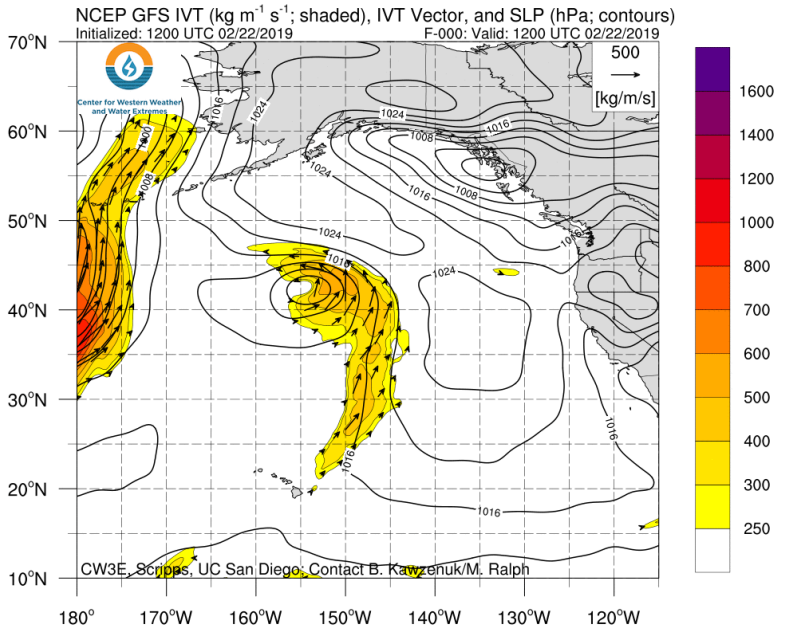
CW3E Atmospheric River Outlook

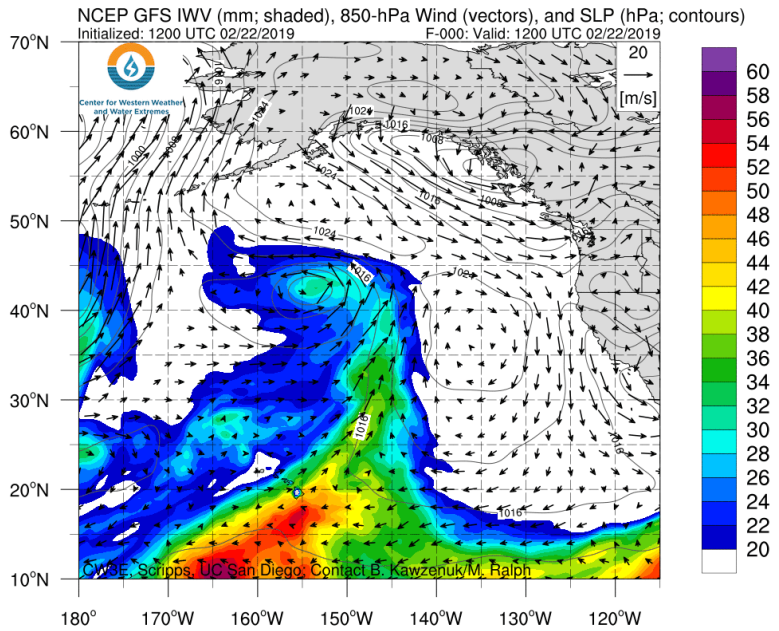
For California DWR's AR Program

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

Multiple ARs Forecast to impact the USWC in the coming Week

- A shift into an active flow pattern may result in the landfall of successive atmospheric rivers starting this weekend
- The first AR is forecast to make landfall over Southern Oregon and propagate southward over Northern California on 2/25
- Cyclogenesis along the first AR will result in multiple pulses of enhanced IVT over the Coast and long duration of AR conditions
- A cyclone and concomitant AR is forecast to generate northeast of HI, propagate eastward, and make landfall over Northern California on 02 March 2019
- Forecast precipitation associated with the first AR could be as high as 4 inches over the Coastal Mountains of Southern Oregon and Northern California
- 7-day WPC precipitation forecasts are currently as high as 10 inches over Southern Oregon and Northern California in association with both landfalling ARs
- The GEFS is currently suggesting the possible landfall of a third AR between 11 and 13 March 2019





AR Outlook: 22 February 2019

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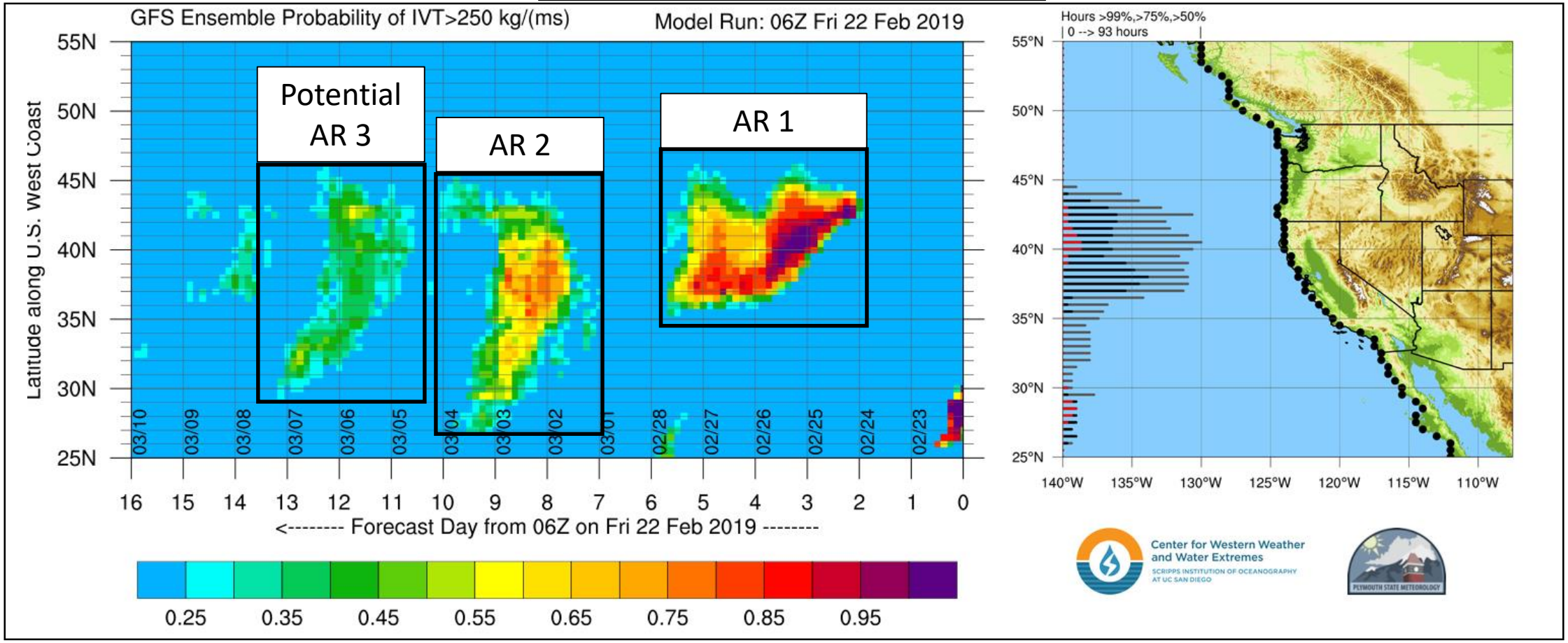
Odds of AR Conditions Along Coast



- **There is high probability (80–100%) of AR conditions (IVT > 250 kg m^{-1} s^{-1}) lasting for an extended period over N. CA and S. OR**
- **The GEFS suggests AR conditions could last for >24 hours over portions of Northern California**
- **The ensemble probability of IVT >250 units along the coast is lower in associated with AR 2**
- **The GEFS is also highlighting the possibility of a third landfalling AR between 5 and 7 March 2019**

AR Outlook: 22 February 2019

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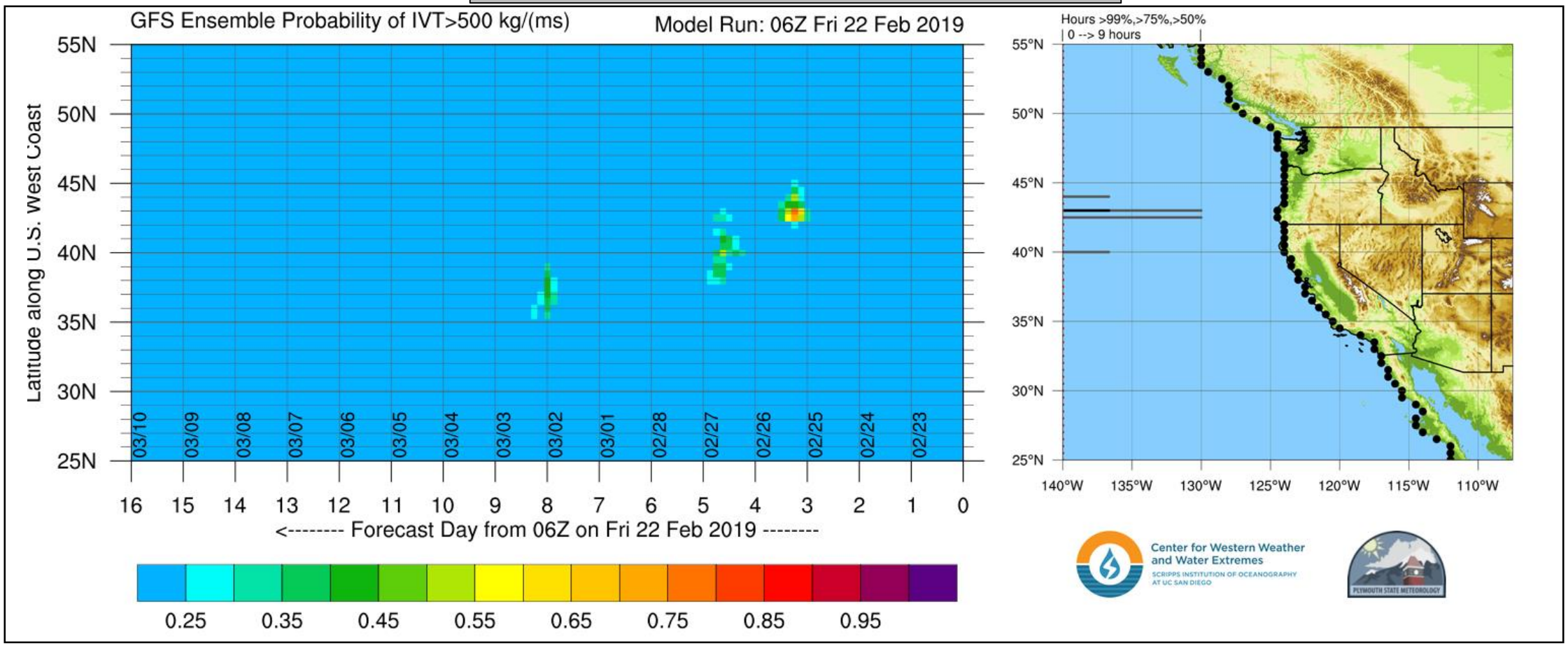
Odds of Moderate AR Conditions Along Coast



The GEFS is currently suggesting the possibility (50-80%) of moderate AR conditions (IVT > 500 kg m^{-1} s^{-1}) lasting 3–12 hours between associated with both AR 1 and AR 2

AR Outlook: 22 February 2019

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The GEFS is currently forecasting the potential for moderate AR conditions associated with the next landfalling AR over the Russian River Watershed

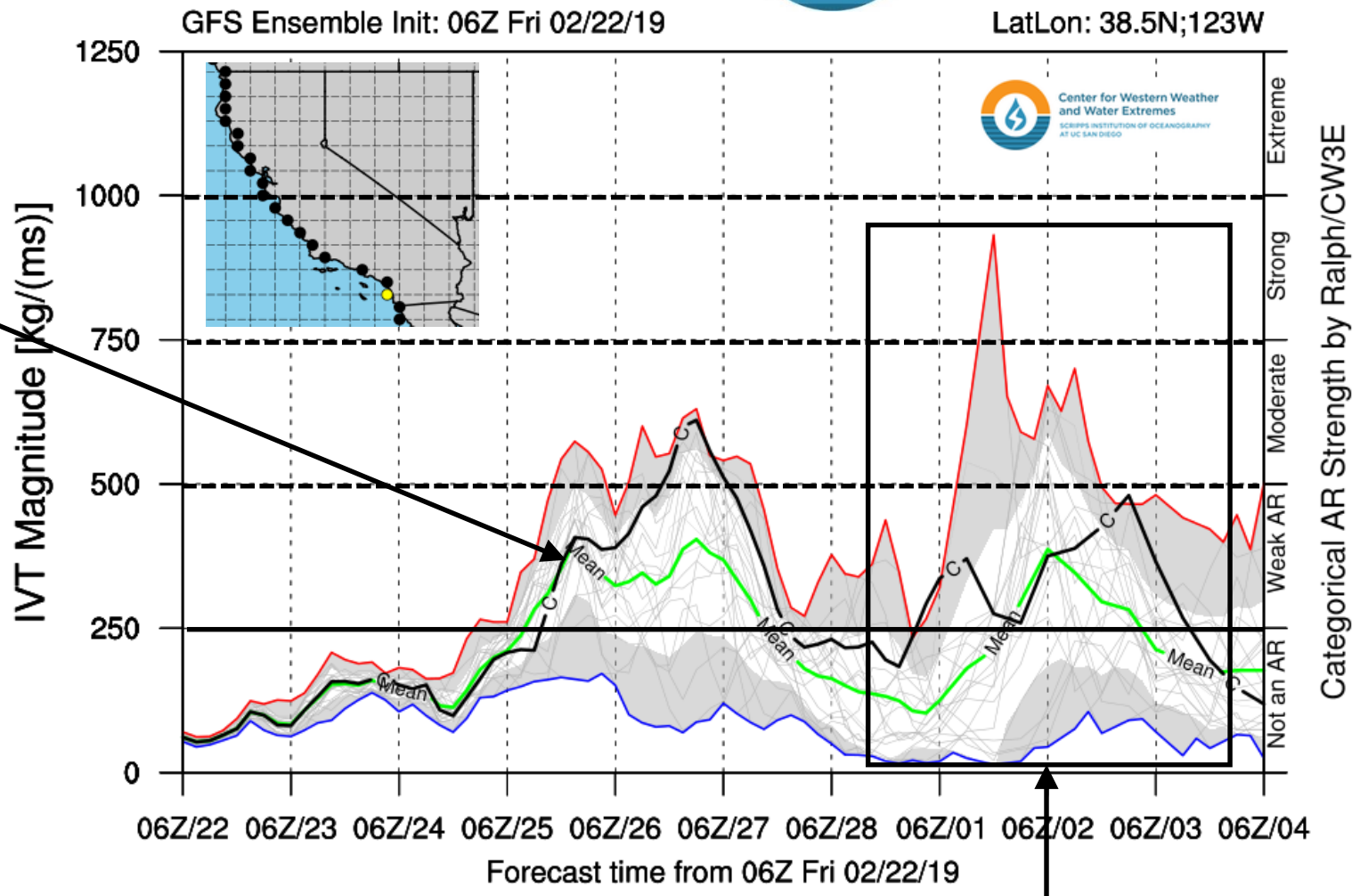
Magnitude of potential AR

- Maximum predicted IVT ~650 kg m^{-1} s^{-1}
- Mean IVT ~400 kg m^{-1} s^{-1}

Forecast duration of AR conditions

- Weak 36 hours +/– 12
- Moderate 12 hours +/– 12

Given the forecast uncertainty and potential for long duration of AR conditions, there is a possibility that IVT does not fall below 250 kg m^{-1} s^{-1} between AR 1 and AR 2, resulting in extensive duration of AR conditions



There is currently large uncertainty between GEFS ensemble members pertaining to onset, duration, and magnitude of AR conditions associated with the second AR over Northern CA

AR Outlook: 22 February 2019

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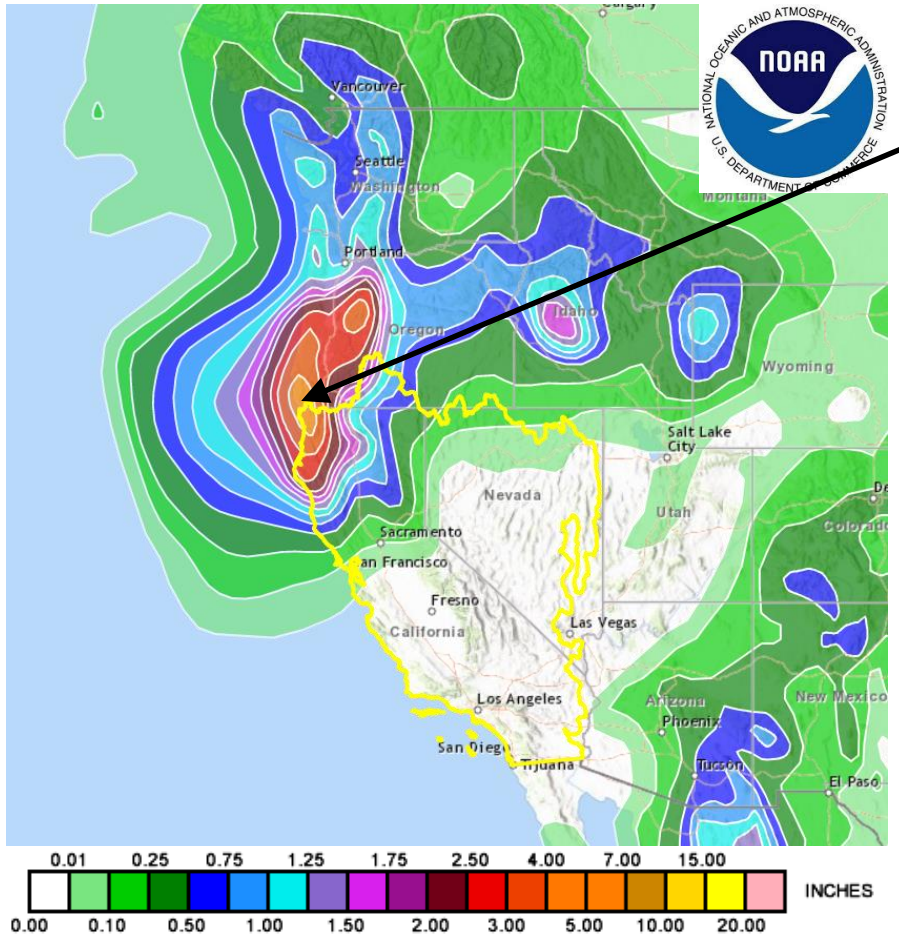
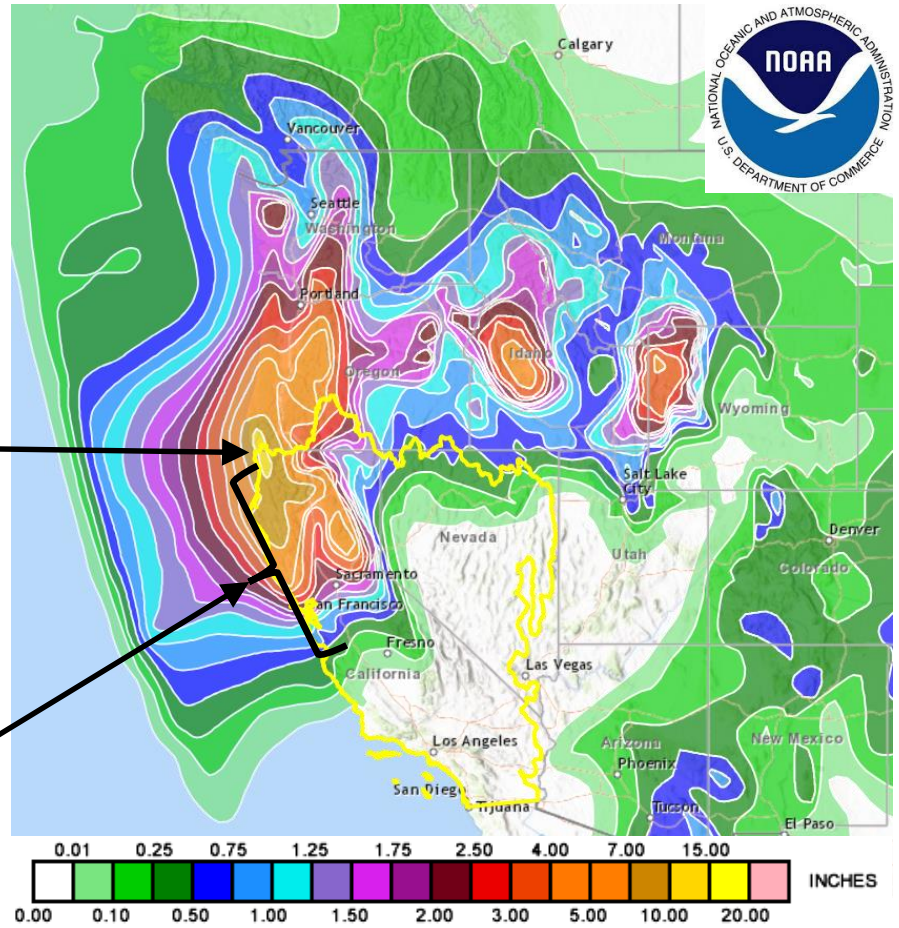


The Weather Prediction Center is currently forecasting ~4 inches of precipitation over the Coastal Range in S. OR and N. CA during the next 72-hrs

As much as 10 inches of precipitation is currently forecast for Northern CA and Southern OR during the next 6 days in association with both landfalling ARs

The current precipitation forecasts suggest there could be a large north-south gradient in precipitation accumulations between S. OR and the Bay Area

A slight shift in the location of AR landfall could result in large differences in observed forecast precipitation



These WPC forecast precipitation products are located at cnrfc.noaa.gov

AR Outlook: 22 February 2019

The GFS is currently forecasting 148 mm (5.8 inches) of areal average precipitation within the Russian River Watershed over the next 10-days

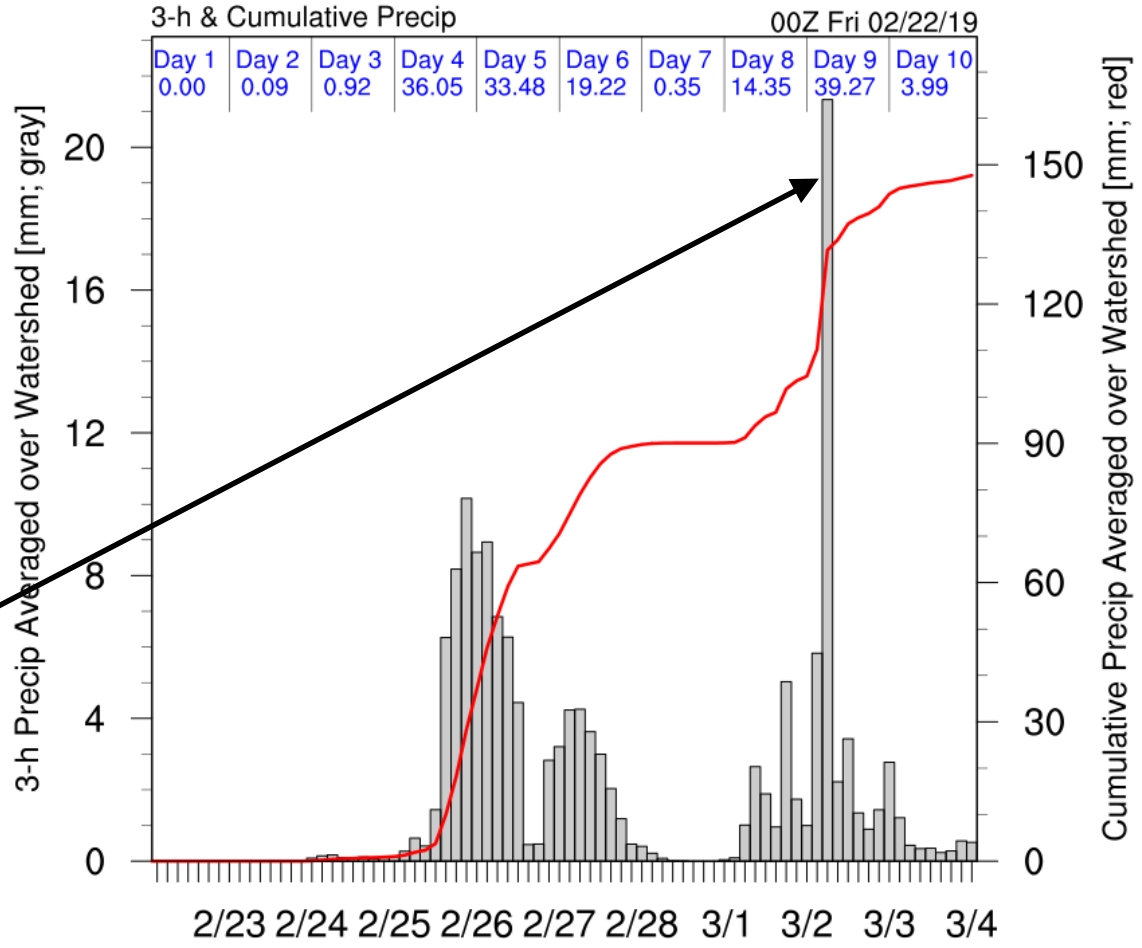
The first AR that is forecast to make landfall between 2/25 and 2/28 could produce as much as 90 mm of watershed average precipitation

The second AR that is forecast to make landfall between 3/1 and 3/5 may produce as much as 58 mm of watershed average precipitation

While the second AR is currently forecast to produce less storm total precipitation than the first AR, the GFS suggests the second AR could be associated with higher precipitation rates

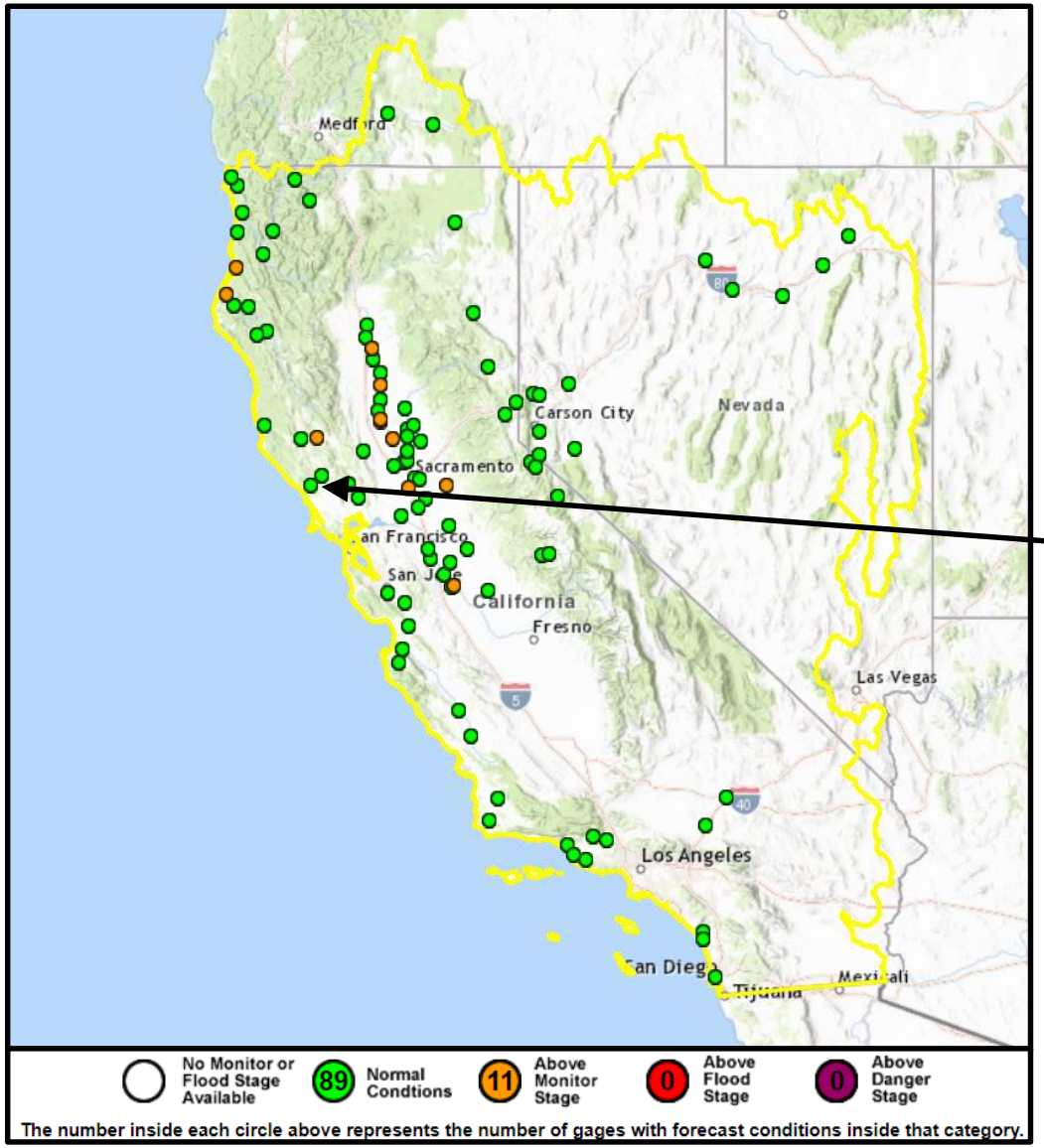
Watershed specific forecasts can be found at cw3e.ucsd.edu/DSMaps/DS_intro.html

Russian Watershed



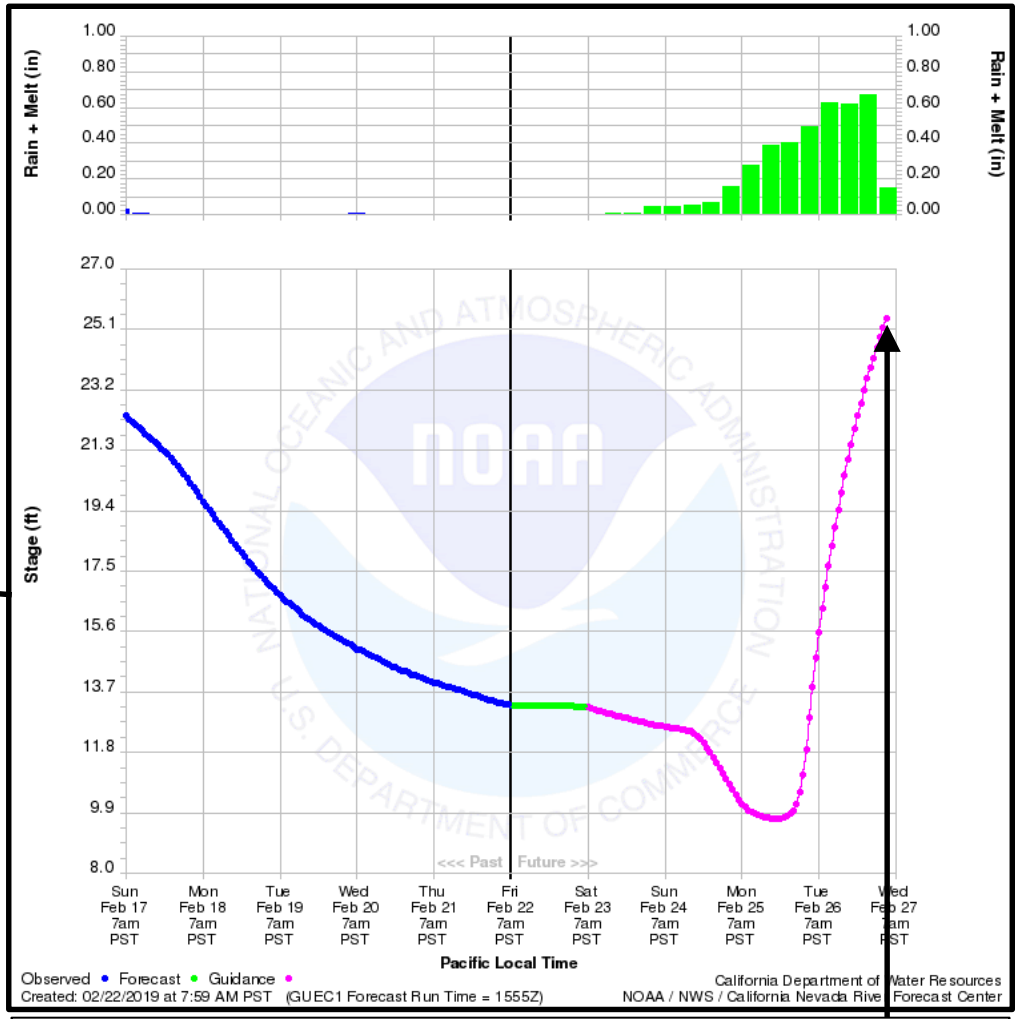
Total: 148 mm | 460571 AcreFeet

AR Outlook: 11 February 2019



The CNRFC is currently forecasting 16 rivers to rise above monitor stage and one to rise above flood stage over the next several days

NWS California Nevada River Forecast Center forecast products are located at cnrfc.noaa.gov



The Russian River in Guerneville, CA is currently forecast to rise to 25.5 feet at 4 AM on 2/27 (Note: the forecast does not extend far enough to encompass the peak flow associated with this event)