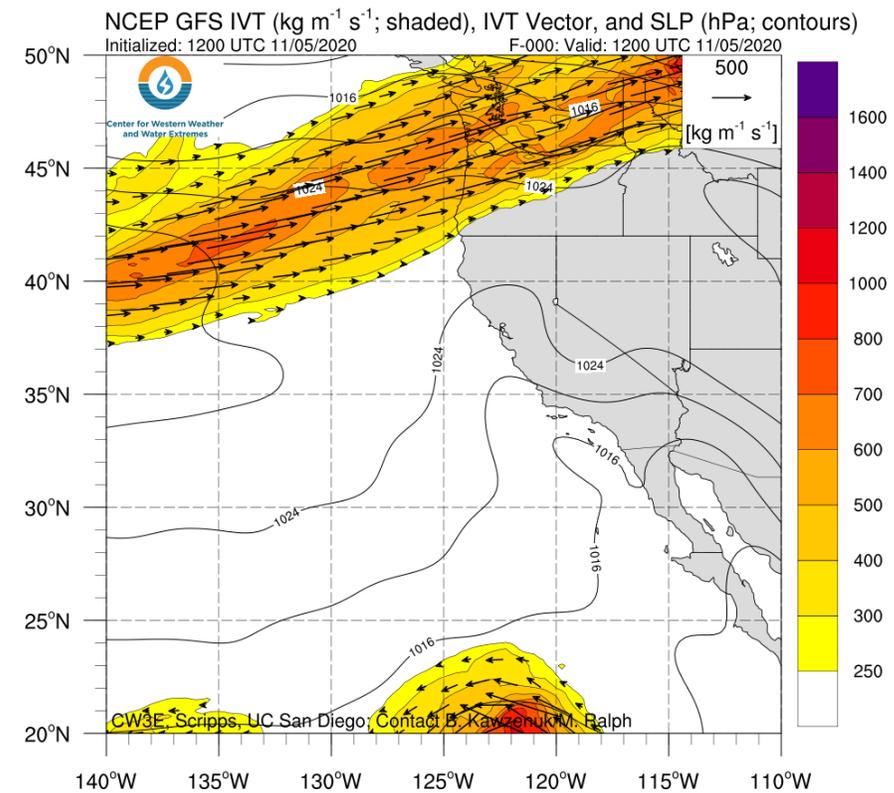
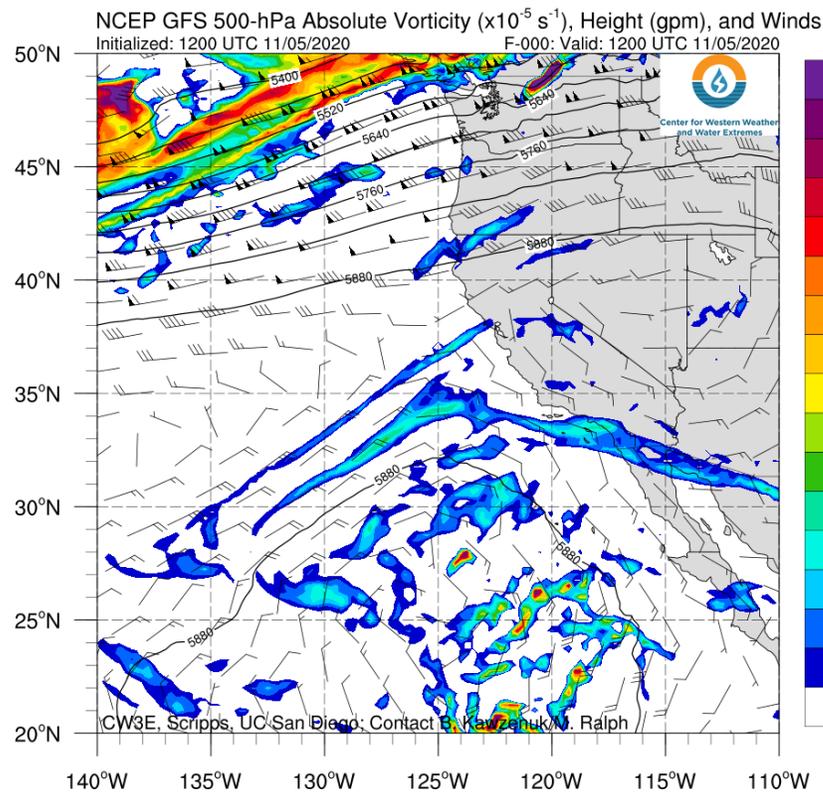


First significant precipitation event of the season likely in California and the Four Corners Region

- A shortwave trough and an associated AR are forecast to bring significant precipitation to portions of California and the Four Corners Region over the next several days
- AR 2/AR 3 conditions (based on the Ralph et al. 2019 AR Scale) are possible in south-central Arizona
- The highest precipitation amounts (1–3 inches) are forecast over far northern California, the Sierra Nevada, coastal Southern California, and across the higher terrain in central Arizona, Utah, and western Colorado
- Significant snowfall is also possible in the Sierra Nevada and San Juan Mountains

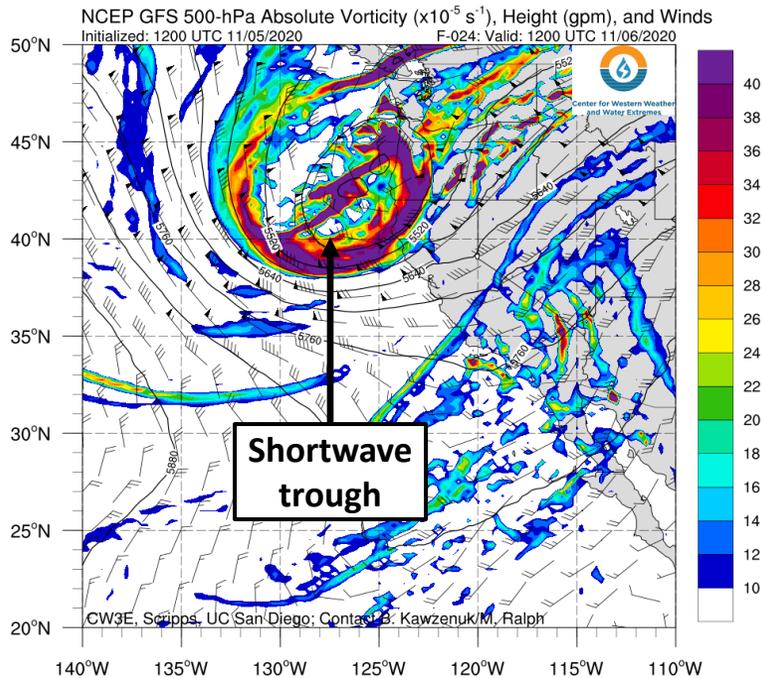


AR Outlook: 5 Nov 2020

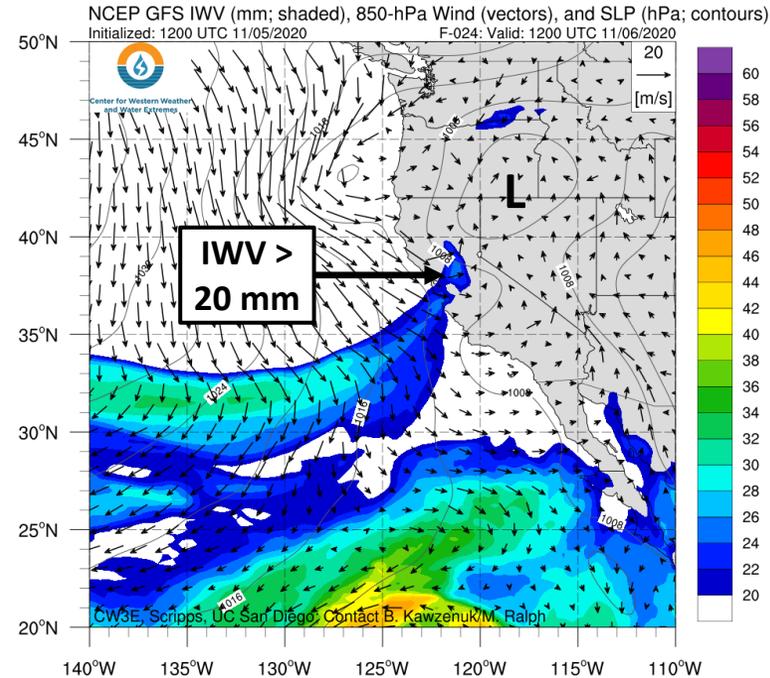
For California DWR's AR Program

GFS Forecasts: Valid 1200 UTC 6 Nov (F-24)

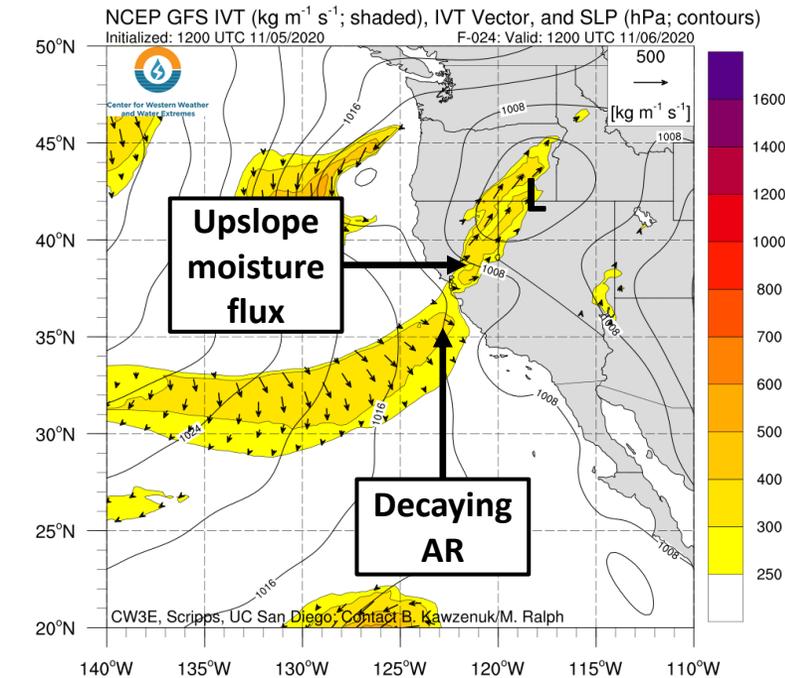
500-hPa Vorticity, Height, and Wind



IWV, 850-hPa Wind, and SLP



IVT, IVT Vector, and SLP



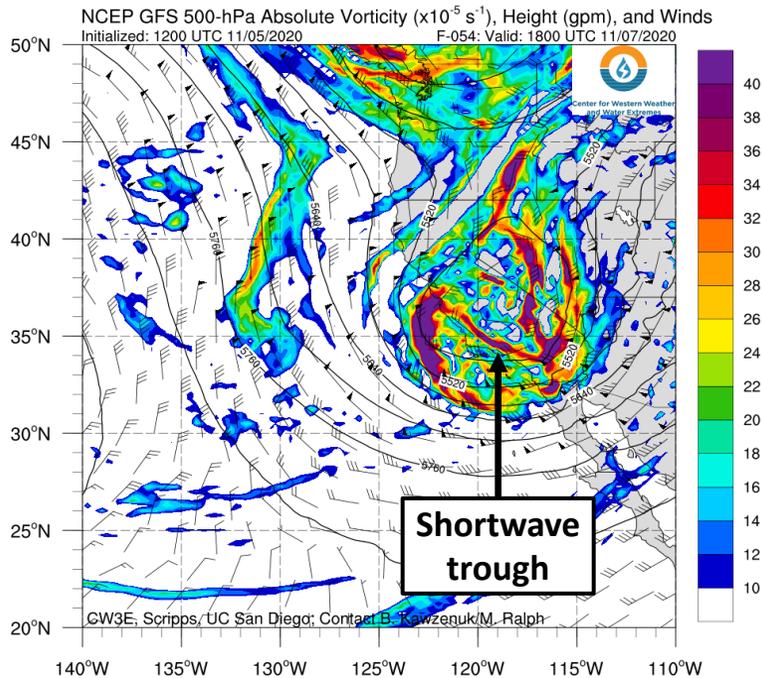
- An amplifying upper-level shortwave trough will move southeastward along the U.S. West Coast during the next 48 hours, with a surface cyclone developing over the interior western U.S.
- A decaying AR downstream of this shortwave trough will bring a brief period of AR conditions to Northern California on 6 Nov
- The orientation of the IVT vectors suggests that upslope moisture flux could lead to orographic enhancement of precipitation over the Northern and Central Sierra Nevada

AR Outlook: 5 Nov 2020

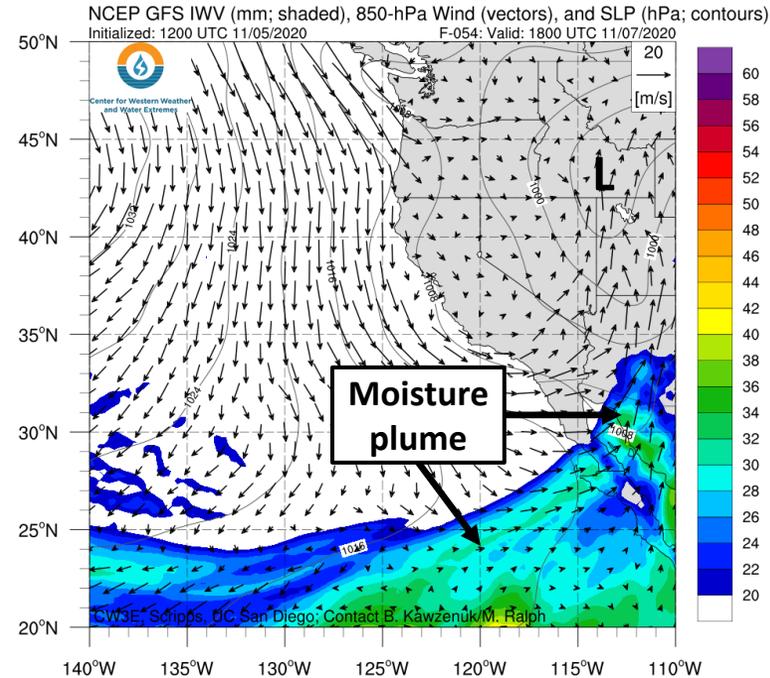
For California DWR's AR Program

GFS Forecasts: Valid 1800 UTC 7 Nov (F-54)

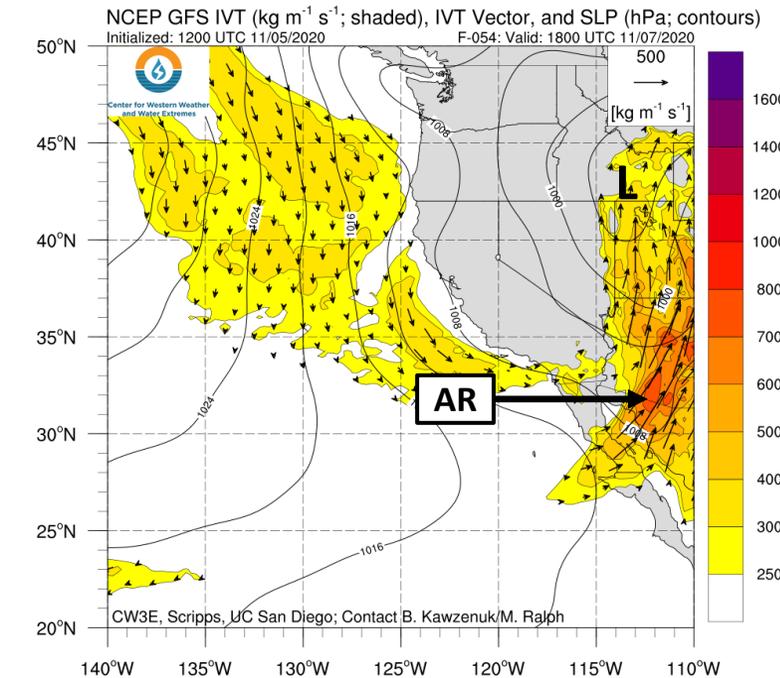
500-hPa Vorticity, Height, and Wind



IWV, 850-hPa Wind, and SLP



IVT, IVT Vector, and SLP

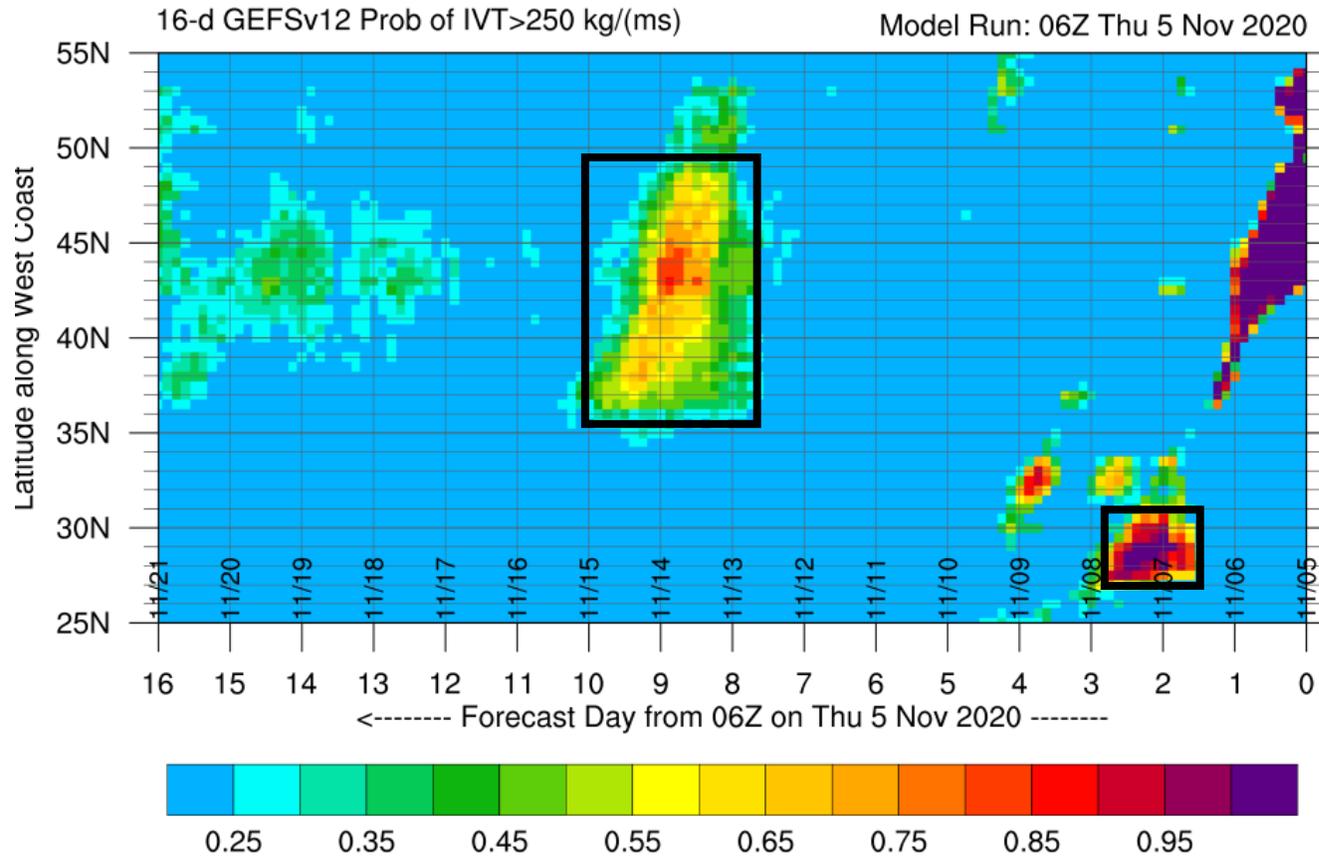


- As the shortwave trough approaches Southern California, strengthening low-to-midlevel southwesterly flow will interact with a region of moist air over the Eastern Pacific Ocean, resulting in the formation of an AR over northwestern Mexico and the Four Corners region
- The moisture transport associated with this AR is expected to be quite strong, with IVT values forecast to exceed $750 \text{ kg m}^{-1} \text{ s}^{-1}$ over portions of Arizona
- Upslope moisture flux is likely to result in orographic enhancement of precipitation across the higher terrain in central Arizona and southwestern Colorado

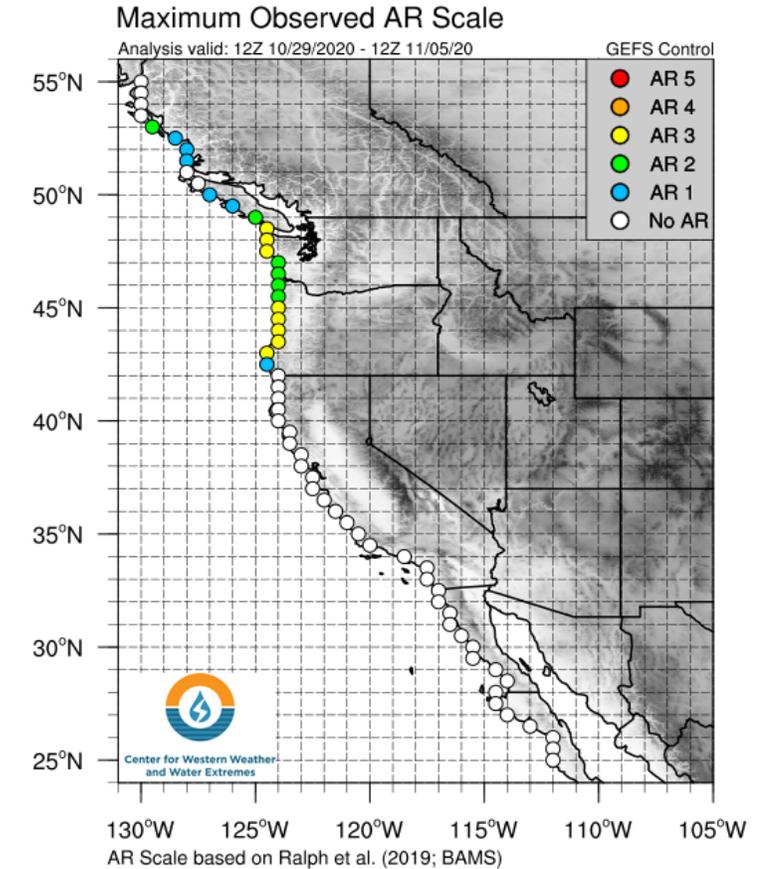
AR Outlook: 5 Nov 2020

For California DWR's AR Program

Probability of AR Conditions: Coastal Transect



AR Scale: Coastal Transect



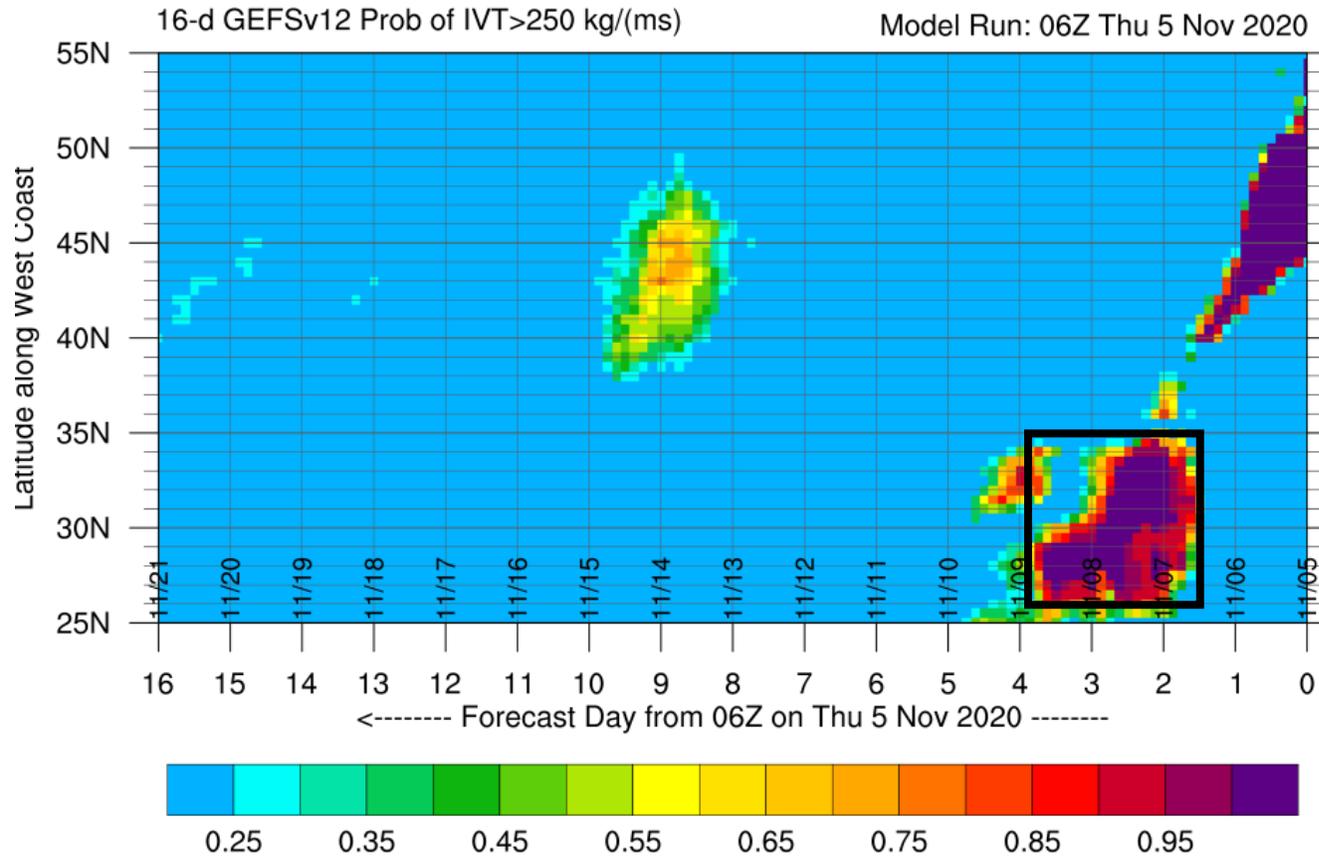
*GEFS = NCEP Global Ensemble Forecast System (United States)

- GEFS coastal AR landfall tool indicates a brief period of AR conditions ($IVT \geq 250 \text{ kg m}^{-1} \text{ s}^{-1}$) in Northern California as the AR currently affecting the Pacific Northwest weakens and drifts southward
- This AR has already produced AR 3 conditions (based on the Ralph et al. 2019 AR Scale) across coastal Washington and Oregon
- A second period of AR conditions is very likely (> 95% probability) to develop over the Baja Peninsula on 6 Nov
- Additional landfalling AR activity is possible along the U.S. West Coast beyond Day 7

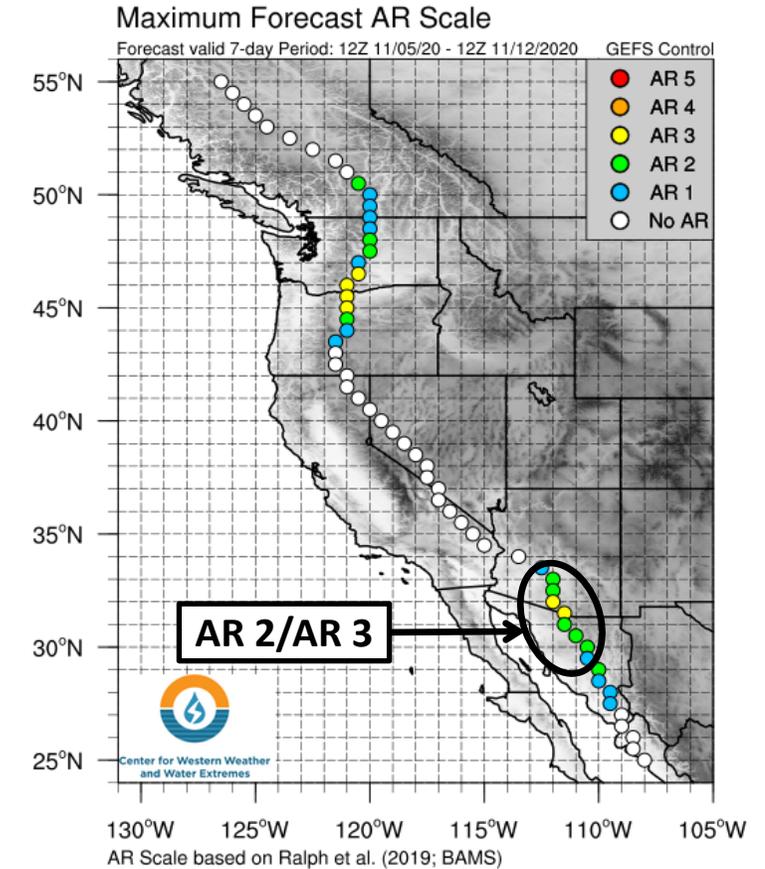
AR Outlook: 5 Nov 2020

For California DWR's AR Program

Probability of AR Conditions: Inland Transect



AR Scale: Inland Transect



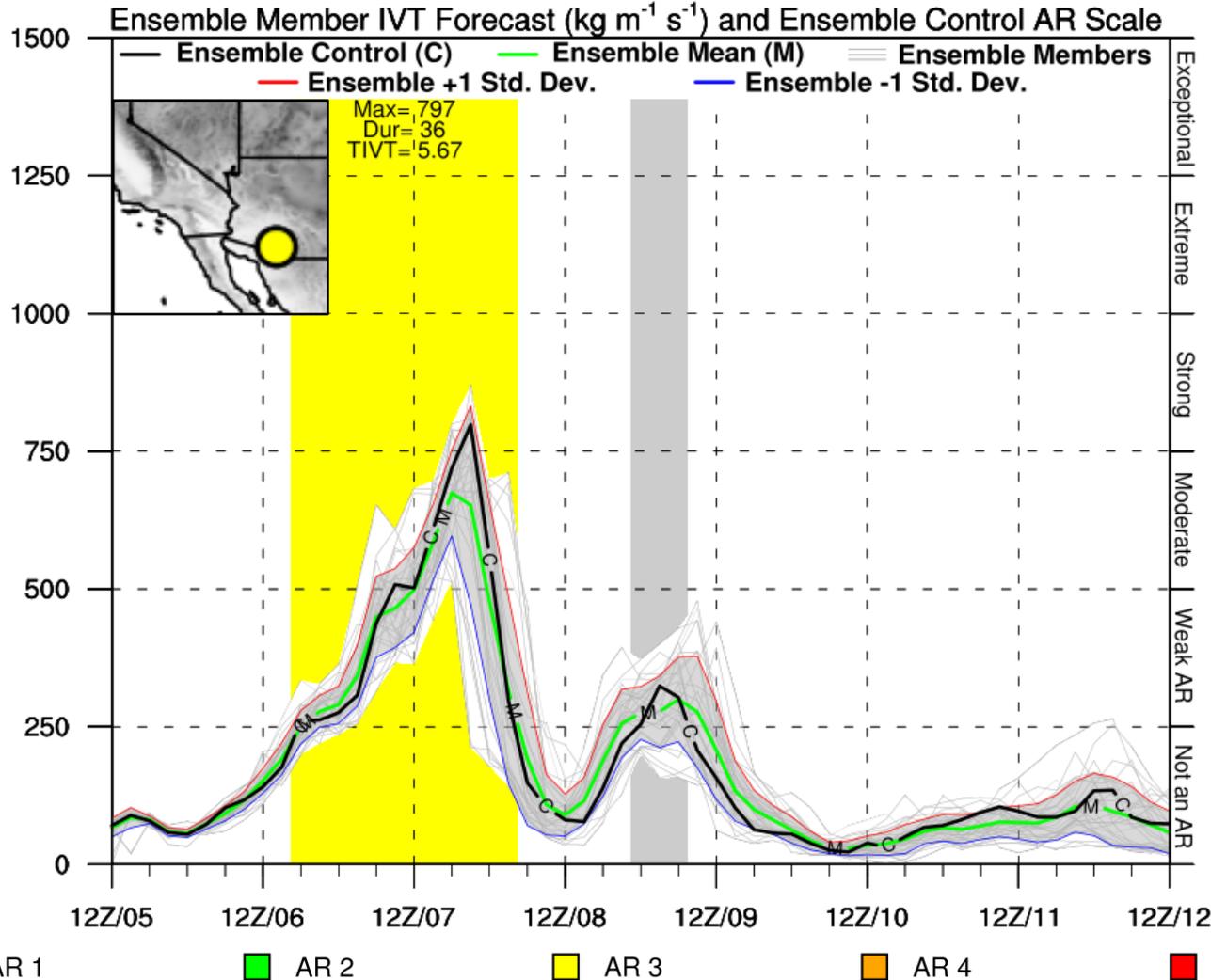
- GEFS inland AR landfall tool shows very high confidence (> 95% probability) in a period of AR conditions over southern Arizona and northwestern Mexico during 6–8 Nov
- The GEFS control member is currently predicting AR 2/AR 3 conditions (based on the Ralph et al. 2019 AR Scale) in association with this landfalling AR

AR Outlook: 5 Nov 2020

For California DWR's AR Program

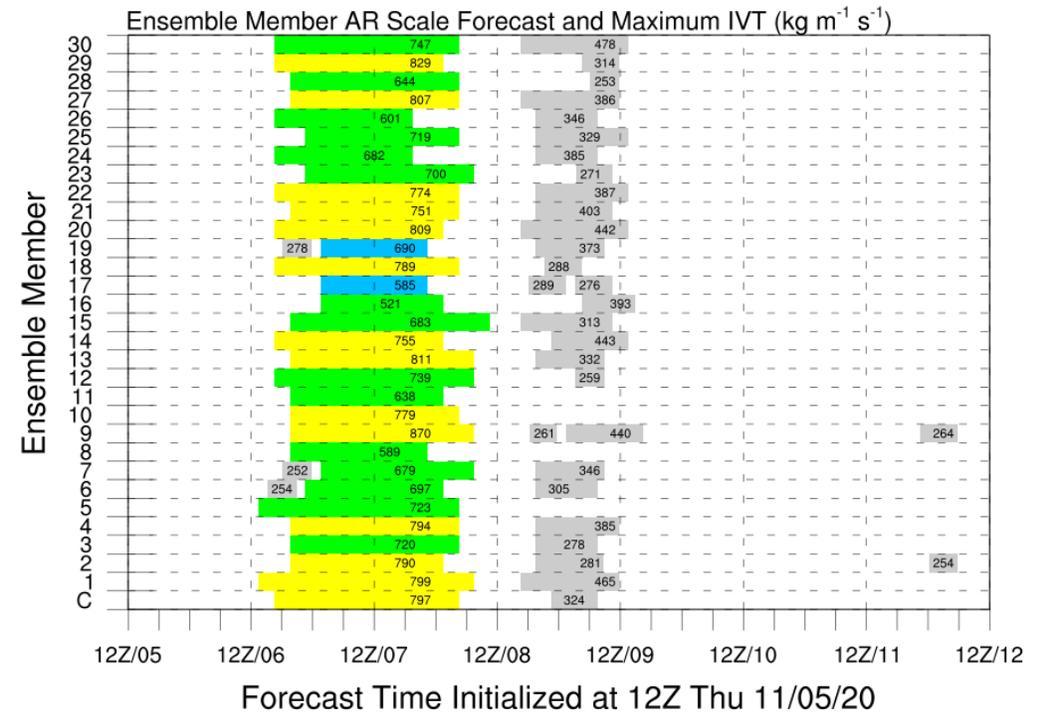
GEFS AR Scale & IVT Forecasts

GFS Ensemble Initialized: 12Z Thu 11/05/20



Categorical AR Strength by Ralph/CW3E

- The 12Z GEFS control member is currently forecasting AR3 conditions (based on the Ralph et al. 2019 AR Scale) in south-central Arizona
- There is some uncertainty in IVT magnitude and AR duration, but nearly all ensemble members are predicting AR 2 or AR 3 conditions
- A weaker, short-lived period of AR conditions is also possible on 8–9 Nov



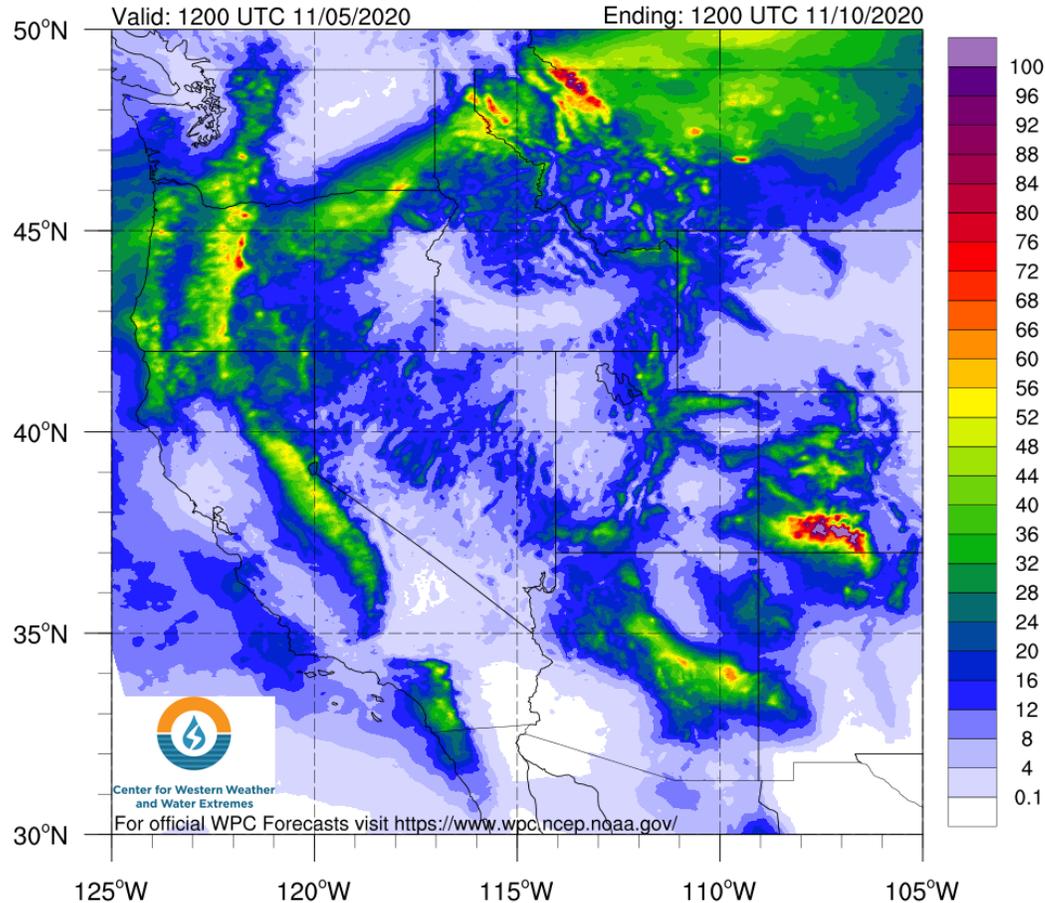
AR Outlook: 5 Nov 2020

For California DWR's AR Program



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

WPC 5-day Precipitation Forecast (mm)



Winter Storm Watch

Valid 10 AM Friday November 6th - 6 PM Sunday November 8th, 2020

⚠ Impacts

- Snow covered & slippery roads
- Reduced visibilities at times
- Travel delays
- Chain controls possible
- Elevations above 5,000 feet

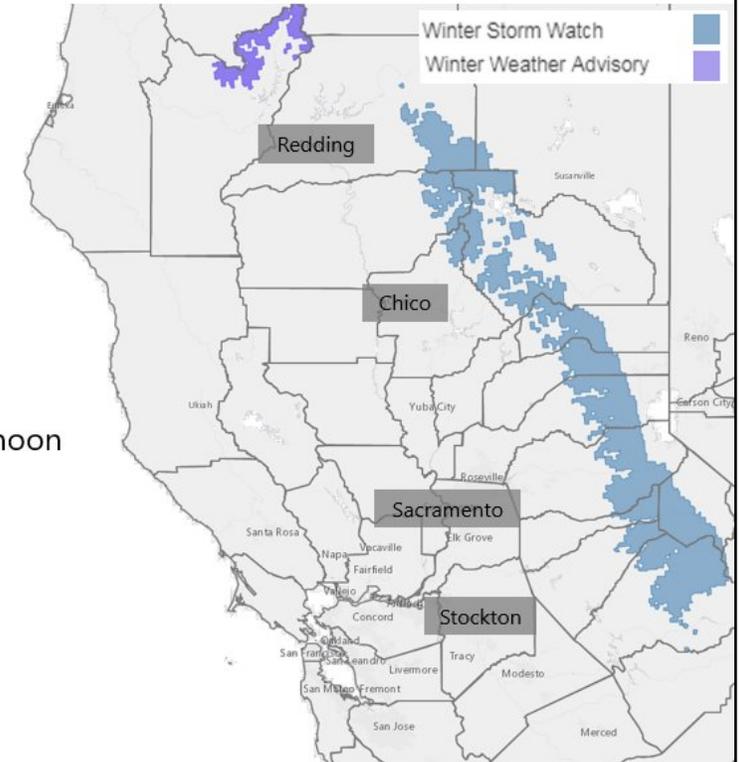
🕒 Timing

- Friday morning – Sunday afternoon
- There may be a brief break in snowfall on Saturday

❄ Forecast

- 6-14 inches of snow, with localized amounts up to 21 inches

NWS Sacramento



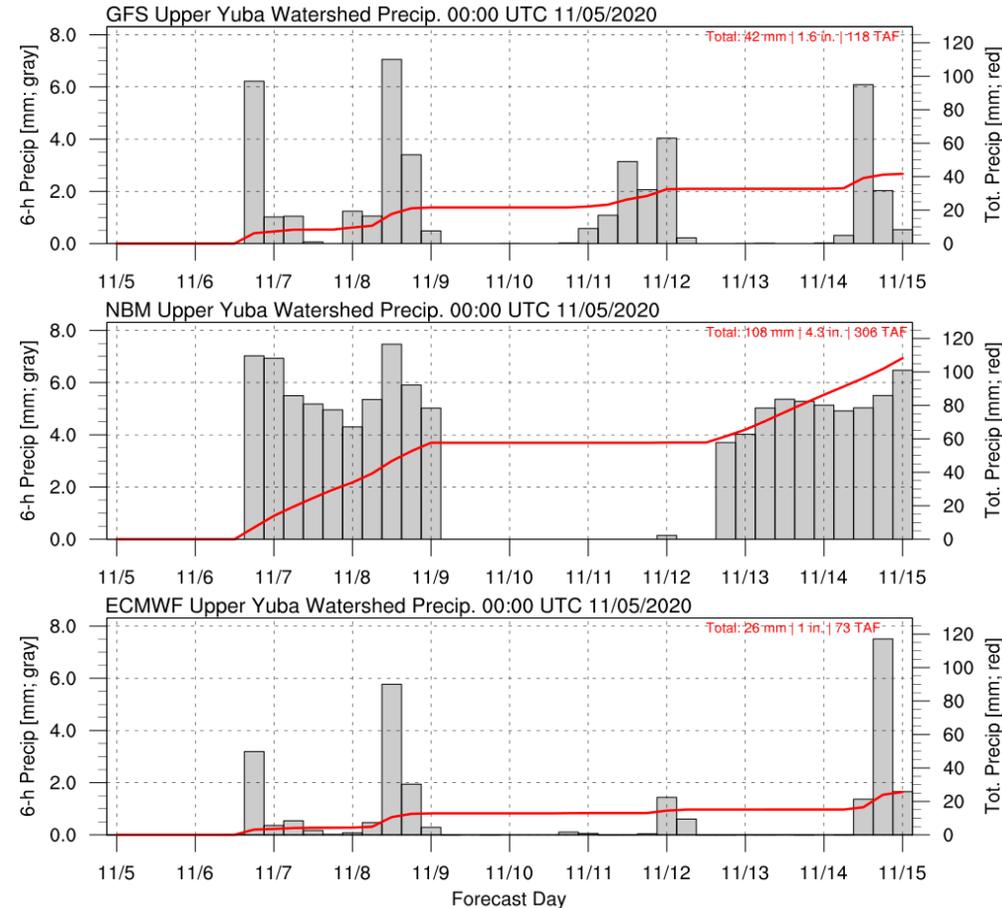
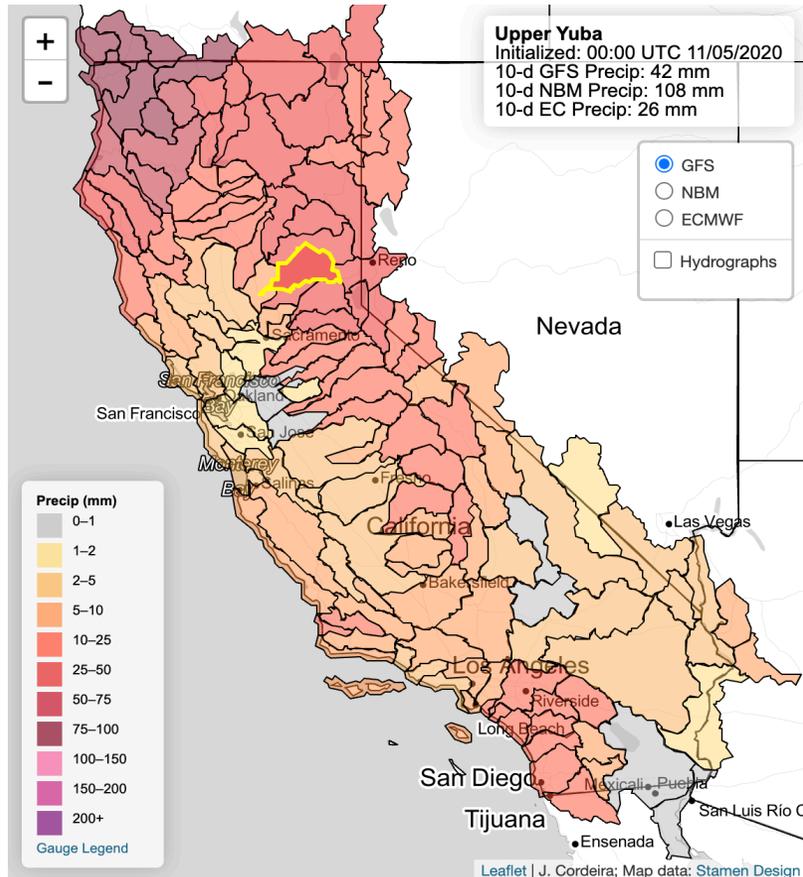
Issued: November 5th, 2020

- About 1–3 inches of precipitation are forecast over far northern California, the Sierra Nevada, coastal Southern California, and the higher terrain in central Arizona, Utah, and western Colorado during the next 5 days
- Higher precipitation amounts (> 4 inches) are possible over the San Juan Mountains in southwestern Colorado
- Heavy snowfall is also possible in the higher elevations of the Sierra Nevada, with freezing levels expected to drop below 6,000 ft

AR Outlook: 5 Nov 2020

For California DWR's AR Program

10-day Watershed Precipitation Forecasts



*GFS = NCEP Global Forecast System (United States)

*NBM = National Blend of Models (Blend of NWS and non-NWS models)

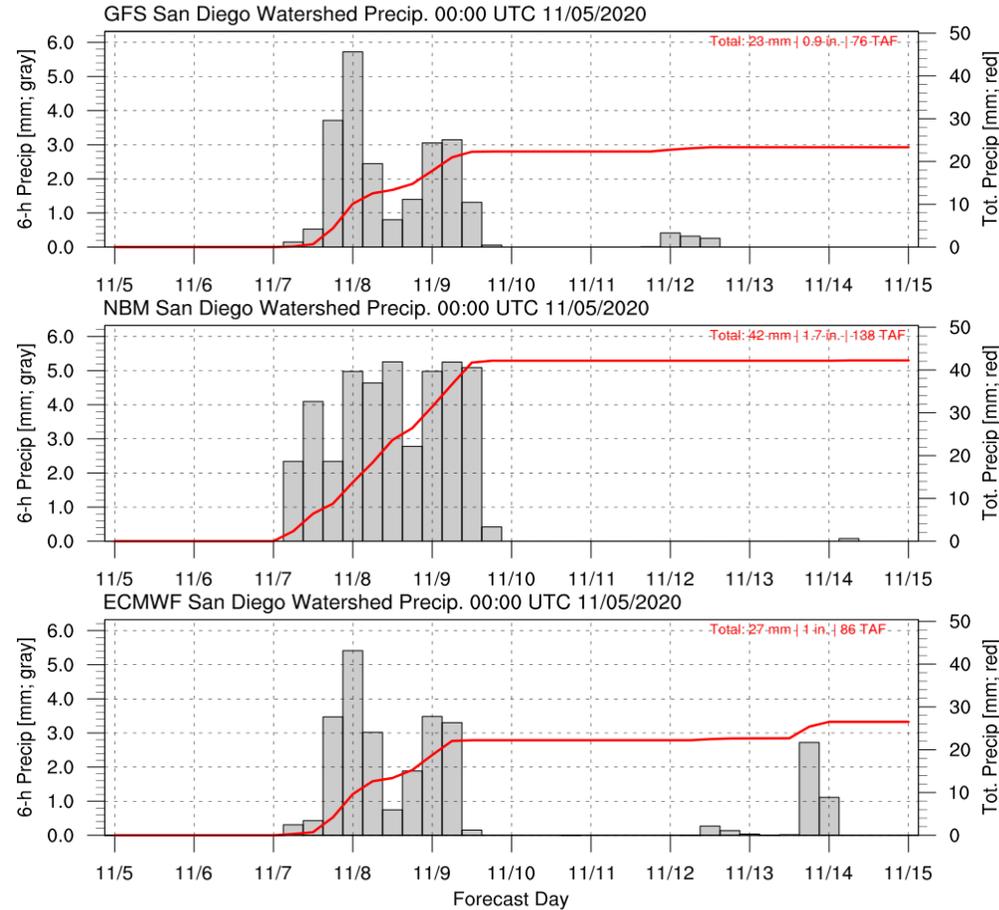
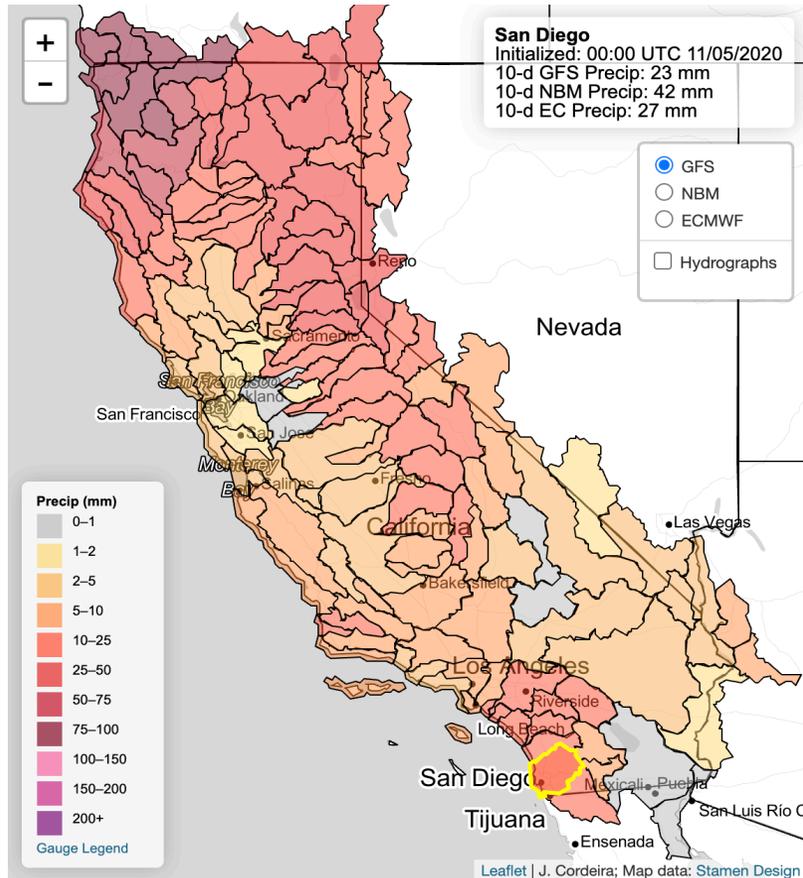
*ECMWF = European Center for Medium-Range Weather Forecasts (Europe)

- There is some model disagreement in forecast precipitation, especially over Northern California and the Sierra Nevada
- The GFS and ECMWF are forecasting ~1 inch and ~0.5 inches of areal mean precipitation, respectively, in the Upper Yuba watershed by 00Z 9 Nov
- The NBM is forecasting significantly higher precipitation amounts (> 2 inches) during the same period

AR Outlook: 5 Nov 2020

For California DWR's AR Program

10-day Watershed Precipitation Forecasts



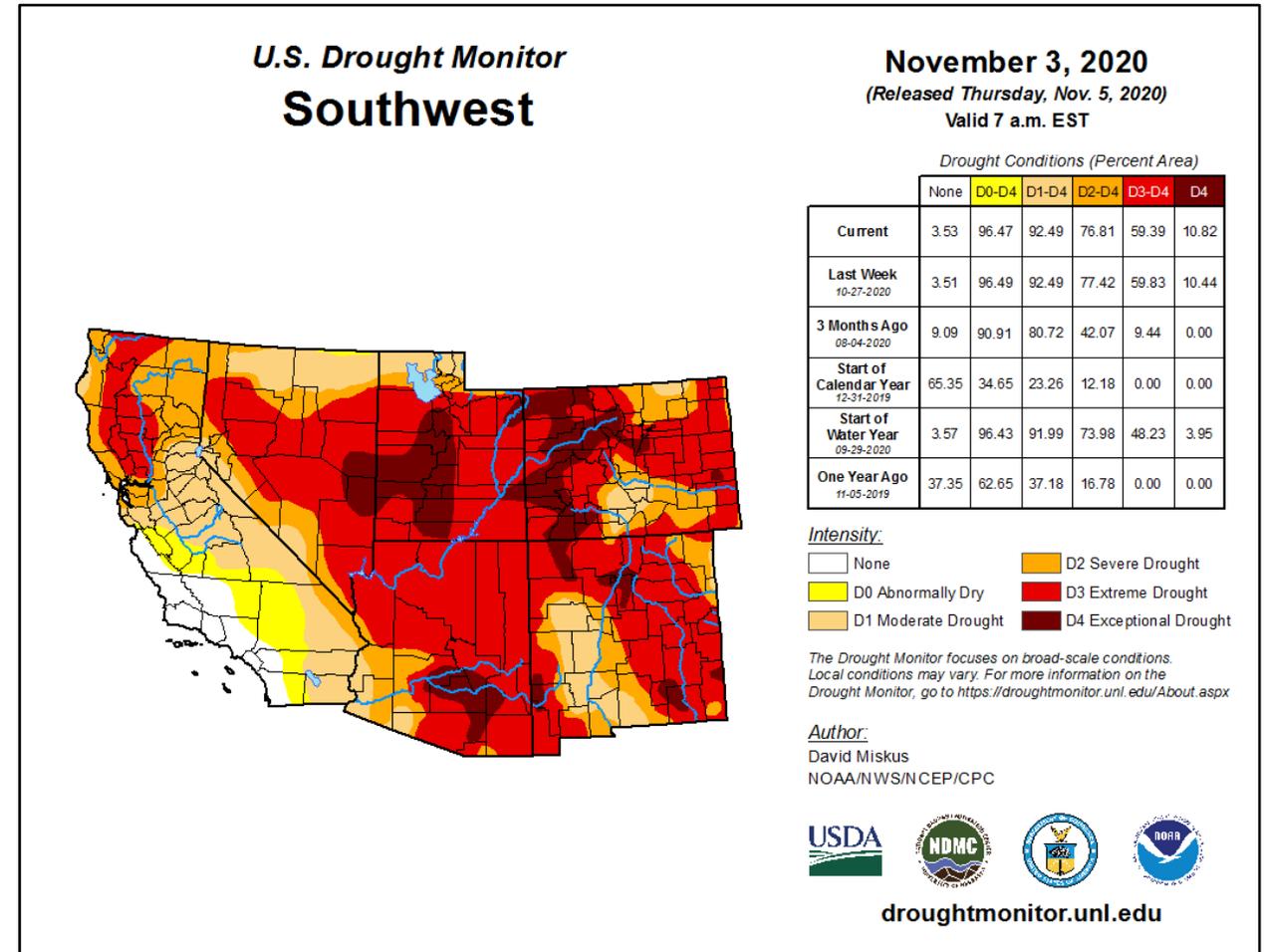
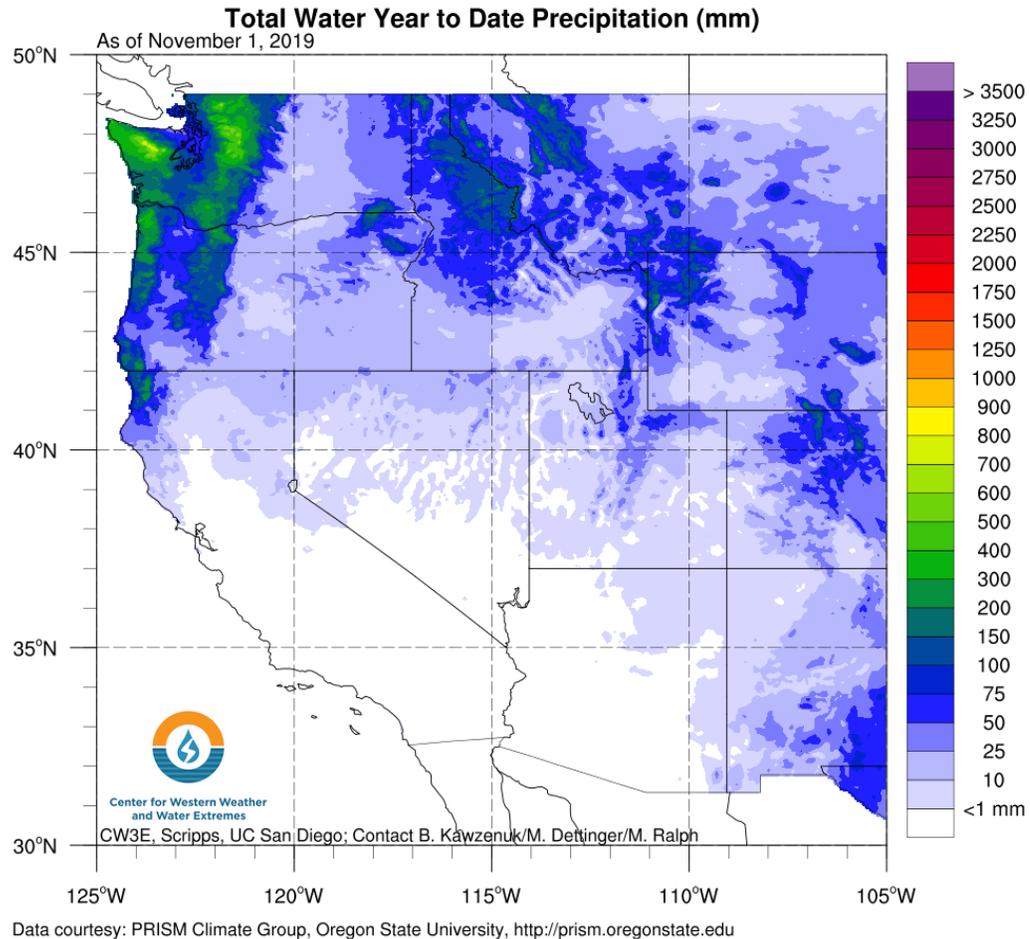
*GFS = NCEP Global Forecast System (United States)

*NBM = National Blend of Models (Blend of NWS and non-NWS models)

*ECMWF = European Center for Medium-Range Weather Forecasts (Europe)

- The GFS and ECMWF are both forecasting ~1 inch of areal mean precipitation in the San Diego watershed over the next 5 days
- Once again, the NBM is forecasting higher precipitation amounts (> 1.5 inches) during the same period

AR Outlook: 5 Nov 2020



- A significant portion of the southwestern US is currently experiencing extreme-to-exceptional drought conditions
- This event is expected to bring the first measurable precipitation of the season to much of the southwestern US and provide some much-needed drought relief