

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

Update on ARs Forecast to Impact SoCal Later This Week and Over the Weekend

- A Low-pressure system that is currently impacting Hawaii is forecast to propagate northeastward, interact with a separate low off the Pacific Northwest Coast, and bring AR conditions to the U.S. West Coast
- Coastal Locations over Southern CA could experience moderate to strong AR conditions for an extended duration (>72-hrs)
- The GFS is currently forecasting this AR to be an AR-Cat 3 event (based on duration and maximum integrated vapor transport; IVT) over Coastal Los Angeles County based on the newly published Atmospheric River Category over Southern California
- There is currently large ensemble spread of forecast AR conditions associated with the end of the AR leading to uncertainties in overall duration of the event over Southern California
- The CNRFC is currently forecasting 6-day precipitation accumulations of 11 inches over the Coastal Mountains of Northern California due to the landfalling AR and trajectory/inland propagation of the low-pressure system
- Portions of Southern California are forecast to receive 1.5–5.5 inches (higher amounts at higher elevations) over the next 6 days
- The Russian River in both Hopland and Guerneville are currently forecast to rise to within 1 foot of monitor stage

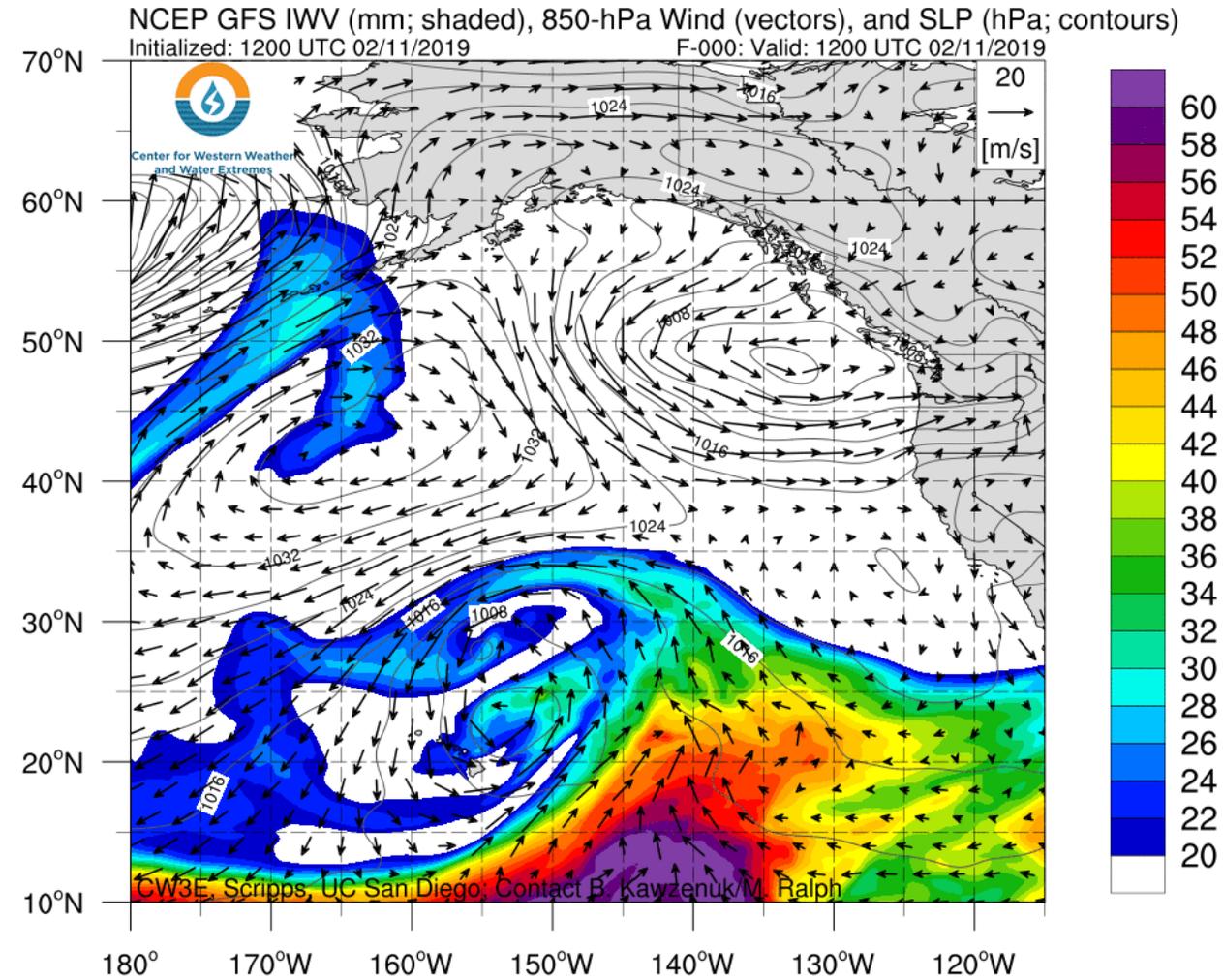
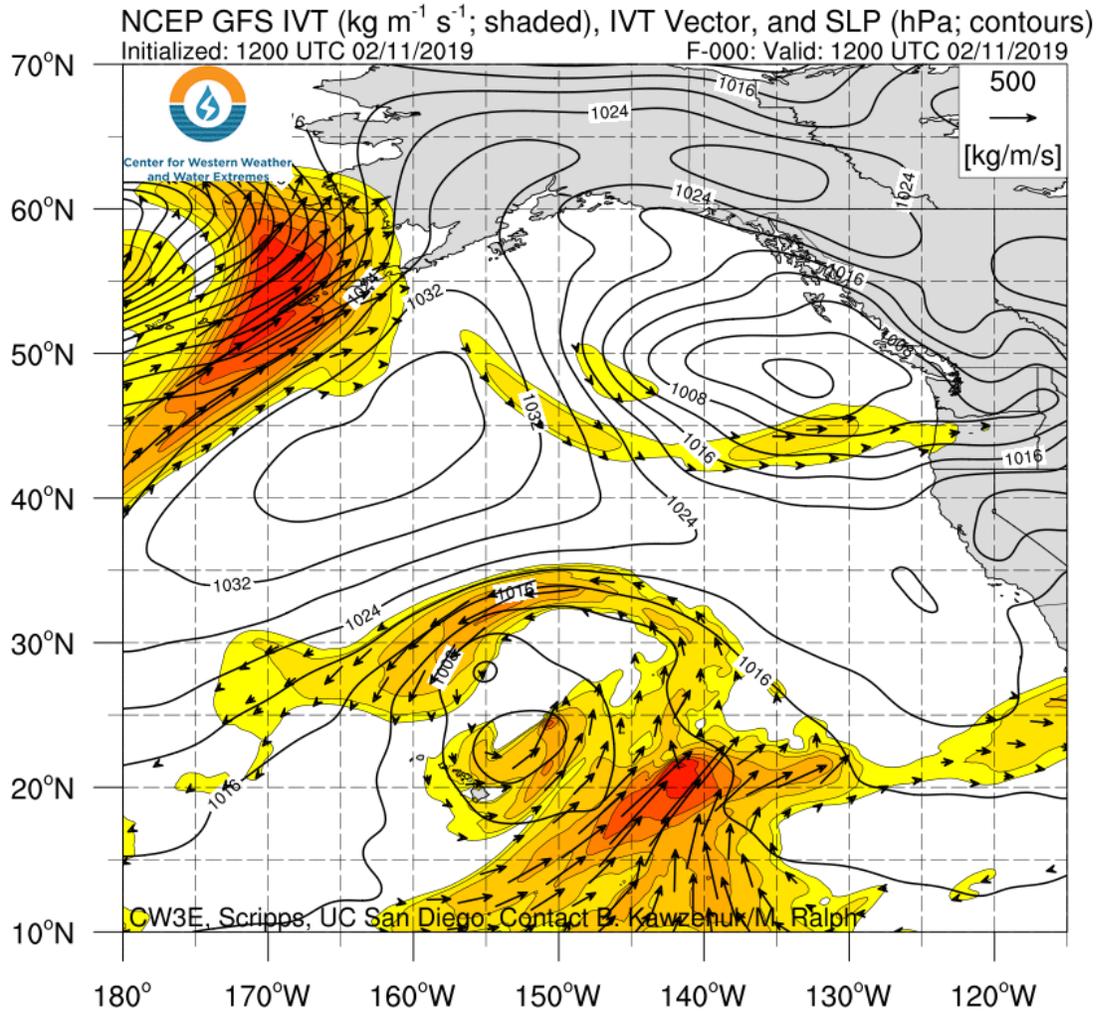
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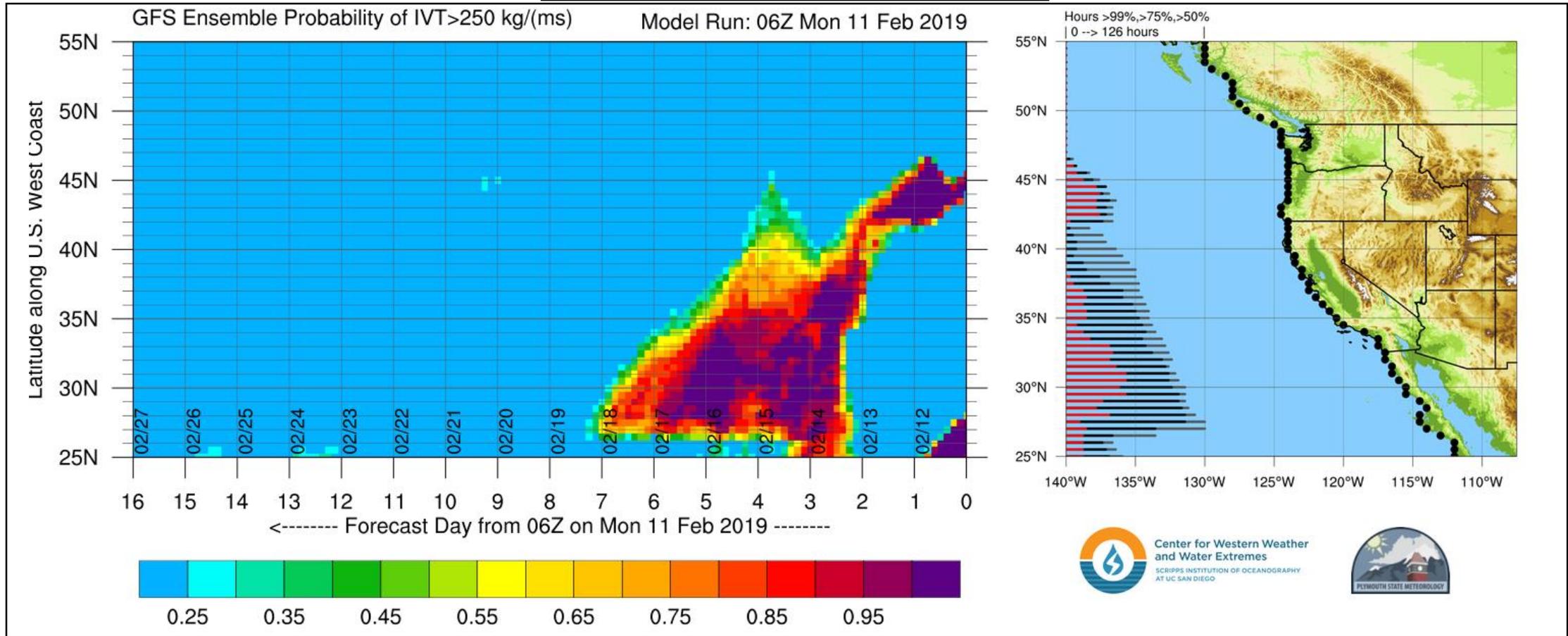
AR Outlook: 11 February 2019

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Odds of AR Conditions Along Coast



- There is high probability (80–100%) of AR conditions ($IVT > 250 \text{ kg m}^{-1} \text{ s}^{-1}$) lasting for an extended period over Southern California
- The GEFS suggests AR conditions could last for >90 hours over portions of Southern California
- Ensemble probability of AR conditions decreases after 06Z on the 16th (10 PM 15 Feb. PST), suggesting uncertainty in the end of the AR and overall duration of AR conditions

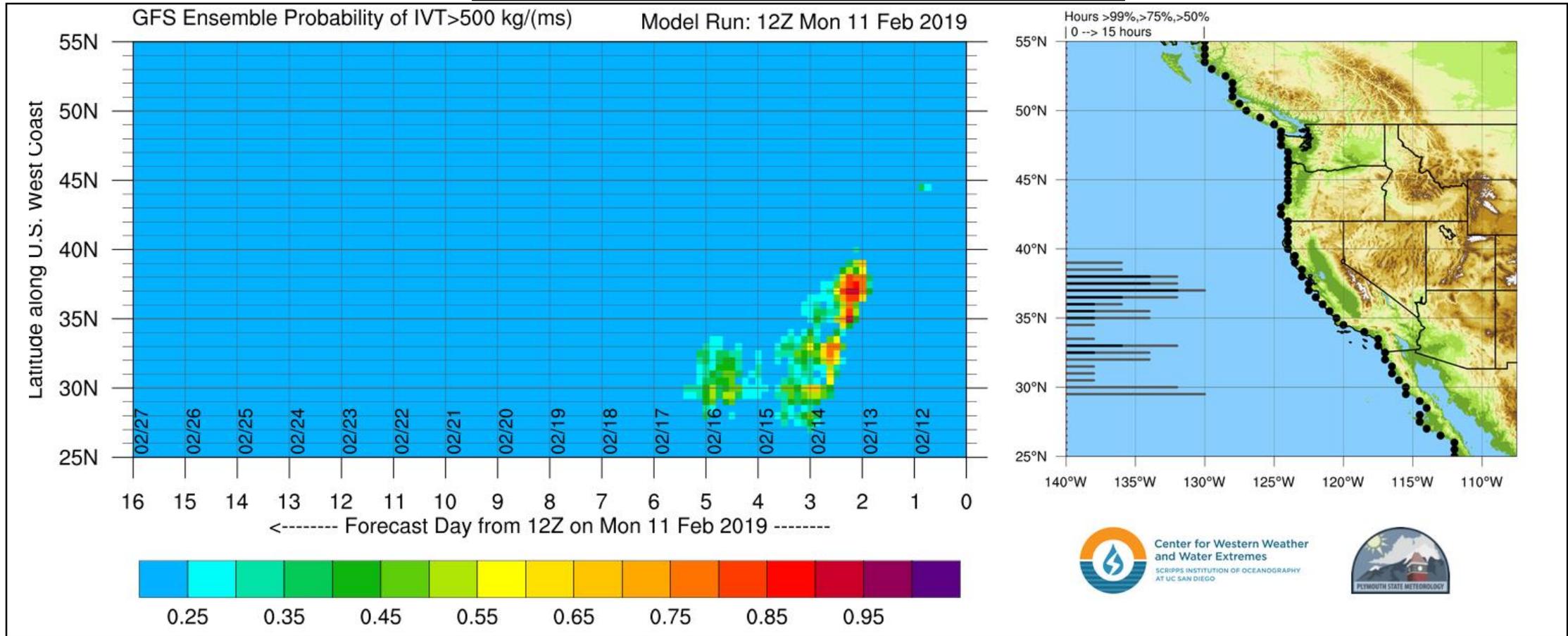
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Odds of Moderate AR Conditions Along Coast



- There is also a high probability (>80%) of moderate AR conditions ($IVT > 500 \text{ kg m}^{-1} \text{ s}^{-1}$) lasting ~12 hours between 35N and 38N latitude along the coast

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The GEFS is currently suggesting moderate to extreme AR conditions over Coastal San Diego County

Magnitude of potential AR

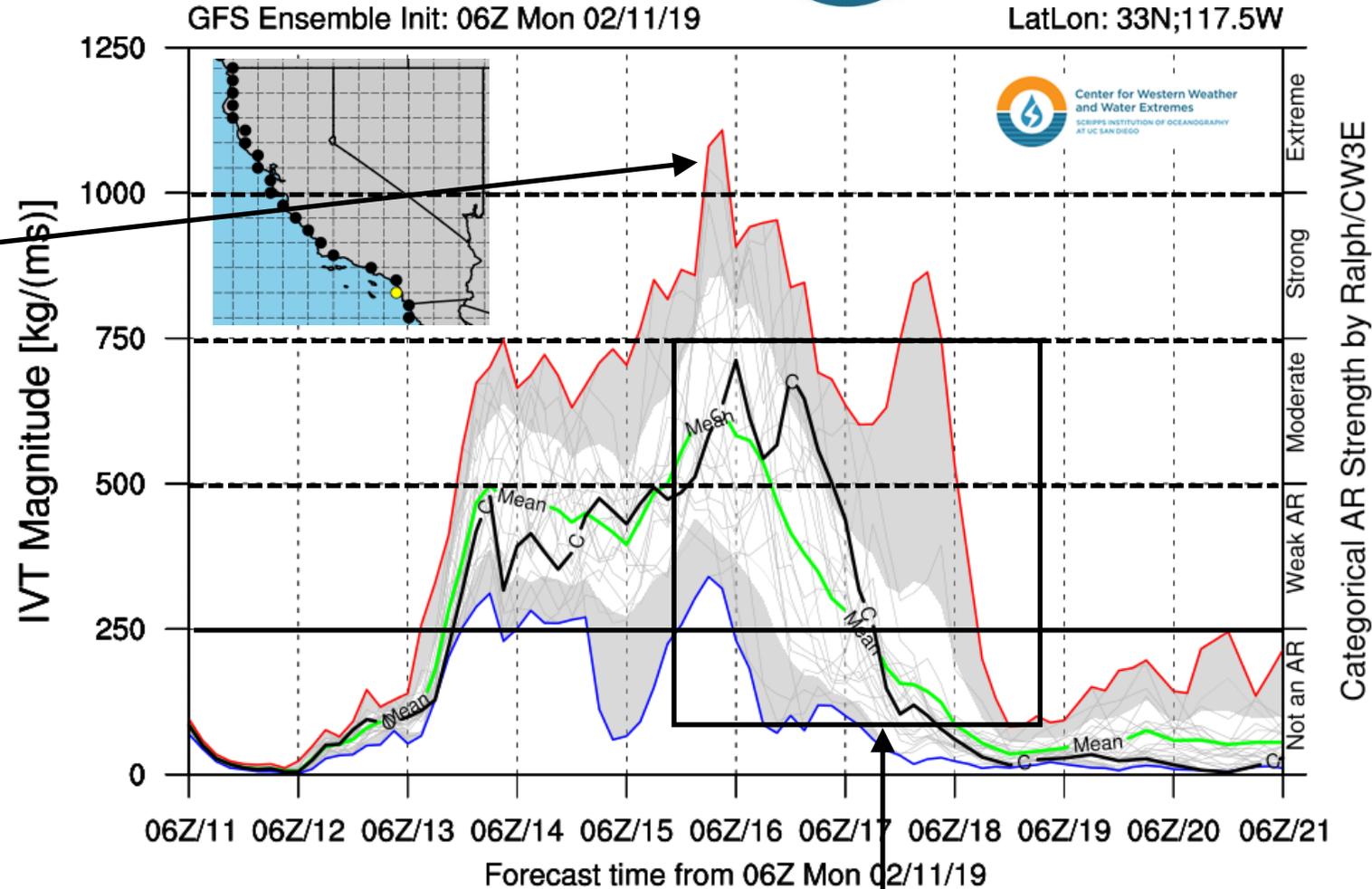
- Maximum predicted IVT $\sim 1100 \text{ kg m}^{-1} \text{ s}^{-1}$
- Mean IVT $\sim 650 \text{ kg m}^{-1} \text{ s}^{-1}$
- Minimum IVT $\sim 400 \text{ kg m}^{-1} \text{ s}^{-1}$

Forecast duration of AR conditions

- Weak 90 hours \pm 48
- Moderate 24 hours \pm

The control forecast (black line) suggests AR conditions will peak over San Diego County at 6 UTC on 16 February ($\sim 700 \text{ kg/m/s}$), but large ensemble spread suggests uncertainty in the overall timing and magnitude of strongest IVT

The predicted duration of AR conditions >72 hours and a maximum IVT between 500 and 750 kg/m/s would result in an AR-Cat 3 event based on the recently published AR Category Scale (More information can be found below)

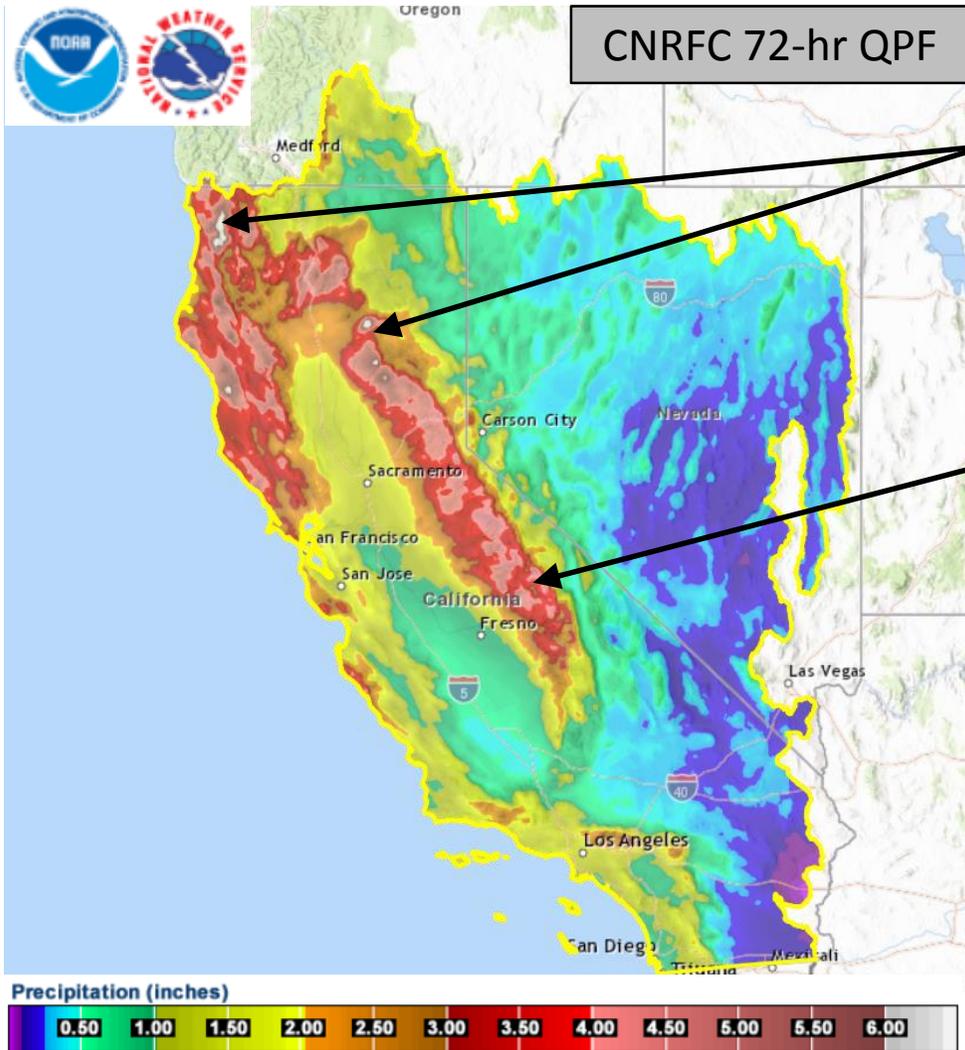


Large ensemble spread towards the backend of this event highlight the uncertainty in the total duration of AR conditions over San Diego County

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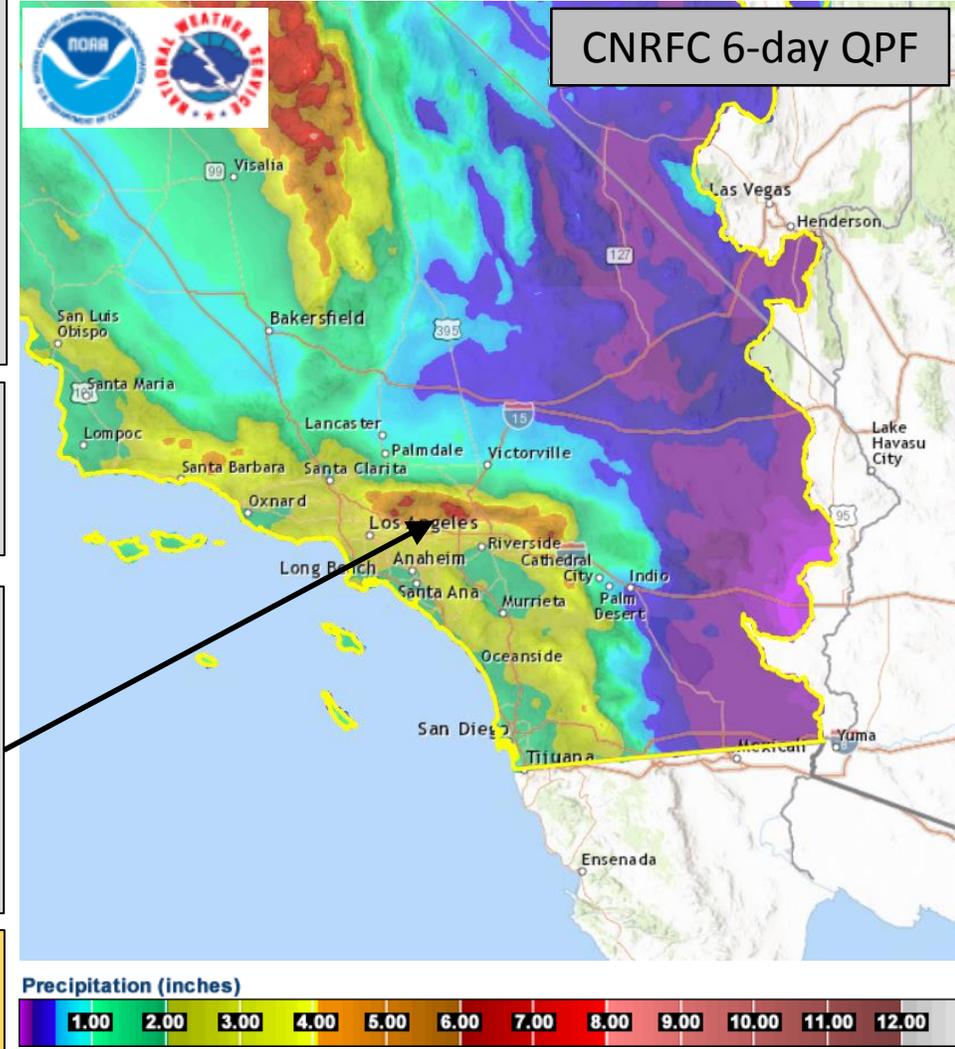


The CNRFC is currently forecasting up to 6.5+ in over the higher elevations of the Northern Coastal and Sierra Nevada Mts. during the next 72-hours, primarily related to the trajectory of the parent low-pressure system

The Southern Sierra and Central Coast Range is forecast to receive 3–4.5 in.

Portions of Southern California could receive ~ 2 inches over lower elevations and up to 6.75 inches over higher elevations during the next 6-days

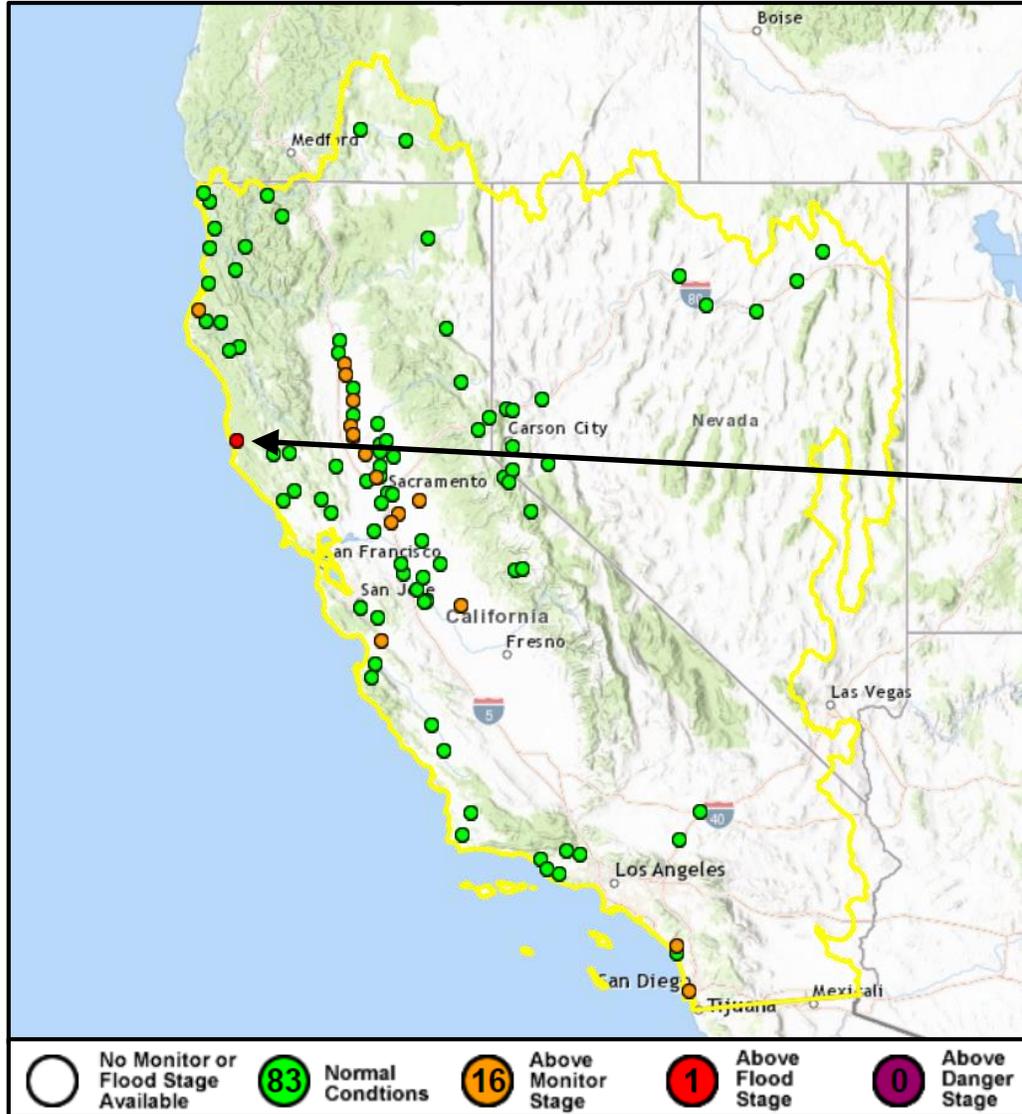
NWS California Nevada River Forecast Center forecast products are located at cnrfc.noaa.gov



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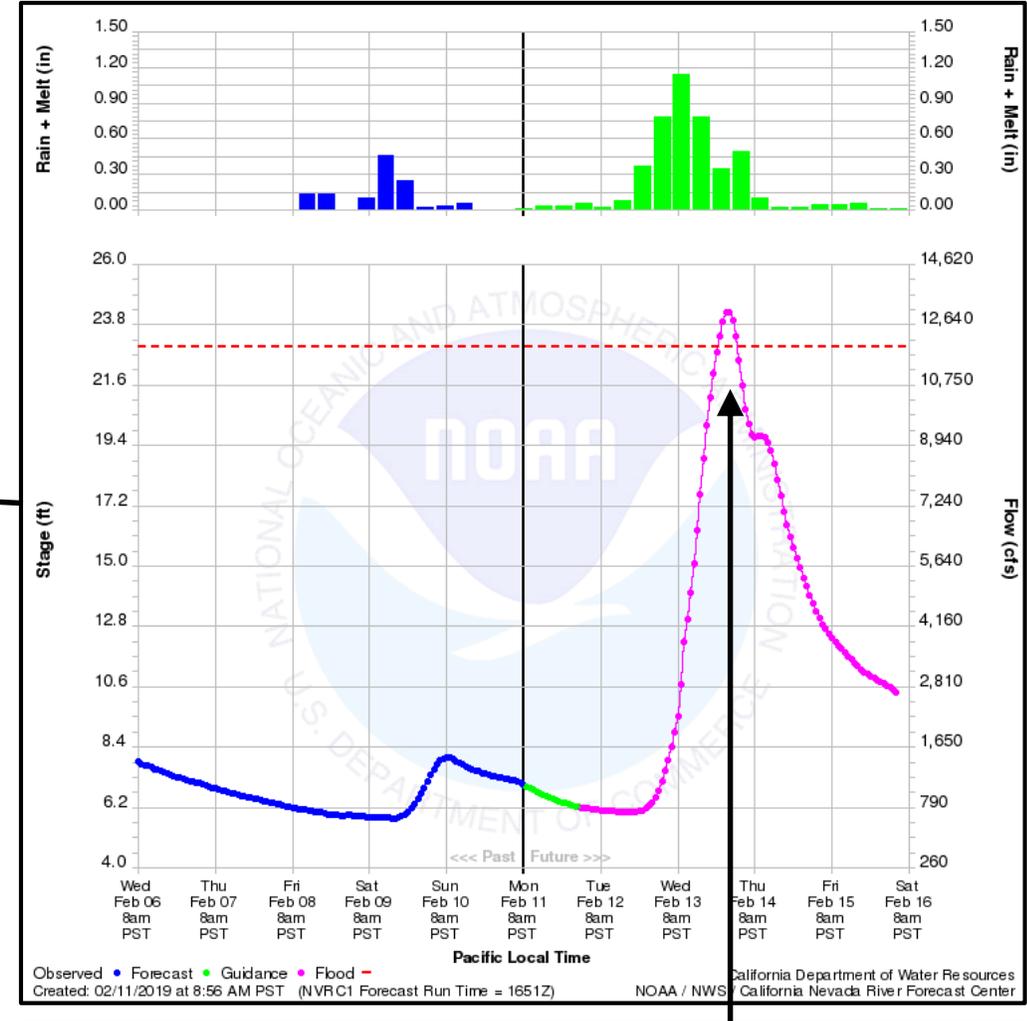


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The CNRFC is currently forecasting 16 rivers to rise above monitor stage and one to rise above flood stage over the next several days

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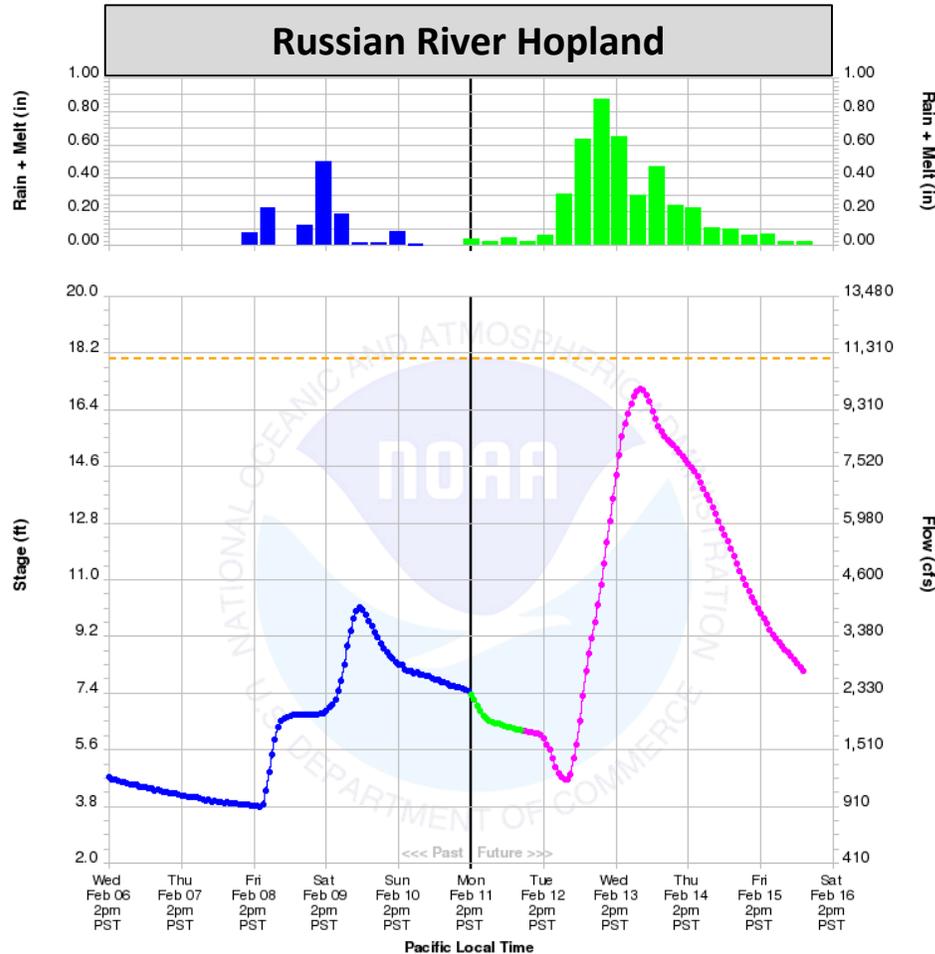


The Navarro River in Navarro, CA is forecast to rise 24.2 ft at 11 PM PT on 13 Feb., 1.2 ft above flood stage

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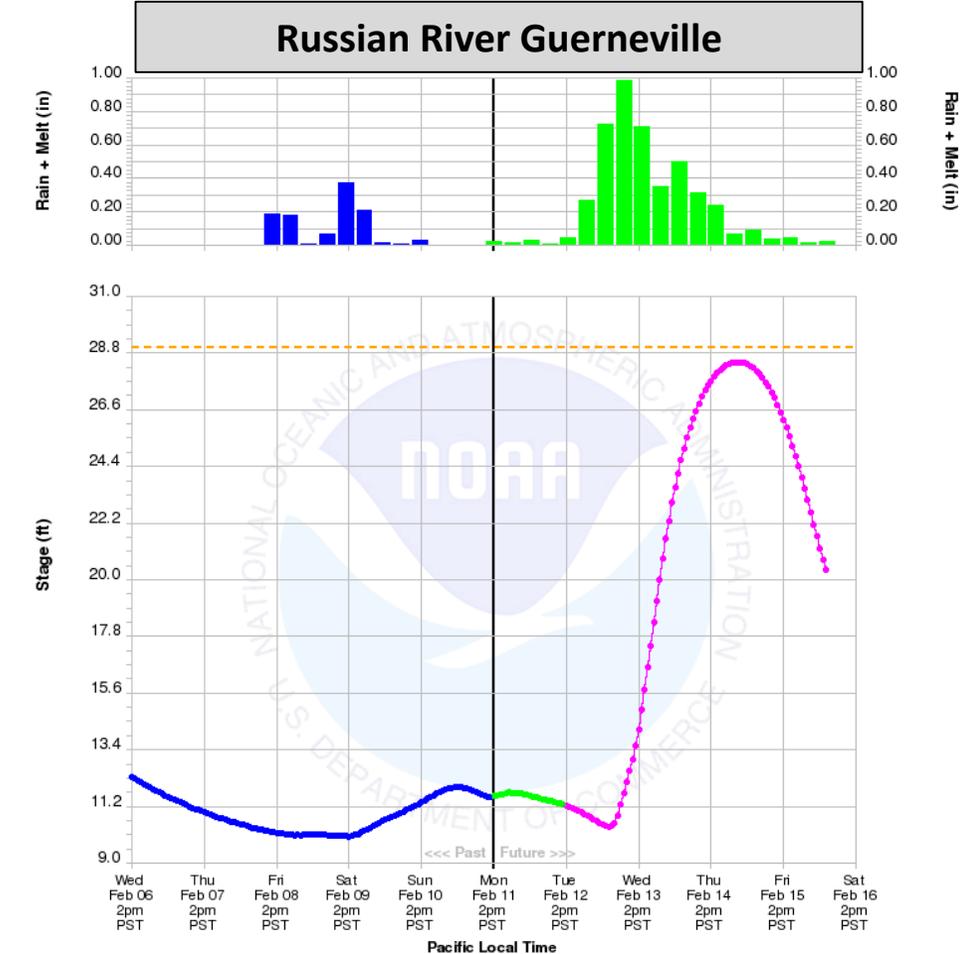


Observed ● Forecast ● Guidance ● Monitor —
Created: 02/11/2019 at 2:06 PM PST (HOPC1 Forecast Run Time = 2133Z)

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The Russian River at Both Hopland and Guerneville are both forecast to rise to within 1 foot of monitor stage

CW3E will deploy field researchers to the Russian River watershed to launch weather balloons and collect hydrologic samples in order to further understand the meteorological and hydrological mechanism that lead to high river flows in the Russian



Observed ● Forecast ● Guidance ● Monitor —
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