CW3E Storm Outlook

For California DWR's AR Program

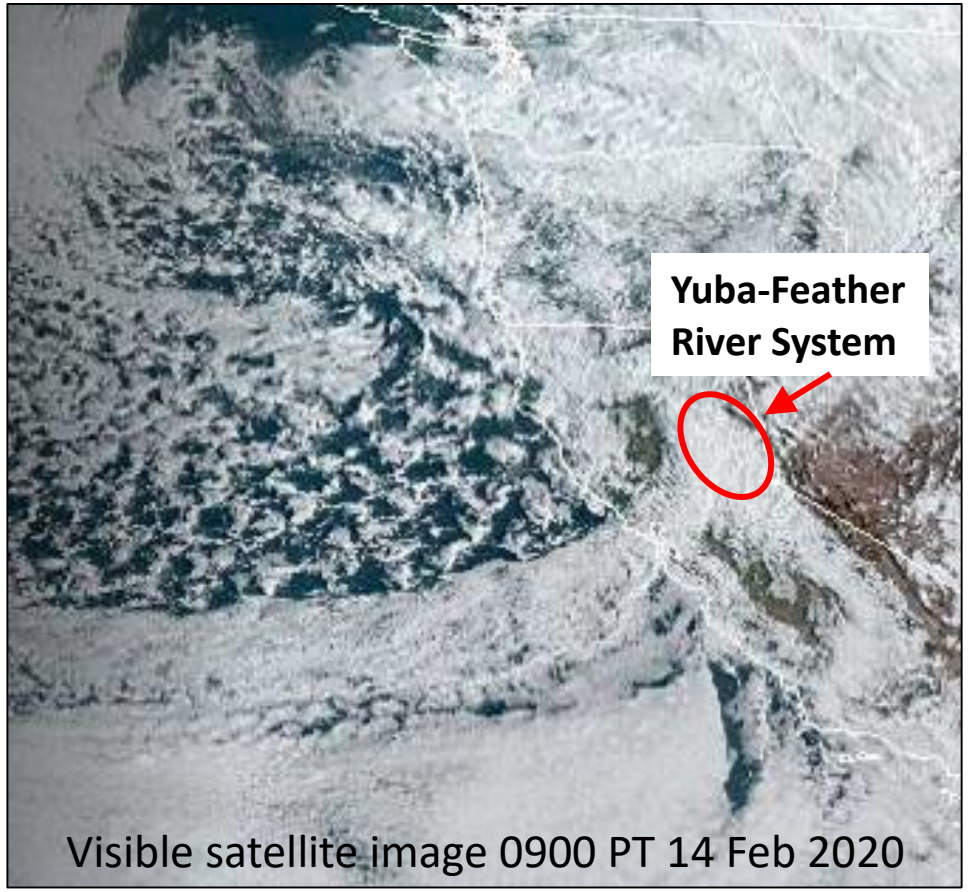
Center for Western Weather and Water Extremes
SCRIPPS INSTITUTION OF OCEANOGRAPHY AT UC SAN DIEGO

A wet few days ahead for California thanks to slow-moving "cut-off low" storm system with at most a "weak" atmospheric river as part of it. (Also see CW3E Precip Update posted on 12 March)

Additional Information on Event Forecast to Impact Much of California

The next few days will bring wet weather across much of California. The brunt of the storm is predicted to hit the northern Sierra mountains, centered on the Yuba and Feather River systems, which are home to New Bullards Bar and Oroville Reservoirs.

- The following outlook was produced using CW3E forecast products specific to the Yuba River Watershed that highlight the characteristics of the upcoming system that is forecast to bring large precipitation accumulations to Northern CA
- Some key products presented use data from the NWS' Global Forecast System Ensemble and the National Blend of Models (NBM)
  - "The National Blend of Models (NBM) is a national suite of calibrated forecast guidance based on a blend of both NWS and non-NWS numerical weather prediction model data and post-processed model guidance. The goal of the NBM is to create a highly accurate, skillful and consistent starting point for the gridded forecast." More information on NBM @ https://www.weather.gov/mdl/nbm_about
- For questions regarding the content within this forecast outlook, please contact checht@ucsd.edu or mralph@ucsd.edu



Visible satellite image 0900 PT 14 Feb 2020

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CW3E New Bullards Bar Outlook

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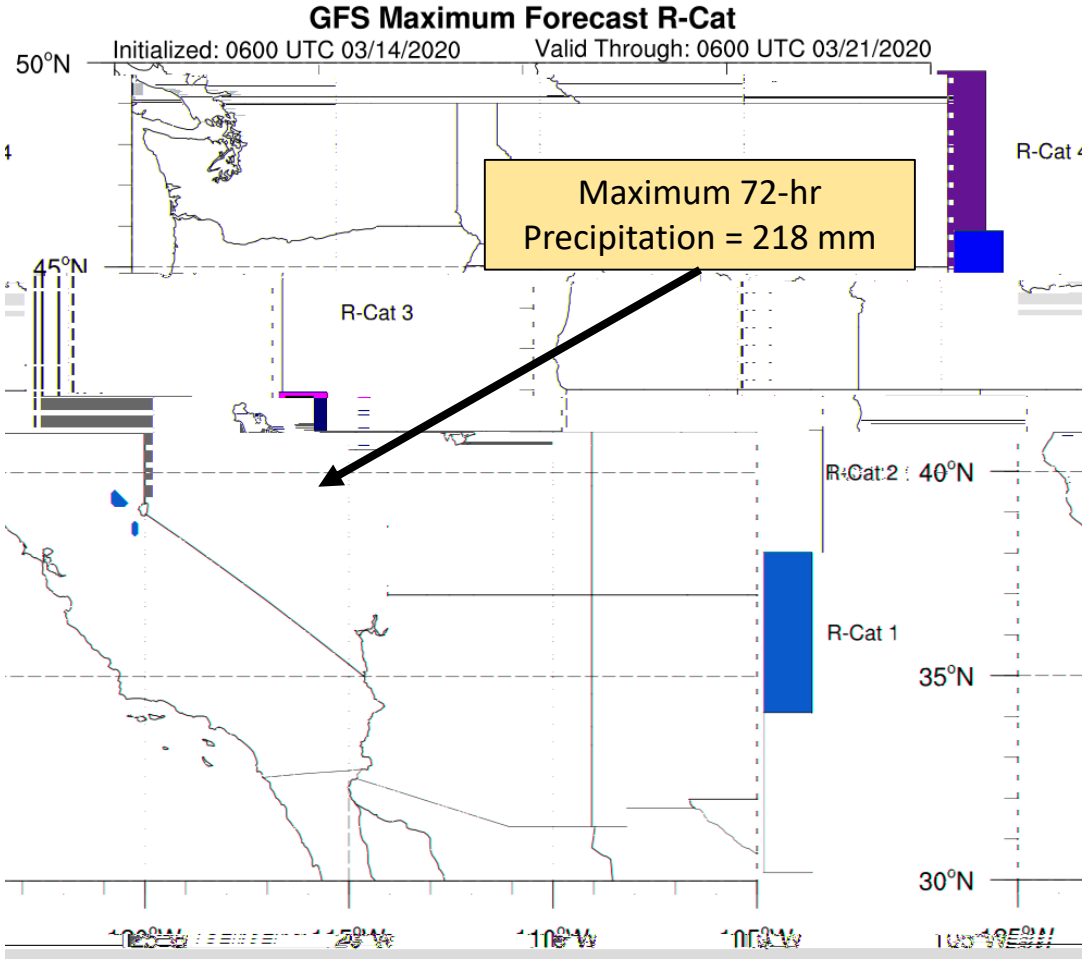

The GFS is forecasting a Rainfall Category 1 for two seperate locations in the Northern Sierra over the next 7 days

A Rainfall Category 1 is any 72-hour precipitation accumulation that is between 200 and 300 mm

The highest 72-hour accumulation is forecast to be 218 mm (8.6 in.) at 38.75°N and -120.25 °W

More information on Rainfall Categories can be found at Ralph and Dettinger 2012

To subscribe to an automated CW3E R-Cat Extreme Precipitation Alert that notifies users when a Rainfall Category is observed throughout California via email: email a message with subject "subscribe" to rcatalert@cirrus.ucsd.edu.

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Precipitation Forecast Examples from Coastal to Sierras and from NorCal to SoCal

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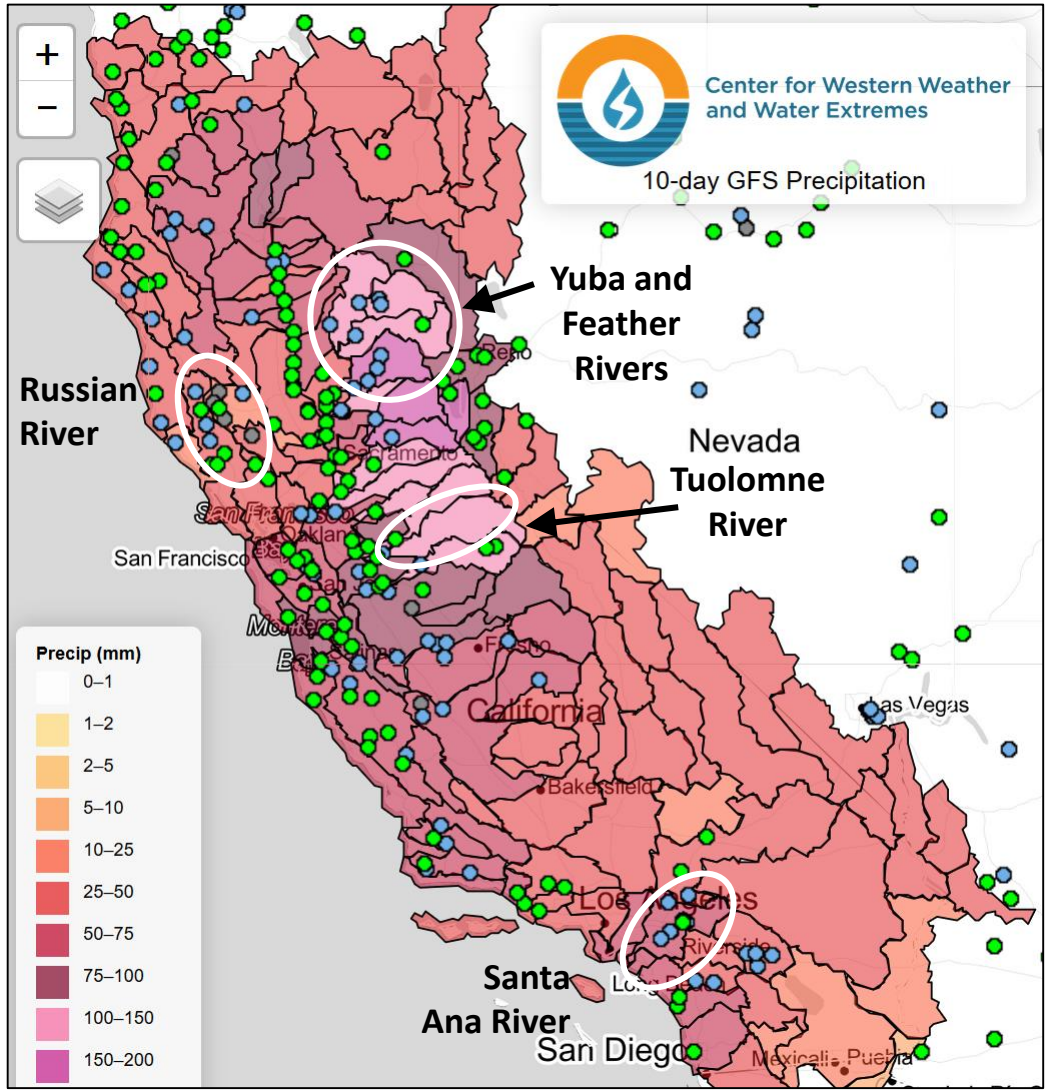
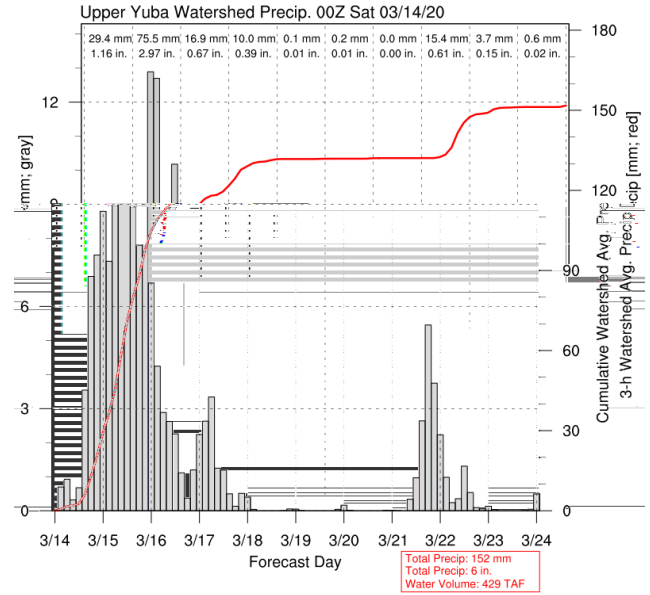
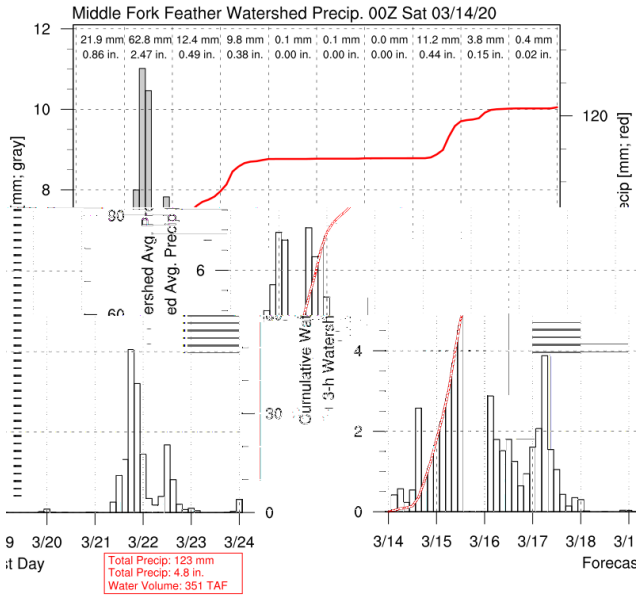


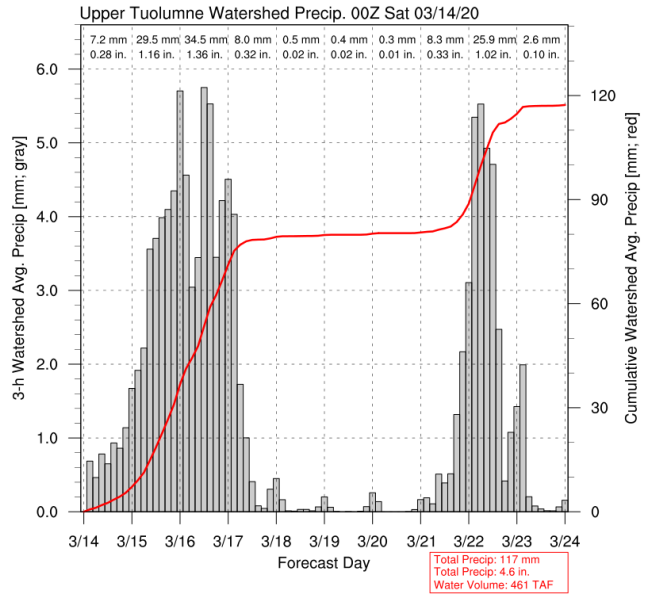
10-day Precip. Forecast

4-6 inches mean area precip.
About ¼ as rain, ½ rain or snow, ¼ snow

Feather:	**870 TAF**
Middle Fork:	*351 TAF*
North Fork:	*295 TAF*
East Branch NF:	*226 TAF*
Upper Yuba:	**429 TAF**
Tuolomne:	**461 TAF**
Russian:	**88 TAF**
Santa Ana:	**194 TAF**







Area of Maximum Precipitation in this Wet Period: Yuba River and New Bullards Bar Reservoir

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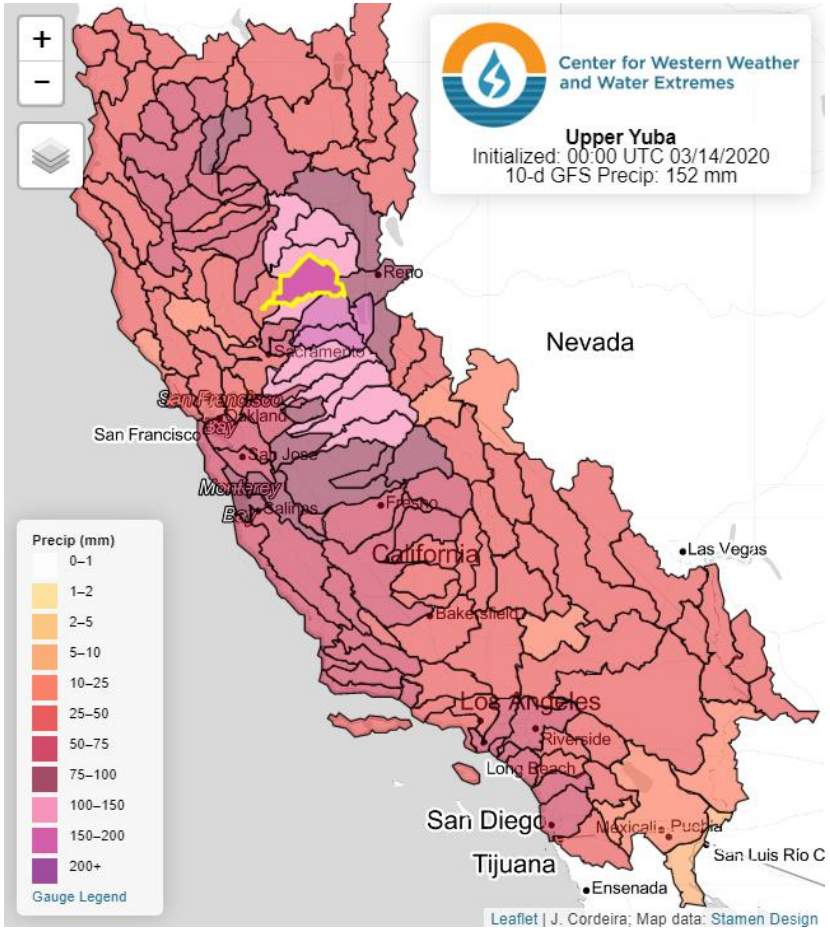
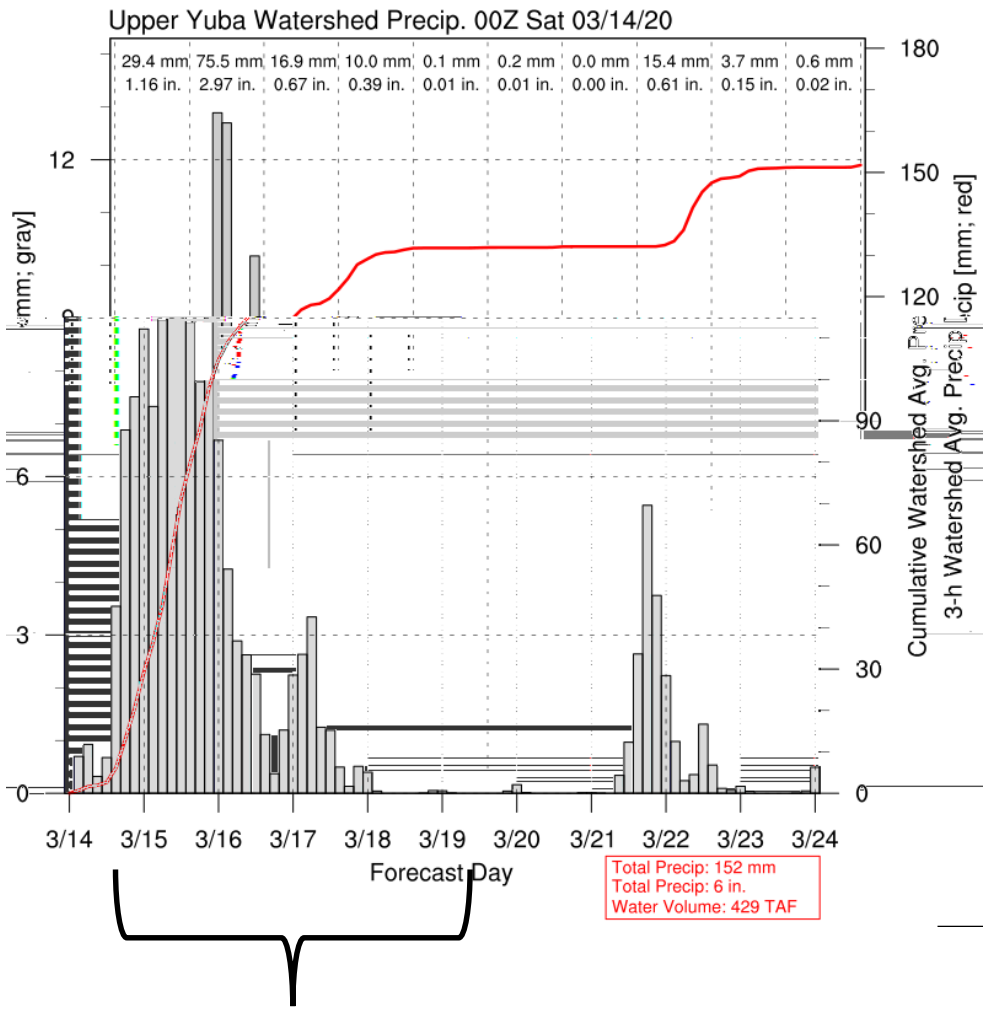


- The GFS is currently forecasting a total of 6 inches (152 mm) of watershed average precipitation over the Upper Yuba Watershed
- 6 inches of mean area precipitation over the Upper Yuba equates to 429 TAF of water if all precipitation were forecast to be liquid and if all of it were to flow into the reservoir



5.2 inches

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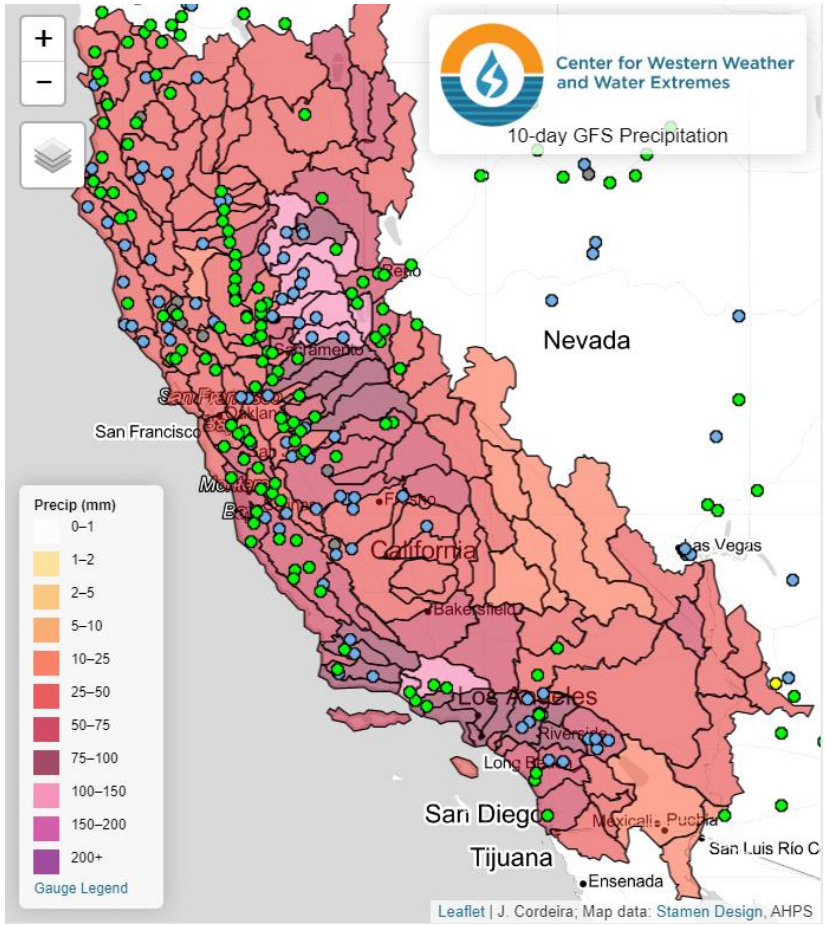
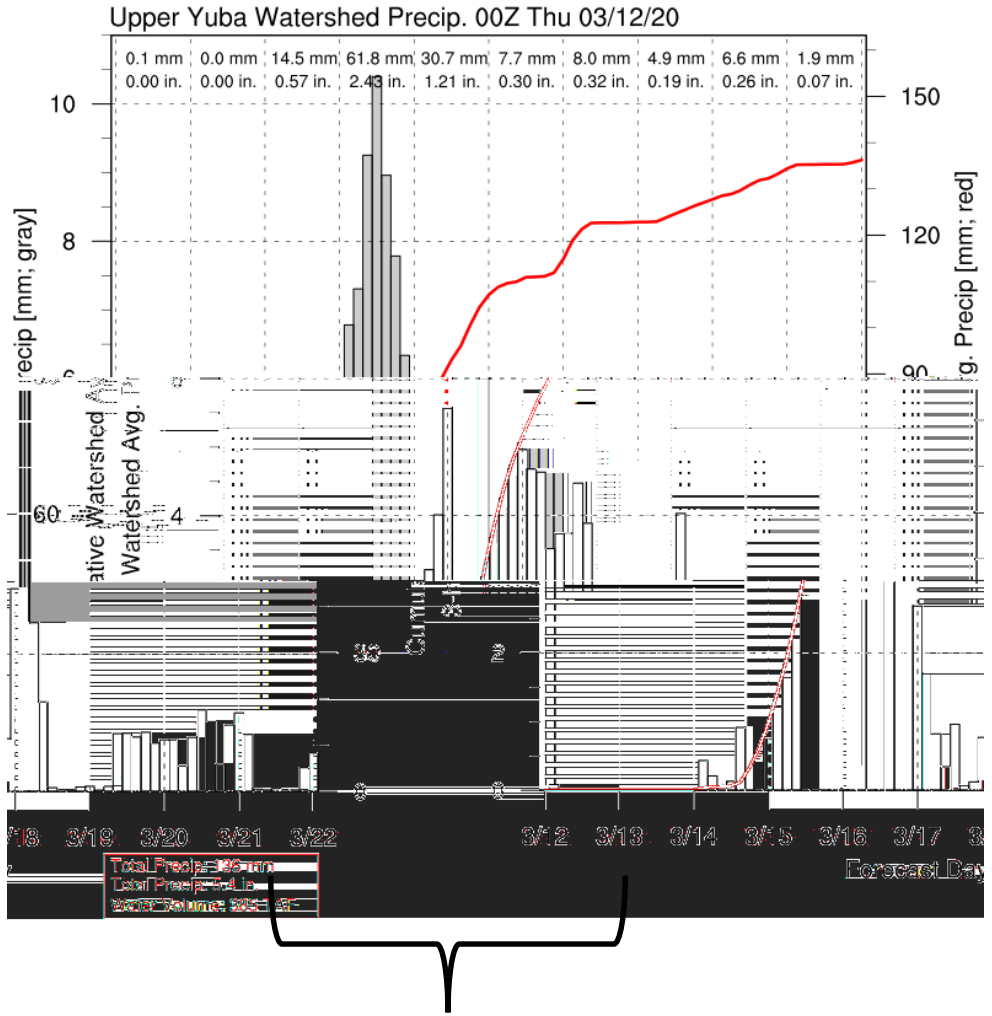
New Bullards Bar – Previous Forecast

Yesterday's GFS Watershed Average Forecast



- When comparing yesterday's forecast with today's (previous slide), today's run is forecasting ~0.3 inches more areal precipitation than yesterday
- This slight trend towards higher precipitation accumulations highlights that there is still some forecast uncertainty associated with this incoming system



4.8 inches

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New Bullards Bar Snow Level Forecast

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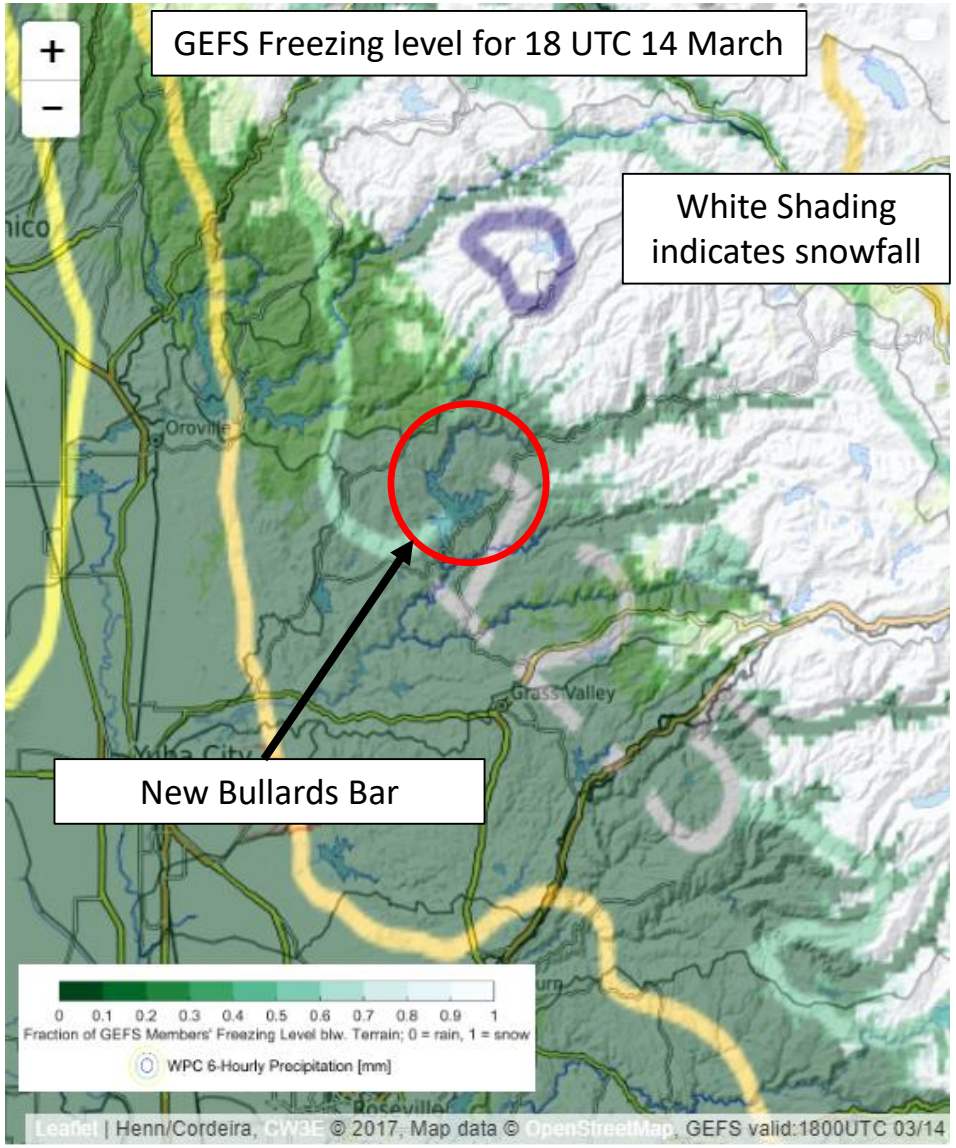

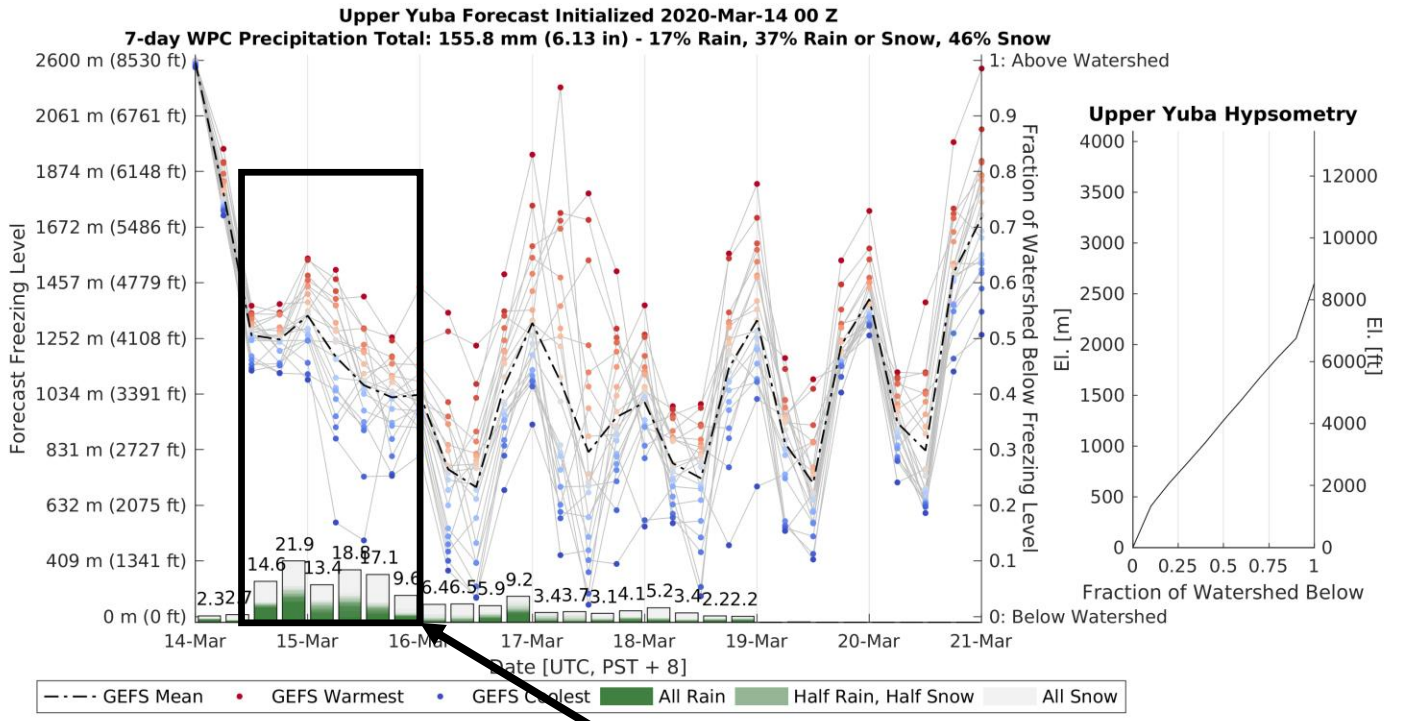

- **At the time of maximum precip. (~12 UTC 14 through 00 UTC 16 March) the freezing level is forecast by the GEFS to drop from ~4.1 Kft to 3.4 Kft, with higher uncertainty (ensemble spread) towards the latter portion of the event**
- **A freezing level of 3 – 4 Kft. places 37–50% of the Upper Yuba Basin, and an even larger portion of the watershed that flows into New Bullards Bar, below freezing**

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Yuba River New Bullards NBM Preciption Outlook

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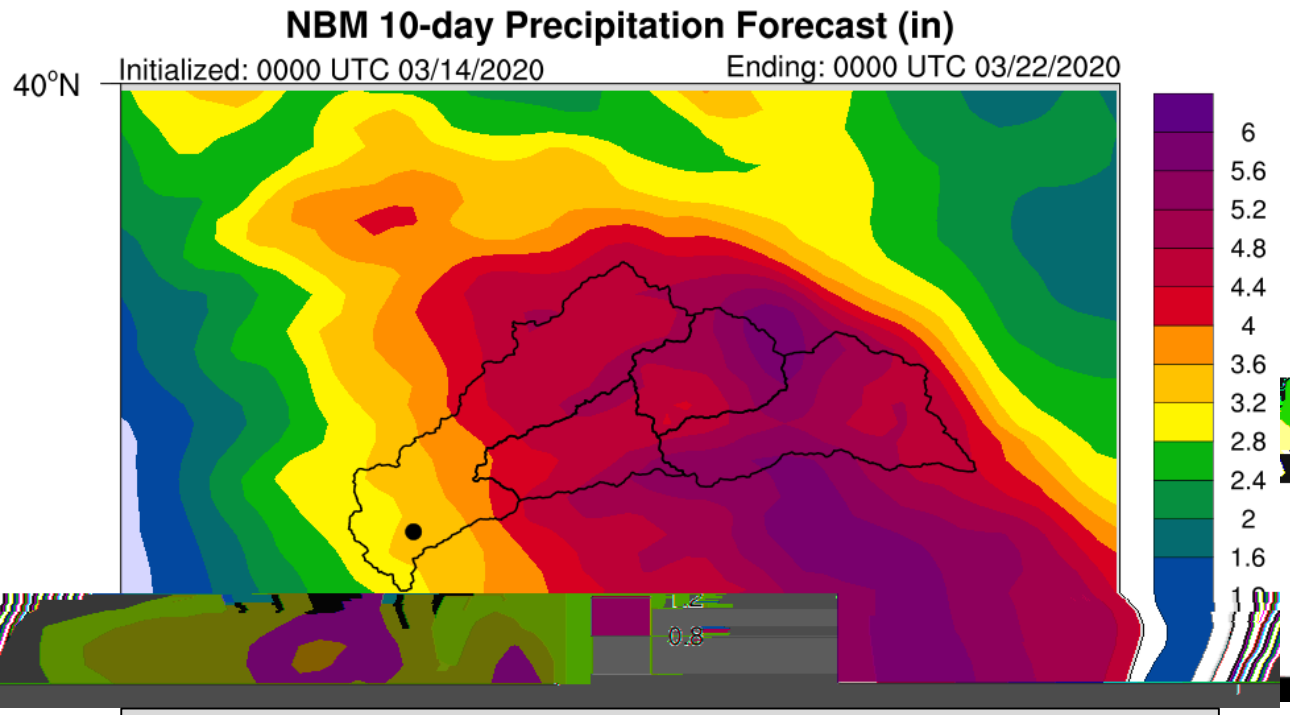

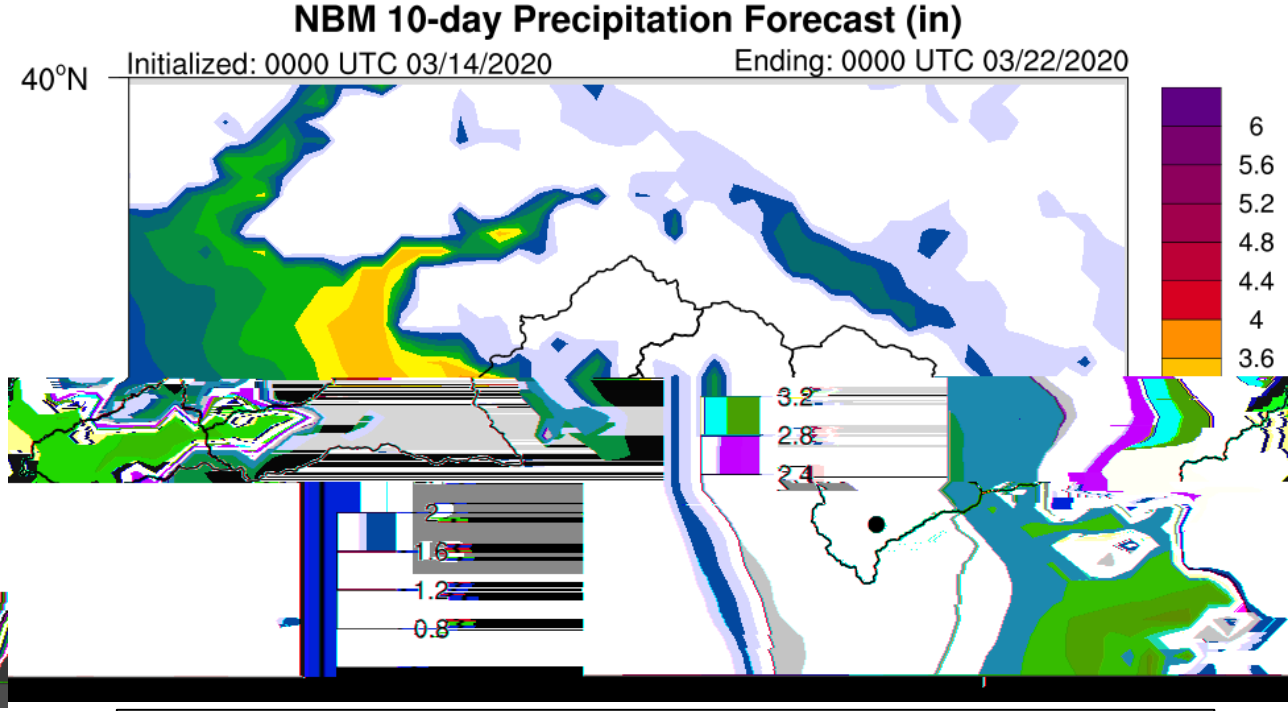

- The NBM is currently forecasting 2.8 to 6 inches of precipitation to fall over the watersheds that flow into New Bullards Bar Reservoir
- The higher precipitation accumulations are forecast to fall over the higher elevations of the eastern watershed and ridge tops

- When only considering precip. that is forecast to fall when the 2 meter air temperature is also forecast to be >0°, the forecast accumulations are lower (2.8–4.8 in.)
- Some higher elevation locations are not forecast to receive any precipitation while the 2 meter air temperature is also forecast to be >0°C

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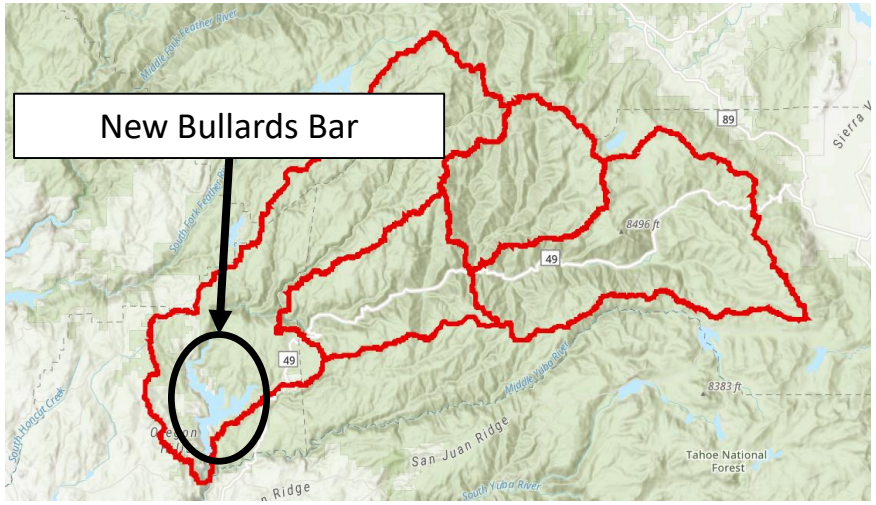
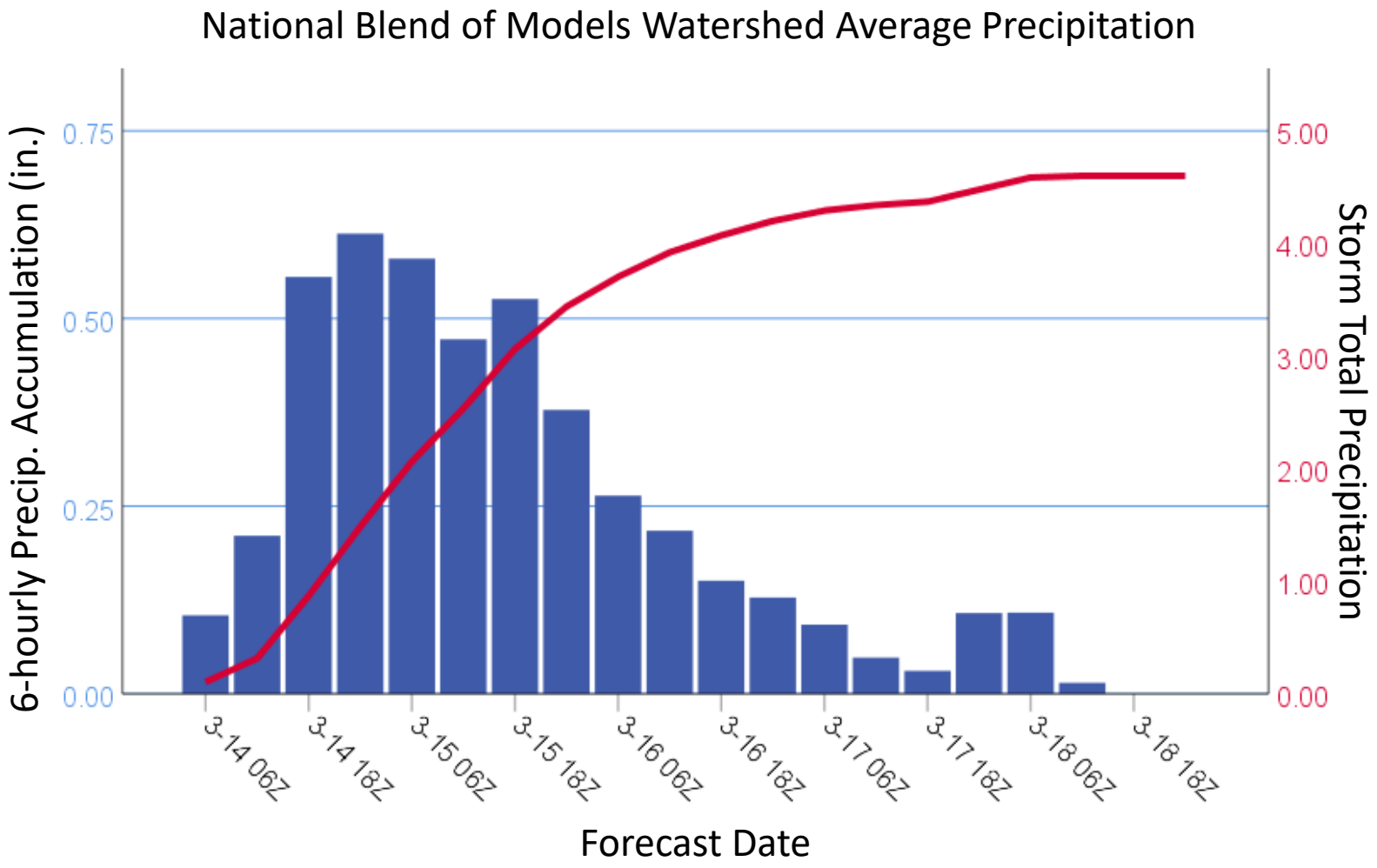


- **The NBM is currently forecasting a total of 4.6 inches of areal averaged precipitation to fall over the watersheds that flow into New Bullards Bar Reservoir**
- **4.6 of watershed average precipitation over the upstream reservoirs of New Bullards Bar equates to >120,000 acre feet of water**
- **HOWEVER, most of this precipitation is predicted to fall as snow**



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