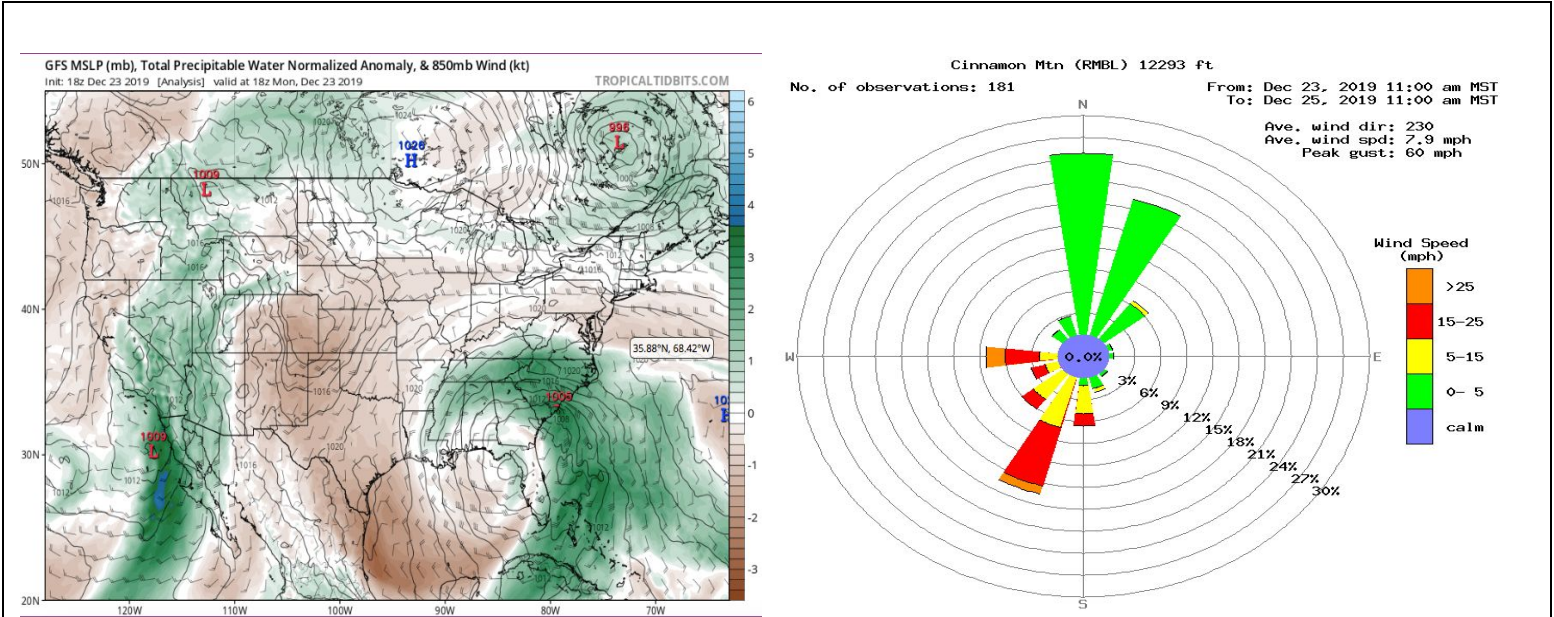


Backcountry Weekly Summary

Staff:	Zach Kinler
Week and Year	December 20-26, 2019
Backcountry zone:	Crested Butte Area

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



This period began on 12/20 under the influence of a strong ridge of high pressure with clear skies, cold mornings and sunny days. Moderate inversions were still in place with valley lows in the -10s and mountain lows the +10s. On 12/21 the slow warming trend continued with light morning inversions and the daytime freezing level up to ~11,500'. With high pressure slowly moving east and the ridge axis passing overhead we saw the warming trend continue on 12/22 with the daytime freezing level up to ~12,000'. Moisture moving up and over the ridge produced high clouds streaming through the area during the day with light winds.

On 12/23 SW flow ahead of an approaching trough led to calm to light SW winds and clouds thickening by afternoon keeping the temperatures slightly cooler than the previous day. The daytime freezing level was ~11,500'. During this time, alpine temperatures remained very steady in the mid to upper 20s while valleys saw larger diurnal swings.

As a large area of low pressure over California created deep moist southerly flow, a dry slot moved over the area on 12/24 leaving mostly sunny skies and warm temperatures. The freezing level was ~11,000' during the day with clouds and light snow moving in by 20:00. Santa delivered the first in a series of waves in the form of modest jet streaks passing through in S-SW flow. Accumulations by 06:00 on 12/25 were generally 2"-6" with the biggest story being strong southerly winds in the 20s with gusts in the 40s. Under moist southerly flow, temperatures were warm in the teens and twenties. A final jet streak passed through the area in the early hours of 12/26 providing an additional 1-2 inches of snowfall.

Santa Storm Totals

Schofield Pass Snotel: .6" SWE/ 9" snow
 Elkton Study Plot: 9" snow
 Irwin Study Plot: .65" SWE/ 8" snow
 Gothic: .24" SWE/ 4" snow
 Upper Taylor Snotel: .2" SWE/ 4" snow
 CBMR: 3" snow (cam)

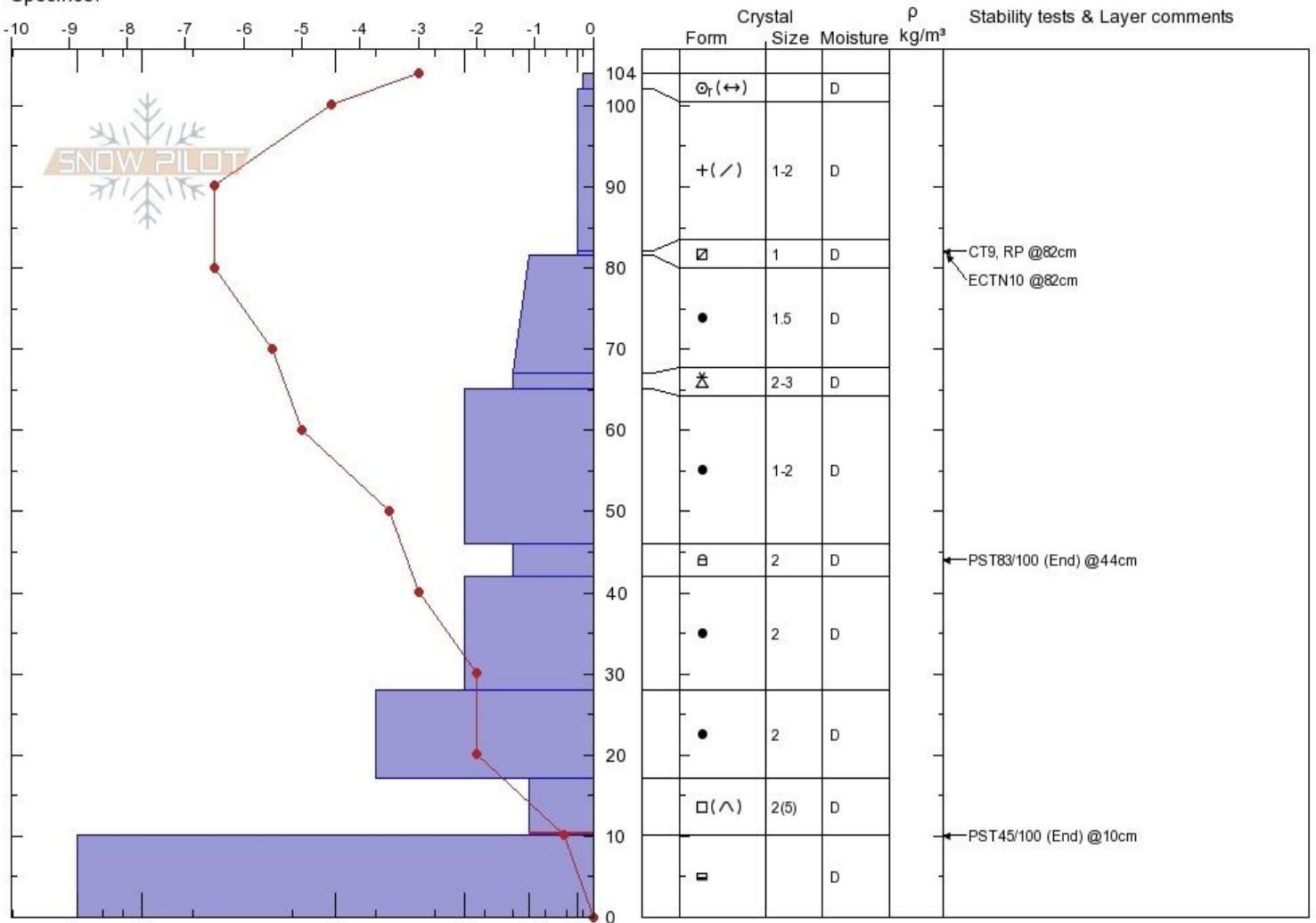
Snowpack (weak layer date(s) and status, structure, stability trends)

Elkton Study Plot
Elk Mountains
CO
 Elevation: **10400 ft**
 Aspect: **170°**
 Specifics:

Zach Kinler
12/26/2019 - 10:00am
 Co-ord:
 Slope Angle: **5°**
 Wind Loading: **no**

Stability:
 Air Temperature: **-3.5°C**
 Sky Cover: **BKN**
 Precipitation: **S-1**
 Wind: **S Light Breeze**

HS:104 Layer Notes:
 17-10cm: **Problematic layer**



Notes:

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. This layer is now buried ~80-120 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. This interface is generally ~70-90cm deep.

12/5/19 Interface: High pressure with cold nights and warm days during the first few days of December weakened the snow surface with surface hoar and near surface facets forming on shadier aspects in particular. This [Pittsburgh Ob](#) highlights this layer found in a shovel tilt test. This [Anthracites](#) observation has this layer ~30 cm as of 12/8 with cracking and failure observed. After the 12/8 cycle this layer is now ~ 30cm-50cm deep and continuing to cause failure as seen in this [large and complex avalanche](#). On southerlies, this [Paradise Divide](#) ob shows this layer as a crust/facet combo which will need to be watched with future loading. On 12/16, a [skier-triggered](#) avalanche in the Anthracites likely failed on this interface while a rash of persistent slab avalanches on [southerly aspects](#) failing mid-pack, points to this layer as the culprit. This layer is now buried ~60-80 cm

12/8/19 Interface: Two days of clear skies, below zero valley lows and strong solar radiation led to the formation of this interface which is more than likely a crust on southerlies and surface hoar/near surface facets on the shadier side of the compass. On 12/11 at the Elkton Study Plot, this layer was 1.5 mm near surface facets with results on a shovel tilt test. On 12/18, small 1 mm facets were observed hanging around this interface however its sensitivity is decreasing. On 12/26 it is now buried ~50-80 cm with no recent results in column tests.

12/12/19 Interface: The most recent interface to join the list this week is the new/old interface which is now buried ~ 30-50 cm deep. On 12/18 at the Elkton Study Plot, 1.5 mm near surface facets were observed at this interface. Stability tests on this layer were CT 20, SC Q1 and ECTN18. The overlying slab is very soft and time will tell if this interface remains on the problem list. No results were observed on this layer this week.

12/24/19 Interface: After a week of warm dry weather, this [Kebler Pass](#) ob highlights 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.

Avalanches



Small, loose wet avalanches on a south face above Rustler's Gulch after recent warming.

With high pressure firmly in place, avalanche activity during the first days of this period was a small, loose wet cycle on southerly alpine slopes as above freezing temperatures made their way up to ~12,000' under mostly sunny skies. These avalanches were all small in size (D1) and isolated to the steepest slopes near warmer rock outcrops. Following the Christmas storm, there were several reported small, loose dry avalanches after up to 9" of very light storm snow fell onto weak surfaces.

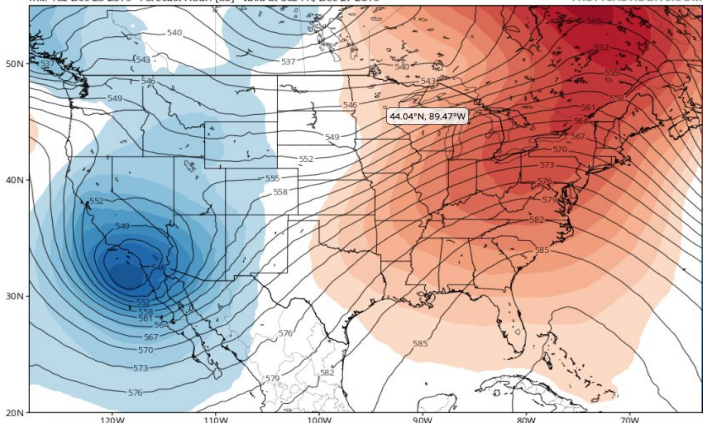
Incident, accidents, close calls

There were no incidents, accidents or close calls reported to the CBAC this week.

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

Trouging remains over the desert SW throughout the next week as storms look to take a more southerly route. This will keep Colorado on the northern edge of the precipitation with the southern mountains looking to build on the current snowpack.

GFS 500mb Geopotential Height & Anomaly (dam) (based on CFSR 1981-2010 Climatology)
Init: 18z Dec 25 2019 Forecast Hour: [30] valid at 00z Fri, Dec 27 2019



GFS 500mb Geopotential Height & Anomaly (dam) (based on CFSR 1981-2010 Climatology)
Init: 18z Dec 25 2019 Forecast Hour: [150] valid at 00z Wed, Jan 01 2020

