Backcountry Weekly Summary

CBAC
CBAVALANCHECENTER.ORG

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Week and Year	Feb. 8-14, 2019
Backcountry zone:	Crested Butte Area

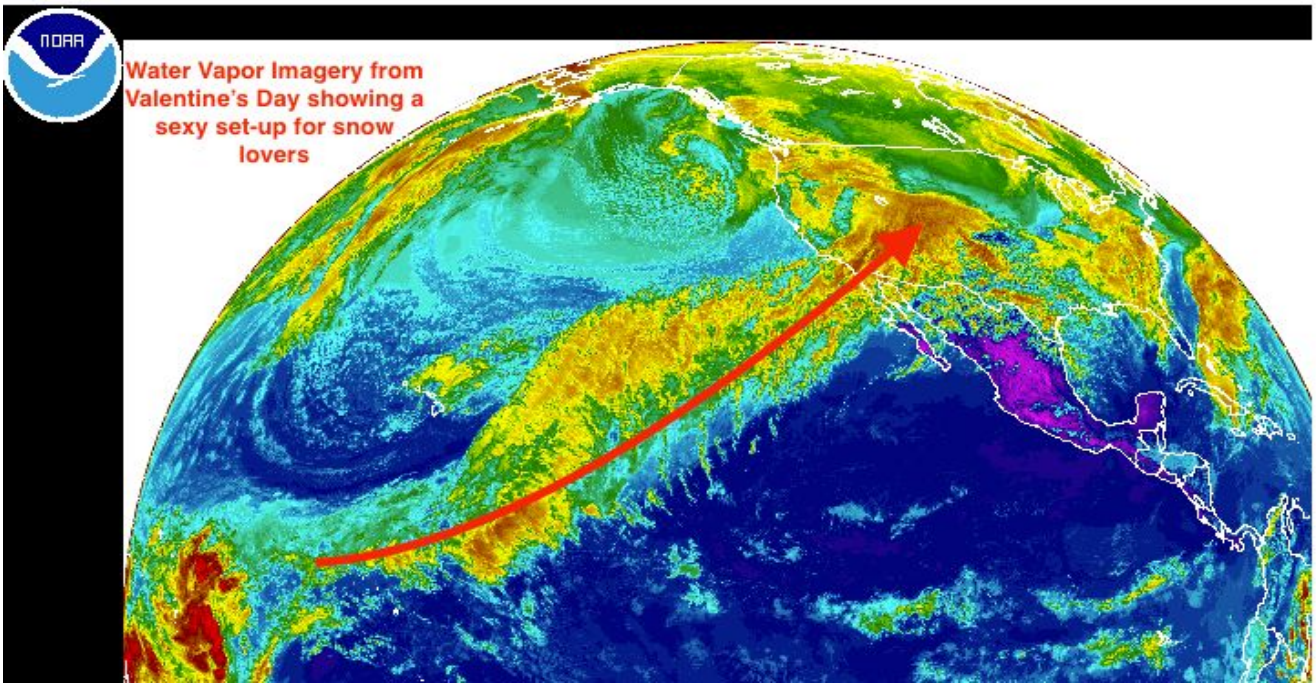
Notable Weather Events (snowfall, SWE, winds, temps, etc.)

This week saw the arrival of a much anticipated “Atmospheric River” event that was being watched and talked about for at least a week. This “AR” event came through in two waves, the first more modest push occured on 2/13 and the second and more impressive hook-up came late in the day on 2/14-2/15. Leading up to this cycle the area was under a brief ridge of High Pressure for 2/8-2/10 with a cold front in NW flow passing through on 2/11 with a couple inches of snow, wind and cold temps. Flow then transitioned to SW ahead of the main event which warmed highs to just above normal and setting the stage for a relatively warm cycle which is quite common with abundant S. Pacific moisture.

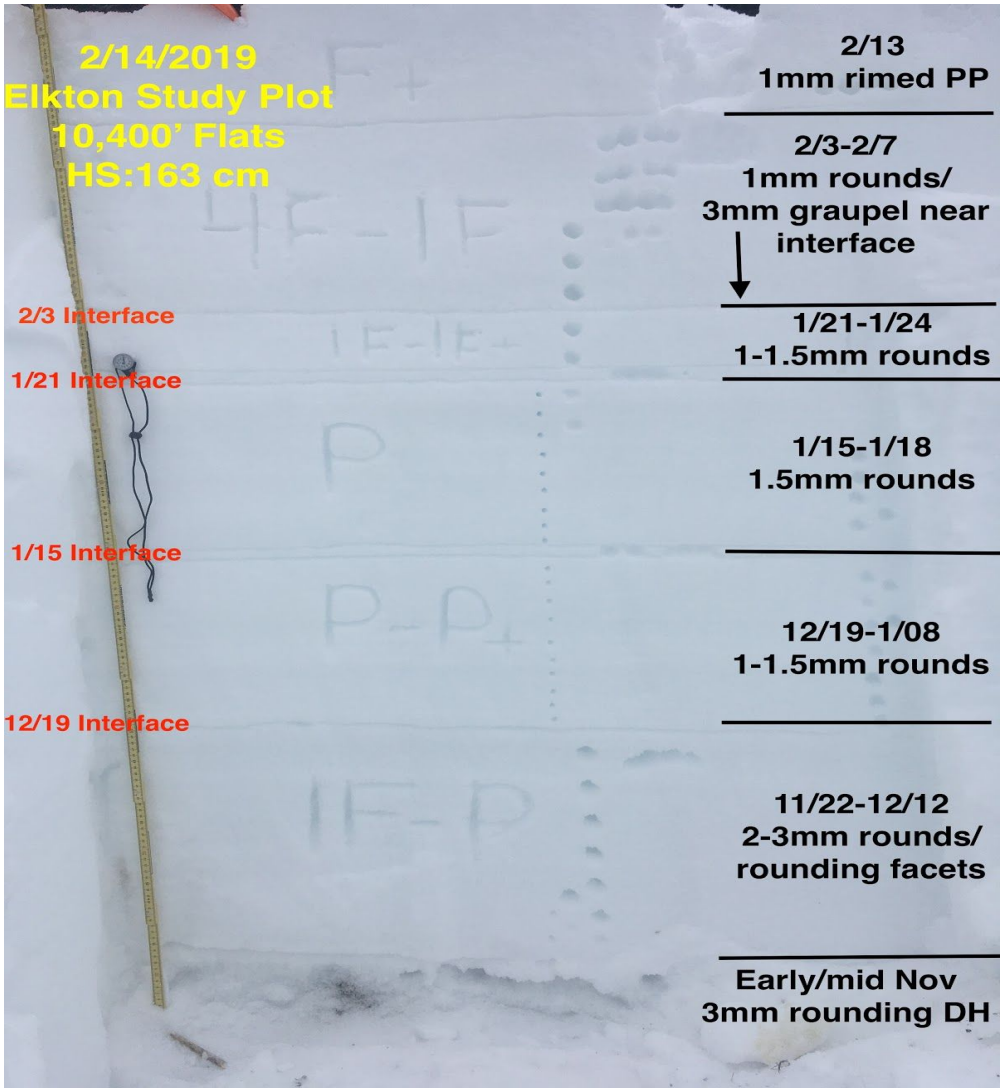
On 2/13 the first tap of moisture in SW flow dropped 3”-7” snow with SWE amounts up to ~.5” at Schofield snotel and .8” SWE measured at the Elkton study plot. As advertised, this was dense, moisture rich snow. The flow of moisture was quickly cut but returned late in the afternoon on 2/14. This river of moisture was impressive as it originated from SW of the Hawaiian Islands around the Marshall Islands, all the way to Western Colorado. This covered over 5,000 miles! Snowfall came in heavy and moist giving us impressive totals before being pushed south of Colorado by drier air from the West. Below are totals from 2/13-2/15.

Schofield Snotel: 13” snow **/** 2.2” SWE
Butte Snotel: 15” snow / 1.6” SWE
Upper Taylor Snotel: 15” snow / 1.2” SWE
Gothic: 15” snow / 1.72 SWE
Resort: 18” snow (estimated)

Impressive “Micronesian Express” originating over 5,000 miles to our West and pumping moisture right at Colorado.



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



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 the 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.

01/15/2019 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. Explosives testing got results on this layer this week and future loading will certainly stress this interface.

1/21/2019 Interface: Warm days with highs above freezing and cold nights under brief High Pressure following our 1/15-1/18 cycle led to the formation of surface hoar, near-surface facets and crusts depending on aspect/elevation which got buried initially by our “MLK” storm and now sits ~60-80cm deep after the most recent loading. This layer was the culprit in this Elk Creek skier triggered avalanche. This large remote-triggered avalanche occurred a few days later with this interface likely involved. It is likely that we will see more action on this layer as it has become reactive days after receiving modest loading.

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 a storm which came in with widespread graupel making it easy to identify in pit walls. This interface was immediately reactive in pit tests as seen in this Paradise Divide observation. On a South aspect, this layer produced propagating results before the Valentine’s loading as seen here.

Avalanches

This very large avalanche in Redwell Basin failed ~2/8/19 with a storm slab stepping down to a much deeper persistent slab. This highlights the possibility of any avalanche breaking into older weak layers producing unsurvivable slides. Photo credit to Chris Miller

This week started at the end of a significant loading event that saw avalanche activity concentrated on near and above tree line locations from N-E-SE. Wind was an important factor in this previous loading event which was able to provide the catalyst for many avalanches despite an extended loading period that allowed the snowpack to adjust between multiple waves of moisture. This observation from after this event highlights the nature of this avalanche cycle which led to another HIGH danger day. Given the amount of water (over 3” SWE) that fell, we didn’t huge numbers of avalanches however there were some very large avalanches as we saw lots of stress on multiple weak layers throughout the snowpack. At time of publish, we are just gathering observations on avalanches from the most recent cycle. Look for these observations on next week’s report.

This large avalanche in Climax Chutes is a repeat performer and produced impressive propagation into the trees on the left side of the picture. Wide propagation and long running avalanches followed the 2/3-2/7 loading event.

Incident, accidents, close calls

Crown from a skier-triggered avalanche in the Elk Creek drainage on a NE aspect BTL. This slide failed on 6-8 mm SH buried on 1/21. The crown was ~45 cm and it propagated across most of the slope.

On 2/11 a skier triggered the above D2 avalanche after witnessing a smaller skier-triggered avalanche on a similar slope in the same area. This terrain was chosen as a safer option after seeing what type of terrain produced the first avalanche. Slope angles were ~38-40 degrees at the top, and ~35 degrees mid-slope. It was able to propagate into terrain ~30 degrees as well which is common with persistent weak layers such as surface hoar which are notoriously weak and collapsable. The skier was able to ski off of the slab into a predetermined safe zone as the debris crossed the road below and ran to the creek below. While not large enough to completely bury a skier in this terrain, this avalanche ran 300-400 feet with debris up to 1 meter deep in an area with sparse trees which could have seriously injured a person if caught. As always, there is a lot to learn from this close call.

On 2/14, this remote triggered avalanche on a E/NE slope near tree line was reported to the CBAC. No pictures and little information is currently know however it was triggered from ~30 ft away and propagated 150 meters breaking into old snow around the 1/15 or 1/21 interface. This is a similar zone to the close call on 2/11 and likely failed on the same weak layer which has come alive with modest loads.

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

As the skies clear from our latest loading event, we are just getting observations in from this avalanche cycle which again pushed the danger to HIGH. Another 1”-2.5”+ SWE fell with the majority coming very quickly late in the day on 2/14 into the early hours of 2/15. This “Atmospheric River” event was short-lived but packed a punch and it will be interesting to see the extent of the recent avalanches. Continued unsettled conditions with cold temps and additional snowfall are in the forecast for this week. Our snowpack continues to grow with consistent storms and cold weather as seen below in this graphical forecast for the upcoming week.