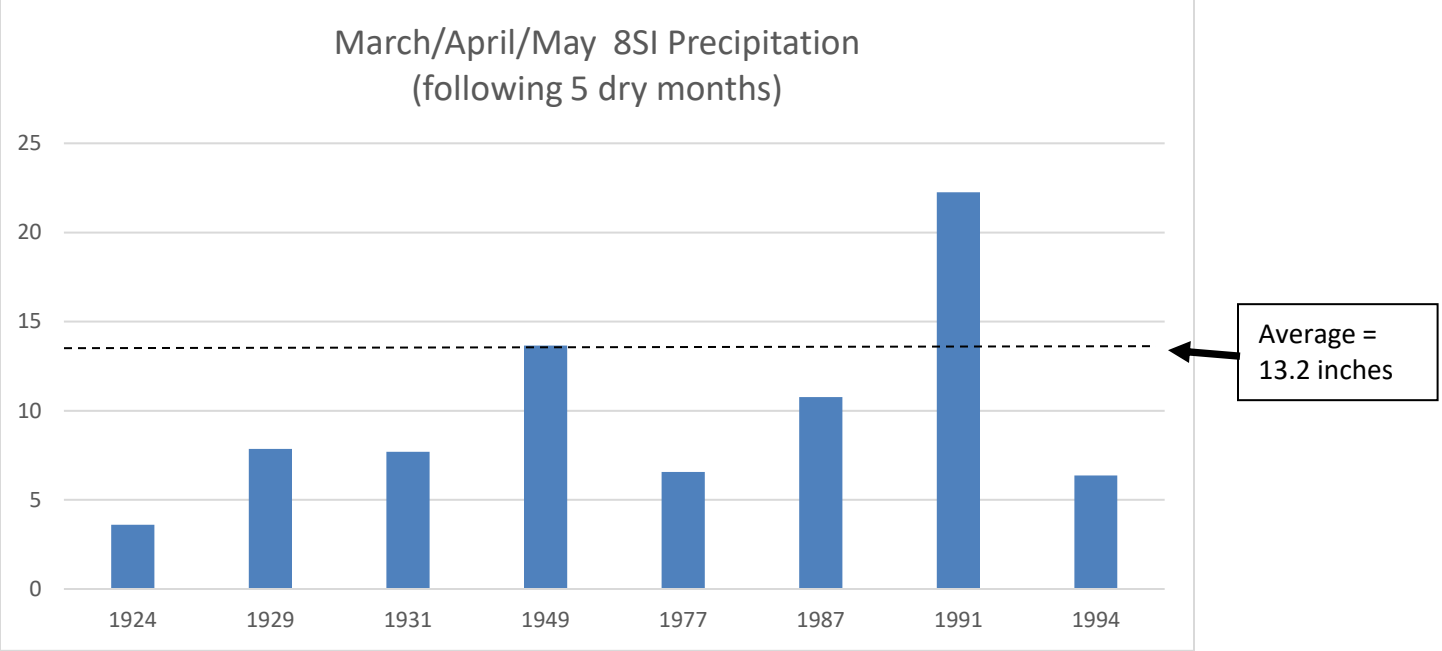
WY2021 Water Resources Update – February 26, 2021

Summary:

- Dry end to February. 5 months in a row of below average precipitation in N. California.
- Week 2 is looking wetter with modest systems forecast to start next weekend;
- Water Supply forecasts are flattening as HEFS ensembles see a change to a wetter pattern.

Pete Fickenscher/CNRFC

Details:



Source of data:
https://cdec.water.ca.gov/reportapp/javareports?name=8STATIONHIST

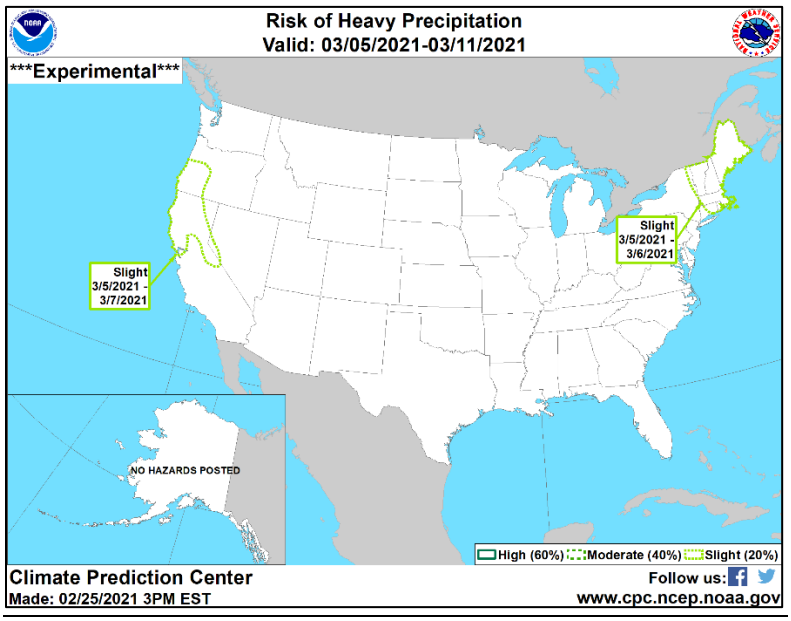
The 8 Station Index (8SI) for Northern California precipitation will most certainly be below average for the month of February. Every month during the 2021 water year has been below average in the 8SI.

I was curious how often this occurs. Looking at the 100-year history of the 8SI, only 8 years have had each of the first five months fall below average – WY 2021 will be the 9th occurrence. Only in one year, the driest on record (WY1924), did all 12 months fall below 100% of average for the month.

Looking then at the March-May precipitation in those 8 years, 6 years continued on the have below average rainfall during the Spring, one was near average (WY1949) and one well above average (due to the "miracle March" of 1991). So the odds for a dramatic turnaround are not too promising.

March 5-7 : chance for precipitation returns

CPC has issued an outlook highlighting a slight chance (20%) of heavy precipitation for the March 5-7 timeframe:

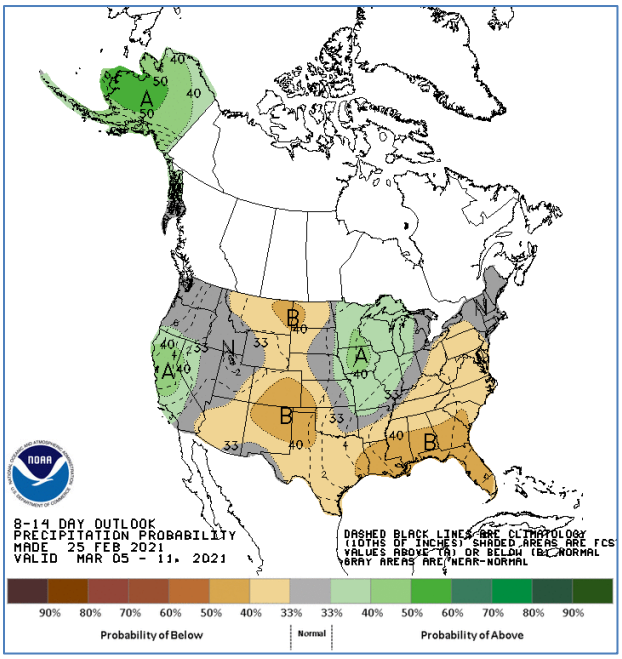


"An amplifying 500-hPa trough is expected to elevate chances of above normal precipitation along parts of the West Coast during week-2. A slight risk of heavy precipitation (rain and high-elevation snow) is posted from Oregon and the southern Cascades southward to northern California and the Sierra Nevada Mountains where the GEFS reforecast tool depicts that there is at least a 20 percent chance of 3-day precipitation amounts exceeding the 85th percentile of the climatological distribution and near 2 inches (liquid equivalent) from March 5 to 7. In addition, model guidance has trended wetter along the West Coast during the past few days."

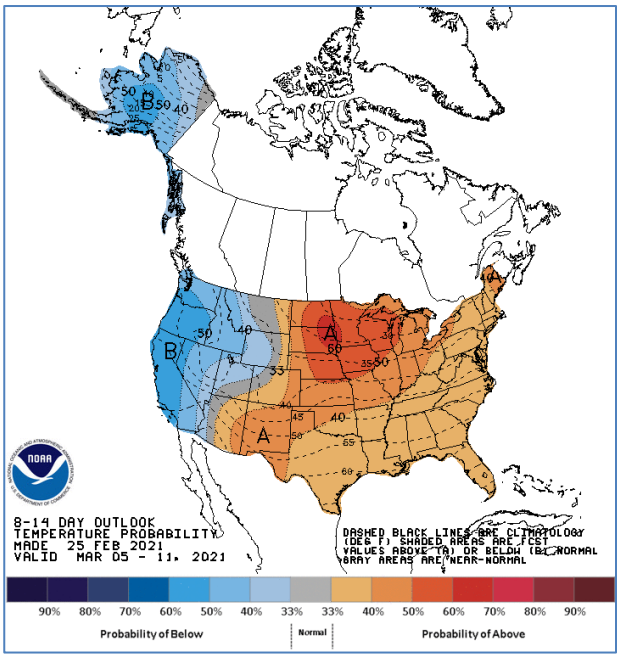
https://www.cpc.ncep.noaa.gov/products/predictions/threats/threats.php#haz_discussion

CPC Outlooks for Week 2

Precipitation Outlook (Feb 05-11)



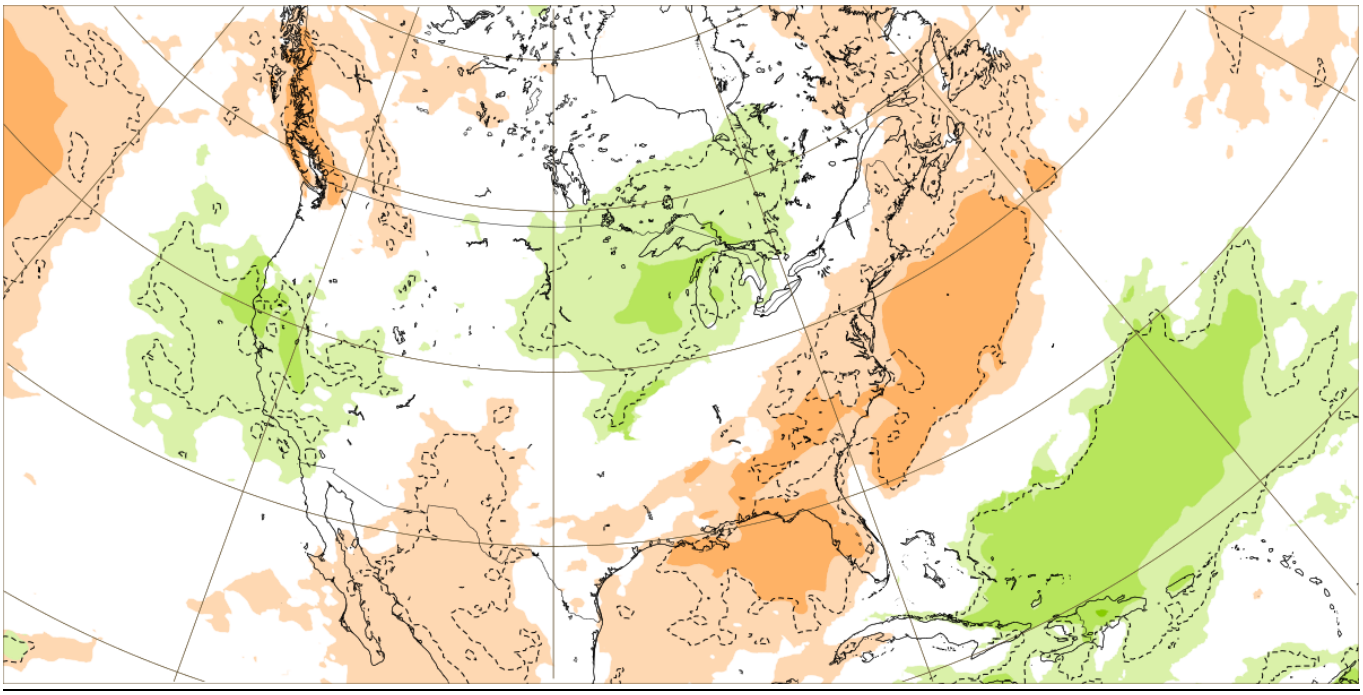
Temperature Outlook (Feb 05-11)



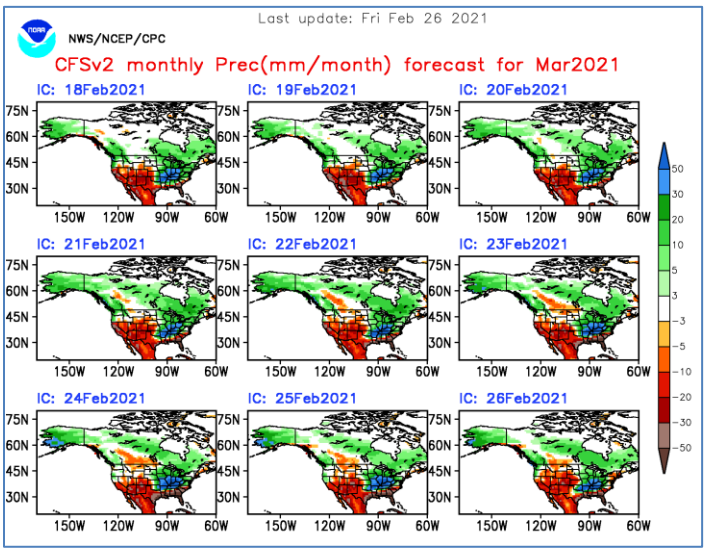
Sources:
https://www.cpc.ncep.noaa.gov/products/predictions/814day/814prcp.new.gif
https://www.cpc.ncep.noaa.gov/products/predictions/814day/814temp.new.gif

March Outlook

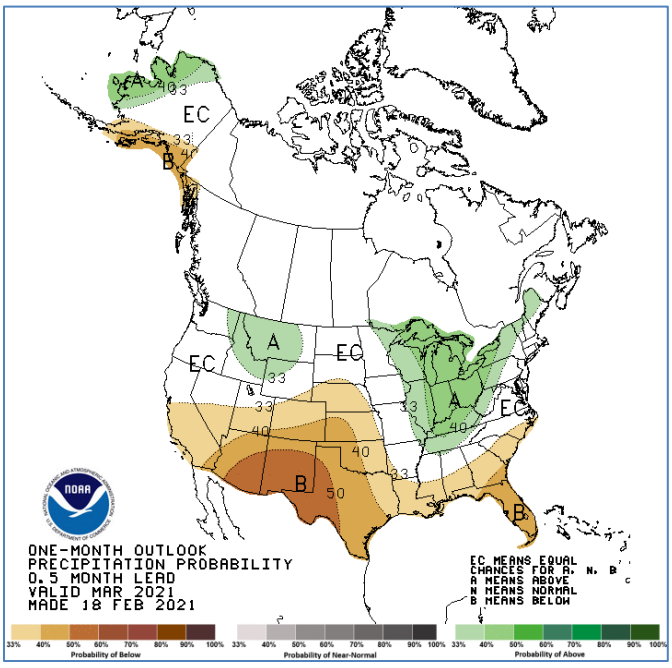
Overall the outlook for March is better, but it's still not great. The ECMWF weekly ensembles (below is the March 8th - 15th precipitation anomalies) are hinting at a mid-March storm or two, but overall the pattern is typical of springtime uncertainty.



CFSv2 (on the left) is trending slightly wetter for N. California. CPC March outlook has equal chances of wet or dry for March in N. California.

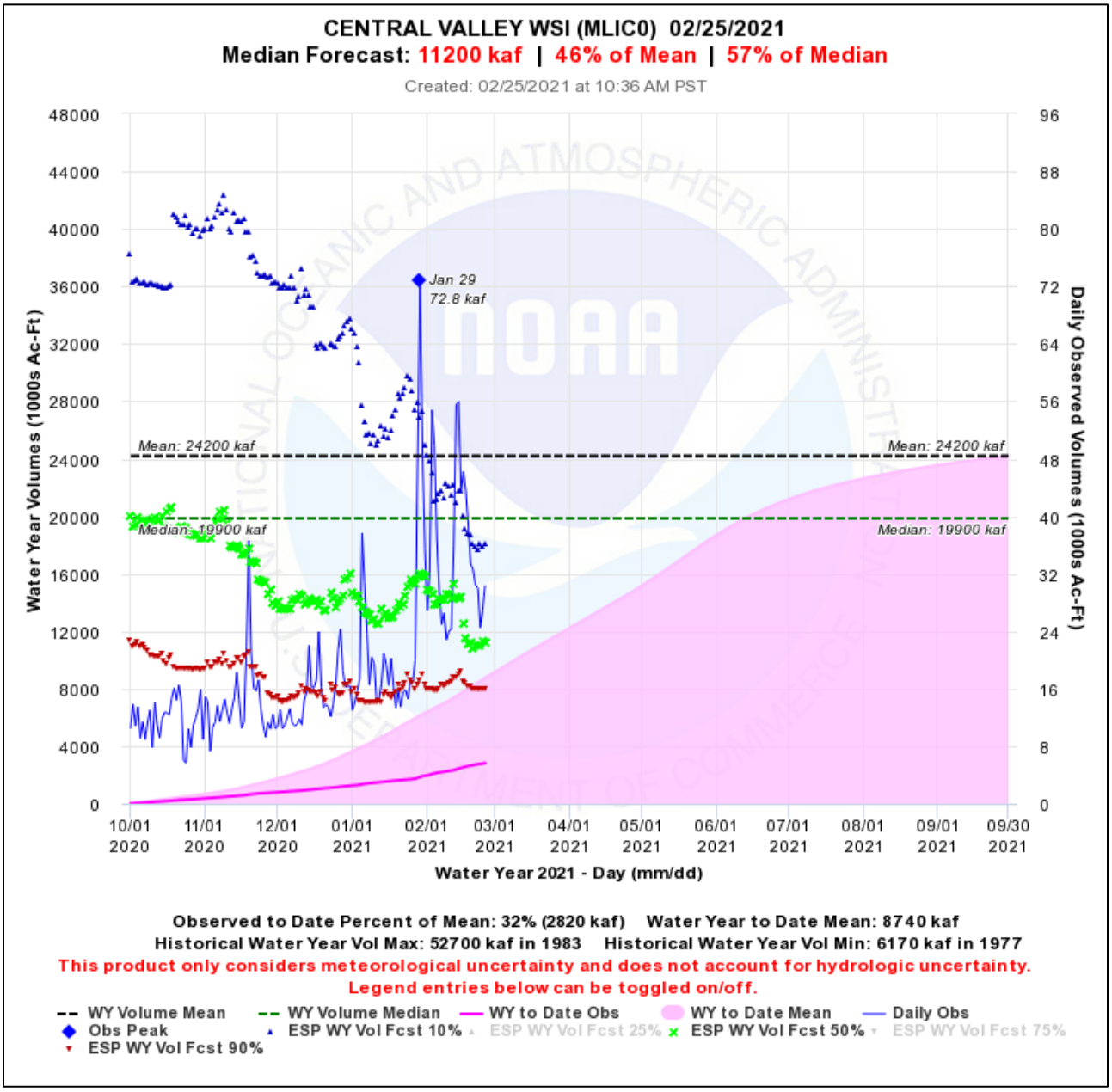


Source:
https://www.cpc.ncep.noaa.gov/products/people/mchen/CFSv2FCST/monthly/images/summaryCFSv2.NaPrec.202103.gif



Source:
https://www.cpc.ncep.noaa.gov/products/predictions/30day/off14_prcp.gif

Water Supply Impacts (HEFS = Hydrologic Ensemble Forecast Service)



Source: https://www.cnrfc.noaa.gov

Water supply forecasts have leveled off here at the end of February. HEFS looks to be anticipating some wetter weather during the next two weeks (but not much greater than climatology). If these storms don't materialize, we'd expect the water supply forecasts to drop even further. The two most recent drops (late January and mid-February) were due to shifts in the ensembles when forecasted storms did not come in as strongly as forecasted earlier.

Conclusion :

So at the end of February, WY2021 is looking very much like WY2020. WY2020 had good precipitation March through April, but still ended up quite dry on the whole. But the Spring 2020 precipitation did add nearly a million acre-feet of runoff for the Central Valley Water Supply Index (WSI).

March is a critical month since any precipitation we get can still take advantage of the remaining low elevation snow and the somewhat wetter soils. If these storms forecasted for March fizzle, there won't be much hope for even a modest recovery.

"Plan for the worst, hope for the best."