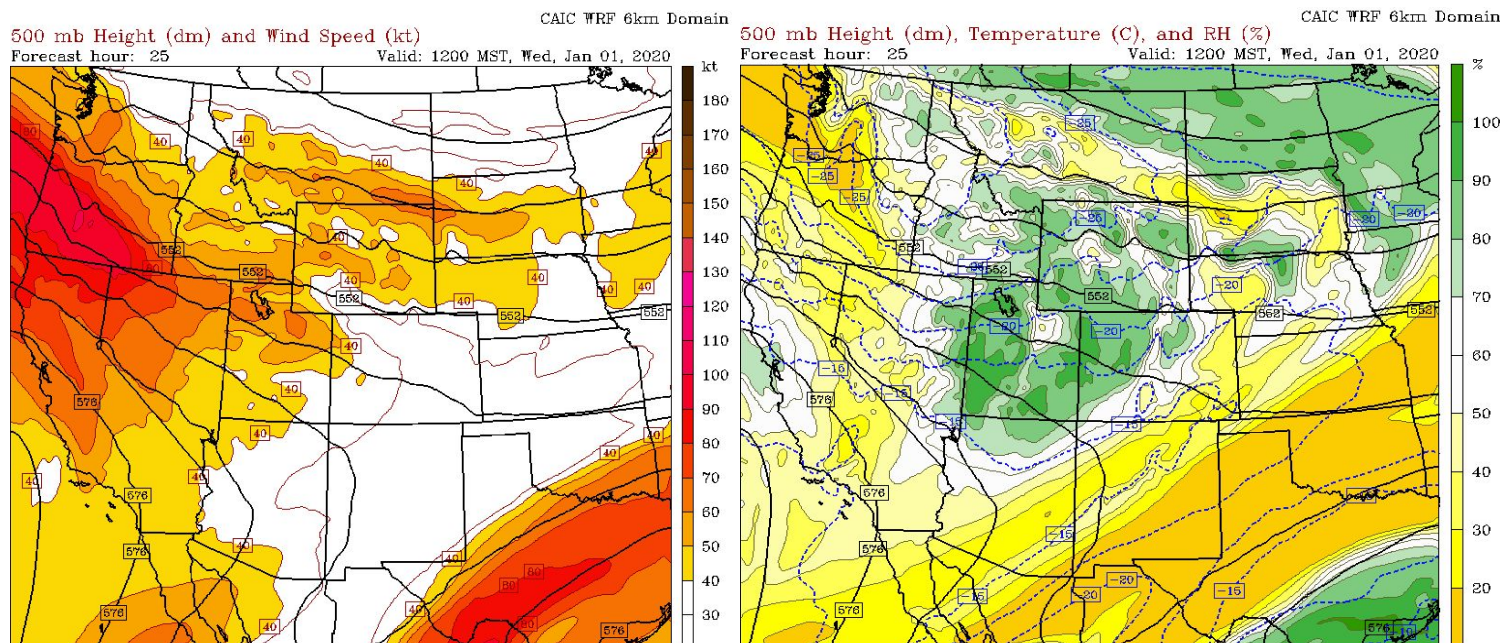


Backcountry Weekly Summary

Staff:	Zach Kinler
Week and Year	December 27- January 2, 2020
Backcountry zone:	Crested Butte Area

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



On 1/1 a quick but strong Low pressure systems ushered in Pacific moisture entrained in a strong NW oriented jet stream. Divergence aloft and favorable orographics led to a period of heavy snowfall initially with lighter orographic snow following.

This period began on 12/27 with a large digging trough of low pressure moving from Arizona NE towards the 4 corners, which put our area in deep southerly flow with moisture initially overriding cold air in place from a clear night. Light to moderate snow showers started around 09:00 and continued through the day. Overnight, a 700 mb moisture-wrapped closed circulation moved over the area which enhanced precipitation allowing several more inches to accumulate. On 12/28, orographic snow showers in westerly flow overnight kept snowfall going with the Kebler Pass area favored. As the storm moved east of the area, wrap around precip in cold NW-N flow kept light orographics showers going with minor additional accumulations. While winds on Scarp Ridge and Mt. CB were generally light, the Paradise Divide area saw winds bump up to 15-20 mph with gusts near 30 mph.

Skies cleared on 12/29 with northerly flow bringing in arctic air and our coldest temps of the year. We saw mainly clear skies with some thin clouds hanging near ridges and mountain tops as a result of frigid temps and small amounts residual low level moisture. Highs at 11K topped out around 10F after starting around -10F. With inversions well in place by 12/30, frigid temperatures at valley bottoms reached -30F in Crested Butte while abundant sunshine allowed daytime highs to rebound into the mid teens under NW flow. Similar conditions prevailed to start the day on 12/31 however signs of the approaching storm brought a warmer, moist air mass with 11K temps increasing after midnight. Flow shifted overnight to westerly with another bump in moisture and temperatures. Overnight temps increased in valley and mountain locations. A strong surge of moisture and lift arrived around 09:00 in WNW flow and lasted till midday when precipitation became more showery with the Kebler Pass and Paradise Divide areas picking up additional accumulations. Winds varied from WSW to WNW before swinging even more northerly on 1/2 when skies were generally clear with light to moderate winds and temps 15F-20F. NNW winds increased late in the day on 1/2 with speeds in the 20s and gusts in the 30-40 mph range.

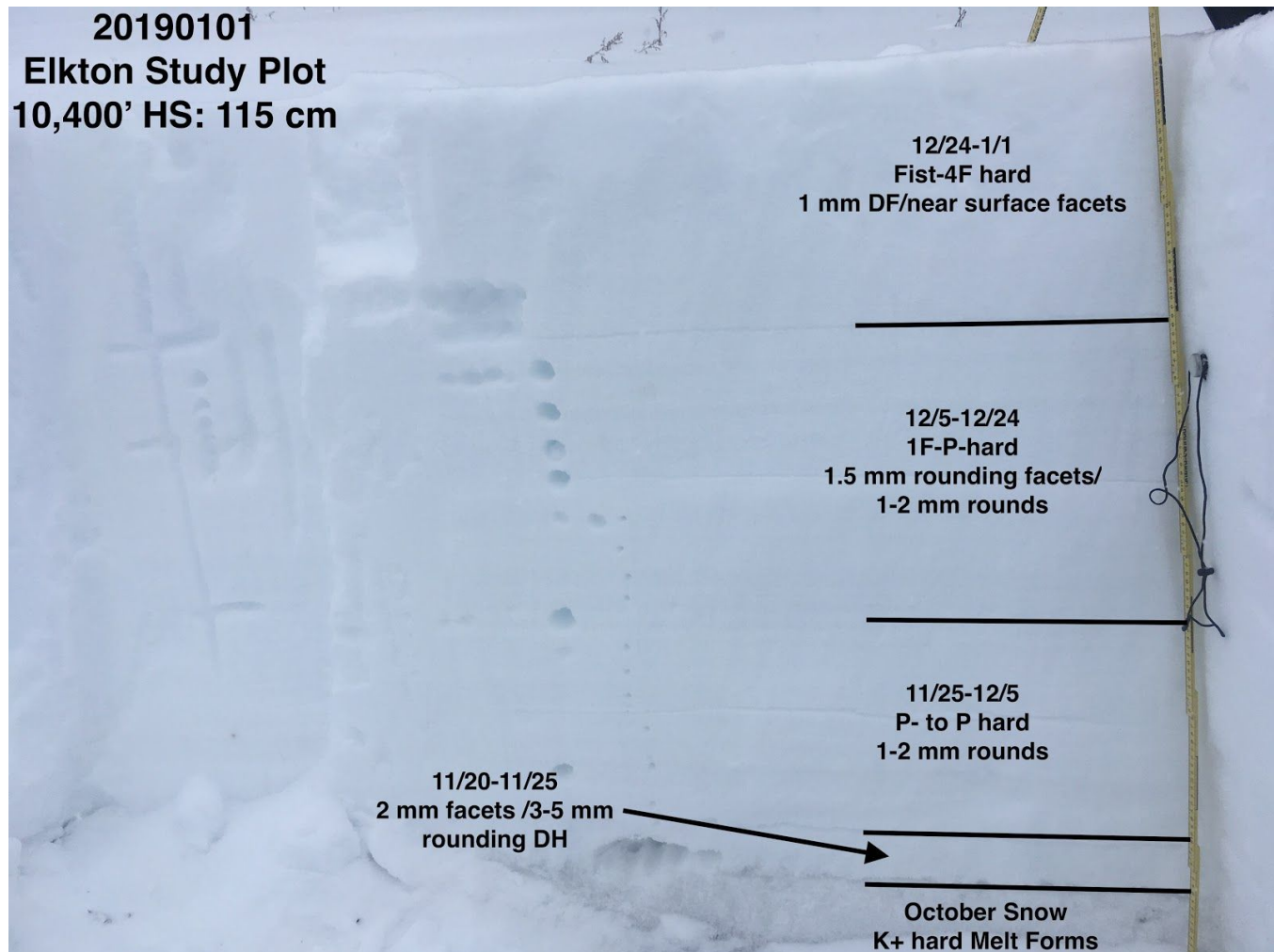
12/27-12/28 Totals

Schofield Pass snotel: .6"SWE/ 8" snow
Irwin: .55"SWE/ 11.5" snow
Butte snotel: .5"SWE/ 6" snow
CBMR: 7" snow (cam)
Upper Taylor snotel: .4"SWE/ 5" snow

New Year's Storm:

Schofield Pass snotel: .6"SWE/ 9" snow
Irwin: .7"SWE/ 11" snow
Gothic: .38"SWE/ 6" snow
Butte snotel: .4SWE/ 6" snow
Upper Taylor snotel: .3SWE/ 3" snow
CBMR: 6" snow (cam)

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

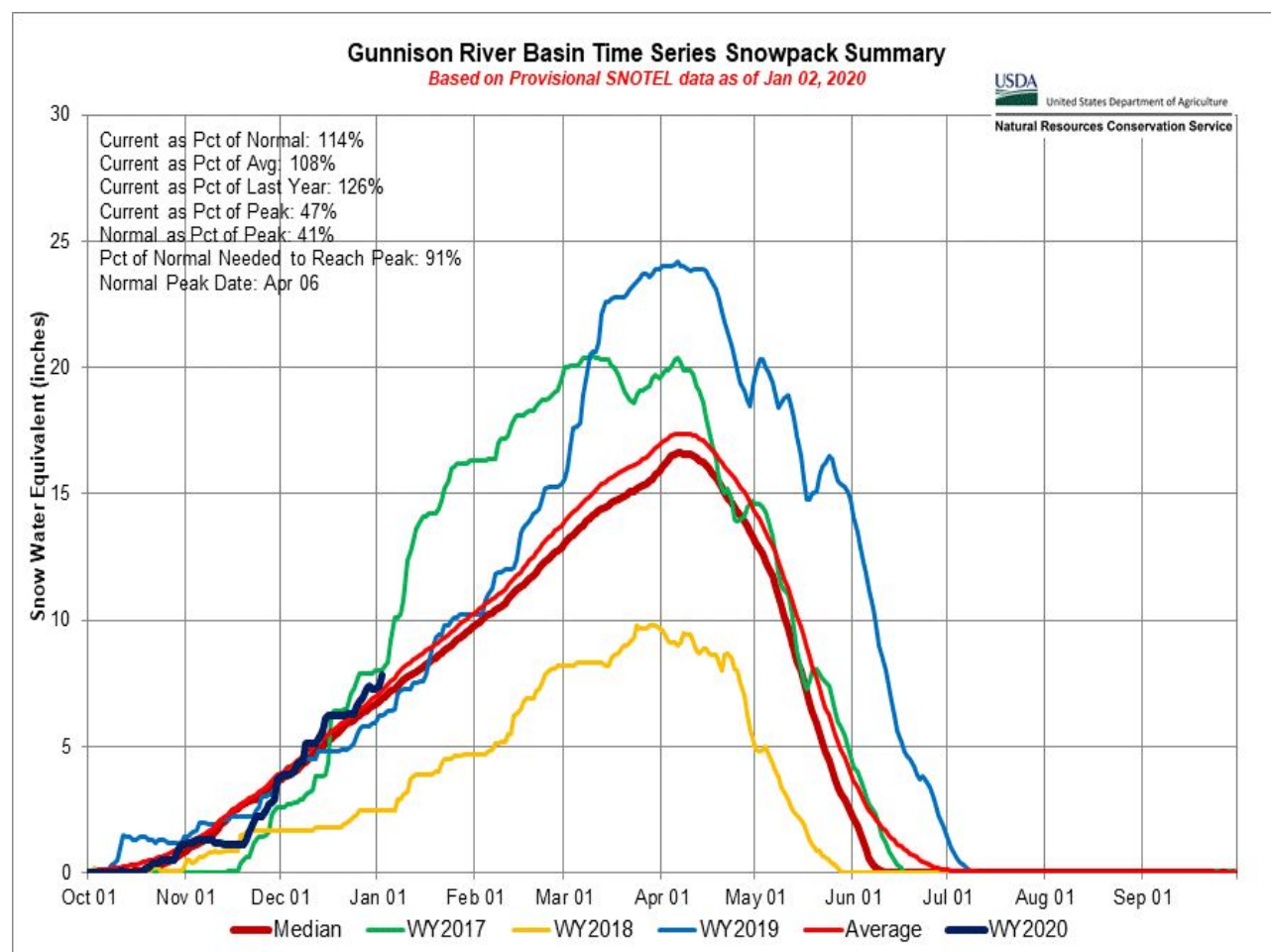


11/20/19 Interface: Multiple early season storms dropped 1-2 feet of snow throughout our area in October. An extended dry period followed for most of November with warm temps and sunny skies which left the southern half of the compass mostly bare while continuous old snow remained on shady aspects facing 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. No avalanches have been reported to fail on this interface since mid-December. This layer is now buried ~100-150 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 ~90-130 cm 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 was ~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. After the 12/12 cycle delivered a multi-day snow and wind event, we saw persistent slab avalanches on [southerly aspects](#) failing mid-pack with this layer as a possible culprit. There has not been activity on this interface since around mid-December. This layer is now buried ~80-120 cm

12/24/19 Interface: After a week of sunny and warm weather, 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. This [Kebler Pass](#) ob and this [Coon Basin](#) ob highlight this interface on southerlies while this [Paradise Divide area](#) ob illustrates the issue on shady aspects. On 1/1 at the Elkton Plot, this layer was observed as 1.5 mm near surface facets 28 cm below the surface with 1.5" SWE resting on top. It is now buried ~30-60 cm in the snow favored zones.



Water Year 2020 is tracking just above average as the Gunnison Basin sits at 114% of normal for this time of year.

Avalanches

A D1.5 skier-triggered wind slab on a ESE aspect near treeline. This type of avalanche has been typical during our recent incremental loading events.



This D1 natural wind slab released during the 1/1 cycle on a steep, drifted terrain feature near treeline in the Ruby Range



Large slab avalanche NE BTL



This large avalanche broke into older snow and was reported to have run ~1/2 As skies clear, more of these types of avalanches are possible.

This period saw two storm cycles, one to start the week and one to end the week. Both cycles were similar to past storms in that we saw more incremental loading with around .5" SWE with the first storm and .5-.7" SWE with the second. Winds played a role in both these events as they were able to move very light dry snow into slightly stronger slabs however we did not see a major avalanche cycle with either storm. The avalanches that did break were a mix of small (D1-D1.5) dry loose on the sheltered shady side of the compass and shallow (D1-D1.5) wind and storm slabs near and above treeline generally SE-E-NE. There were at least 2 reported wind slabs on SW aspects as we saw efficient cross-loading prior to and after the snowfall. It is likely that as wind continues to move snow and clearer skies allow visibility into snow favored areas, we will see more avalanches and larger avalanches breaking deeper into the snowpack. Look for more of those next week.

Incident, accidents, close calls

This week there were no major incidents, accidents or close calls reported to the CBAC. A couple small skier-triggered wind slab avalanches were reported after ski-cutting drifted start zones but nobody was reported to be caught or injured by these.

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

Storm cycles this season have been consistent albeit incremental with each storm producing ~.5-1" SWE with moderate winds. This week saw a similar pattern with light and dry snow creating some great riding conditions and slight bumps in danger. Weak layers in the upper snowpack remain somewhat untested as does the early season facets/depth hoar which have been quiet but still lurk at the bottom of our growing snowpack. Below is the 6-10 temp and precip forecast for the upcoming week showing below average temps with a storm track just to our north.

