

2014-2015 Crested Butte Avalanche Center Season Summary. By Zach Guy

The 2014/15 winter season in the Crested Butte backcountry was punctuated by three significant storm and avalanche cycles, with unusually warm and extended dry spells between these cycles. Snow water equivalent in the Gunnison River Basin peaked at 72% of normal, and the peak arrived in mid-March, 22 days earlier than average. Gothic, which has historical weather data back to 1974, set 38 record high temperatures this winter. Although our atypical warm-ups and droughts presented some unique problems, our Colorado snowpack is no stranger to challenging conditions and our center is well practiced in ground-hog day style forecasting situations. We may have actually put less focus on persistent slab problems than normal as our snowpack took an early turn towards wet avalanche problems in early March and our lengthy mid-winter droughts brought some periods of stable conditions.

Our first avalanche cycle came in mid-November. Upwards of 3" of SWE fell on a thin, faceted snowpack on shady aspects and dirt elsewhere, spurring a widespread cycle on paths holding snow prior to the storm. A month of mostly dry conditions followed, ripening our snowpack into a fully faceted beast that would burden our snowpack for several months. This December 13th facet layer was in the early phases of being buried and becoming reactive (Figure 1) when our first and only avalanche incident of the season occurred. A skier on Schuykill Ridge was caught in a relatively shallow slab avalanche and swept through trees, suffering a broken leg. He and his partner were able to descend 1,300 feet of steep terrain before coming to a suitable landing spot for Flight-for-Life evacuation and eventual healthy recovery. (More info here:

http://avalanche.state.co.us/caic/acc/acc_report.php?accfm=inv&acc_id=554)



Figure 1: 12/19/14. The December 13th facet layer showing early warning signs. Credit: Xavier Fane

Our widespread December 13th facet layer continued to be incrementally loaded until the knock-out punch came with our “Solstice Storm.” Over a two-day period during the winter solstice, as much as 4” of SWE dumped under strong to extreme winds. This spurred a large natural avalanche cycle around the compass, with dozens of slab avalanches running on the pronounced crusts and facets that had formed previously. The end of the year marked the end of our bountiful winter. Only negligible amounts of snow fell through January, but the December 13th facet layer remained astonishingly active on northerly aspects, particularly in the shallower parts of our zone. We received almost-daily observations of continued collapsing or skier triggered avalanches in the three weeks after the storm ended, despite only a few light snowfall events during that time frame (Figure 2).



Figure 2: 1/7/15. Human and deer triggered persistent slab avalanches continued to be triggered into January despite a lack of loading. Here, a deer works the low angle terrain, after reading our advisory. Credit: Gary Dotzler

The tide eventually retreated to yellow and green dangers as drought set in through the rest of January and most of February. Staff and public morale gradually melted back alongside our snowpack while record setting high temperatures prevailed. In one absurdly hot day on January 26th, temperatures soared to 59 degrees at Taylor Park (elev 9,500 feet) and 50 degrees at Lake Irwin (elev 10,200 feet). 18 record high temperatures were set in Gothic in late January and early February, and we observed meltwater reaching the ground on most south facing slopes (Figure 3). Reports of dirt conditions in

Fruita or Montrose became more prevalent than snowpack observations, and our forecasts would take on a jubilant tone when a few small disturbances managed to drop a couple inches of new snow. An unusually widespread surface hoar layer was buried in mid January by just enough snow and later wind drifting to create some unusual slab avalanche behavior and spare our forecasters of writers block (Figure 4). We had all but given up on winter when the blocking West Coast ridge shifted seaward opening the doors to our largest storm of the winter and one of the most impressive avalanche cycles I've observed.



Figure 3: 1/10/15. Record setting high temperatures in January and February led to some unusual snowpack conditions for that time of year, such as these wet slabs that released in early January. Credit: Chris Miller



Figure 4: 2/9/15. A well preserved surface hoar layer was buried by just enough snow to create some interesting avalanches. These slides were remotely and sympathetically triggered by skiers, and they ran on slope angles as low as 20 degrees.
Credit: Zach Guy

Snowfall began in late February and continued for 13 nearly-continuous days, culminating with the largest pulse in the first four days of March. The storm dropped over 7" of SWE on Schofield Pass and over 5" of SWE at Kebler Pass, burying a very widespread and well developed facet layer that had been forming during our mid-winter drought on shady slopes. An avalanche warning was in place for the last 4 days of the storm. In its wake, it appeared that almost every avalanche path on the northern half of the compass ran during this cycle, with countless D2 to D3 slides observed around our zone, and many of these propagating the full width of their start zones (Figures 5 and 6).



Figure 5: 3/5/15. The results of our early March avalanche cycle were impressive. Note the crown line crosses the entire width of Mt. Owen. Credit: Zach Guy

This taste of winter left as abruptly as it had arrived, with another round of record high temperatures and this time, poor overnight freezes. By mid March, our snowpack was mostly saturated on all but north facing slopes, and we observed a natural wet avalanche cycle on these aspects. Our center coasted to a halt in operations by early April as a return to cooler weather put a lid on avalanche concerns, although unusually snowy and wet weather returned for most of May.



Figure 6: 3/6/15. Skier triggered avalanche during the unstable period following our early March avalanche cycle. Credit: Anonymous

Our forecast center continues to strive for new or improved ways of reaching our public users. We launched a new website with help from the CAIC, incorporating improved media imaging and adopting the forecasting layout used by the CAIC. We focused on a more aggressive Facebook outreach, with the goal of some kind of interesting post each day, especially during dangerous conditions. Posts of recent avalanche activity are commonly followed by nervous moms tagging their loved ones in the response comments, such as “@Johnny, b safe out there dear”. During times of low tide, we would hijack interesting photos, videos, or stories from outside of our region. The public responded positively, especially to real-time updates of storms and avalanche occurrences. We also continue to bring multi-media approach to our forecasts by publishing youtube videos of relevant avalanche conditions, broadcasting our forecasts on local radio, and publishing blog articles. We are looking forward to a snowier and colder season next winter! (Figure 7)



Figure 7: CBAC President's daughter is psyched for a deep winter next year! Credit: Than Acuff