

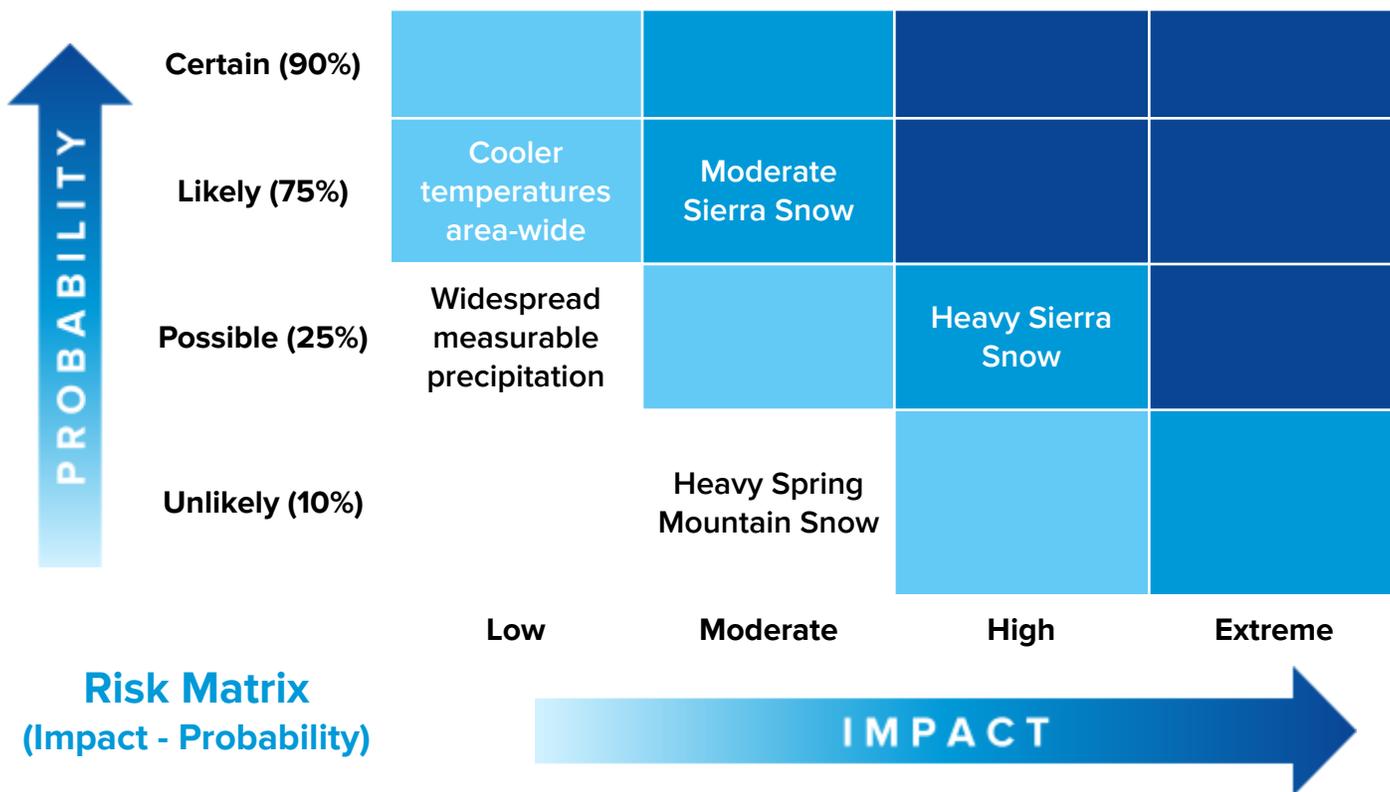


Year-End Winter Storm

December 22, 2020

Run-Down

A change in the hemispheric pattern will bring the first shot at a significant winter storm to the region. As a strong block develops over Greenland, the ridge plaguing the western US finally breaks down and gives way to a more active Pacific. Ensemble systems are already conveying remarkable agreement in this pattern shift with impacts fairly likely at least for portions of the area.

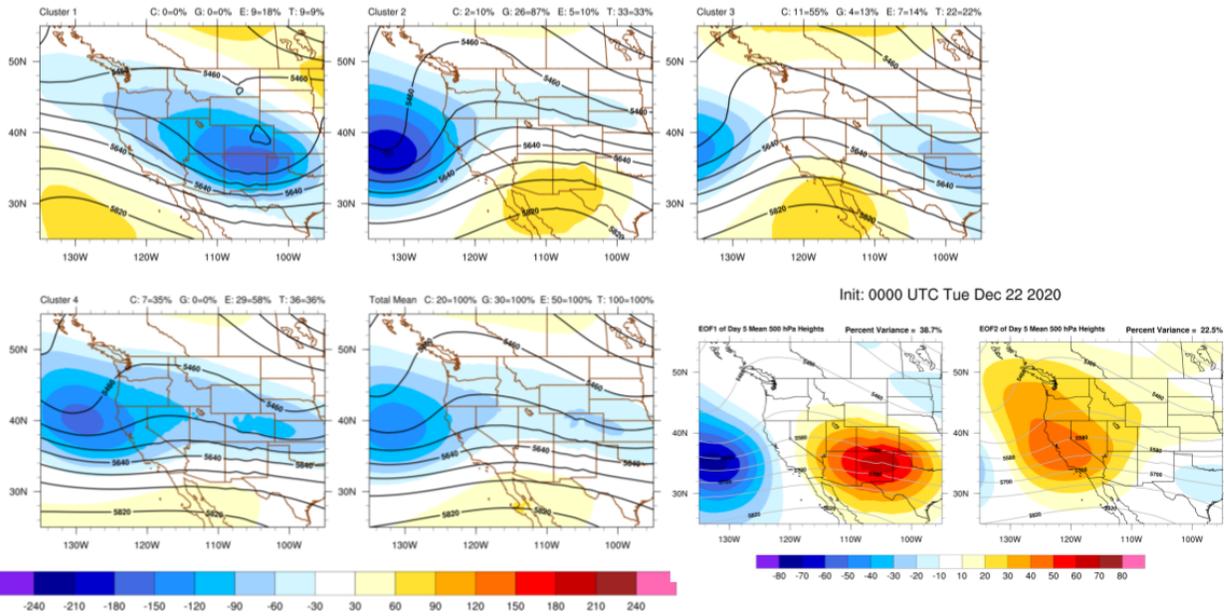


Cluster Analysis

Days 5 and 7 clusters give some useful insights into the possibilities with the upcoming trough. The full range seems to be represented well in clusters, from a weaker trough that progresses right by, vs a slower, deeper, and further south trough that more slowly traverses the region. This range is reflected in both days 5 and 7, with the overall variance explained by a progression EOF diminishing at day 7.

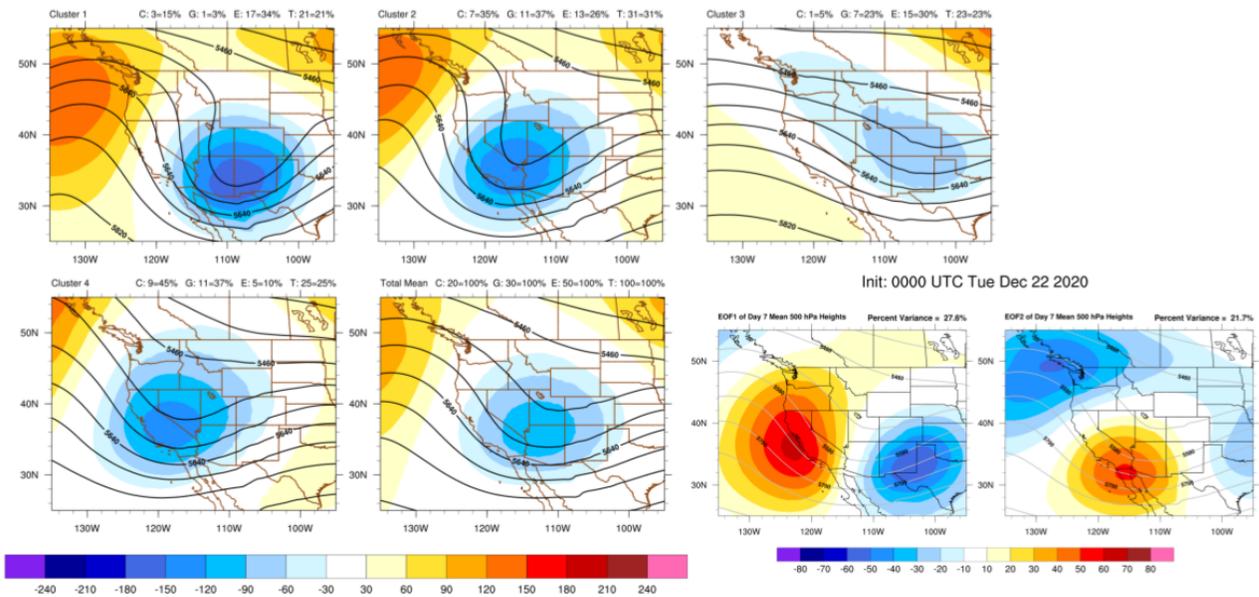
DAY 5 CLUSTER ANALYSIS

Init: 0000 UTC Tue Dec 22 2020 Valid: 24-hours Ending 0000 UTC Mon Dec 28 2020



DAY 7 CLUSTER ANALYSIS

Init: 0000 UTC Tue Dec 22 2020 Valid: 24-hours Ending 0000 UTC Wed Dec 30 2020

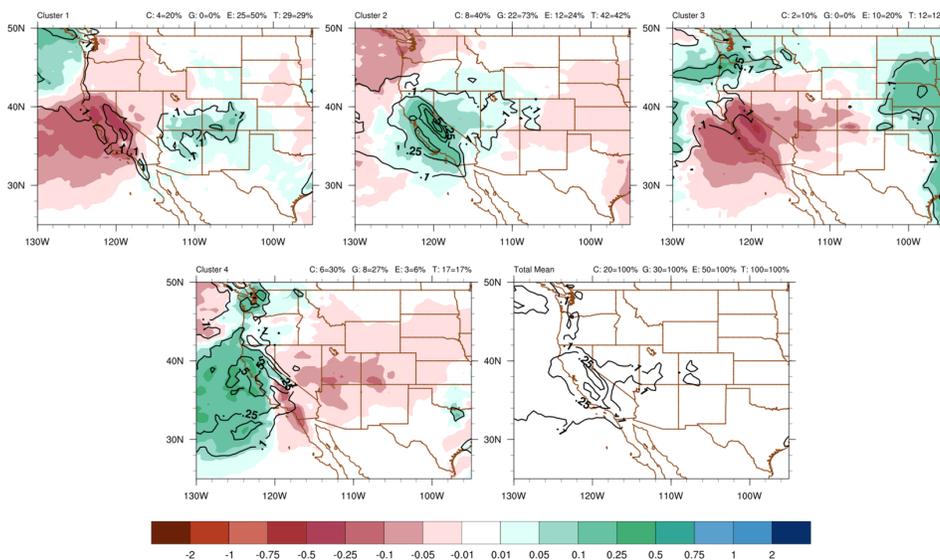


Either way you slice the clusters, there is a trough that will impact the area, with most solutions favoring a deeper, wetter system, though something shallower and more progressive, akin to an inside slider is still possible. It is important to resist the urge to “pick a winner” cluster from the most members, most models, etc.

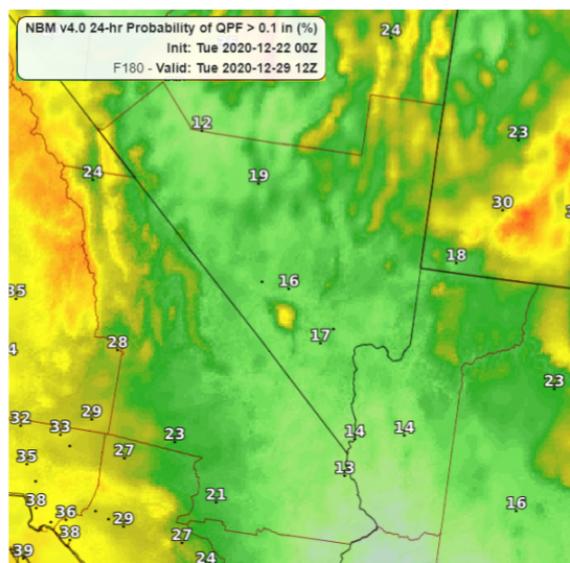
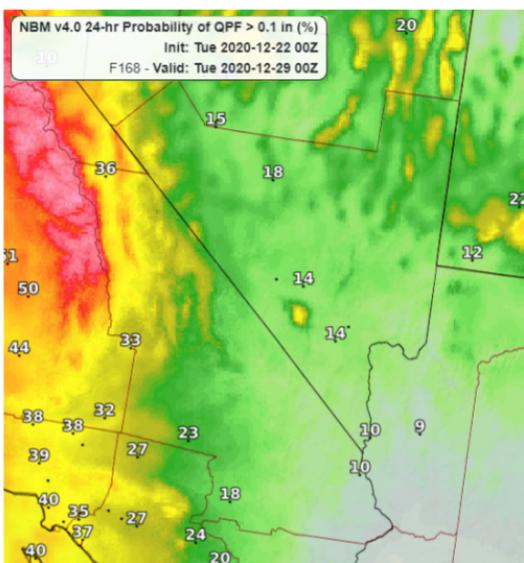
Precipitation Potential

Cluster analysis is often very useful for identifying scenarios and patterns. Stepping through the 6, 7, and 8-10 day QPF shows that even the weaker solutions eventually produce QPF over much of the area, something like the NBM can be a bit more useful for precipitation. With NBM PQPF, we can see the Sierra Nevada are definitely favored to take the brunt of this storm in terms of QPF, which makes sense given the consensus thus far on the track. But remember, clusters indicated the potential for a weaker, more northern trough, but also for a stronger, more southern track. A stronger, more southern track would allow more moisture into the region instead of Sierra interception. This contributes to a reduced, but non zero signal for heavy precipitation for the Mojave and Great Basin with still decent chances for over a tenth of an inch of precipitation. Keeping this in mind, we can hone in on our snow threat areas by either looking at similar 2D snow probability maps from the NBM, but point data can give a more data-dense view. The 1D viewer again shows higher confidence in higher impact in the Sierra, with much lower confidence for the Spring Mountains.

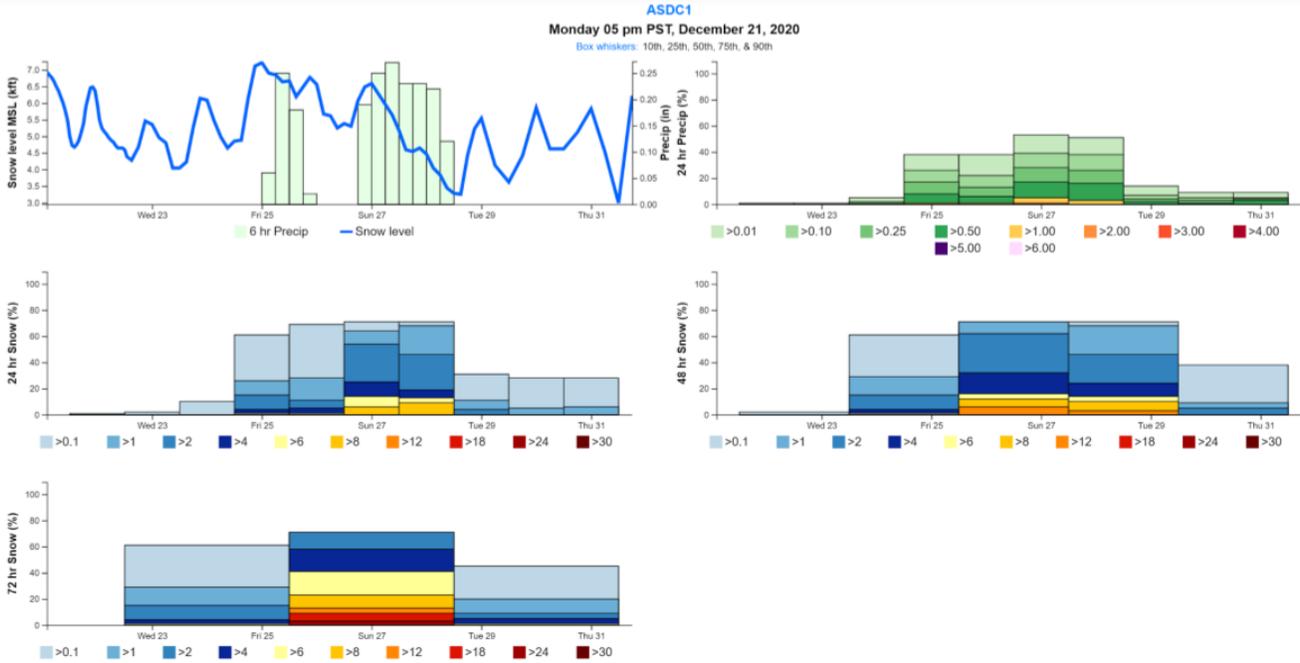
Init: 0000 UTC Tue Dec 22 2020 Valid: 24-hours Ending 0000 UTC Tue Dec 29 2020



NBM PROB QPF >= 0.10"

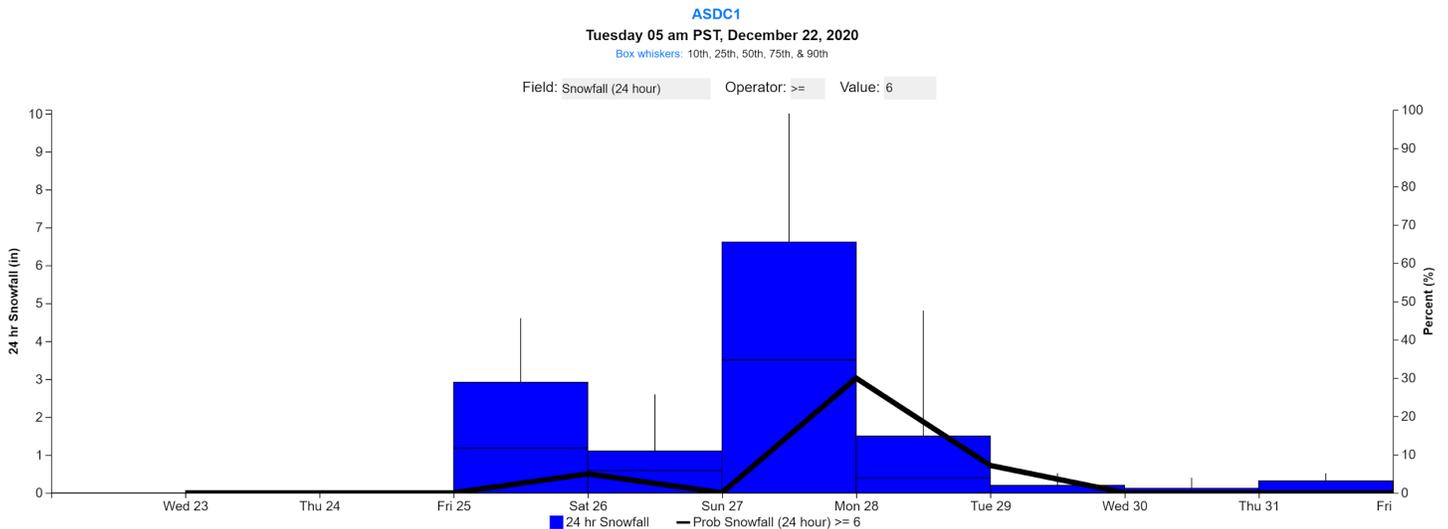


NBM SNOW POTENTIAL - ASPENDELL

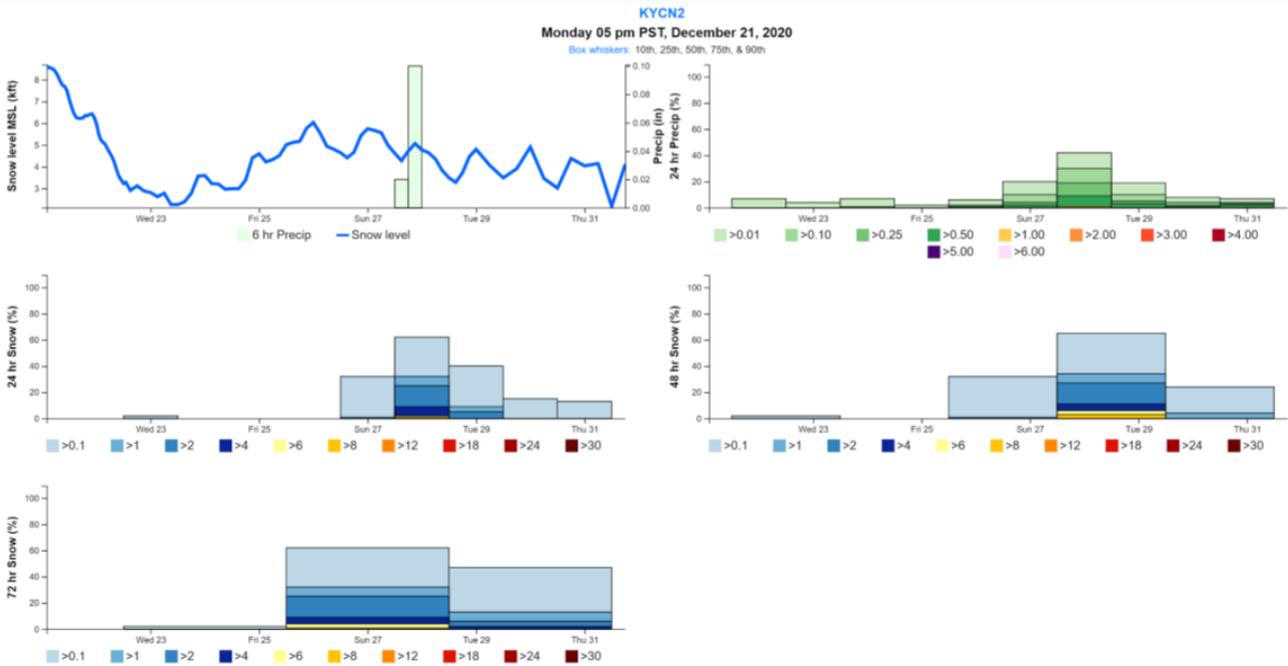


Probability of Exceedance of 24-hour Snowfall for AspenDELL ≥ 6 inches

The 24-hour period ending at 00Z Tuesday currently indicates a POE of 30% for ≥ 6 inches, with the 75% percentile at 7 inches and the 90% percentile at 10 inches.

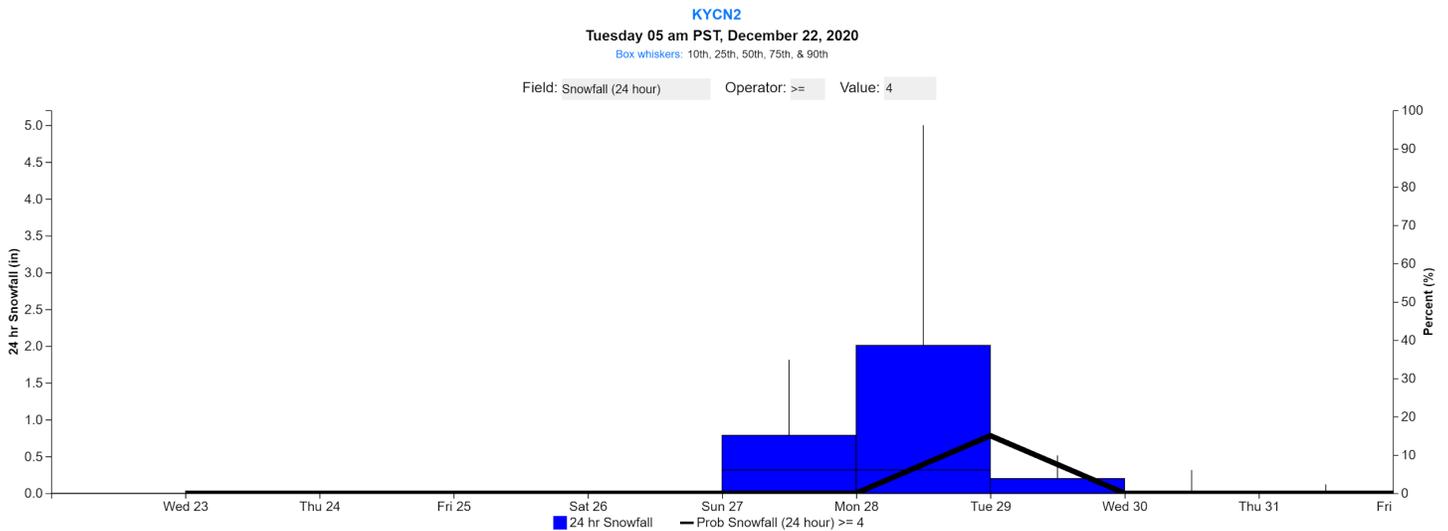


NBM SNOW POTENTIAL - KYLE CANYON



Probability of Exceedance of 24-hour Snowfall for Kyle Canyon ≥ 4 inches

The 24-hour period ending at 00Z Wednesday currently indicates a POE of 15% for ≥ 4 inches, with the 75% percentile at 2 inches and the 90% percentile at 5 inches.



All figures can be accessed from [STID Forecast Toolkit](#) & [VEF Probabilistic Resources](#)