Backcountry Weekly Summary

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Intern:	Zach Kinler
Week and Year	February 1-7, 2019
Backcountry zone:	Crested Butte Area

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

This week began with a ridge of High Pressure over the Rockies keeping our skies clear with temperatures rebounding to above normal for 02/01 and 02/02. A weak shortwave undercut the ridge, possibly weakening it as another series of Pacific storms moved onshore to California. The first of these storms moved in late in the day on 02/02, and this tightly wound system brought a strong subtropical moisture feed and temps near and just below freezing with it laying down dense, moisture-rich snowfall along with strong-extreme SW winds. Gusts at the Scarp Ridge station hit 90 mph on 02/03. Snow totals ranged from 3”-10” with .4”-1.2” SWE.

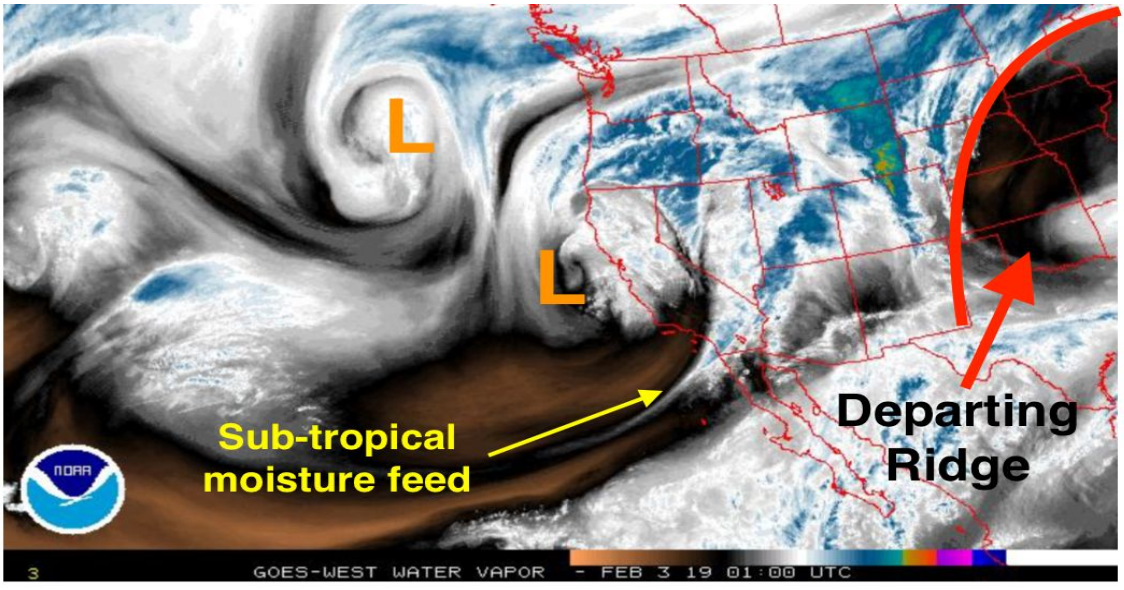
A weak shortwave and orographics driven by a SW oriented jet working with sub-tropical moisture continued to keep snowfall going, albeit light, in the high mountains on 2/4-02/05 as we waited for the next much larger system to arrive late Tuesday into Wednesday. Another 4”-12” snow with .3”-1.5” SWE accumulated during this time with the Paradise Divide and Kebler Pass zones heavily favored.

The final act in this multi-day event moved into the area late in the day on 02/05 with strong ascent, deep moisture and cold air in SW-W flow. These ingredients came together to create heavy bands of precipitation. Temperatures were again on the warmer side under the influence of sub-tropical moisture which led to more dense, moisture-rich snowfall at the start of the event. This eventually transitioned to lighter snow as the cold air moved in on the back side of the storm however SWE amounts remained quite high. This last punch delivered an additional foot + of snow and ~1” SWE leading to impressive totals from this 5 day cycle.

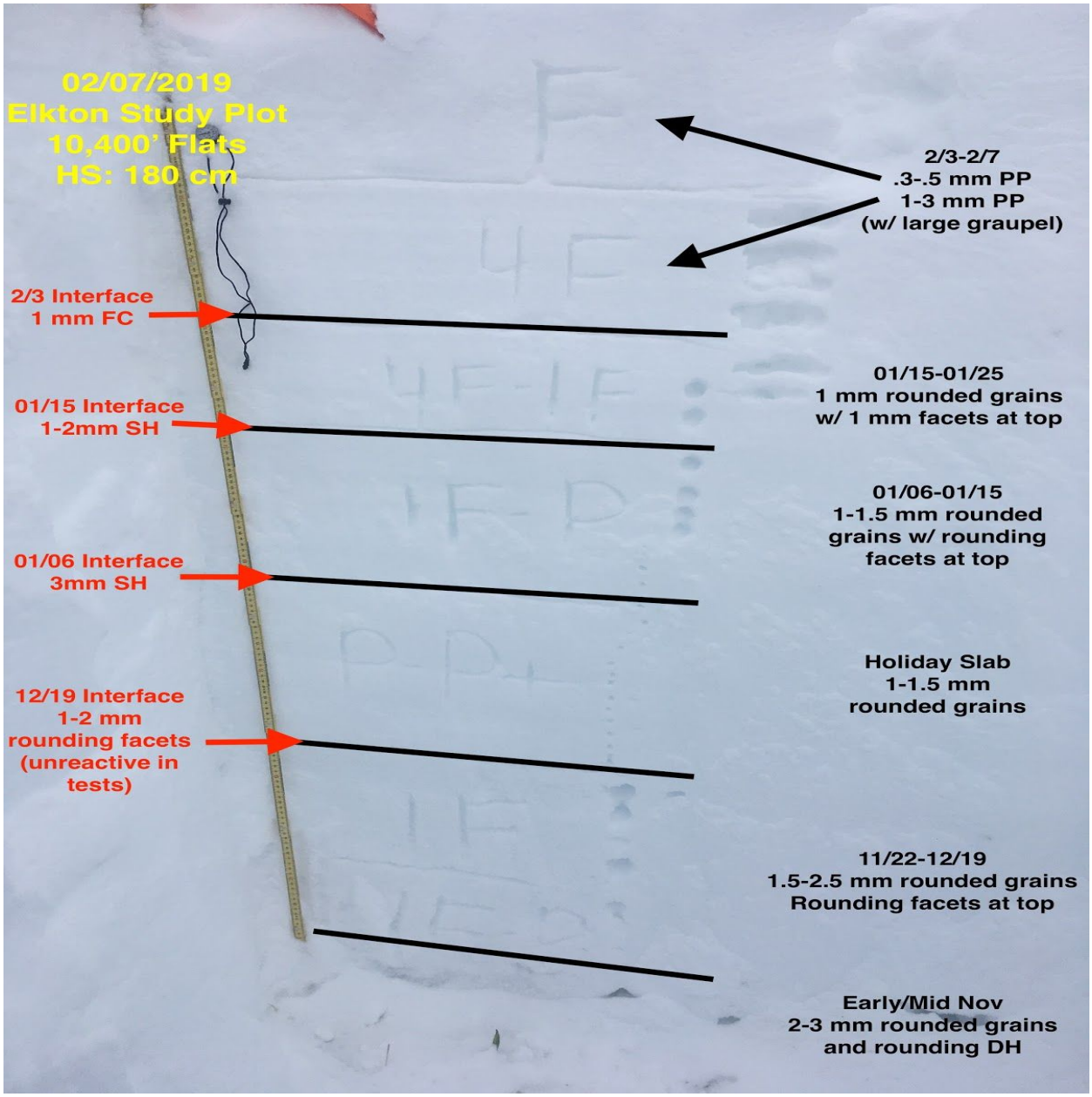
Snow Totals

Schofield Pass Snotel: 24” snow / 3.2” SWE
Irwin: 29” snow / 2.9” SWE
Upper Taylor Snotel: 18” snow /1.5” SWE
Resort: 17” snow(estimated)

Water Vapor Image showing multiple storms poised to hit the Western US with a strong moisture tap from tropics.



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



11/22/2018 Interface: This layer has been well highlighted in previous summaries and will stay on the list and while it is at the top because of when it formed as our deepest weak layer, it is not the interface of most concern at this point. In our shallower Eastern zones, this layer came alive in early December and again in early January after our "Holiday Slabs" were able to finally put enough of a slab on top of very weak snow. During our last avalanche cycle starting the second week of January and continuing through 01/24, the Crested Butte, Brush Creek and Cement Creek zones were again overloaded to the point that we saw many small to large avalanches breaking at or near the ground as seen in this observation. This activity was confined to areas with a snowpack ~140 cm or less.

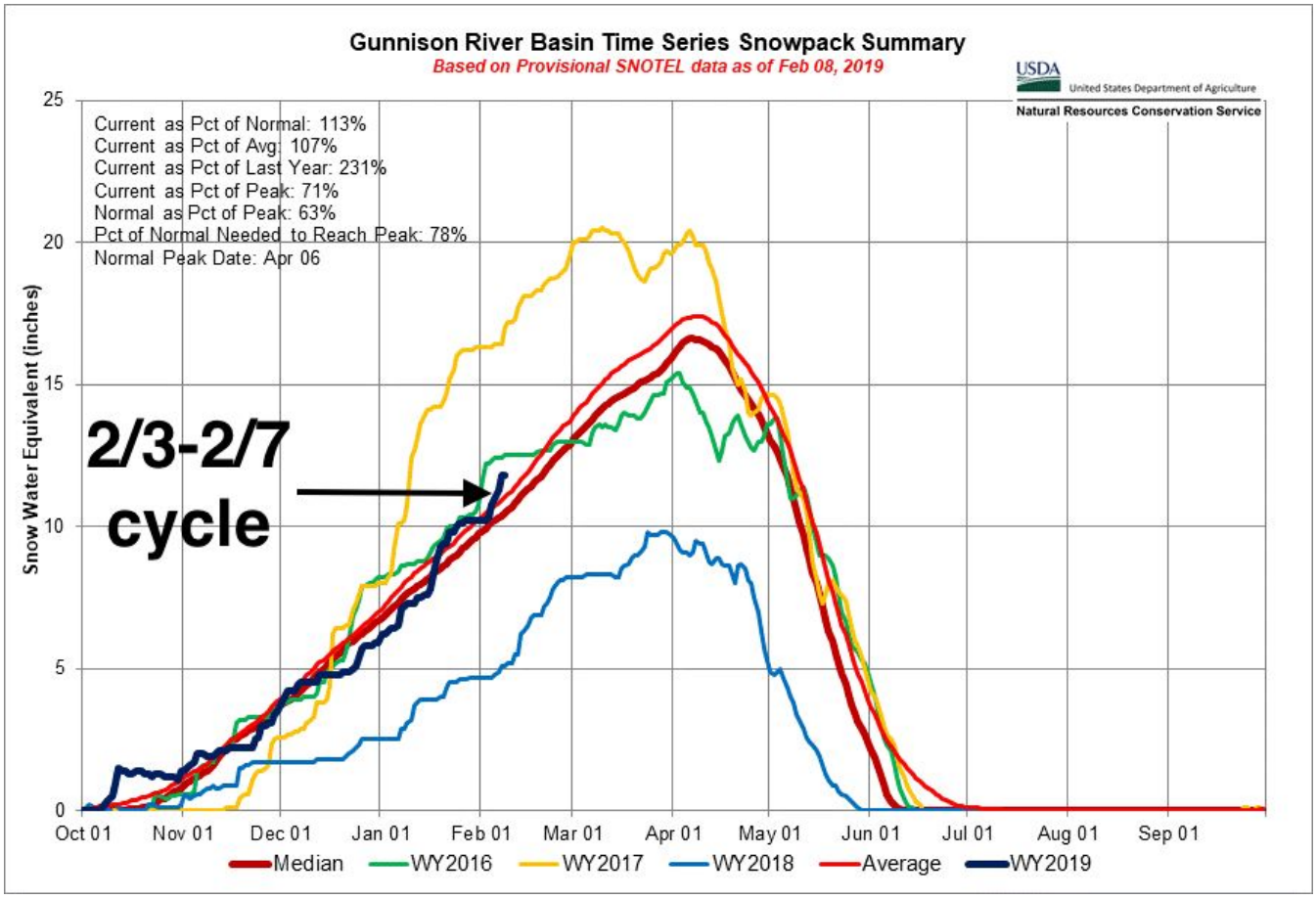
North and West of town, we have not seen a natural or human triggered avalanche on this layer since Dec. 13th. Reports of cracking and collapsing on this layer are non-existing and long column tests are continuing to consistently show no results on this layer. These facets and depth hoar are rounding and sintering and are at least 4F hardness in many places with deeper locations in the alpine at 1F hardness. Snowpacks in these areas are providing up to 200+ cm over this layer. Our mid January storm cycle added up to 4" SWE to our snowpack in the snow-favored zones and our latest storm cycle added another 3+ inches of SWE. This was a great test for this layer and it looks like it held strong in areas with snowpacks greater than 140 cm. While extremely unlikely to trigger in the Kebler Pass and Paradise Divide areas, this layer is still a concern in our shallower areas so will be staying put on this list.

12/19/2018 Interface: This layer from our mid-December dry spell was unreactive in small and long column tests this week at the study plot. When originally buried, we were dealing with a variety of crust/facet combos on the southerlies with shady aspects having surface hoar down low and near surface facets as you get near and above treeline as seen here: se-s-sw-ntl and afternoon-lap-skook. After the X-mas storm and with SWE amounts on this layer exceeding 1", several D2 avalanches were observed here (p-divide-shaded-treeline-structure and north-below-treeline). After the "Holiday Slabs" came in, we again saw many a small avalanche likely releasing on this layer, especially in the Cement Creek zone. During our last avalanche cycle from 1/16-1/24, several very large avalanches on White Mountain and Whetstone likely broke on this layer in the shallower zones near Crested Butte. This interface is still visible in snow pits with varying results in short and long column tests. This Crested Butte area observation revealed a significant slab over this layer with propagating results in a long column test. While less of an issue in our deeper snowpack areas, this interface still will be a player, especially in our shallow zones around town and to the East.

01/06/2019 Interface: This interface was not clearly seen initially however recent slab formation on top of this interface and test results on this layer at the Elkton Study Plot the last 2 weeks revealed 3-4 mm SH laced with rounding grains. This layer formed during high pressure with frigid nights and warm days in early January **.** With the last widespread avalanche cycle to end out January, we saw many avalanches breaking in the upper part of the snowpack with this layer being a potential offender.

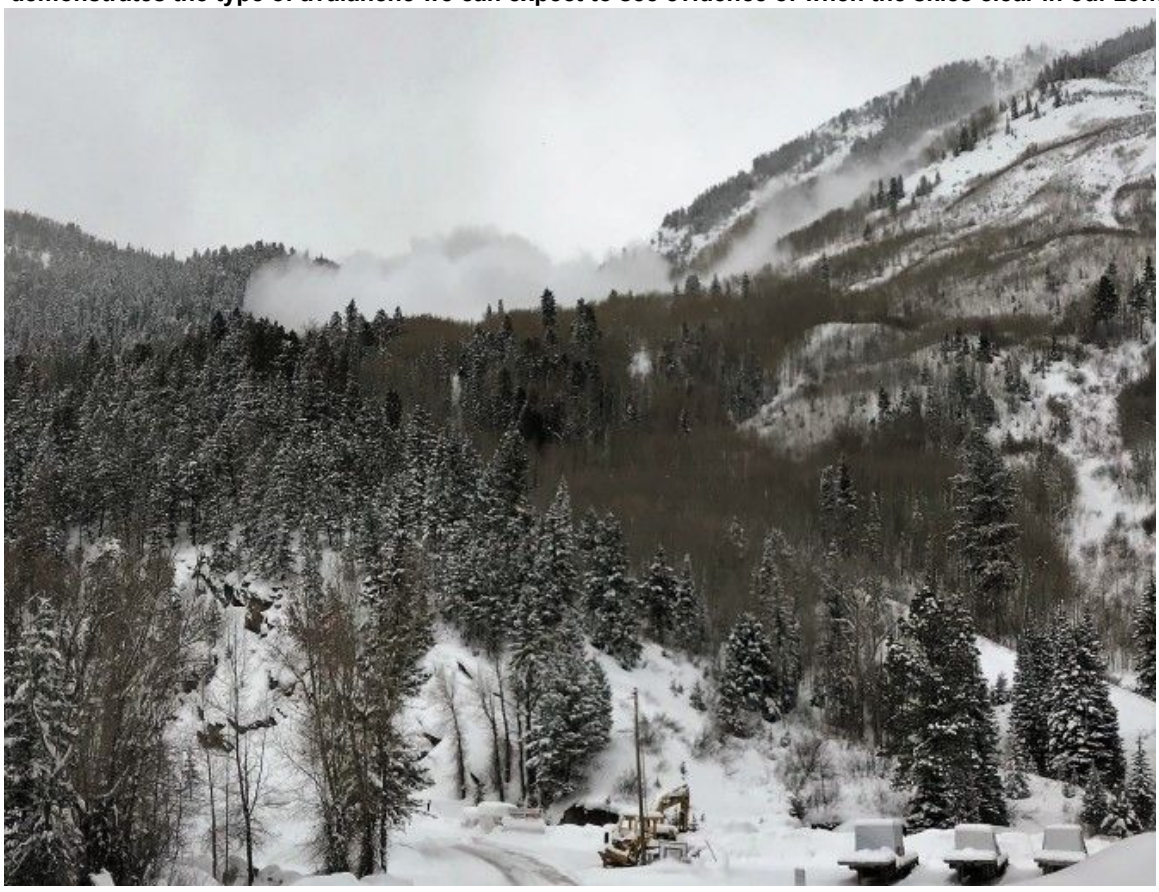
01/15/2019 Interface: This layer formed after the minor accumulations around 1/10-1/12 fell on the weak surface from after 1/06 and was observed as 6 mm SH on a SE aspect @ 11,500, and 3-4 mm SH at the Elkton Study Plot @ 10,400'. Take a look at this observation, surface-obs, from the Paradise Divide area which documents this interface as well. This skier triggered avalanche on a S aspect in the Kebler Pass area ran on this layer, which was a crust, as did this avalanche. Last week in the Crested Butte zone, this layer was observed as SH on top of a crust/facet combo on a SW aspect near treeline and produced propagating results. This interface was involved in a skier triggered avalanche on the South face of Baldy(see "Incidents, accidents and close calls" below). This Kebler Pass zone observation reveals this layer of concern in our deeper zones as does this with Propagating results. At time of publish, limited visibility has prevented observations of the recent avalanche cycle but it is likely that this layer produced failures especially in our shallower zones.

02/03/2019 Interface: This is our most recent layer of concern and is fairly widespread layer of small near surface facets on shadier aspects and crust/facet combos on sunnier aspects. This layer formed during a period of stable weather with sunny skies, cold nights and warm days after last week's storm cycle and got buried in the first hours of 2/03 by the above mentioned storm which came in with widespread graupel. This interface was immediately reactive in pit tests as seen in this Paradise Divide observation. Again, with skies just clearing the day of this report, we have yet to see how active this layer was coming out of this last avalanche cycle.



Avalanches

This large avalanche in motion from the neighboring Aspen zone near Marble Quarry ran on 2/06 and demonstrates the type of avalanche we can expect to see evidence of when the skies clear in our zone.



At time of publish, we are just getting observations of the most recent avalanche cycle which prompted Avalanche Warnings and HIGH danger at all elevations. This windshield and snowmo tour reveals large avalanches with wide propagation around the Crested Butte are focused near and above treeline on aspects from N-SE. This observation from early in the cycle reveals remote triggered D1 avalanches failing on the 2/03 interface. An observation from the Anthracites reveals similar instabilities from early in the storm. With 1”-3”+ SWE falling throughout our zone and strong to extreme winds, it is likely we have yet to see the true extent of this latest avalanche cycle. Avalanches failing at the beginning and middle of the latest event have been exposed to winds and drifting snow, filling in some of the recent crowns making them trickier to see.

Incidents, accidents, close calls

This week there were no incidents, accidents or close calls reported in the Crested Butte Area.

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

This week produced yet another snowpack building storm containing large amounts of water relative to the height of new snow. Across the zone we saw 1”-3+” SWE bringing our snowpack to 114% of normal for this time of year and leading to another large avalanche cycle. A forecast promising continued storms pumping moisture into Colorado will hopefully continue to build our above average snowpack.