# Backcountry Weekly Summary

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| Week and Year | 2/27/21- 3/5/21 |
| Backcountry zone: | Crested Butte Area |

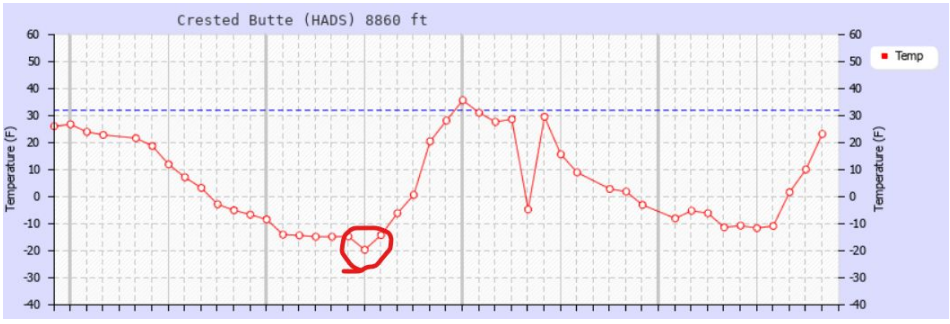
## Notable Weather Events (snowfall, SWE, winds, temps, etc.)

A disappointing low-pressure system to start our period (2/27) quickly gave way to a much stronger high-pressure ridge. It's starting to feel like spring around here.

Saturday's (2/27) storm left us with 3" of new snow in Elkton and Irwin, and an angry inch in areas closer to town. Not quite what we were hoping for, but hey, at least it disrupted the dry weather pattern for a second…

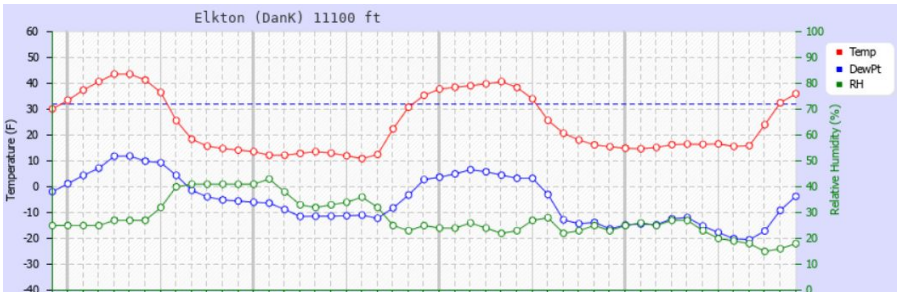
Saturday's trough dragged cold arctic air along with it. Gothic Mountain Tour racers woke up Sunday (2/28) morning with valley bottom temperatures as low as -20 degrees, and mountain temperatures in the negatives as well. Brrr. Cold temperatures were quick-lived as the skies cleared early Sunday (2/28) and temperatures continually increased throughout the week.

*Temperature Graph near the town of CB. The red circle shows temps reaching -20 Sunday (2/28) at 6 am*




High pressure and warm temperatures reigned supreme Monday (3/1) through Wednesday (3/3). Those frostbitten noses from Sunday morning did not have long to adjust before getting sunburnt.

*The red line below shows the temperature in Elkton (11,100') from 3/1-3/3. Mountain temps reached 44 degrees at 4 pm. on 3/1. Can you say T-shirt weather?*



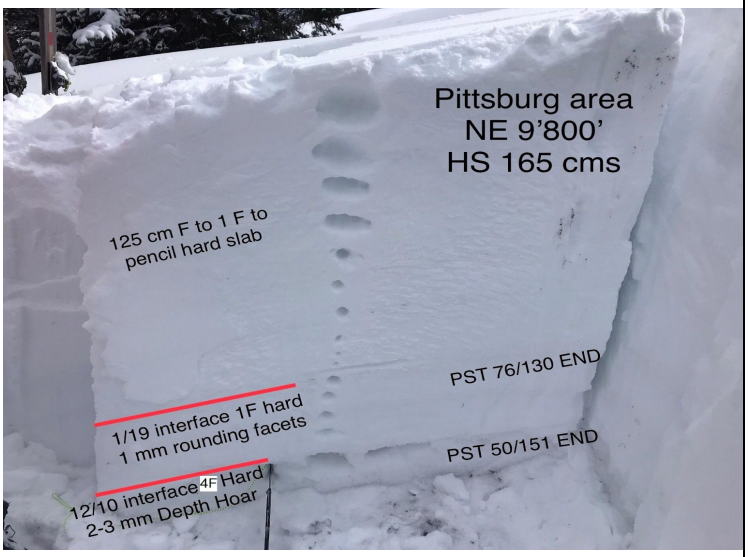

A low-pressure system made its way into our forecast area early Thursday (3/4) morning disrupting the dry weather pattern. This storm delivered 7" in Irwin, 8" in the Anthracites, 2.5" in Elkton, and 1-2" for areas closer to town. Friday (3/5) brought us back to spring break mode, with sunny skies and temps in the '40s!

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

This weekly summary period was our first period without CONSIDERABLE or HIGH danger since mid-January. Our snowpack has adjusted to February's loading events, and triggering a large avalanche has become more difficult.

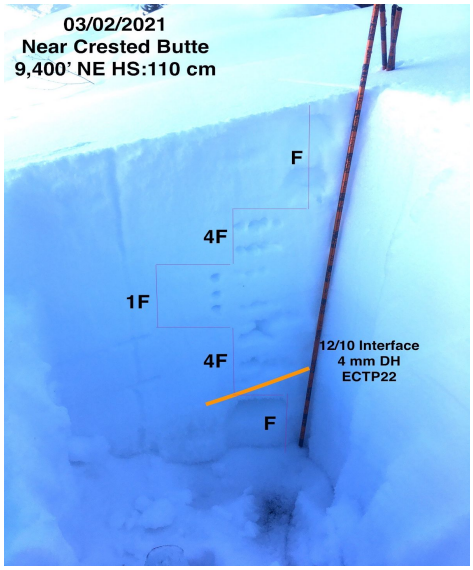
Persistent Slab Problem: **Aspects**: W-N-E. **Likelihood**: **Unlikely**

**Shady Aspects throughout our forecast zone:**




Shown here is a photo from one of our "better" looking snowpacks in a deeper area of our forecast zone. The February slab is now very dense (up to pencil hardness just above the 1/19 interface). The uppermost persistent weak layer (1/19 interface) has gained strength as it has adjusted to the weight of the slab resting above. We are seeing fewer avalanches failing on the 1/19 interface, and more avalanches failing at the depth hoar (12/10 interface). In this example snowpit, the 12/10 layer is buried about 150 cms below the snow surface. The likelihood of the weight of a human skier being heavy enough to initiate failure from 150 cms above a weak layer is very low. A combination of the hardness of the slab, increasing strength of the upper PWL, and the depth of the snowpack have led to the **likelihood** of our **persistent slab problem** becoming **unlikely**.

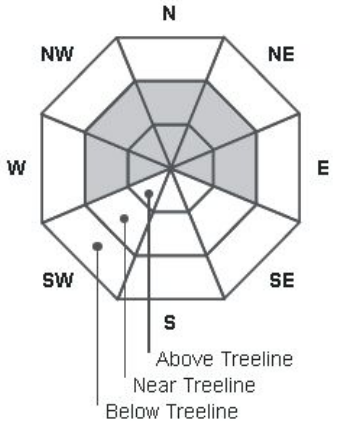
Our travel advice for **managing our current persistent slab problem** has been: while recreating in avalanche terrain, seek out planar, concave slopes with a deep, uniform, snowpack. Areas near rock bands or wind-affected areas with variable snow depths should be avoided as you may find spots shallow enough to trigger a large persistent slab.




Now, let's take a look at a weaker, shallower snowpack closer to town (still on a shady aspect). In this example snowpit, the 12/10 depth hoar layer is less than 100 cms down from the snow surface. Due to the shallow nature of this snowpack, the weight of a human has a higher likelihood of initiating failure on this layer.

With that being said, recent high pressure and temperature inversions have begun to facet the slab away on shady aspects. In this particular area, a 1 finger hard midpack is hanging on, but with more high pressure in the forecast for next week, we could be back in the sandbox in these shaded, protected, shallower areas.

The **most dangerous** areas to trigger a **persistent slab** in our forecast zone will be where harder slabs (less than 120cm thick) exist resting on top of weak layers near the ground.




**The photo to the right shows the distribution of the Persistent Slab Problem**

**Moving onto sunny slopes (southern quadrant of the compass):**

With our recent warm front from 3/1-3/3 and spring-like conditions continuing through the weekend, southerly slopes have begun the annual transition into a spring snowpack. Meltwater has made its way down from the surface towards the midpack on the sunniest aspects. After a solid freeze Thursday day/night, south-facing slopes were taken off the persistent slab distribution rose. That does not mean south slopes are a green light, but simply transitioning from a persistent slab avalanche problem into a spring-time wet avalanche problem.

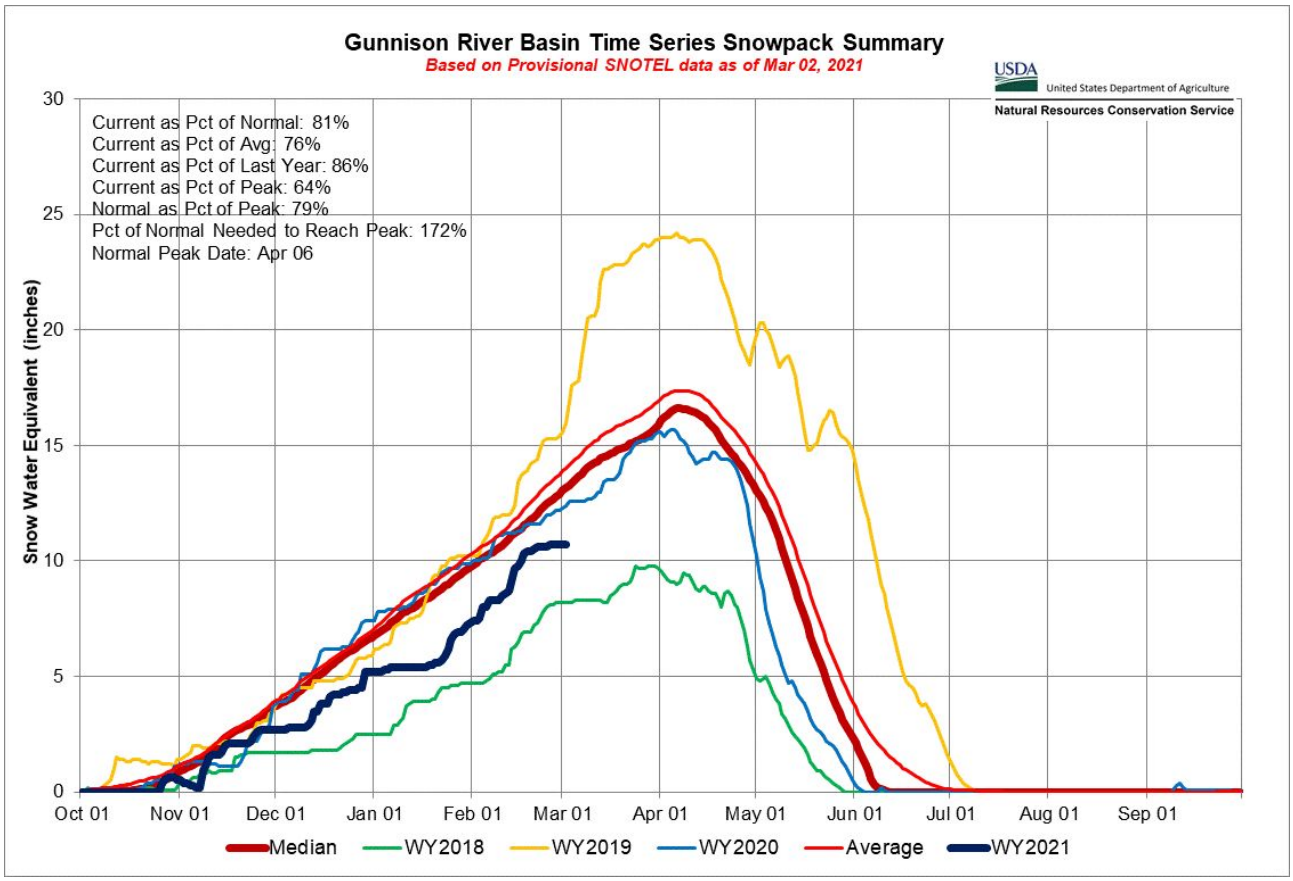
## Interfaces

### 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 can be found buried 2-6 feet deep and has been the cause of widespread avalanche activity throughout the state since it was buried. In several pits, we are seeing the 1/19 interface showing signs of rounding and sintering. While the 1/19 interface continues to gain strength, the primary failure layer has become the 12/10 interface.

### 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 consists of large-grained depth hoar. On aspects with more solar radiation, these facets are associated with melt-freeze crusts. On 12/10, new snow buried this assortment of facets ushering us into a season-long persistent slab problem. This interface has caused widespread avalanche activity throughout the winter. While the 1/19 interface has gained strength in recent weeks, the 12/10 layer, unfortunately, doesn't seem to be following suit. The 12/10 interface has once again become our main layer of concern for our persistent slab problem.




The graphic above shows the Gunnison River Basin SWE over time and it gives us a visual representation of when our interfaces formed. Looking at the WY2021 line, you may notice there are 3 distinct flatlines. The first flatline starts in late November into early December. The increase in the trajectory after this flatline marks our December 10th storm, and the day our 12/10 interface was buried. A similar story exists for January. A flatline representing 3 weeks of clear skies followed by snow on January 19th marks the burial of our 1/19 interface. An active February weather pattern with consistent loading events caused our SWE to rise alongside the avalanche danger.

Near mid-February, we started to inch closer to the average SWE for the Gunnison River Basin. Unfortunately, high pressure came back with a vengeance and we are currently sitting in our 3rd major drought of the season. Thursday's (3/4) storm will help briefly, but with more high pressure in the forecast, snow surfaces will continue to facet on shady aspects, and develop thick crusts on sunny aspects. If recent history tells me anything, once that line starts to increase drastically, (marking the burial of another persistent weak layer coinciding with a large loading event), avalanche activity will increase along with it.

## Avalanches

Without any major loading events this week, we did not have many new avalanches. The majority of our avalanches were loose wet avalanches due to warming.

***Small loose wet avalanches on the sunny side of Purple Ridge***

***More loose wet avalanches off Cascade Mountain***

**Large wet slab near Aspen**

Just outside our forecast zone, 2 large wet slab avalanches were observed on Leahy Peak (Aspen Side). These slides were D2-D2.5. The observer said they broke near the ground in an alpine, rocky bowl. Unfortunately no photos for these slides, but it does help show how we are transitioning into the spring wet slab cycle, especially with warm temperatures forecasted for this weekend.