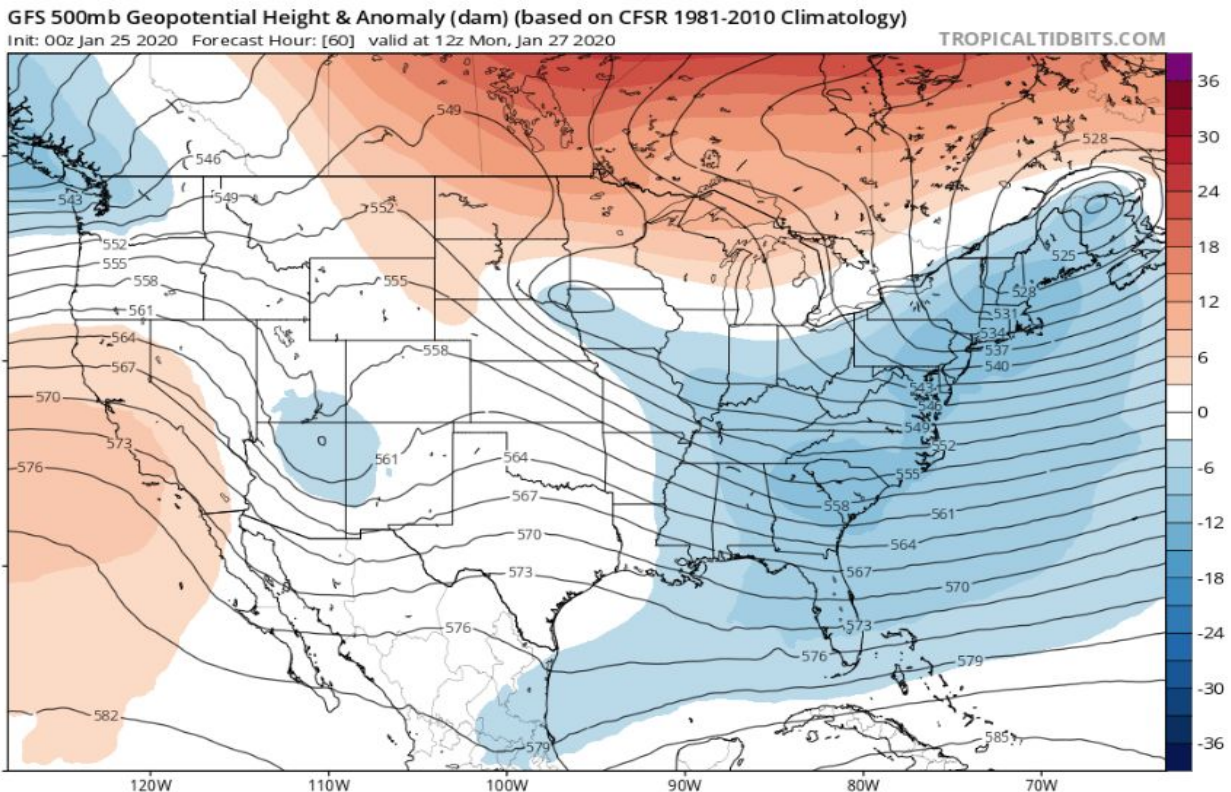


# Backcountry Weekly Summary

Staff:	Zach Kinler
Week and Year	January 24-30, 2020
Backcountry zone:	Crested Butte Area

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

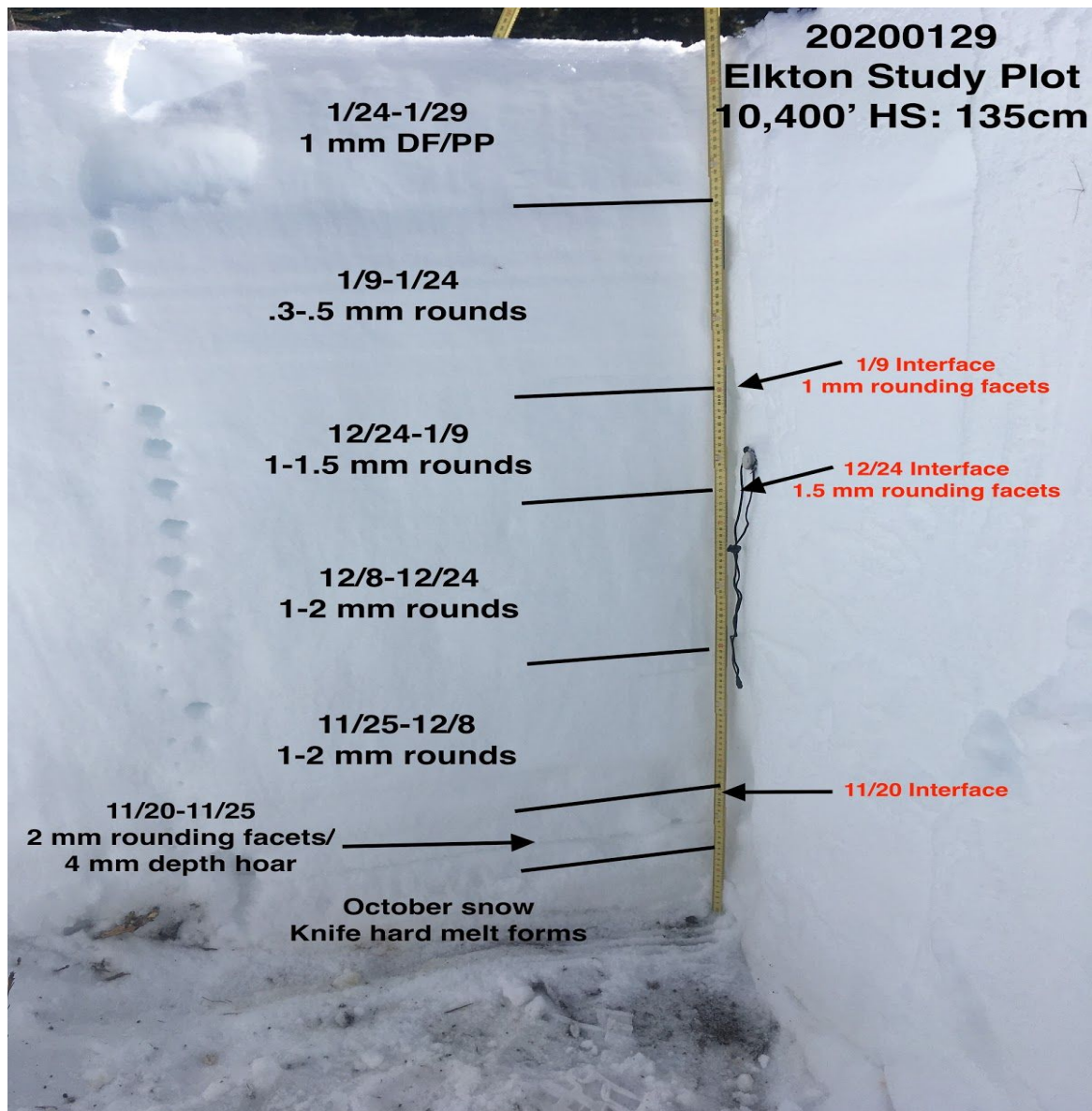


**The big story this week was a pesky ridge trying to establish itself off the coast of California while multiple weak shortwaves made their way over and down the ridge towards Colorado. Total accumulations this week were generally less than 6".**

This period began on 1/24 with mostly clear skies and thin cirrus in NW flow. Light morning inversions were present while freezing level pushed to ~10,500' with periods of strong solar. A weak and moisture starved shortwave passed through in NW flow on 1/25 with very light snowfall leading to accumulations of trace-2" and increased cloud cover. Temps were steady to rising with the warmer air-mass moving over with clouds hanging over Kebler Pass and Paradise Divide areas while elsewhere was mainly clear. Freezing level pushed to ~10,500'. 1/26 was one of the warmest days of the season with light clouds initially before clearing by midday. Freezing level rose to ~11,000' with strong solar.

The next quick moving shortwave moved over the area on 1/27 with energy from this system splitting and passing mostly north and south of Colorado. Enough moisture and favorable NW winds were able to produce clouds and light snowfall totaling 1"-4". NW winds were moderate with highs in the 20s. Transient ridging on 1/29 ahead of the next shortwave led to mostly clear skies with light morning inversions. Freezing level was ~10,000-11,000' with strong solar. During the overnight hours of 1/29 yet another very weak shortwave made its way through in NW flow. Accumulations were very light with trace-1" seen around the zone. Winds were very light and overnight temps stayed around 10F. Skies quickly cleared with strong solar and mountain highs in the upper 20s to near freezing. The period ends on 1/30 with a mix of sun and clouds as another disturbance dives down from the north favoring northern CO.

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



**\*\* [Click here for the full profile and test results\\*\\*](#)**

**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. 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 were reported to fail on this interface from mid-December through early January until strong northerly winds cross-loaded Westerly slopes near treeline. This put a slab on very weak layers near the ground and led to several large avalanches. While stubborn, large triggers such as [cornice falls](#) have shown this layer to still be a concern and the possibility of smaller avalanches breaking down to this layer remains. This layer is now buried ~100-200 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. On 1/8 at the Elkton Study Plot, further rounding of the 2 mm facets was observed as well as consolidation into 1F hardness from 4F. PST results on 1/22 at the Elkton plot were 107/121 with propagation to END, marking the first time results greater than 50 were observed. This interface is generally ~90-150 cm deep.

**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 and hard Q2 CT results. Non-propagating ECT results were seen in this [ob](#) and on 1/8 at the Elkton Study Plot CT and ECT test revealed no failure here while a PST (40/100) SF was observed. Rounding and sintering of grains is occurring in these areas. PST END results less than 50 cm were observed the last three weeks at the Elkton plot on this interface which remains somewhat weak. Several human-triggered avalanches in the upper snowpack this week point to this layer as a possible culprit. This large [scary avalanche](#) is the most recent evidence of this weak interface. It is now buried ~50-80 cm.

**1/9/20 Interface:** Following the New Year's storm, skies cleared Colorado style with very cold nights and sunny skies during the day with freezing level pushing to 11K. This created thin crusts on southerly slopes while near surface facets and surface hoar formed on shady slopes. This [Kebler Pass area](#) ob highlights this layer on each side of the compass. This [Paradise Divide](#) ob documents propagating ECT results on a crust/facet combo. This interface is a scary [Surface Hoar](#) layer which produced an intentionally triggered avalanche in the Anthracite range on 1/13. Recent human-triggered avalanches in the upper snowpack point to this layer as the culprit. This layer is b~30-70 cm.

## Avalanches

Natural avalanche activity was waning coming into this week however a large and deep persistent slab avalanche ran naturally sometime around 1/25 on a large east facing alpine terrain feature. This area saw continued winds which transported snow to leeward aspects. This avalanche is pictured below and was likely triggered by a large piece of cornice falling from ridgetop. It highlights our most concerning areas which are wind-loaded slopes as well as the potential for smaller avalanches to step down to weak layers near the ground.

While natural activity during the last cycle was generally concentrated from NE-E-S, this week we saw human and explosive triggered avalanches on the westerly side of the compass. These areas have seen incremental loading of very weak crust/facet combos throughout the upper snowpack. This slow loading has kept natural avalanches in check but these slopes are sensitive to the additional, localized stress of an artificial trigger such as [snowmobiles](#) and [explosives](#). While not as large as some on the east side of the compass, these avalanches have been D1.5-D2 which is large enough to injure, bury or kill.

**This large and complex avalanche initiated from a piece of cornice triggering a small wind slab that stepped down to deeper weak layers. The debris from that event triggered and even larger persistent slab lower on the path.**



**This explosive triggered D2 on a previously un-mitigated west aspect at Irwin indicates certain cross-loaded westerly terrain harbors persistent slab structure.**



