Backcountry Weekly Summary

Intern:	Zach Kinler
Week and Year	March 15-21,2019
Backcountry zone:	Crested Butte Area

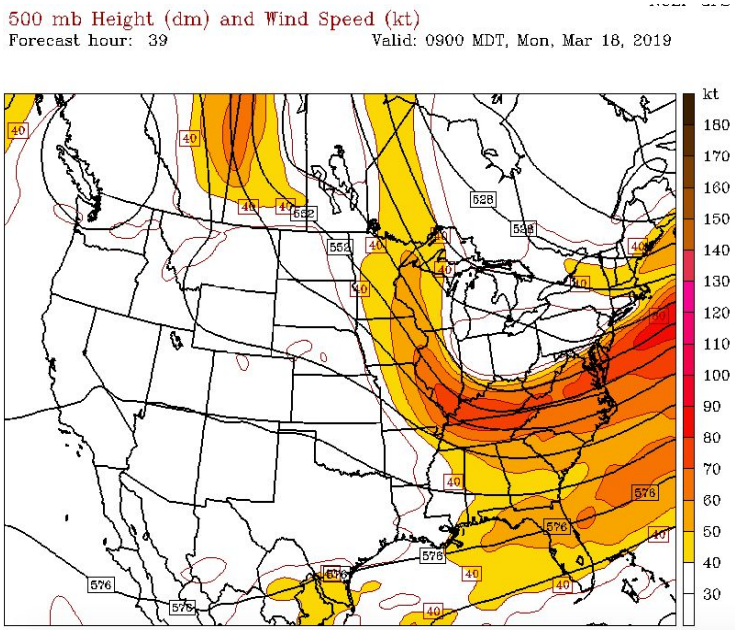
Notable Weather Events (snowfall, SWE, winds, temps, etc.)

This period began with generally fair weather under a strong area of ridging on 3/15-3/17. On 3/18 a weak shortwave in NW flow dropped down the backside of this large area of high pressure which became an Omega-style feature largely blocking any storms by pushing the jet stream way North up and over the ridge. This shortwave was not a snow producer for this area however it did provide cloud cover which moderated the otherwise near normal temperatures that occured this week.

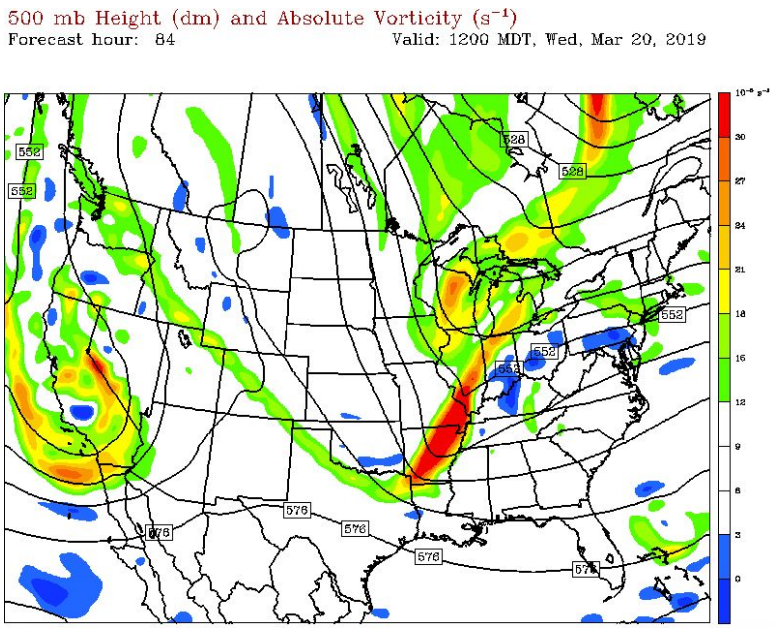
The Omega pattern stayed around for 3/19-3/20 while an approaching Low from the Southwest began undercutting the ridge on 3/21. This storm is our next weather-maker and will push through the area on 3/22. At this point with weak dynamics and un-favorable wind direction, we look to only get a few inches of snow with partly to mostly cloudy skies and slightly cooler temperatures.

Overall this was the driest and warmest week that we have had all winter. With the late March sun finally showing itself, we are seeing good warming however cooler air masses and clouds have been moving through periodically which has slowed any major warming.

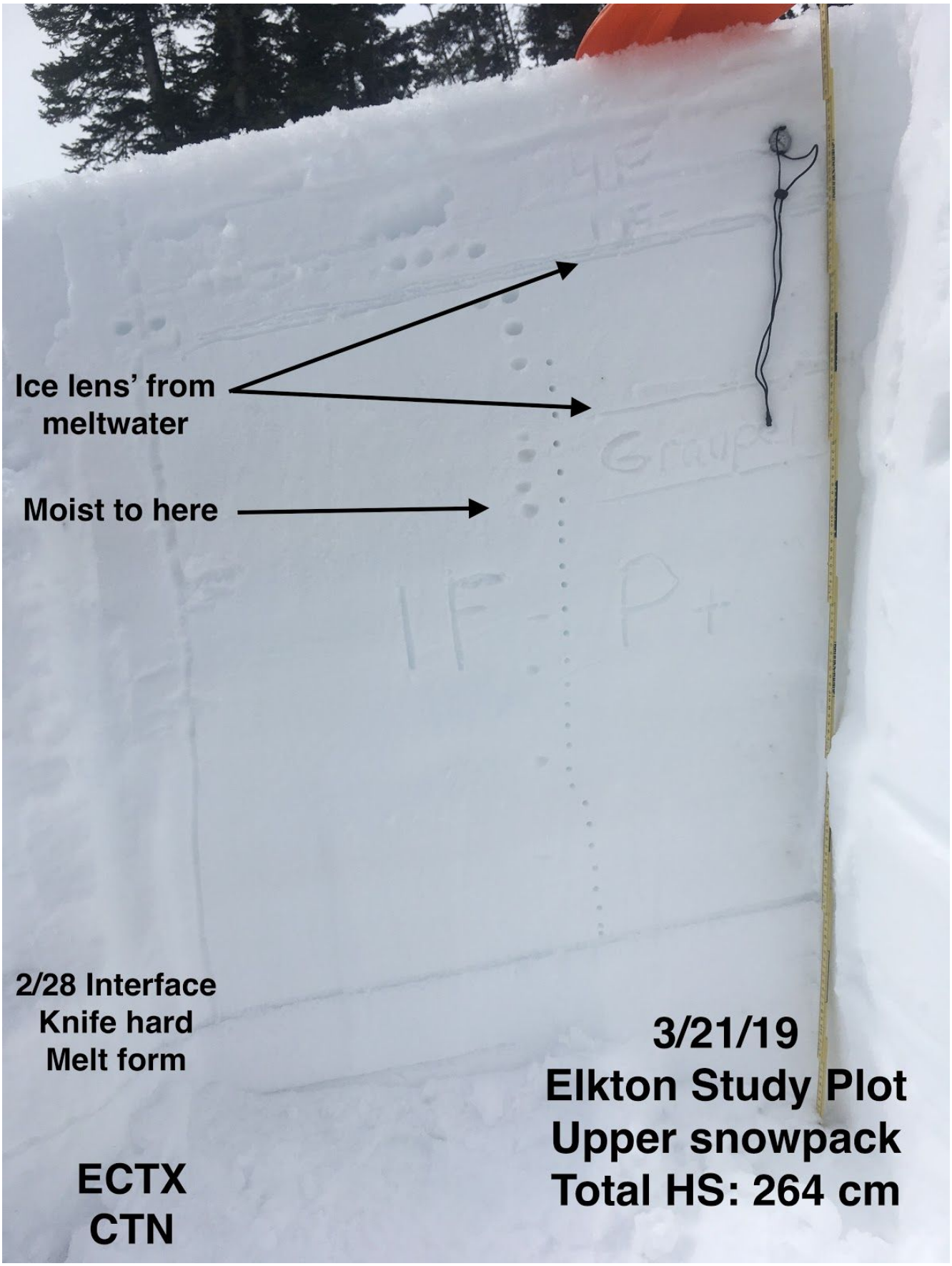
500 mb wind forecast showing the jet stream cruising up and over CO around a large ridge of high pressure.



500 mb Vorticity with an Omega Block pattern over CO which will be pushed East by an approaching Low from the SW.



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 is still a player, especially in our shallow zones around town and to the East. A couple recent very large avalanches breaking deeply in the snowpack and many step-down avalanches have been failing around this layer. This recent natural activity highlights a couple slides breaking very close to the ground and this very large Gothic West side avalanche breaking at the ground may involve this interface. Rounding and consolidation around this layer continue to occur this week at Elkton Plot.

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 last week and future loading will certainly stress this interface. This CBAC observation reveals this layer to be healing in a deeper snowpack as do tests in the Elkton Study plot, however in shallower zones less than 200 cm, it likely has not healed as efficiently and may still be a culprit as many recent avalanches are stepping down deeply such as this recent very large Gothic avalanche. Rounding and consolidation around this layer continue to occur this week at Elkton Plot.

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. In late February, there were no results on this layer at the Elkton Study Plot and this CBAC observation reveals this layer to be healing in deeper snowpacks but still a potential offender in the shallower snowpacks less than 200 cm. Again, recent natural avalanches breaking deeper into the snowpack may be stepping down and through this layer. Rounding and consolidation around this layer continue to occur this week at Elkton Plot.

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. Prior to our "March Madness" event which has buried this layer under 185 cm of P hard slab at the Elkton Study Plot, facets were observed on 2-3 mm graupel particles. No test results were seen however prying of the slab produced planar fractures. Because of the current depth and trend, this layer is not concerning at this point.

02/16/2019 Interface: This layer formed on 2/15 when skies cleared and late the February sun was able to form a crust on aspects in the sun. This layer is seen on a WSW aspect in this observation from above Pittsburg with small facets forming below. It appears this layer is confined to sunny aspects as a melt-freeze crust which has broken down this week at the Elkton Plot and does not present any concerns at this point.

2/28/2019 Interface: The warmest temperatures of the season led to a widespread melt-freeze crust which got buried on 2/28. No faceting was seen yet at the Elkton Study Plot last week, however temperature gradients were very strong under this crust. During our historic “March Madness” loading event, many avalanches broke initially at this new/old interface however it is now under 4-6 ft of dense slab and while it is a smooth sliding surface, it does not appear that this will be a layer of concern moving forward. Recent tests such as this Paradise Divide ob documents this well. Small rounding facets were observed above this crust with prying of the long and short column tests producing planer fracture here but it most likely would take a huge load to wake this layer up.

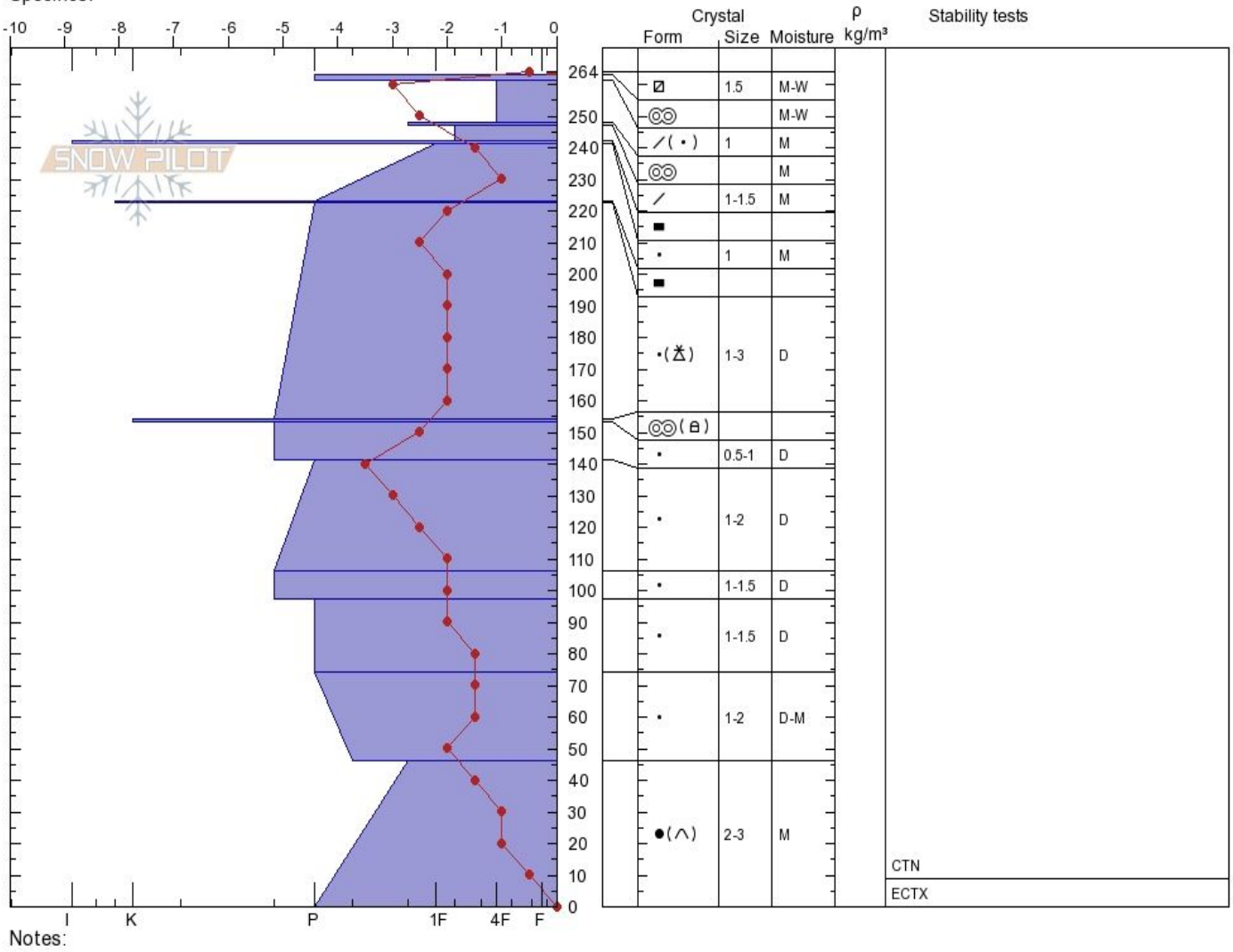
Elkton Study Plot
Elk Mountains
CO
Elevation: **10400 ft**
Aspect: **160°**
Specifics:

Zach Kinler
Thu Mar 21 12:00 2019
Co-ord:
Slope Angle: **3°**
Wind Loading:

Stability:
Air Temperature: **4.5°C**
Sky Cover: **BKN**
Precipitation: **NO**
Wind: **S Light Breeze**

HS264 PF15
Stability Test Notes

Layer Notes
263-264: Problematic layer



Notes:

Avalanches

This week saw a fairly isolated Loose Wet avalanche cycle initiate with the late March sun providing the warm temperatures and longer days. Most of the action was confined to SE-S-SW slopes at all elevations with steeper slope angles taking the brunt of the incoming solar. Most of these avalanches were small in size at D1 with a few D1.5- D2 slides observed.

Small Loose Wet avalanches occurring during sunny times this week especially early in the period with more available loose dry snow on the surface to warm.

Incident, accidents, close calls

This week there were no incidents, accidents or close calls reported to the CBAC.

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

This period brought one of our longest storm-free stretches as we went 7 days without a major storm. Skies finally cleared and we saw plentiful sunshine leading into our first wet avalanche cycle which was kept contained by passing clouds and temperatures still at or below normal. A couple storms are set to move through in the next week as well as the warmest temperatures we have seen this season. This will really get free water moving through the snowpack and will need to be closely tracked as existing weak layers may see wetting especially in our shallow snowpack areas.