pits, we are seeing the 1/19 interface gain strength now, and we have not observed any persistent slab avalanche activity on it in several weeks. On the southerly aspects, meltwater has reached this layer in a lot of terrain, and at least one wet slab likely failed on this layer last week. With colder temperatures since then, the meltwater has refrozen and has eliminated concerns of wet slab activity on this layer for now.

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 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 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 interface is now buried at the bottom of the snowpack. This layer has more recently shown signs of gaining strength and stability tests are showing that this layer is both very stubborn and difficult to impact as a skier or rider. During the past week, we saw several wet slabs fail at the ground on southerly aspects as meltwater first reached this layer on a few slopes. Poor structure still exists and we can expect this weak layer to become reactive again during our next significant change to our snowpack such as a large loading event or prolonged above freezing temperatures.

An example of snowpack structure on the 3/10 interface. East aspect, near treeline.



Snowpack in the NW and SE Mountains

The danger fluctuated between **MODERATE** and **LOW** this week. The danger ratings were initially driven by wet avalanche concerns early in the week and then shifted to wind slab concerns later in the week. Persistent slabs were rated as unlikely (stubborn and isolated) throughout the period. The snow depth, and thus the expected size of slabs breaking near the ground, is generally deeper in the Northwest Mountains.

At the surface of our snowpack, 4" to 8" of recent snow has buried a combination of facets, sun crusts, and wind-hardened surfaces. Thickness of these recent crusts vary. On southerly aspects, crusts are stronger and more supportive. Crusts on east and west aspects are softer and thinner. The recent snow and wind transport has created small slabs resting on these new weak layers. They have been reactive to human triggers but slabs still remain small. It is possible to find larger slabs resting on these weak surface layers where winds have drifted new snow into larger slabs.

As a result of a deeper snowpack structure, weak grains at the ground have been slowly gaining strength. Some test pits still suggest the potential for failure and propagation at the ground. Most suspect places to trigger a deep avalanche is near and above treeline where winds have created more variable snow depths with shallow areas that are more sensitive to the weight of a skier.

On southerly aspects, extended periods of solar warming and above-freezing temperatures started saturating the snowpack with water. As a result, wet slabs were a concern early in the week as facets near the ground lost strength as free water percolated to the ground. Meltwater was less extensive at higher elevations and on more easterly or westerly aspects. Northerly aspects remained dry. More recent cold temperatures have refrozen the snowpack where melting occurred, making wet avalanche problems unreactive for now, and effectively reducing the distribution of dry, persistent slabs to the colder side of the compass.

Regardless of aspect, weak snow at the ground still remains a concern. These deep interfaces continued to show they exist by producing wet slab avalanches this week on southerly aspects. Significant loading has the potential to awaken these weak layers again which would result in large destructive avalanches. This is something to keep an eye on as new snow is in the forecast this upcoming weekend.

Avalanches

It was an avalanche sampler this week. We saw a fairly widespread wet loose cycle, particularly in the Northwest Mountains last Friday and Saturday. These were mostly D1-1.5, with a couple D2s. As temperatures warmed and meltwater advanced deeper into the snowpack through the weekend, we observed a number of large wet slabs on southerly aspects. Wet activity quieted down by Monday as colder temperatures and cloudier skies helped keep snow surfaces cool. The storm on Wednesday brought an increase in new snow avalanches: soft slabs of wind drifted and new snow. We observed several skier triggered soft slabs and dry loose avalanches throughout the latter half of the week, all small in size (D1).

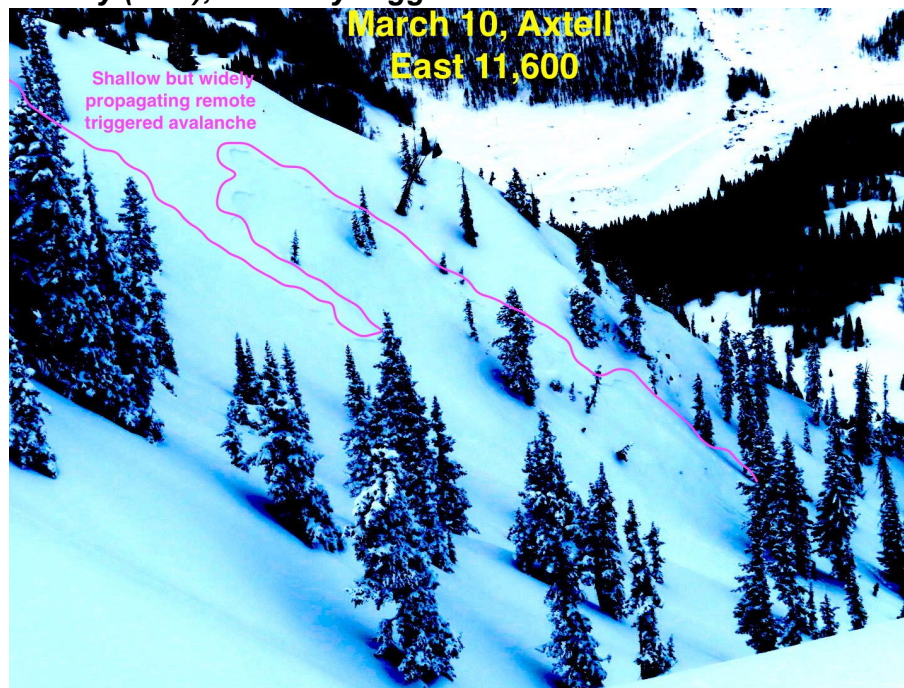
Sunday (3/7), a skier stands between a couple of larger wet loose avalanches in the Ruby Range



Sunday (3/7), a wet slab avalanche in the upper Oh Be Joyful Basin



Wednesday (3/10), remotely triggered avalanche after recent new snow



Friday (3/11), small soft slab avalanche failing on near-surface facets



Incident, accidents, close calls

A skier was caught and carried in a large wet slab in Coon Basin on Saturday afternoon (3/6). The slab broke about 18" deep and carried the skier a few hundred feet before he self-arrested with his skis.

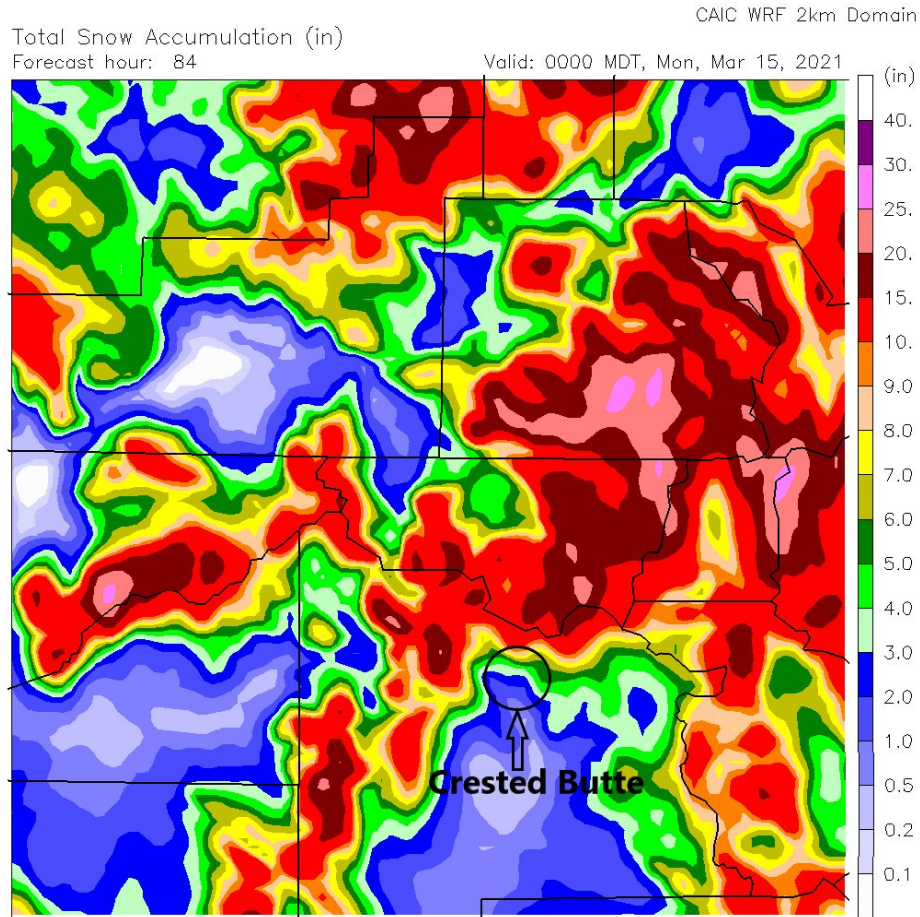


Comments (anything unusual/noteworthy, thoughts on the near future)

We have had quite an interesting bag of avalanche problems this week and no doubt all these problems can be slightly overwhelming. Here are the key takeaways:

1. Wet avalanche concerns earlier this week were on the southern half of the compass; it was easy to avoid the problem on shadier aspects. The **subsequent refreeze has now significantly reduced the chances of a deep avalanche** releasing on these same slopes for now. These aspects are a safer choice to avoid persistent slab concerns this weekend.
2. New snow resting over **facet/crust combos near the surface** has been reactive even with just small amounts of snow resting over this weak layer. This is becoming our layer of primary concern and is most widespread on the northern half of the compass..
3. **Deeper/larger persistent avalanches** have not been as reactive lately but not out of the question. These destructive avalanches may become more reactive if we get a large load of new snow this weekend, especially in the shallower parts of our forecast zone (the Southeast Mountains).
4. Weather models are showing a good chance of **double digit snow totals by Sunday (3/14)** which will no doubt raise avalanche concern.

Below is a model forecasting snow totals across the central mountains by Sunday (3/14)



As you head out into the backcountry this upcoming week, keep these 4 things in mind. If snow totals line up as predicted, large margins of safety will be necessary to stay out of harm's way. That being said, regardless of conditions, there is always somewhere you can go ski. Remember, if avalanches are the problem, terrain is the solution! Have fun and be safe out there!