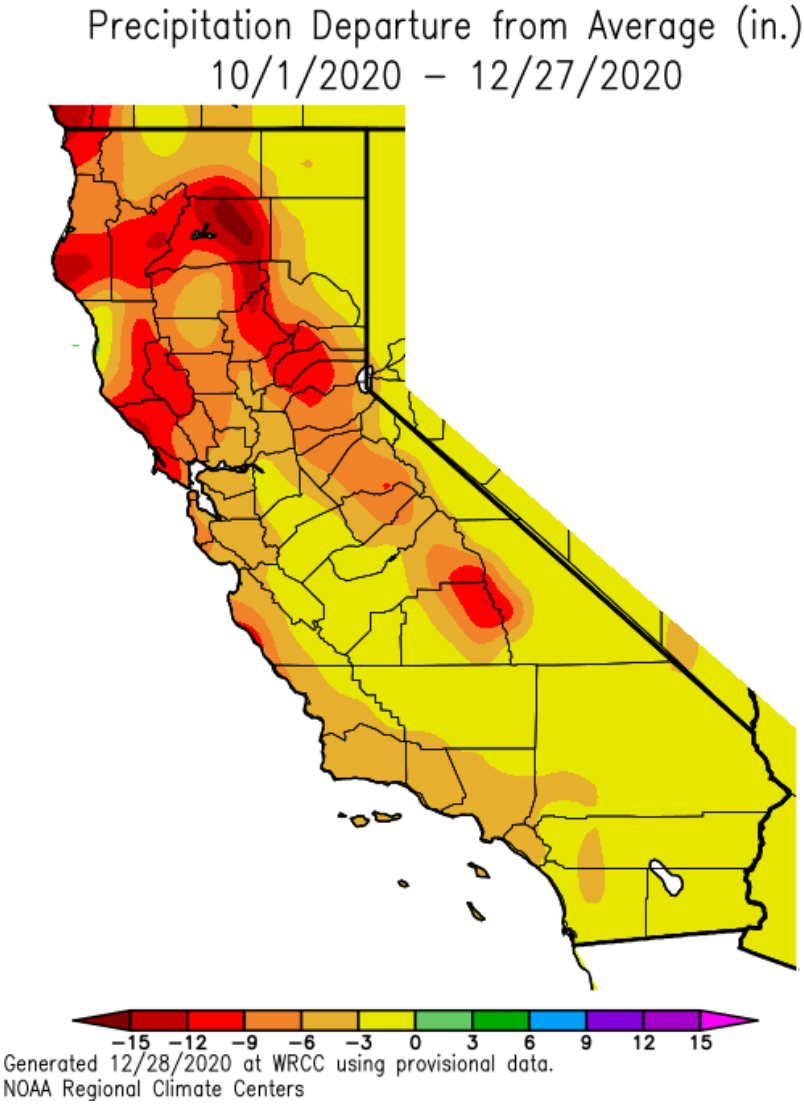
WY2021 Water Resources Update – December 29th, 2020

Summary:

- Wrapping up 2020 with light precipitation across northern CA and the Sierra
- Large precipitation deficits heading into the new year across CA
- Potential weather pattern change for January with several systems on the horizon

Details:



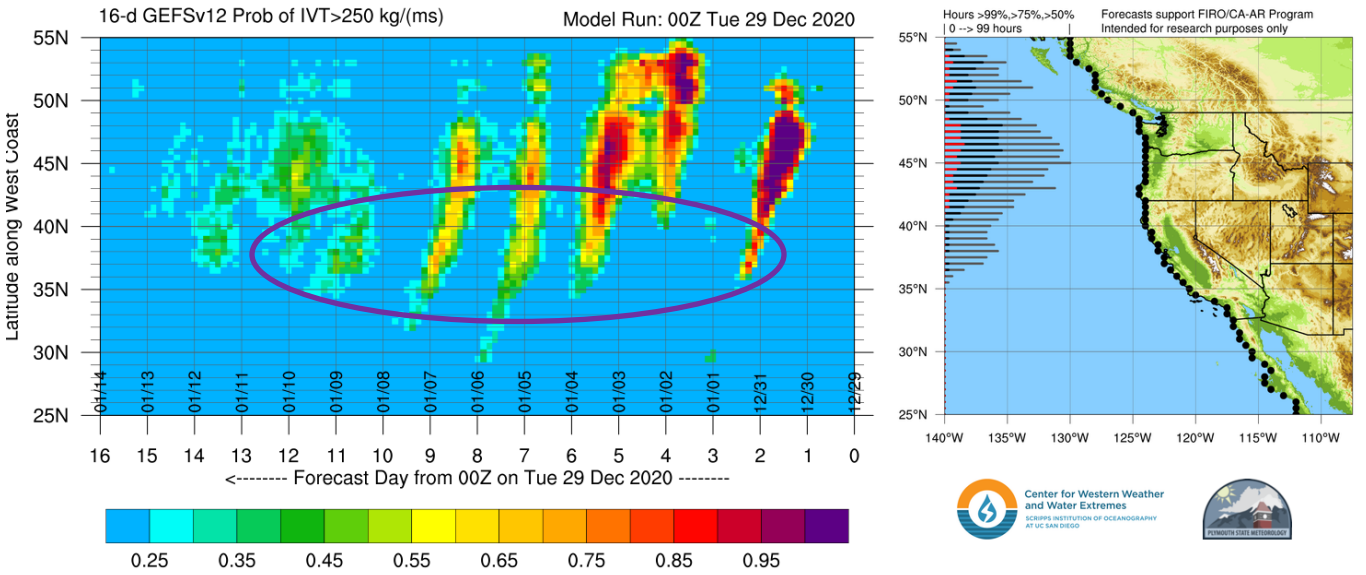
Source: https://wrcc.dri.edu/cgi-bin/anomimage.pl?calOctPdep.png

Dry finish to December

With only light precipitation expected the next few days, 2020 will close out the first quarter of the 2021 water year with large precipitation deficits across much of CA. The graphic to the left shows 2021 WY deficits in the range of 6 – 15 inches throughout the Sierra. The absence of rainfall has left soils dry and many rivers running near early fall baseflow levels. After 3 consecutive weeks of dry weather, bare ground made a brief return to some mountain slopes with sunny aspects earlier this month. One bright spot to close out the year: recent rains across southern CA have hopefully put an end to what was a historic fire season across the state.

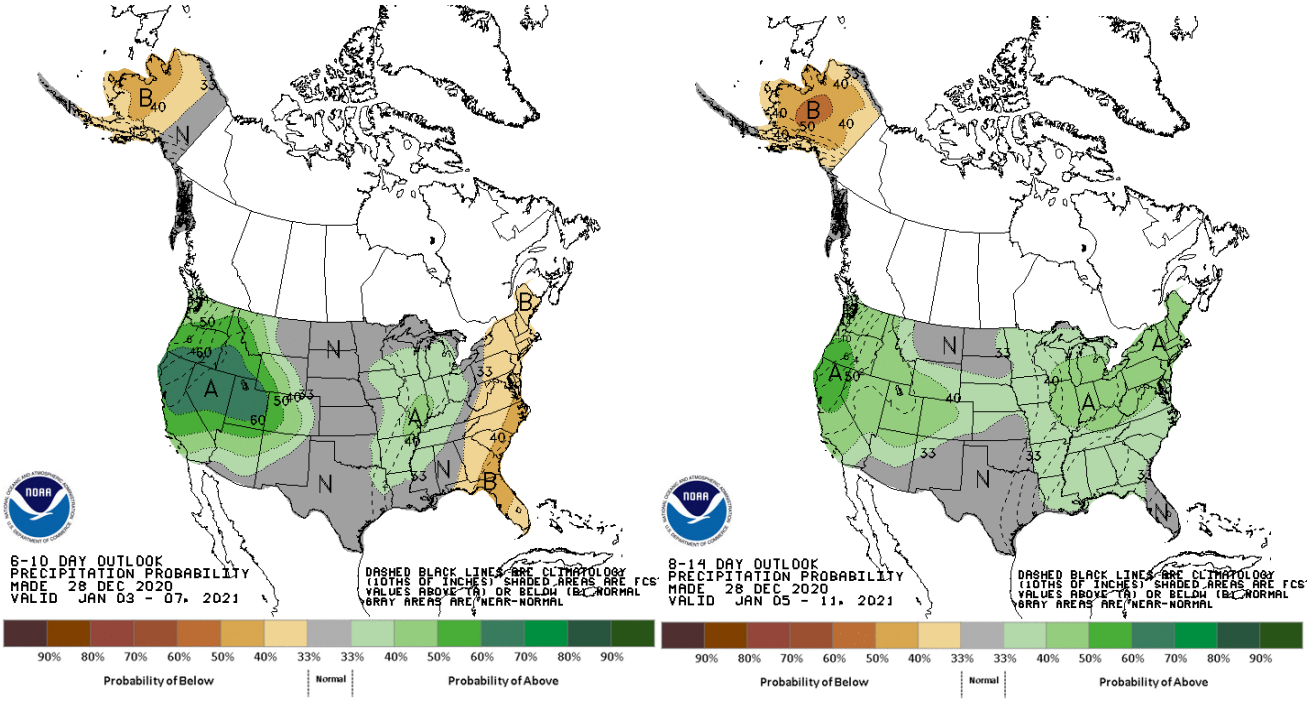
Atmospheric River Landfall Tool showing upcoming pattern change

The Atmospheric River (AR) Landfall Tool from CW3E pictured below shows a series of storm systems expected to impact our region over the weekend into next week. The stronger moisture transport looks to remain just north of our region along the Oregon and Washington coast. No particular storm looks all that strong at this time, but the cumulative precipitation totals could be very beneficial to the area without the threat of flooding. The European ensemble (not pictured) shows a similar pattern to the GFS ensemble shown below.



Source: http://cw3e.ucsd.edu/iwv-and-ivt-forecasts/#LFT

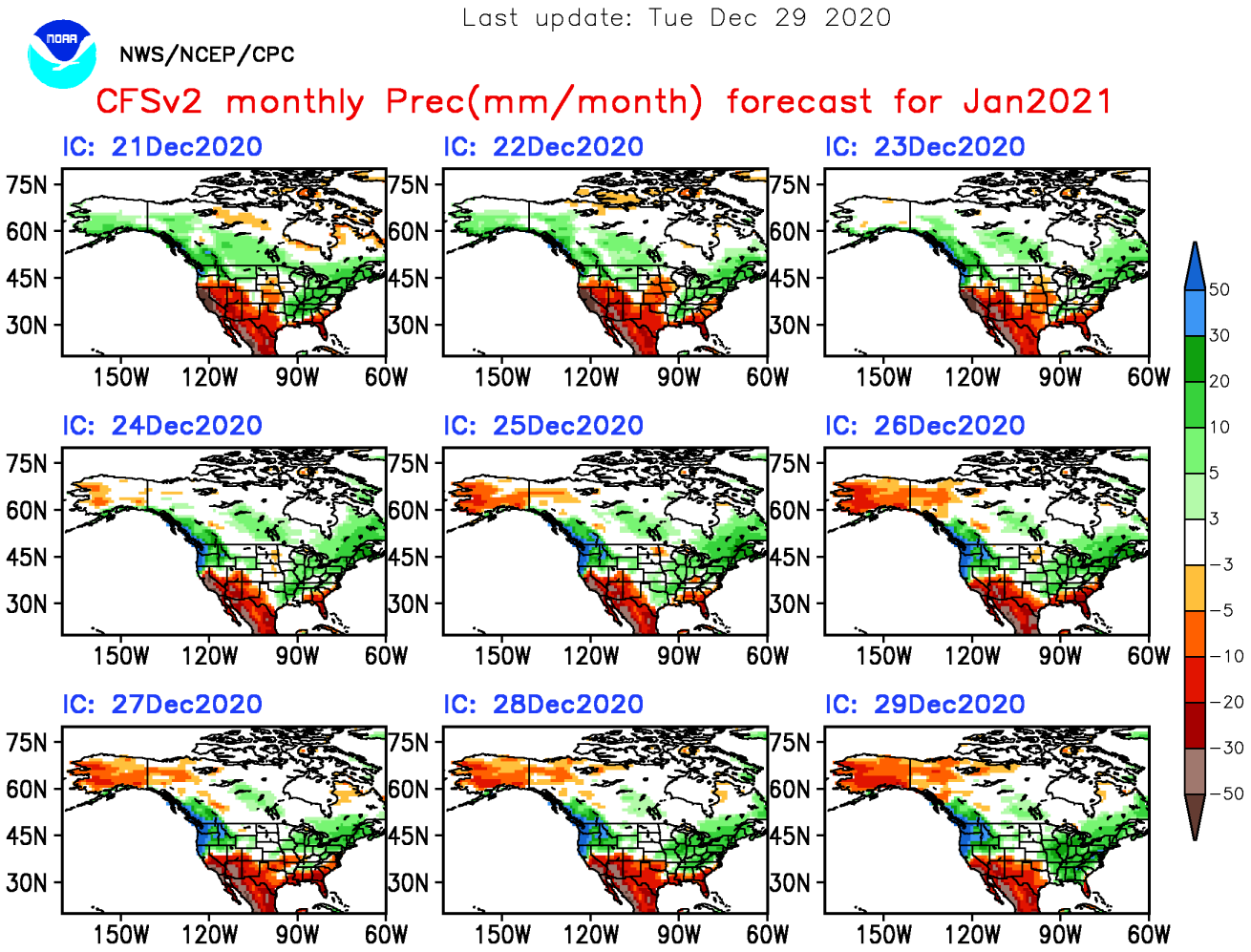
The latest short-term precipitation outlooks from the Climate Prediction Center in the graphic below show an elevated probability for above normal precipitation for the next 2 weeks, particularly across northern CA. The outlook across central and southern CA is not as promising, but still slightly favors above normal precipitation.



Source: https://www.cpc.ncep.noaa.gov

CFSv2 January Outlook

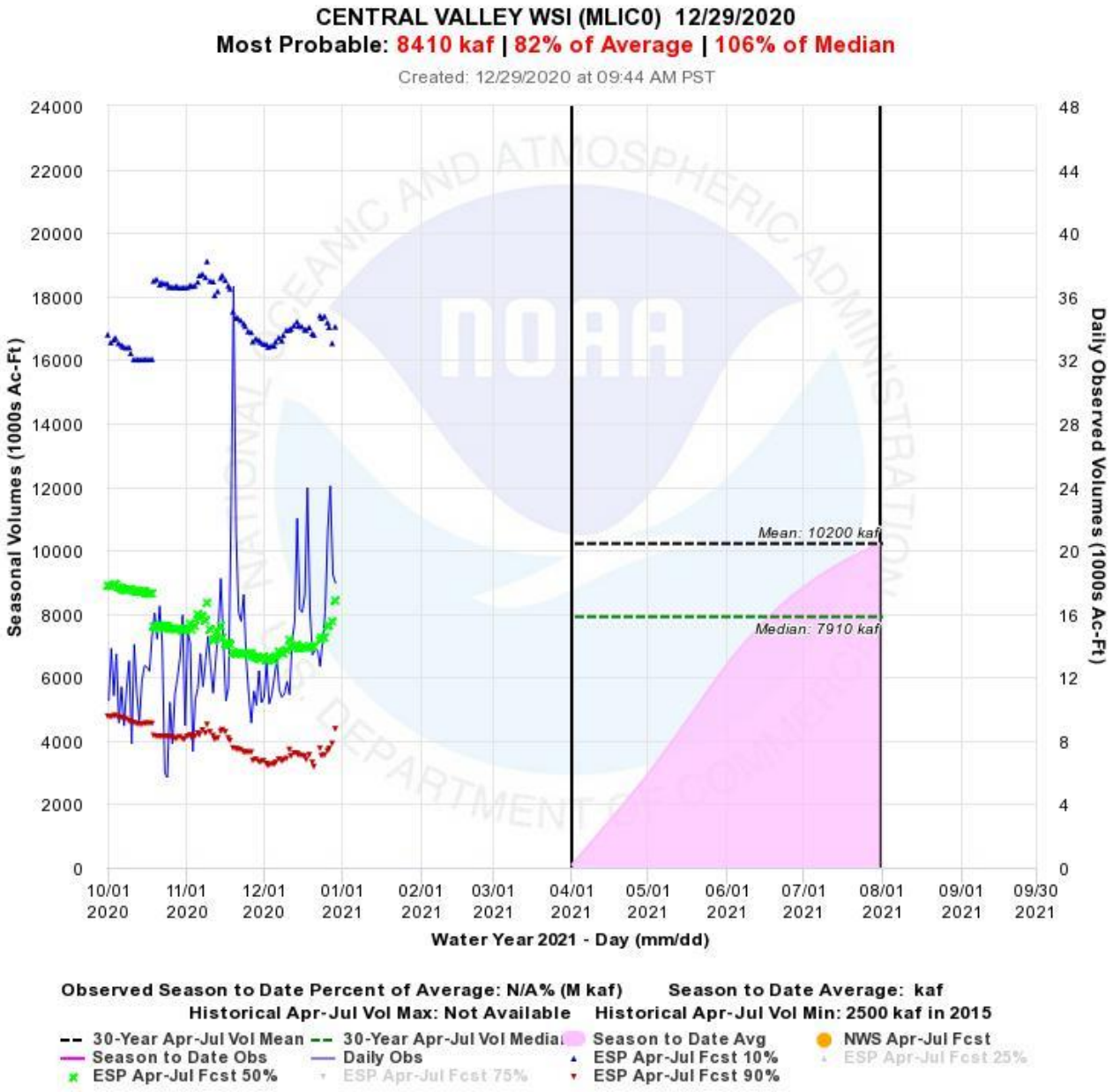
Looking at forecasts a little further out, the monthly climate anomaly forecasts from the NCEP version 2 coupled forecast system model (CFSv2) shown below are trending towards a wet January for northern CA. Model runs for the last 6 days have shown higher probabilities for a wetter than normal January across much of northern CA. However, the model is indicating elevated chances for below normal precipitation for central and southern CA for January.



Source:
https://www.cpc.ncep.noaa.gov/products/people/mchen/CFSv2FCST/monthly/images/summaryCFSv2.NaPrec.202101.gif

Water Supply Forecasts

Water supply forecasts continue to be much below average due to the dry start to the water year. Forecasts have remained mostly steady since the beginning of December, with a few minor increases/decreases. If the storm systems expected to impact the area later this weekend and early next week do materialize, expect water supply forecasts to increase a sizeable amount across the region. Many locations have shown increases in the forecast runoff volume the last few days in anticipation of the expected wet weather pattern. The AJ median runoff forecast for the Central Valley shown below has increased by approximately 1.2 million acre-ft in the last 4 days.



Source: https://www.cnrfc.noaa.gov/ensembleProduct.php?id=MLIC0&prodID=9

Conclusion:

A series of low impact weather systems is expected to hit our region over the next 1-2 weeks. These systems are expected to bring beneficial precipitation to the region and improve water supply conditions across much of the area, especially across northern CA. This would be a great start to 2021 as we hope to recover much of those precipitation deficits from the last 3 months.