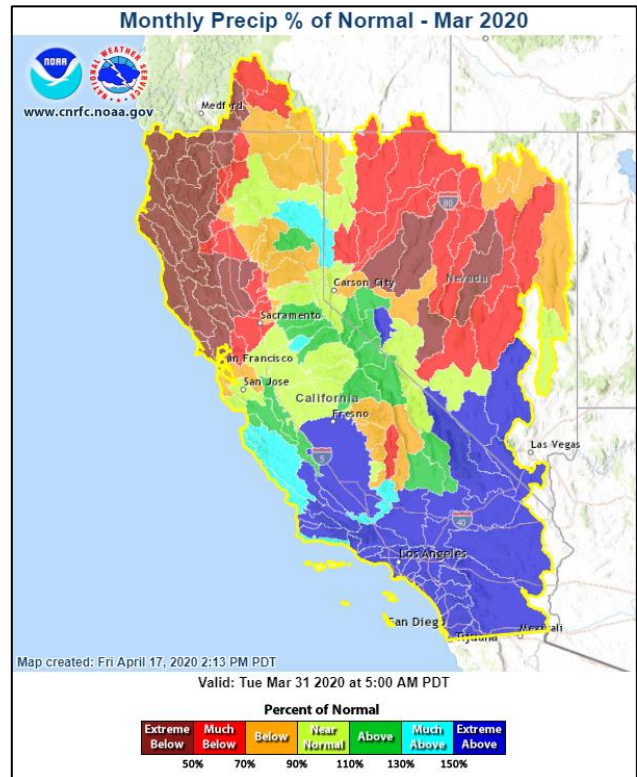
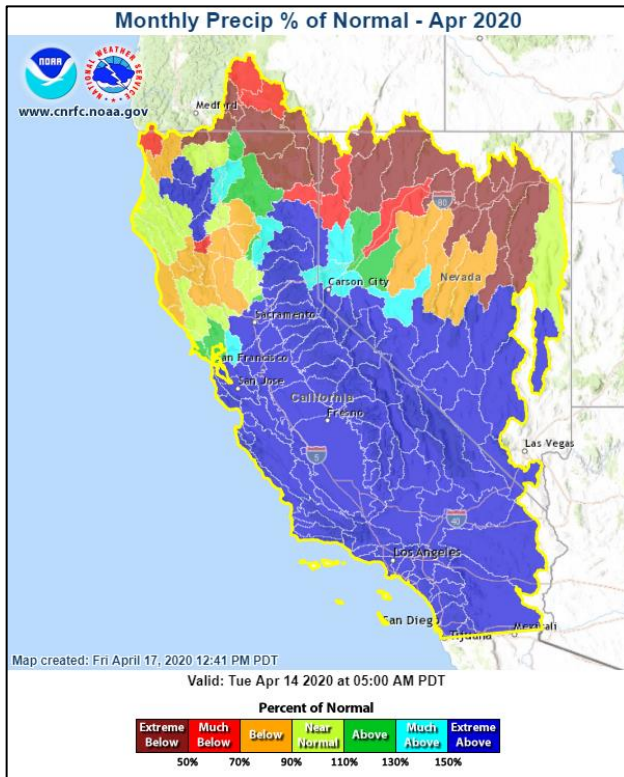


WY2020 Water Resources Update – April 17, 2020

Summary:

- Super Spring rains in the Central and Southern Sierras; not so great in N. CA and N. NV.
- Snow accumulation peaked around April 9th in CA at 64% of April 1 normal.
- Water Supply values remained steady, anticipating average precipitation ahead.

Details:



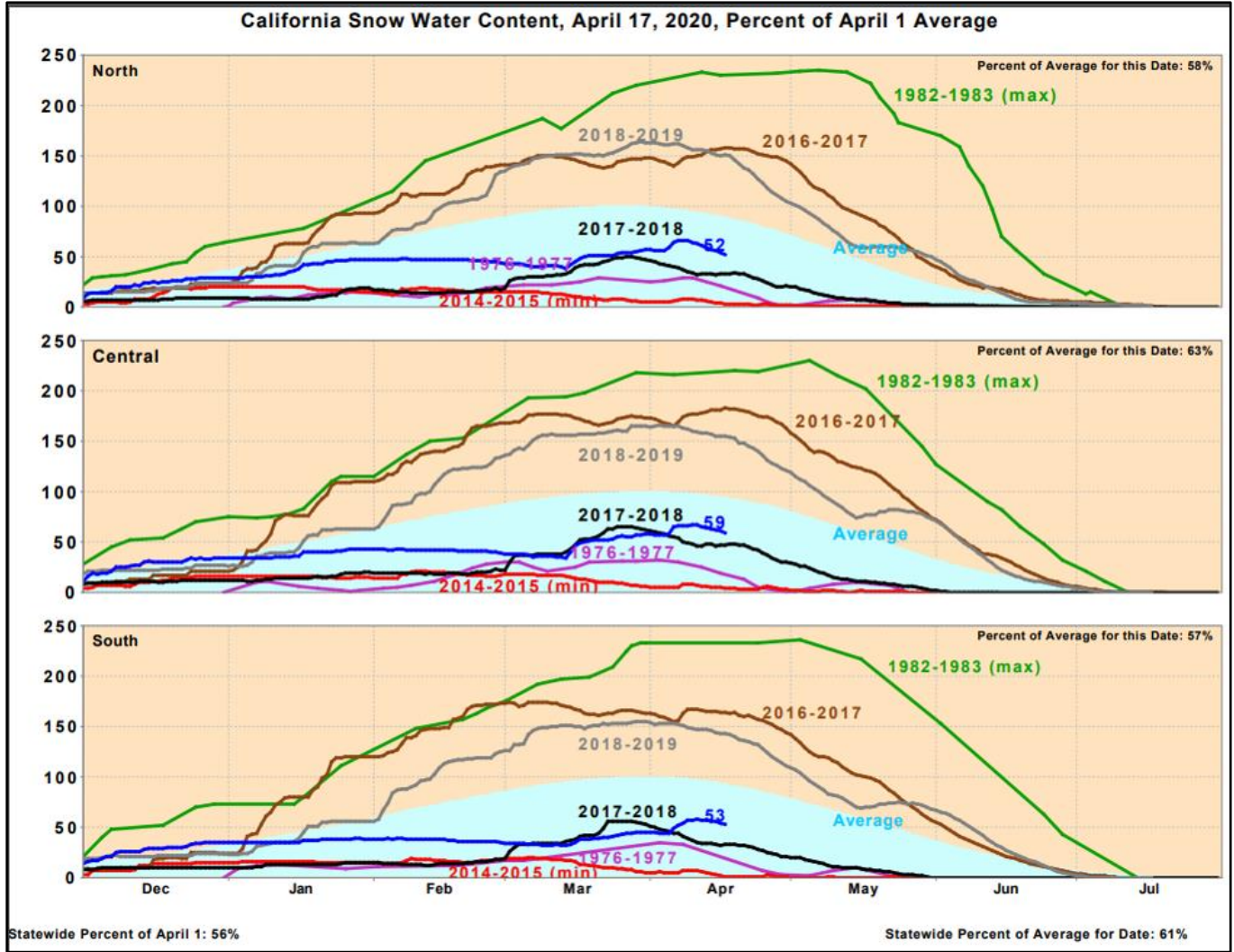
April precipitation has pretty much followed the pattern for WY2020 as a whole – systems diving North to South. The rain last week lasted for several days in Southern CA since the cutoff low was slow to move East (which was the ECMWF forecast), resulting in our first flood forecast of the year (in San Diego).

In most water years, we get around 50% of our precipitation in Dec. – Feb. (DJF) and around 25-30% during March - May or (MAM). This year, two of the three precipitation indices, the San Joaquin index (5 Station Index) and the Tulare index (6 Station Index), reversed this trend. Spring precipitation in these regions have already exceeded their winter precipitation totals, and we still have over 6 weeks to go until the end of May. So the Central and Southern Sierras will likely get over half their seasonal total in the Spring (like in 2018).

Historically, we do see this reversal more often in the San Joaquin and Tulare regions where it has occurred 19 and 17 times in the past 98 years, respectively. In the North, it has only happened 9 times.

	Dec. – Feb. Precip.	Mar. – May Precip	Spring % of Total WY
Northern Sierra (8SI)	15.52 in.	9.2 in.	34%
Central Sierra (5SI)	9.49 in.	9.91 in.	46%
Tulare (6SI)	5.56 in.	7.72 in.	47%

Snowpack Trends



Snowpack in the Sierra peaked around April 9th at 64% of the April 1 normal. The comparison to 2018 is interesting. The chart above shows that the peak values for the Central and Southern Sierra for 2020 and 2018 were nearly identical in magnitude. In 2018 a significant rain-on-snow event in early April brought about a rapid decline in snowpack, where in 2020 we had a colder system that added to the snowpack.

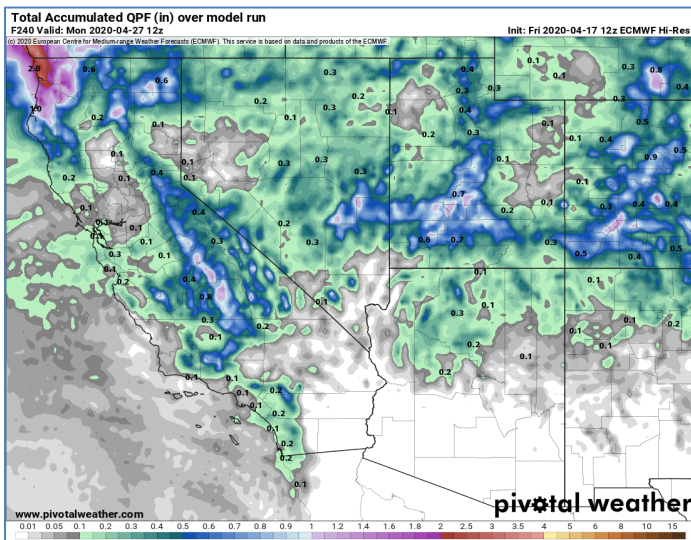
Also, looking at the Northern Sierra, our key water supply region, the snowpack is well above 2018. However, almost all the precipitation this year in the North came with colder systems (remember the pattern has been systems dropping out of the North, i.e., colder). Even though our snowpack is higher than 2018, our total precipitation is running almost 10 inches behind 2018. So we should expect less AJ runoff in the North.

Source of graphic:

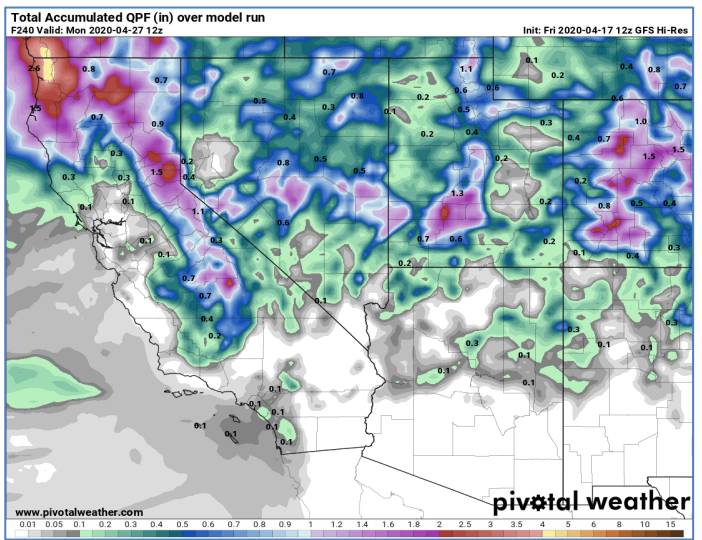
https://cdec.water.ca.gov/reportapp/javareports?name=PLOT_SWC.pdf

Above Average April?? – already happened!!

ECMWF 10-day Precipitation (04172020 12Z)

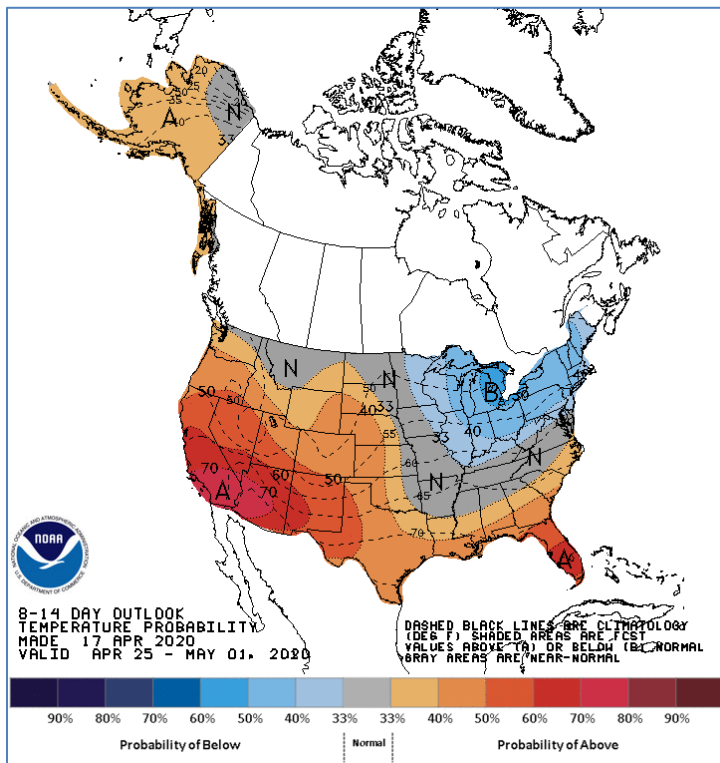


GFS 10-day Precipitation (04172020 12Z)



Sources:

- https://www.pivotalweather.com/model.php?rh=2020041712&fh=240&dpdt=&mc=&r=us_sw&p=qpf_acc&m=gfs_flx
- https://www.pivotalweather.com/model.php?m=ecmwf_full&p=qpf_acc&rh=2020041712&fh=240&r=us_sw&dpdt=&mc=



I almost don't want to venture into the topic of the next couple weeks of weather. Models have been very inconsistent beyond the next 3-5 days. The 10-day QPF forecasts above are changing from day to day, so don't put much confidence in any long range projections. The ECMWF ensembles are holding onto some hope for precipitation in late in week 2, but we will see.

The main trend I see is toward warmer weather (not too surprising I suppose). Today's 8-14 day outlook from the CPC has a fairly confident forecast that week 2 will be above average.

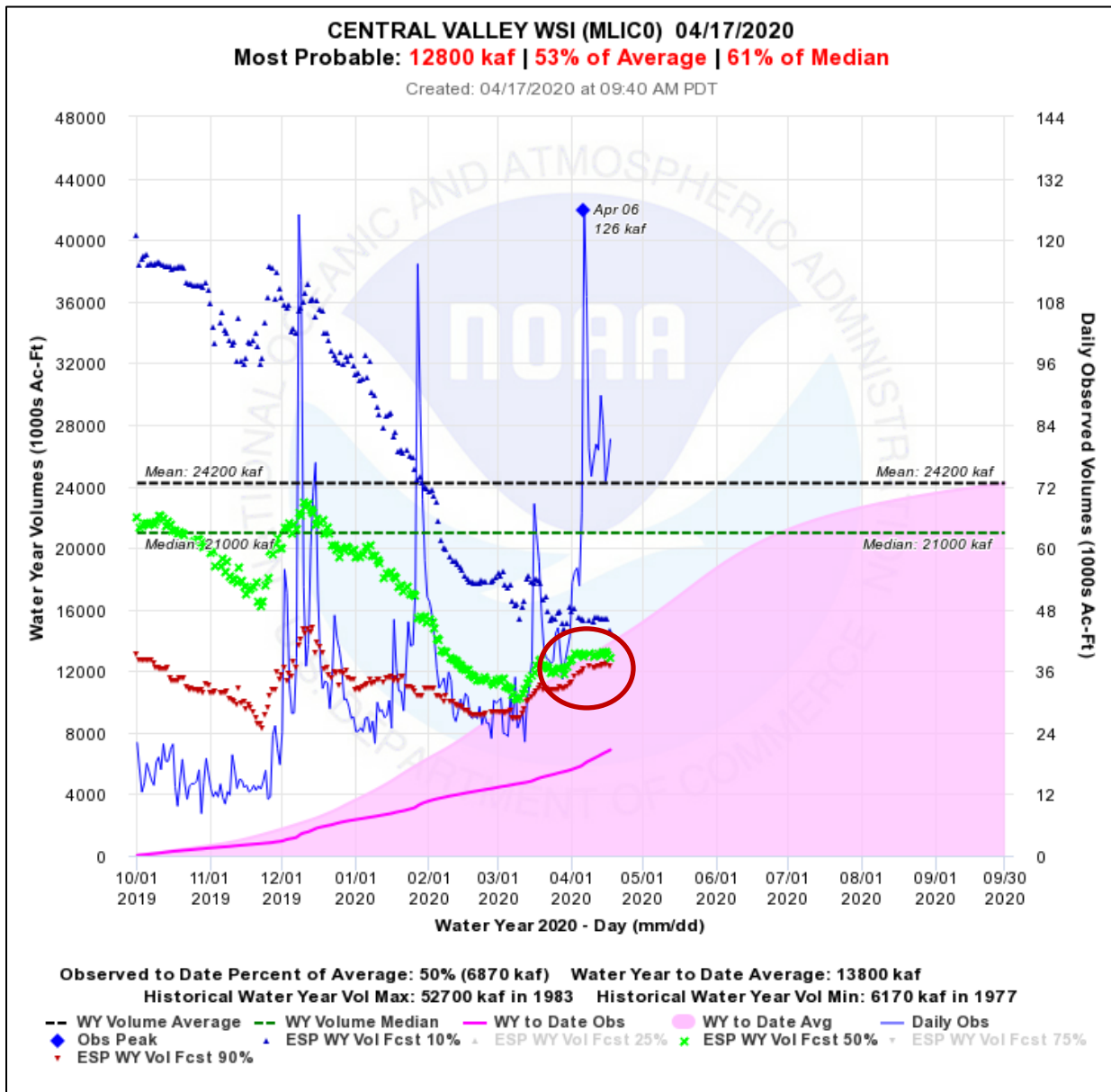
Many of our snowmelt basins are forecast to rise over the next couple weeks following some light precipitation in the Central Sierra this weekend.

Source:

- <https://www.cpc.ncep.noaa.gov/products/predictions/814day/814temp.new.gif>

Water Supply Impacts (HEFS = Hydrologic Ensemble Forecast Service)

Water Year Runoff Projection



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

Over the past two weeks, CNRFC water supply forecasts have remained fairly steady, hovering near the 13 MAF mark (12.8 MAF with today’s drier forecast). Since about 75% of the Central Valley index comes from northern rivers (Sacramento, Feather, Yuba and American), the lack of northern rainfall means the modest snowpack will also have to overcome additional losses as it melts.

For those watching the 10 and 90 percent exceedance numbers, please remember that as the future weather becomes less and less of a factor, the HEFS output has too narrow a spread between the 10 and 90 percent exceedances. HEFS is not able to incorporate the uncertainty in snowpack and soil conditions.

Conclusion:

The “Super Spring” rains have certainly been a boon for the Central and Southern Sierra watersheds. But with continued below normal precipitation in the North, the overall water supply outlook has not greatly improved. Again, comparing to 2018, we are looking at a WY2020 forecast that is 4 MAF less than what we had in WY2018 in the Central Valley.

A reminder:

We are still under “stay at home” orders. So our office is mostly teleworking, with two operational staff coming into the NWS office each day to forecast the precipitation and produce river forecasts. You can reach someone at our office 7 days a week (before 2 p.m.). If you’d like to reach me by phone, my cell is 916-281-6519.

Hope all are staying well.