

CW3E Precipitation Outlook: 9 October 2025

Multiple Precipitation Events to Impact the Western US Through Early Next Week

Forecast Details

- A predecessor rain event (PRE) driven by Tropical Storm Priscilla is forecast to impact the Southwest through Sat 11 Oct, with potential for ≥ 2 in. across the region.
- In addition to the anomalous moisture provided by Tropical Storm Priscilla and its remnants, a mid-level trough and an upper-level jet entrance region will provide forcing for ascent to enhance precipitation amounts across the region.
- Moisture from a second tropical system, Tropical Storm Raymond, is forecast to spread north into the region late on Sat 11 Oct, potentially extending the precipitation over Arizona and New Mexico.
- The remnants of the Tropical Depression are forecast to influence a second precipitation event for Arizona and New Mexico on Mon 13 Oct and Tue 14 Oct.
- At the same time, a mid-level trough is forecast to become cut-off and propagate down the US West Coast, bringing precipitation to the Pacific Northwest and California.
- CW3E's West-WRF ensemble is showing multiple episodes of elevated moisture transport over Central Arizona in association with the moisture from both tropical systems, with ~40% of members forecasting AR3 conditions for Thu 9 Oct through Sun 12 Oct for a location just south of Phoenix.

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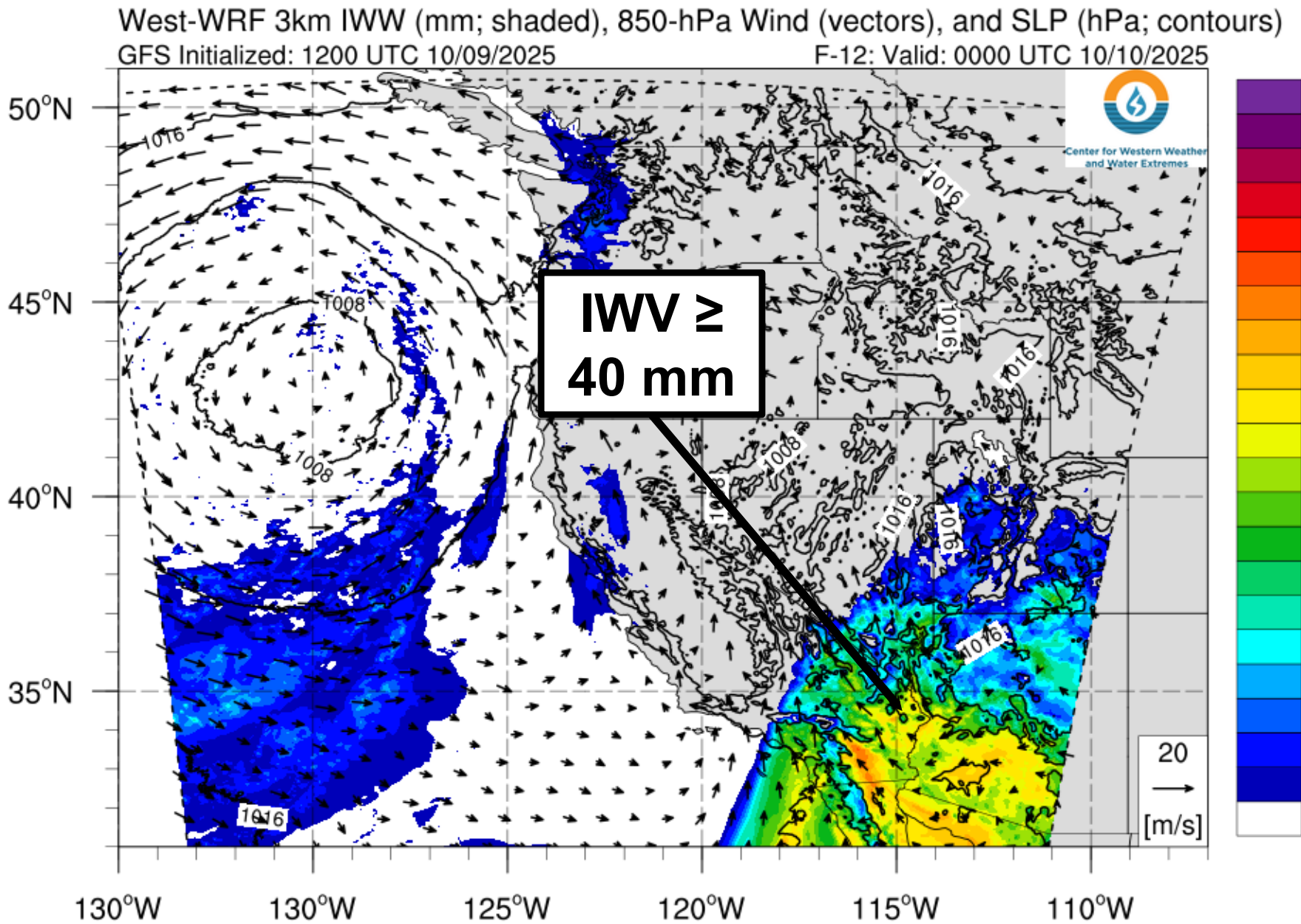
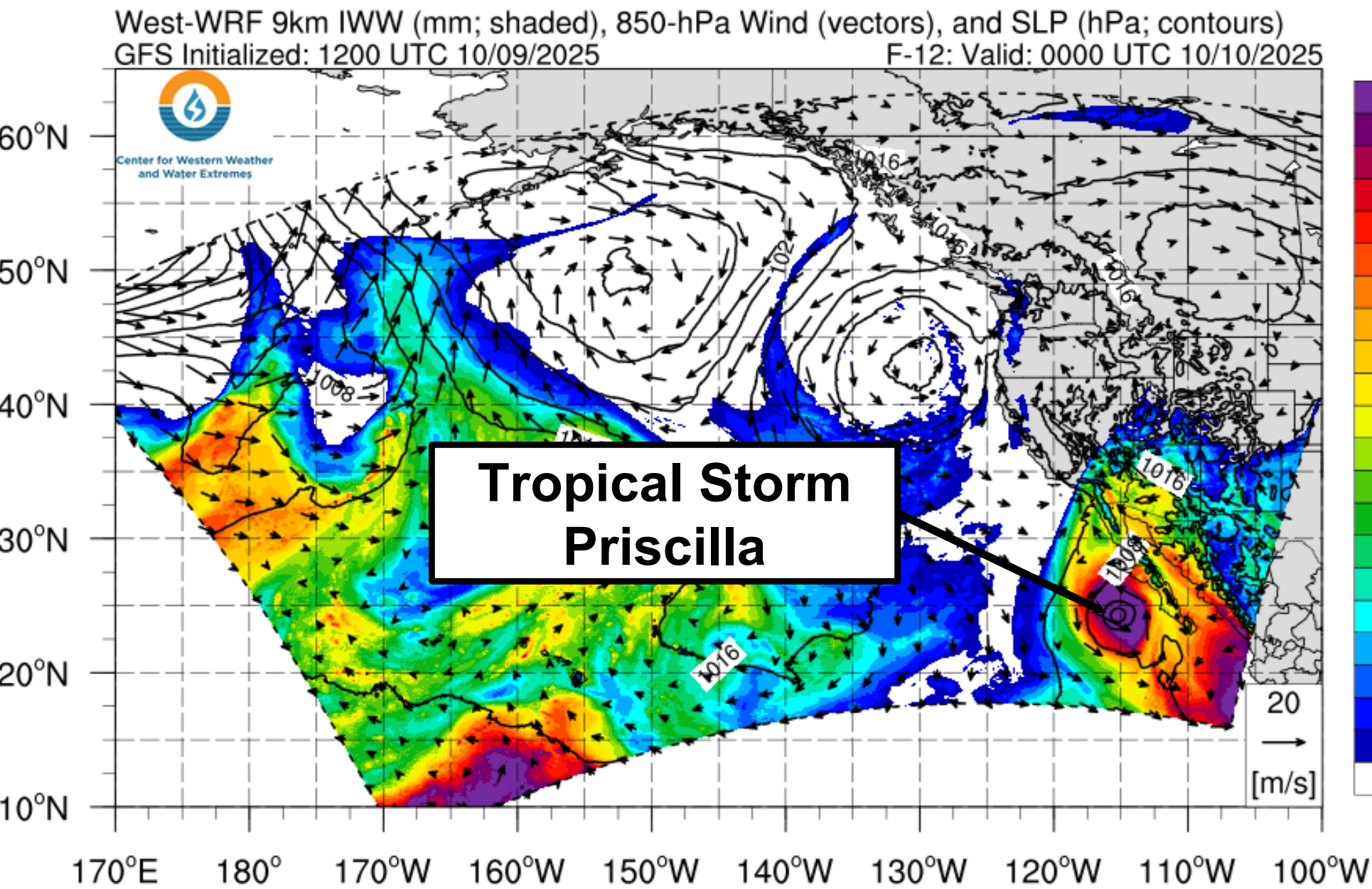
Impacts

- The PRE is forecast to bring 1.5–3.0 inches to portions of Arizona, New Mexico, Utah, and Colorado through Sun 12 Oct, with localized totals exceeding 4.0 inches. The second event over the Southwest is likely to bring an additional 1-2 inches to Arizona and New Mexico.
- The trough digging south along the US West Coast is forecast to bring 0.5–1.5 in. of rain to the Pacific Northwest, 1.0–2.0 in. to much of Northern and Central California, and <0.5 in. to Southern California. The highest precipitation totals are forecast over terrain in the Sierra Nevada and Coast Ranges.
- The NWS Weather Prediction Center (WPC) has issued a **moderate risk** excessive rainfall outlook (ERO) for central Arizona and **slight** and **marginal risk** EROs for the rest of Arizona and much of New Mexico, Utah and southwest Colorado with the PRE.
- **Slight** and **marginal risk** EROs were also issued for the second event in Arizona and New Mexico early next week as well as a **marginal risk** ERO over Northern California for the trough precipitation.
- Precipitation from these storms will likely bring some drought relief to the Colorado River Basin. Some watersheds in Arizona are forecast to receive as much as 20-30% of normal annual precipitation.

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Synoptic Overview: Priscilla and PRE

West-WRF IWV (mm), 850-hPa Winds and SLP (hPa)
Valid: 5 PM PDT Thu 9 Oct

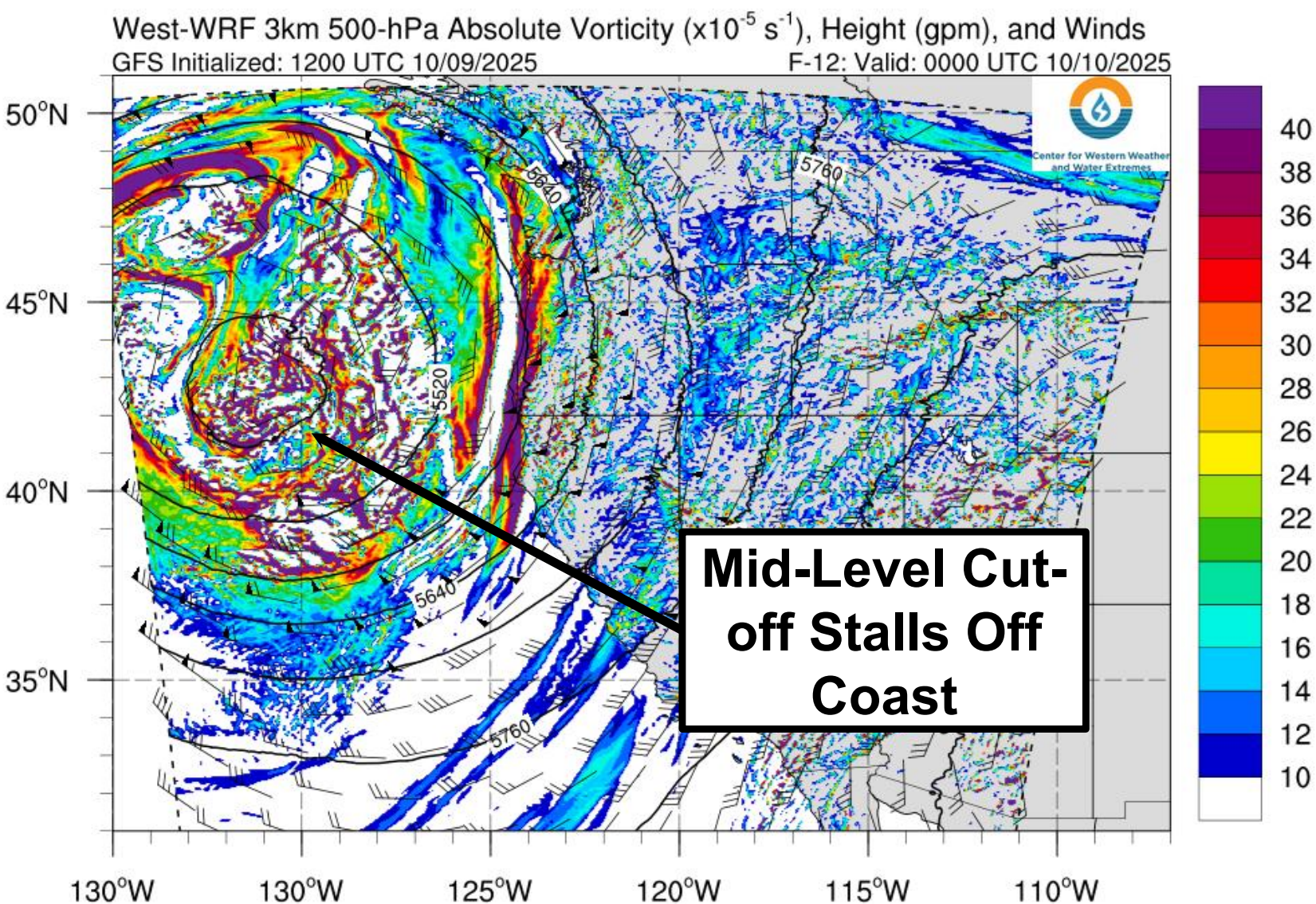


- Tropical Storm Priscilla is forecast to propagate north along the Western Mexican coast today, Thu 9 Oct, and bring high amounts of atmospheric moisture (IWV > 40 mm; *Right*) into the Southwest US, driving a PRE impacting the region through Sat 11 Oct.

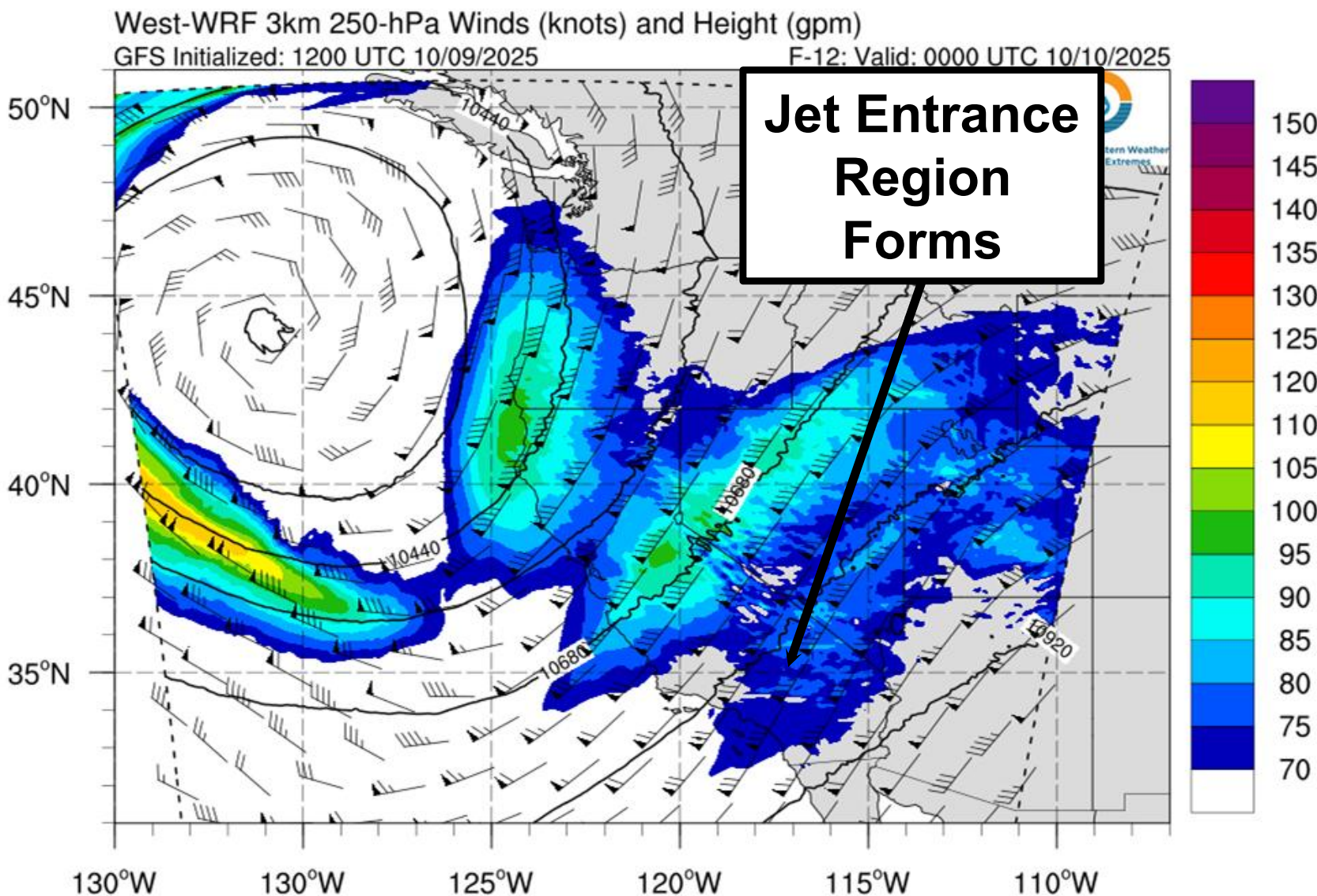
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Synoptic Overview: Priscilla and PRE (cont.)

West-WRF Absolute Vorticity, Height and Winds
Valid: 5 PM PDT Thu 9 Oct



West-WRF 250-hPa Winds (knots) and Heights (gpm)
Valid: 5 PM PDT Thu 9 Oct

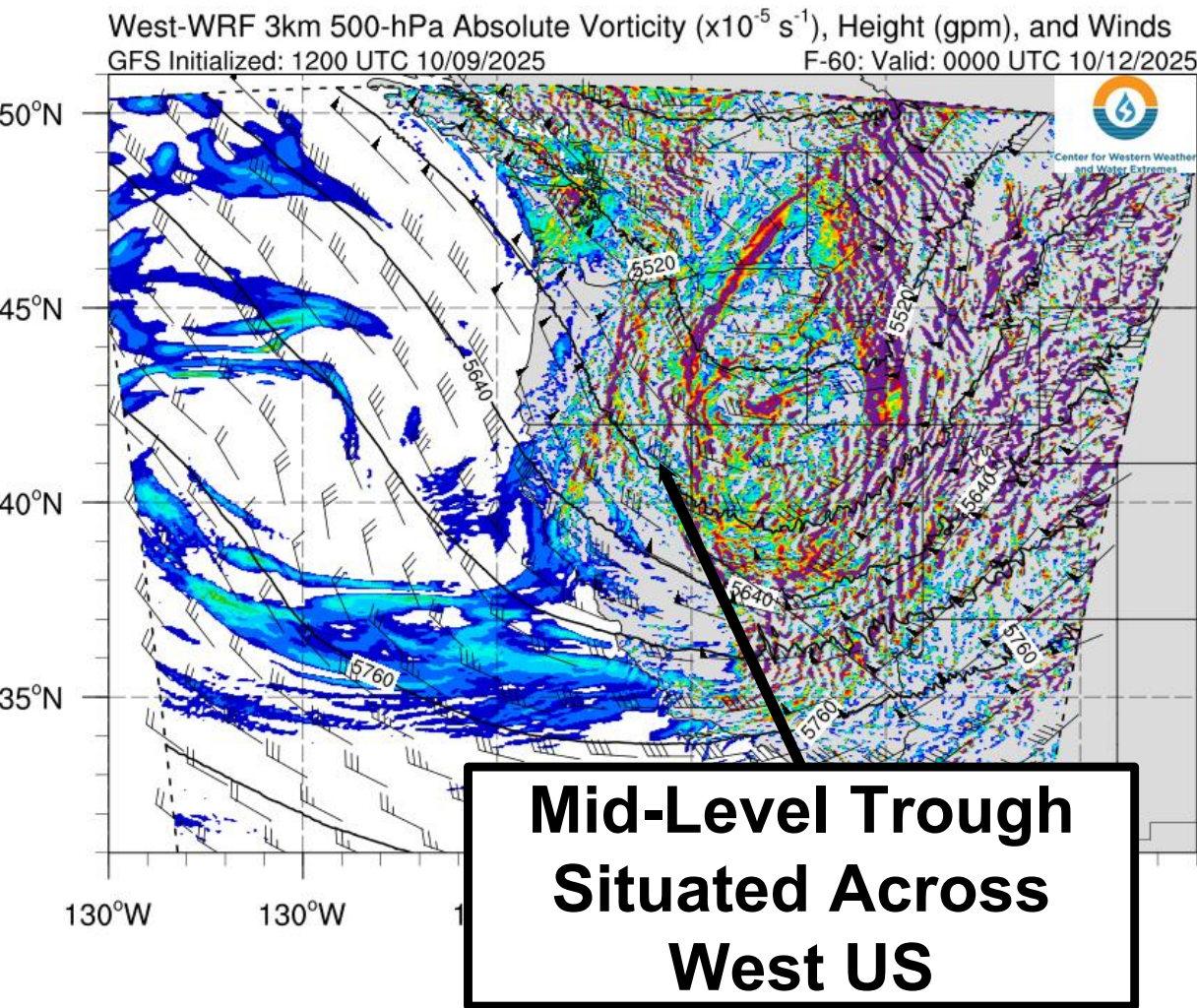


- Additional atmospheric conditions beyond the high atmospheric moisture values help to contribute to the PRE. A mid-level trough digging off the US West coast is forecast to become cut-off and stall off the coast tonight.
- At the same time, a developing jet streak entrance region located over Southern California serves to provide additional forcing for ascent to the region.

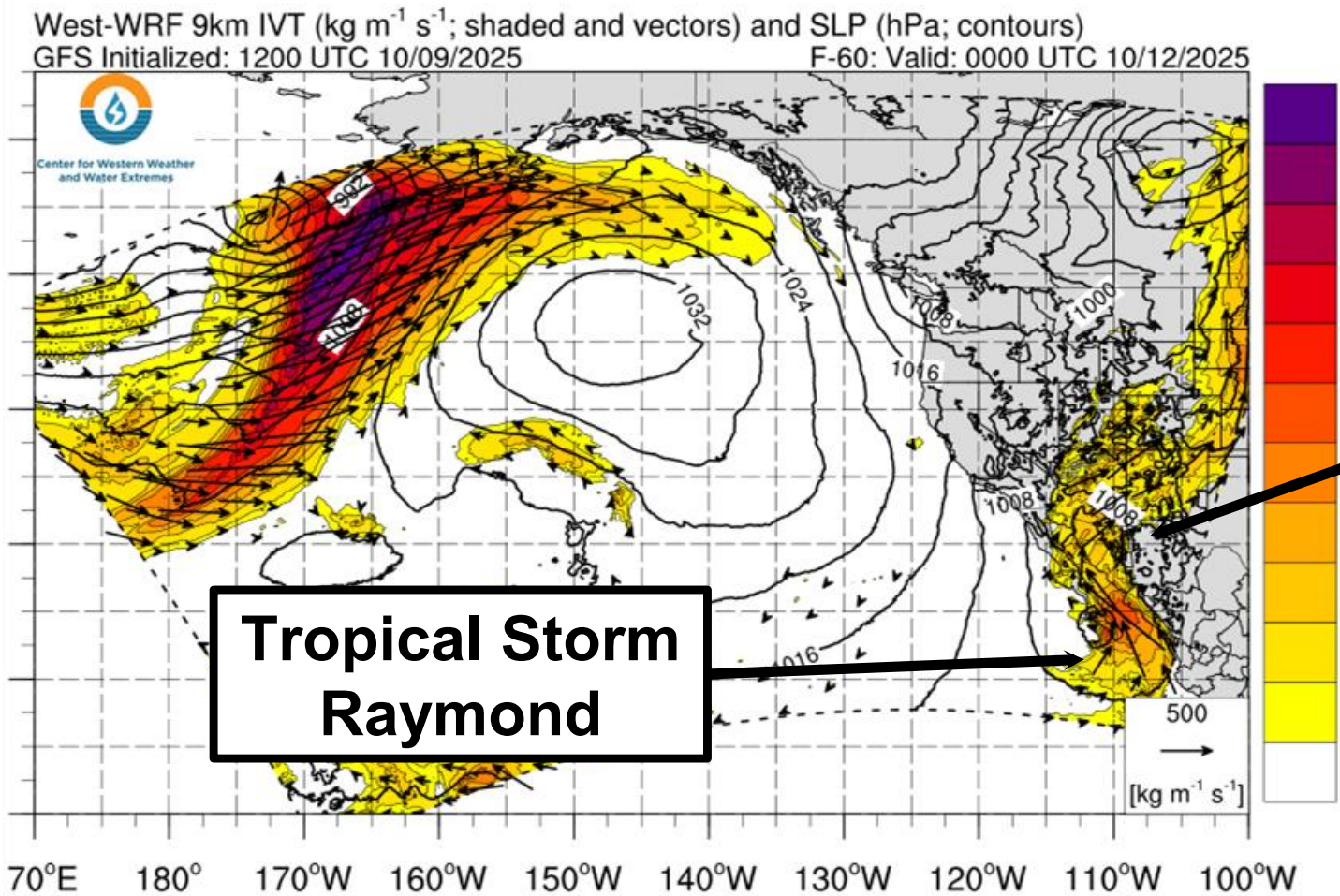
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Synoptic Overview: Tropical Storm Raymond

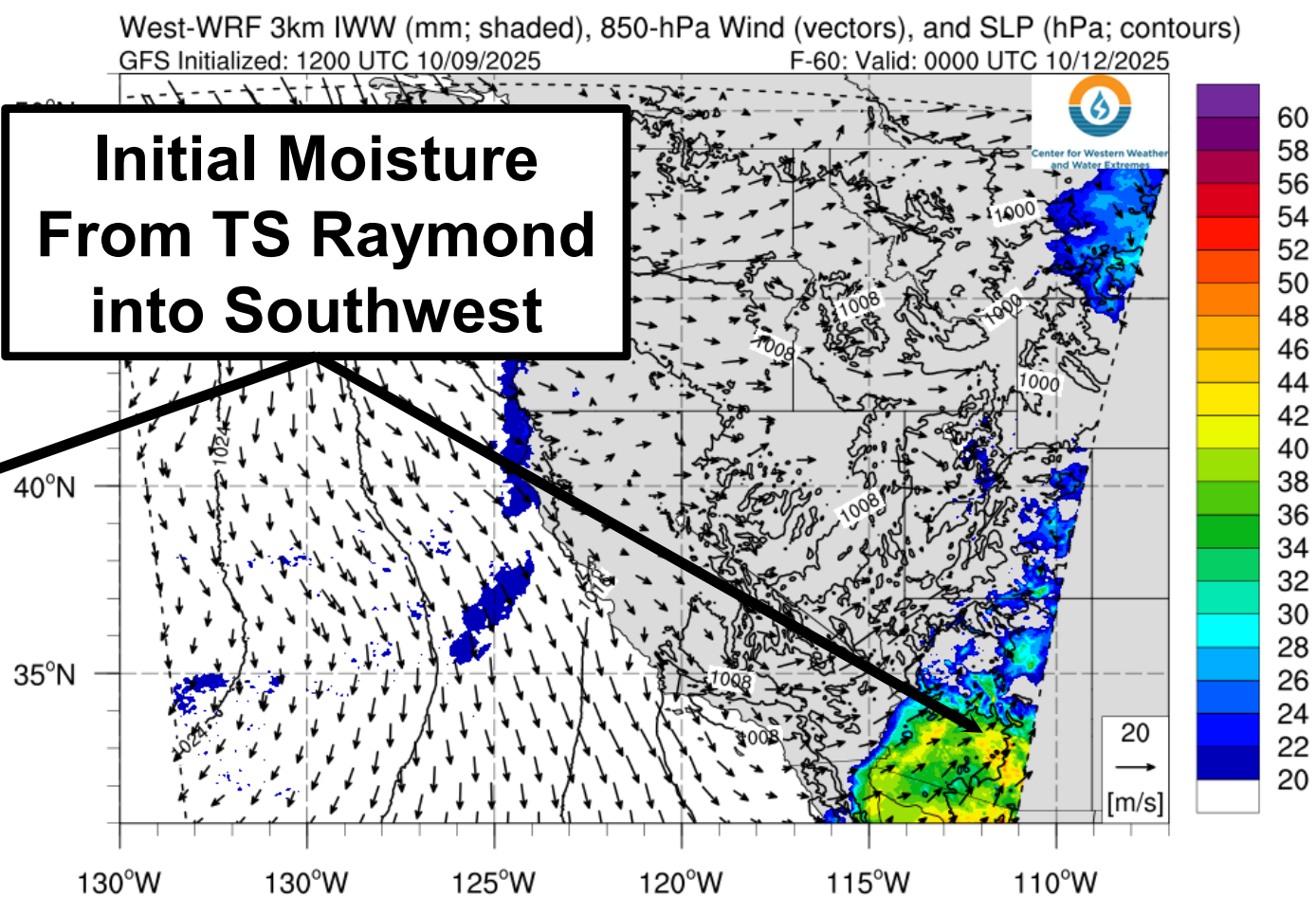
West-WRF Absolute Vorticity, Height and Winds
Valid: 5 PM PDT Sat 11 Oct



West-WRF IVT (mm) and SLP (hPa)
Valid: 5 PM PDT Sat 11 Oct



West-WRF IWW (mm), 850-hPa Winds and SLP (hPa)
Valid: 5 PM PDT Sat 11 Oct

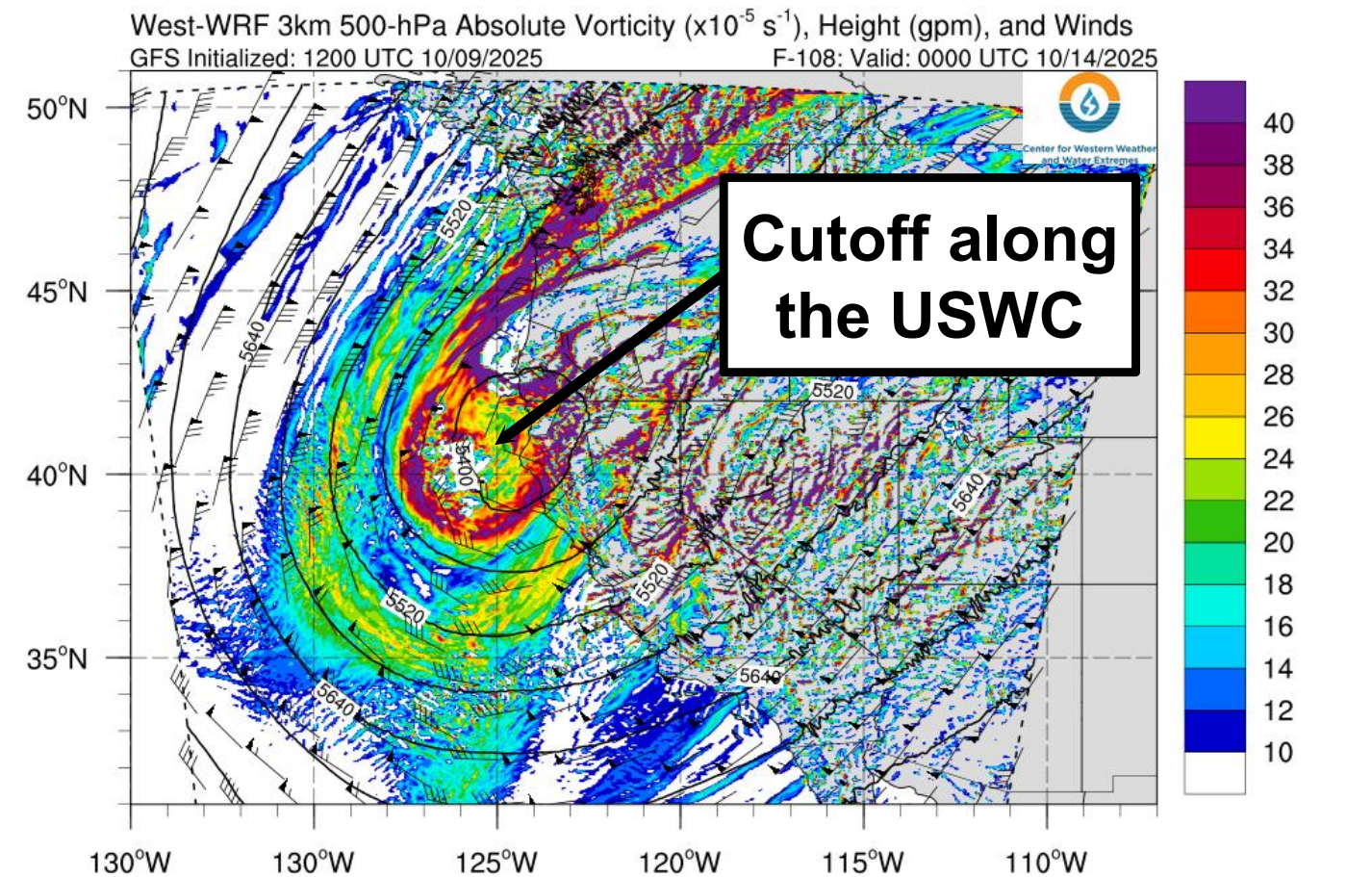


- As the mid-level trough slowly propagates east over the Western US, moisture driven north from Tropical Storm Raymond (presently located off the Western Mexican coast) is forecast to spread into Arizona and New Mexico.
- This moisture may help to extend the initial period of precipitation on Sat 11 Oct.

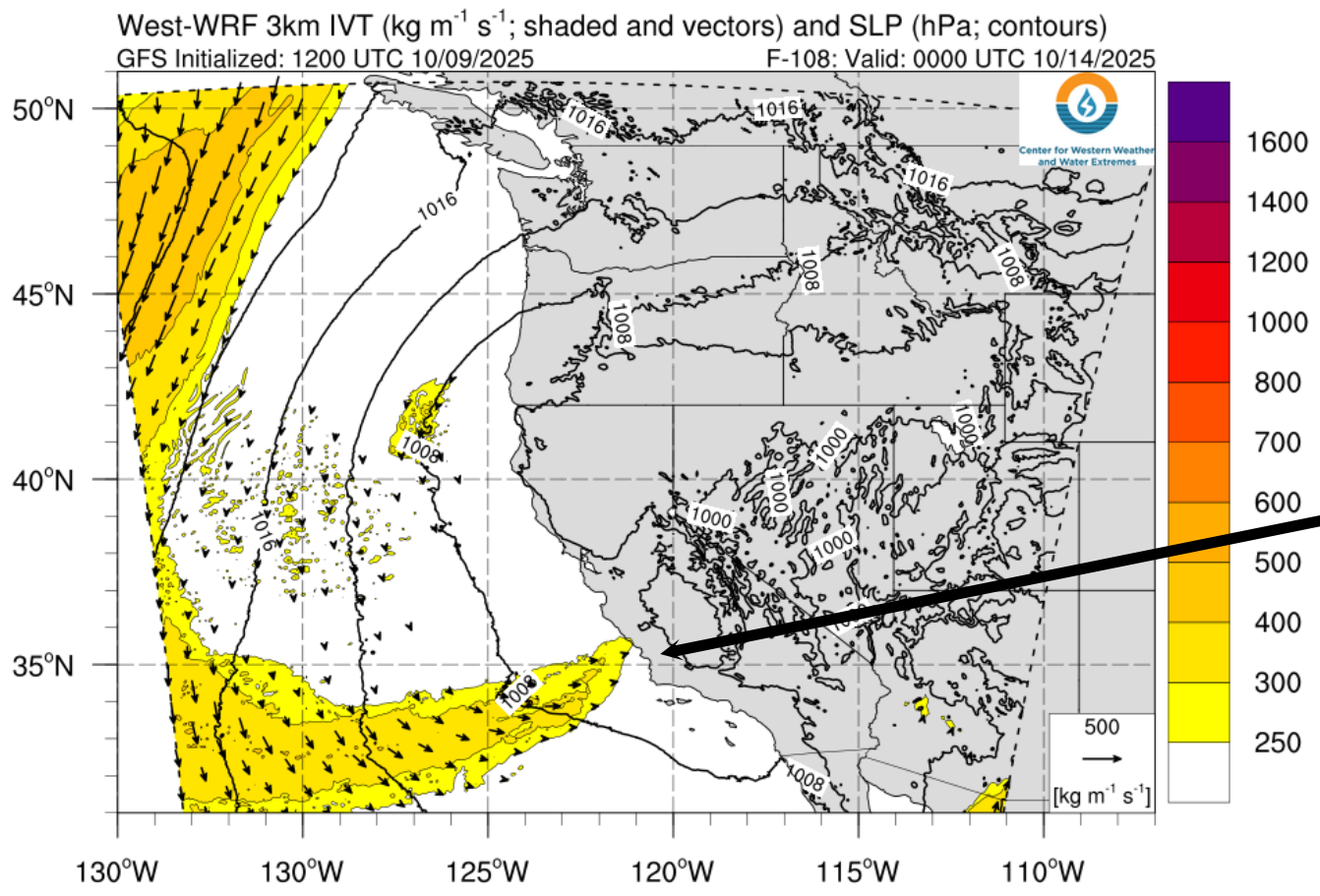
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Synoptic Overview: Trough Digs Along West Coast

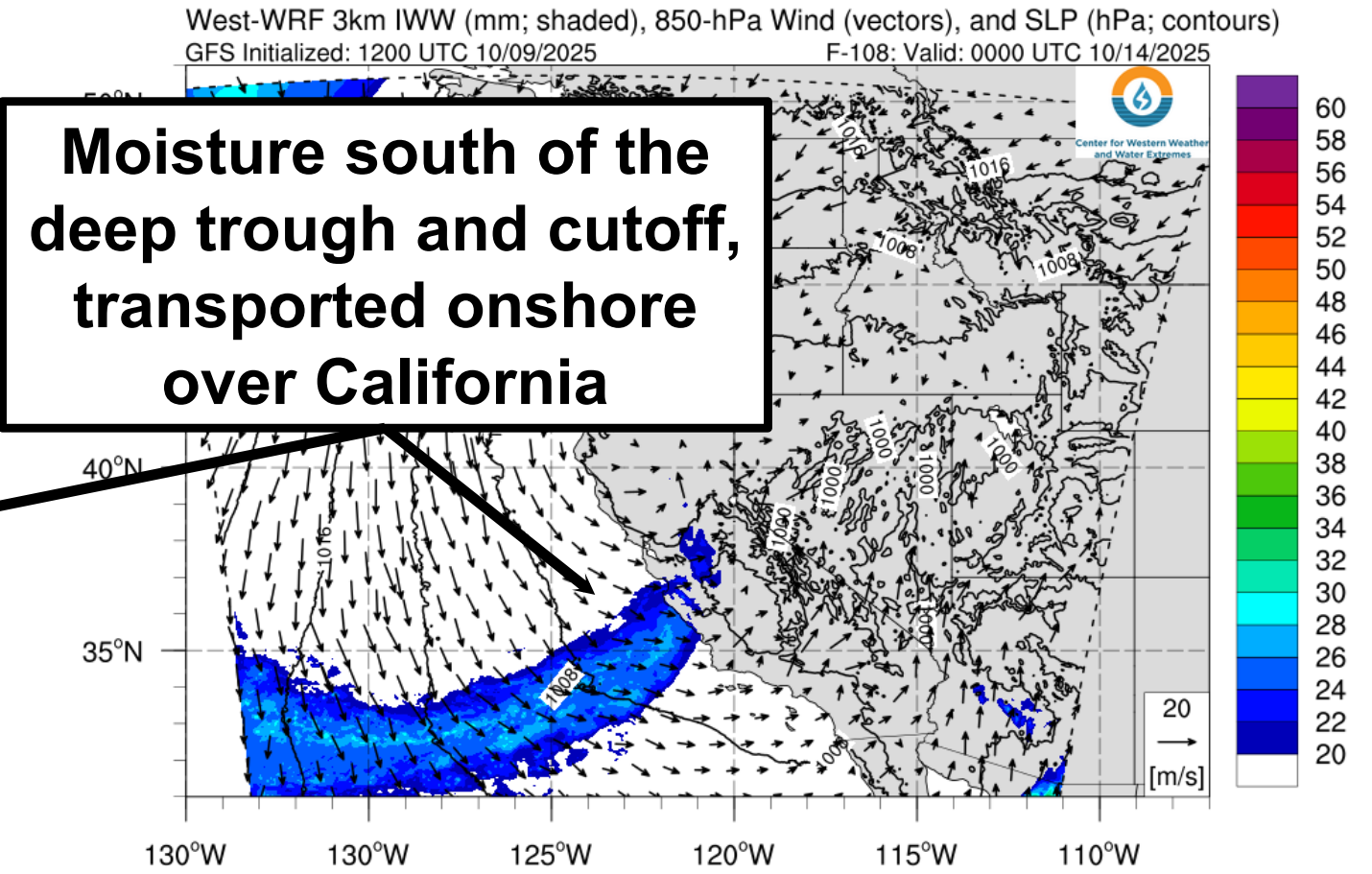
West-WRF Absolute Vorticity, Height and Winds
Valid: 5 PM PDT Mon 13 Oct



West-WRF IVT (mm) and SLP (hPa)
Valid: 5 PM PDT Mon 13 Oct



West-WRF IWV (mm), 850-hPa
Winds and SLP (hPa)
Valid: 5 PM PDT Mon 13 Oct



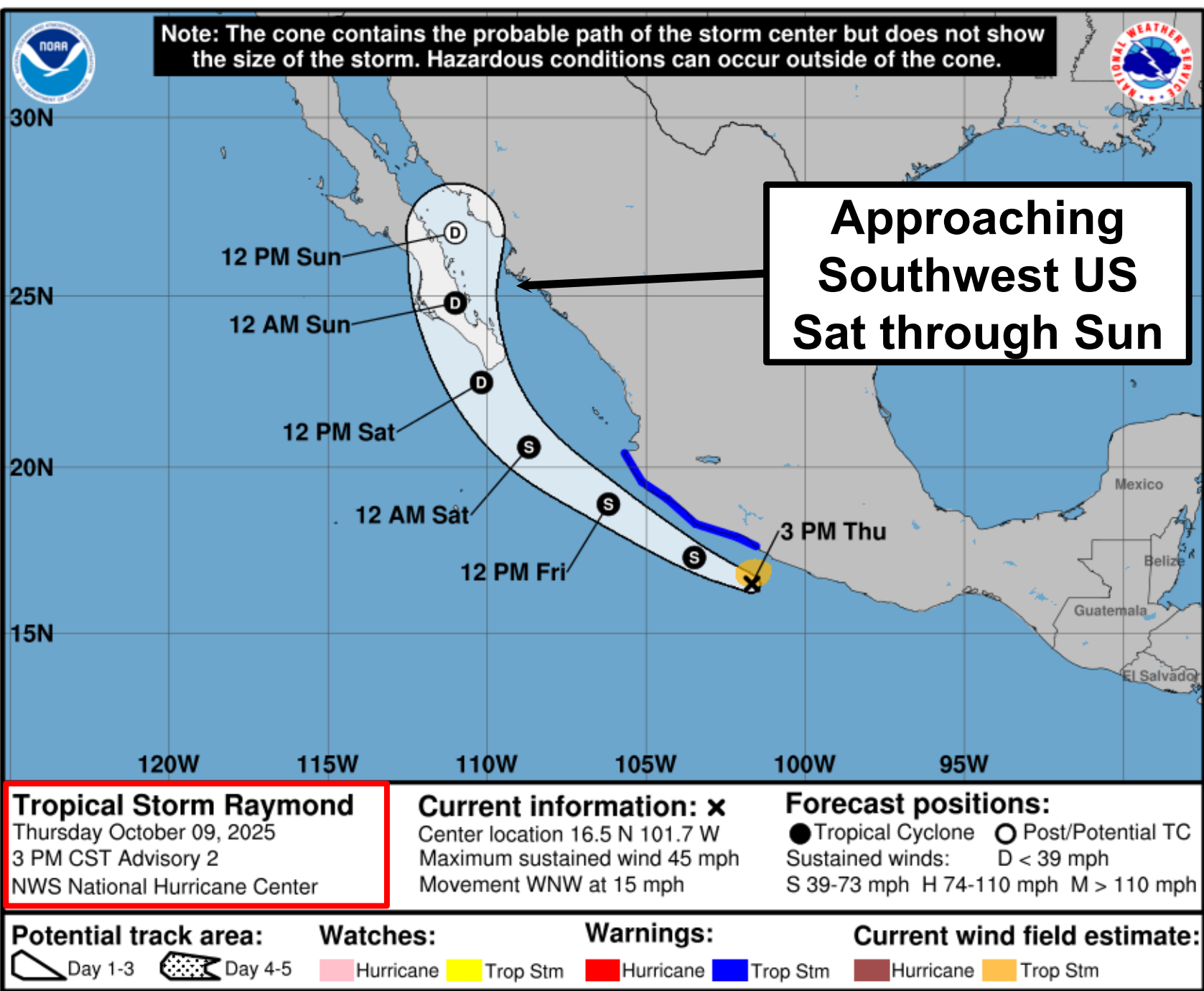
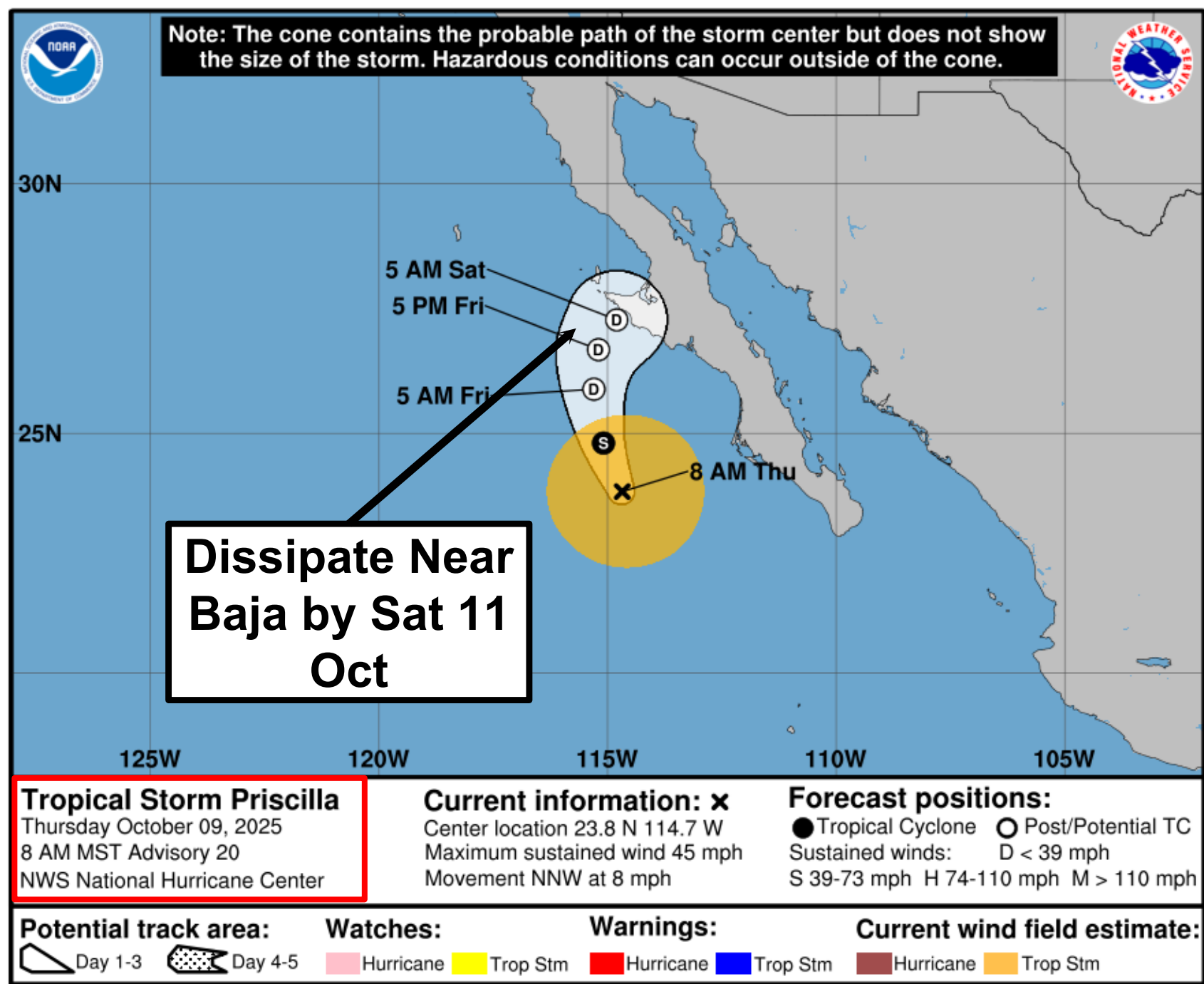
- As the deep trough and cutoff begin to shift south along the US West Coast beginning late Fri 10 Oct, a narrow plume of enhanced moisture transport is forecast to wrap up around the base of the trough, with IVT values $> 400 \text{ kg m}^{-1} \text{ s}^{-1}$ and IWV values $> 26 \text{ mm}$ along the coast of California between Sun 12 Oct - Tue 14 Oct.
- This plume of moisture is forecast to be favorably oriented (southwesterly) for enhanced upslope moisture flux and orographic precipitation over higher terrain extending from Northern to Southern California.

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National Hurricane Center Forecast Tracks

Tropical Storm Priscilla Forecast Cone
Valid: 7 AM PDT Thu 9 Oct

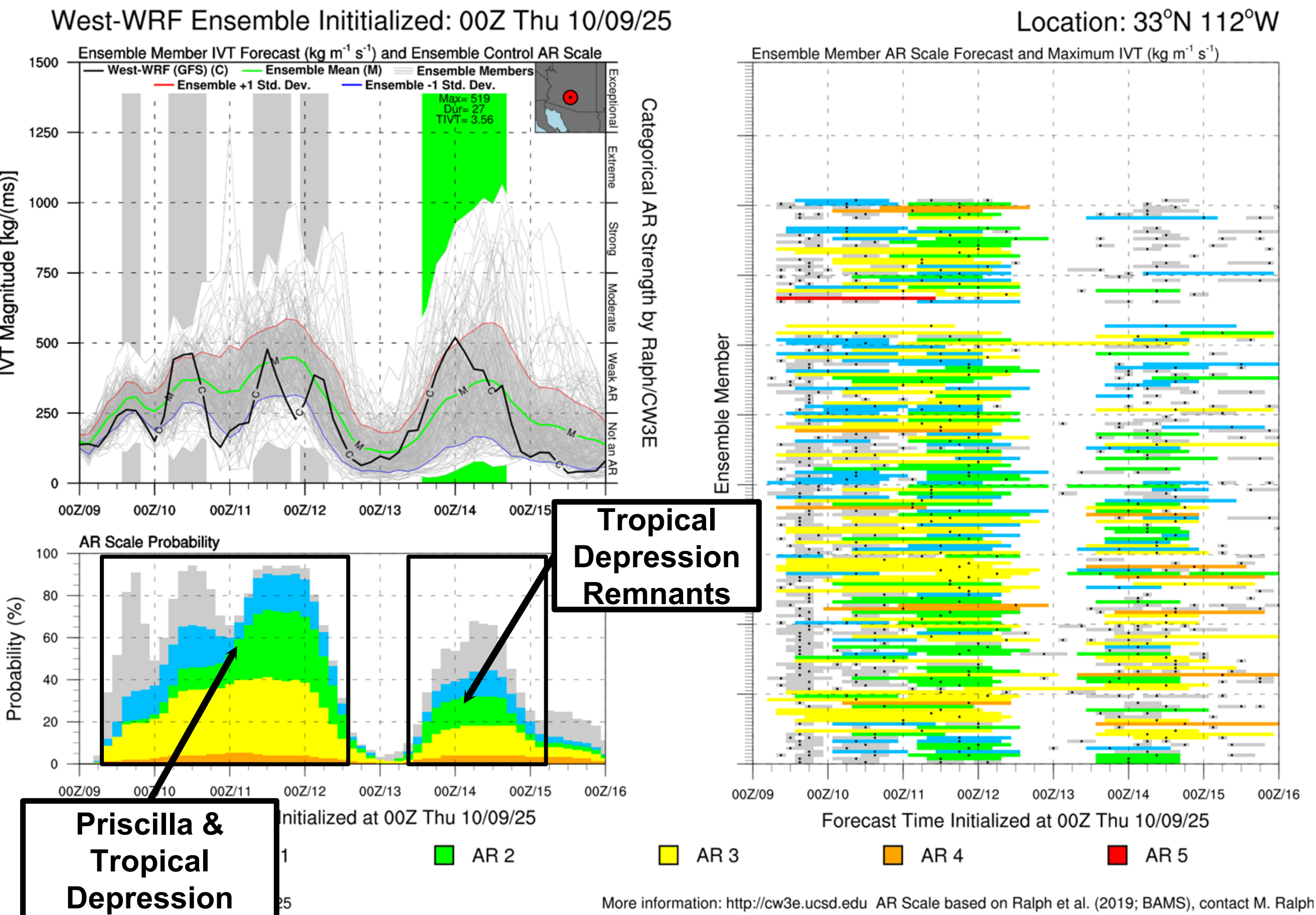
Tropical Storm Raymond
Valid: 7 AM PDT Thu 9 Oct



- Tropical Storm Priscilla is forecast to dissipate near the Baja Peninsula Saturday afternoon, but the remnant moisture from the system is forecast to drive precipitation over the southwest.
- Tropical Storm Raymond off the southwestern coast of Mexico and is forecast to propagate north and west along the coast through Sat before turning north Sat night. This system may influence a second period of precipitation over the southwest Sun 12 Oct to Tue 14 Oct.

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West-WRF AR Scale and IVT Forecasts



- The West-WRF control member is forecasting multiple moisture pulses associated with remnant moisture from Tropical Storm Priscilla and initial moisture bands associated with Tropical Storm Raymond for a point 33°N, 112°W (south of Phoenix, AZ).
- About 40% of West-WRF members are forecasting an AR 3 (based on the Ralph et al. 2019 AR Scale) at this location for 12Z 9 Oct to 12Z 12 Oct, highlighting uncertainty in the duration of AR conditions.
- The West-WRF control member also forecasts AR2 conditions associated with the moisture remnants from Tropical Storm Raymond for 12Z 13 Oct to 12Z 14 Oct.
- Only 40% of members are forecasting at least AR1 conditions at this location associated with this system.

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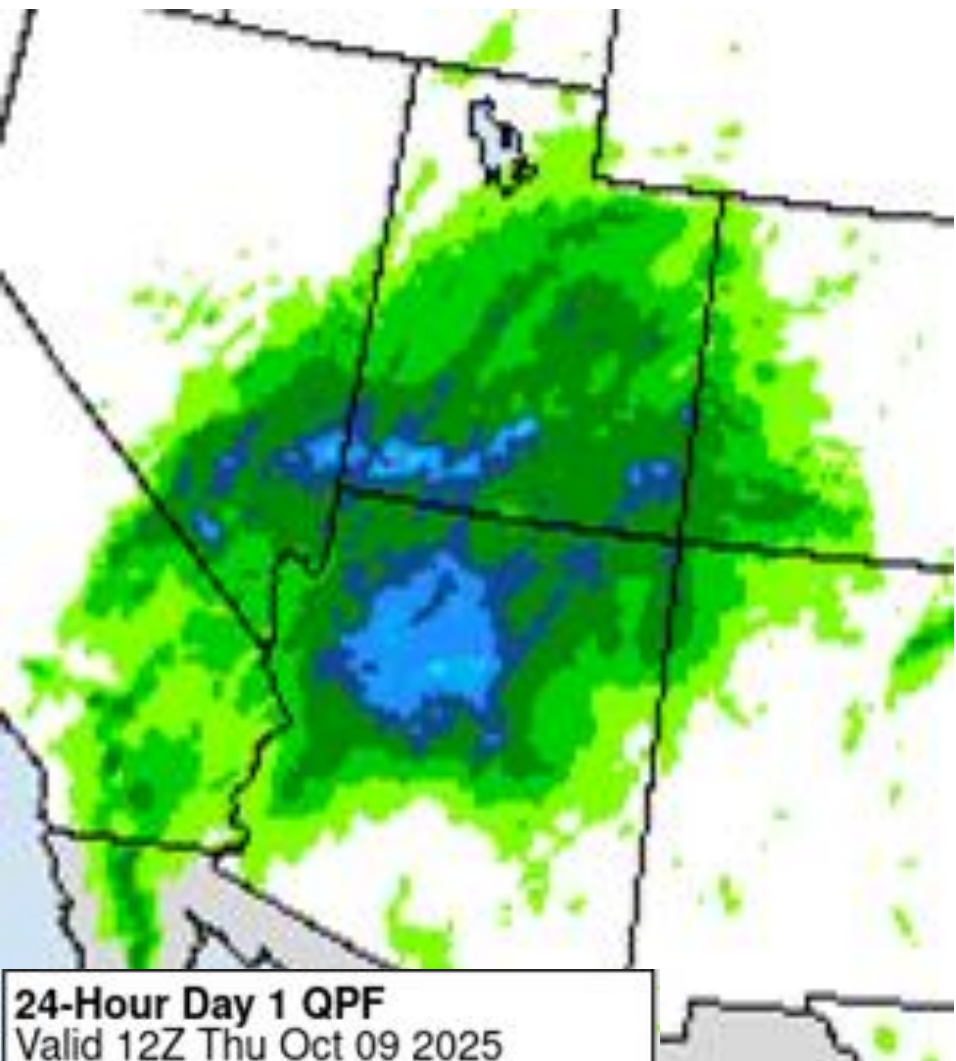
WPC Precipitation Forecast: PRE and Priscilla

WPC Day 1 24-h QPF
Valid: 5 AM PT 10 Oct

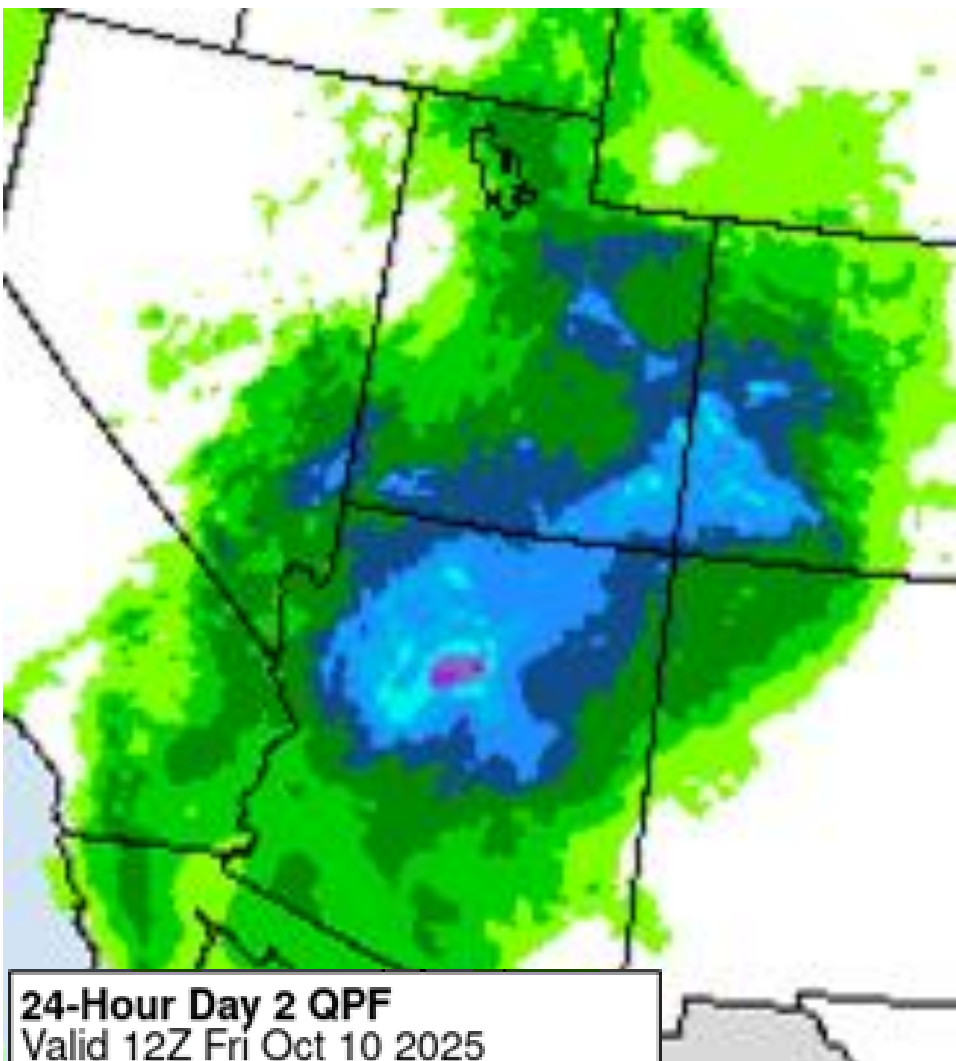
WPC Day 2 24-h QPF
Valid: 5 AM PT 11 Oct

WPC Day 3 24-h QPF
Valid: 5 AM PT 12 Oct

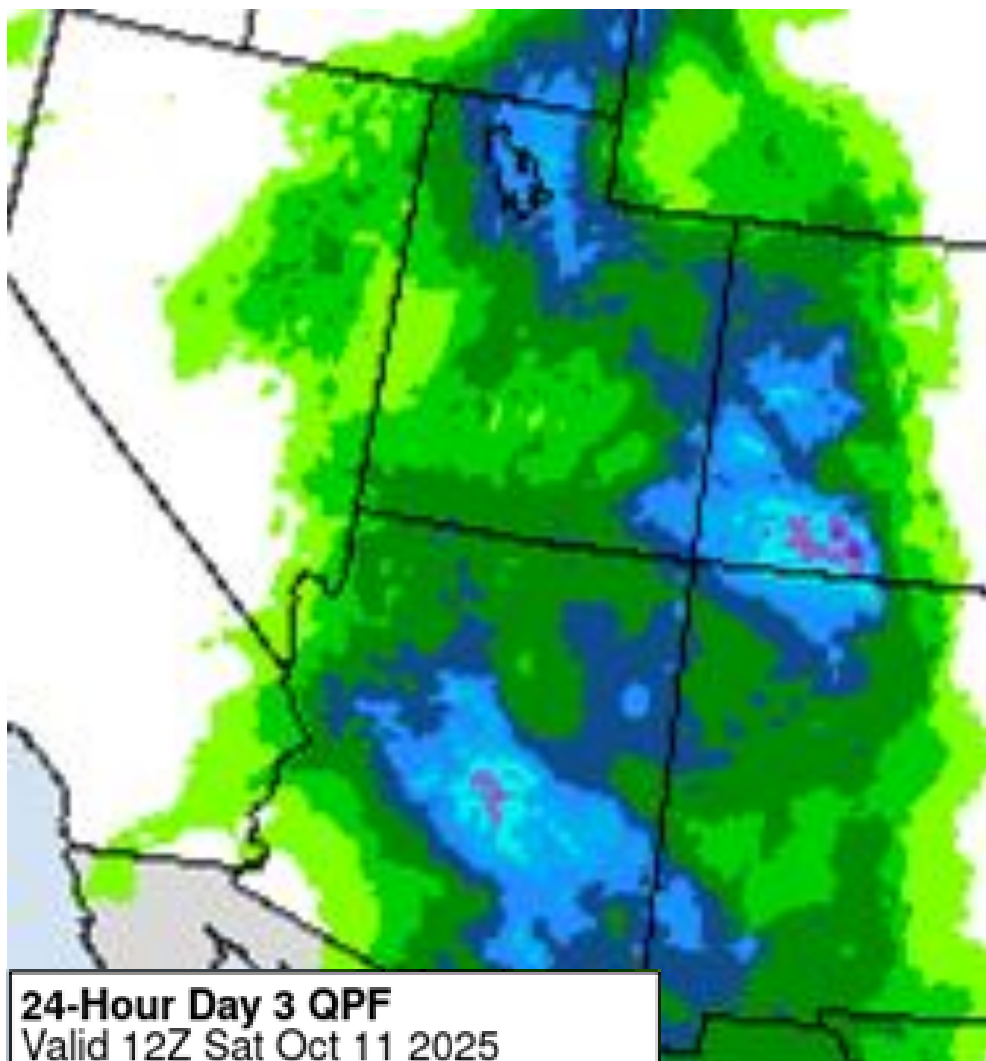
WPC 72-h Total QPF
Valid: 5 AM PT 12 Oct



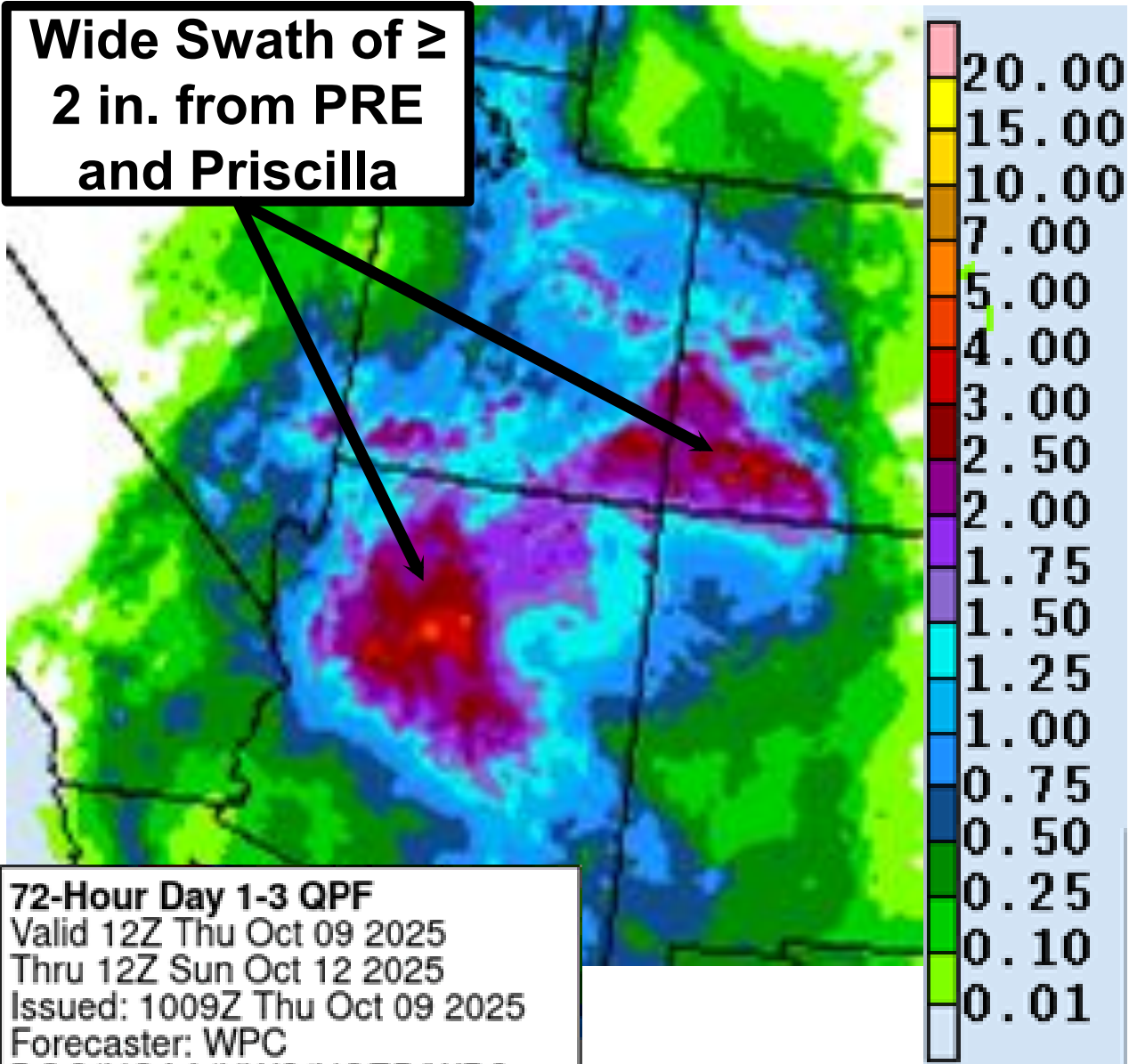
24-Hour Day 1 QPF
Valid 12Z Thu Oct 09 2025
Thru 12Z Fri Oct 10 2025
Issued: 1005Z Thu Oct 09 2025
Forecaster: NWS/WEGMAN
DOC/NOAA/NWS/NCEP/WPC



24-Hour Day 2 QPF
Valid 12Z Fri Oct 10 2025
Thru 12Z Sat Oct 11 2025
Issued: 1007Z Thu Oct 09 2025
Forecaster: NWS/WEGMAN
DOC/NOAA/NWS/NCEP/WPC



24-Hour Day 3 QPF
Valid 12Z Sat Oct 11 2025
Thru 12Z Sun Oct 12 2025
Issued: 1009Z Thu Oct 09 2025
Forecaster: NWS/WEGMAN
DOC/NOAA/NWS/NCEP/WPC



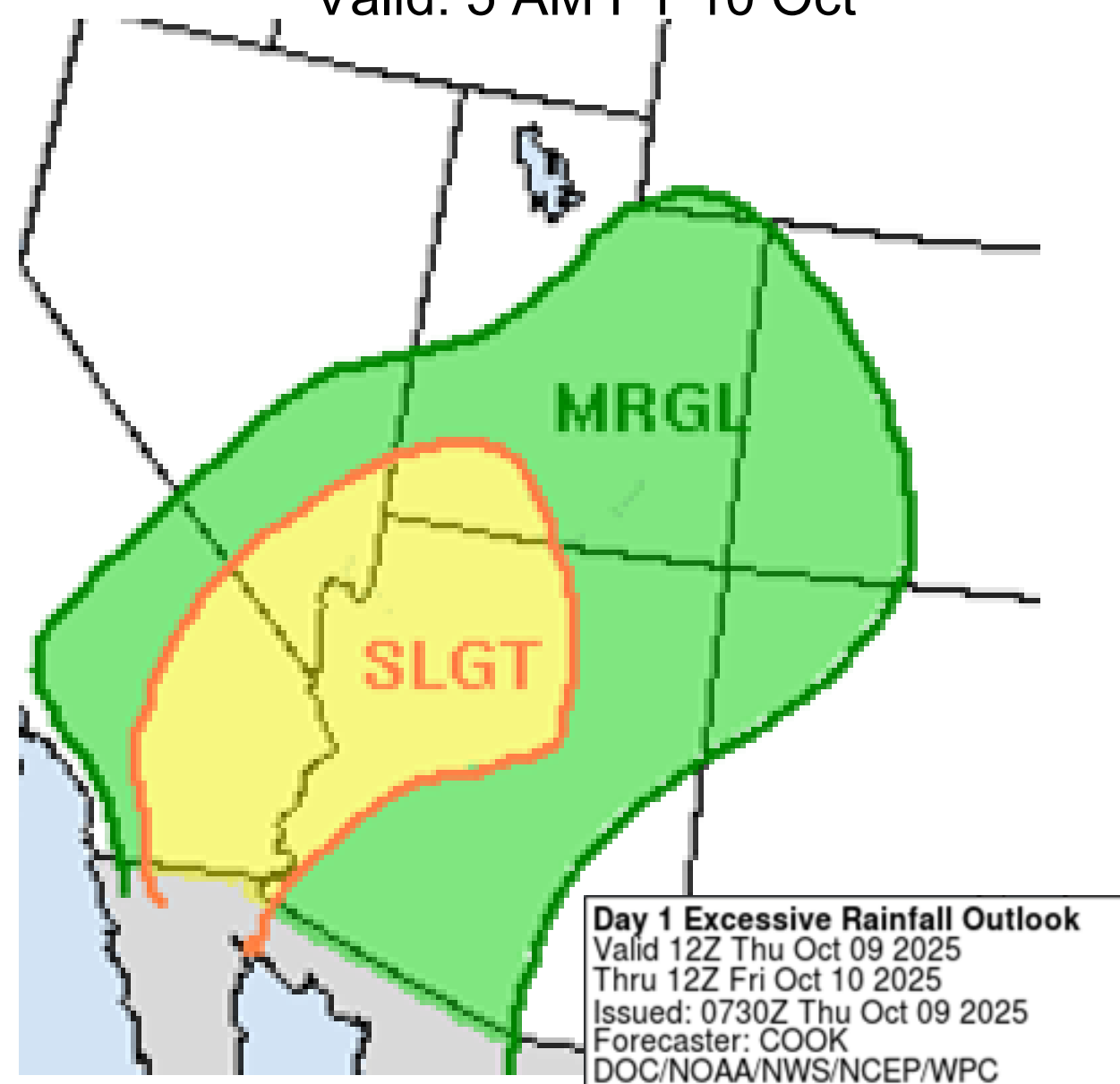
72-Hour Day 1-3 QPF
Valid 12Z Thu Oct 09 2025
Thru 12Z Sun Oct 12 2025
Issued: 1009Z Thu Oct 09 2025
Forecaster: WPC
DOC/NOAA/NWS/NCEP/WPC

- The PRE associated with Tropical Storm Priscilla and the remnant moisture from the system is forecast to drive precipitation across the southwest through Sun 12 Oct.
- The Weather Prediction Center (WPC) is forecasting ≥ 2 in. for a wide swath from Central Arizona to Southwestern Colorado, with storm totals exceeding 4 inches near Flagstaff, AZ.

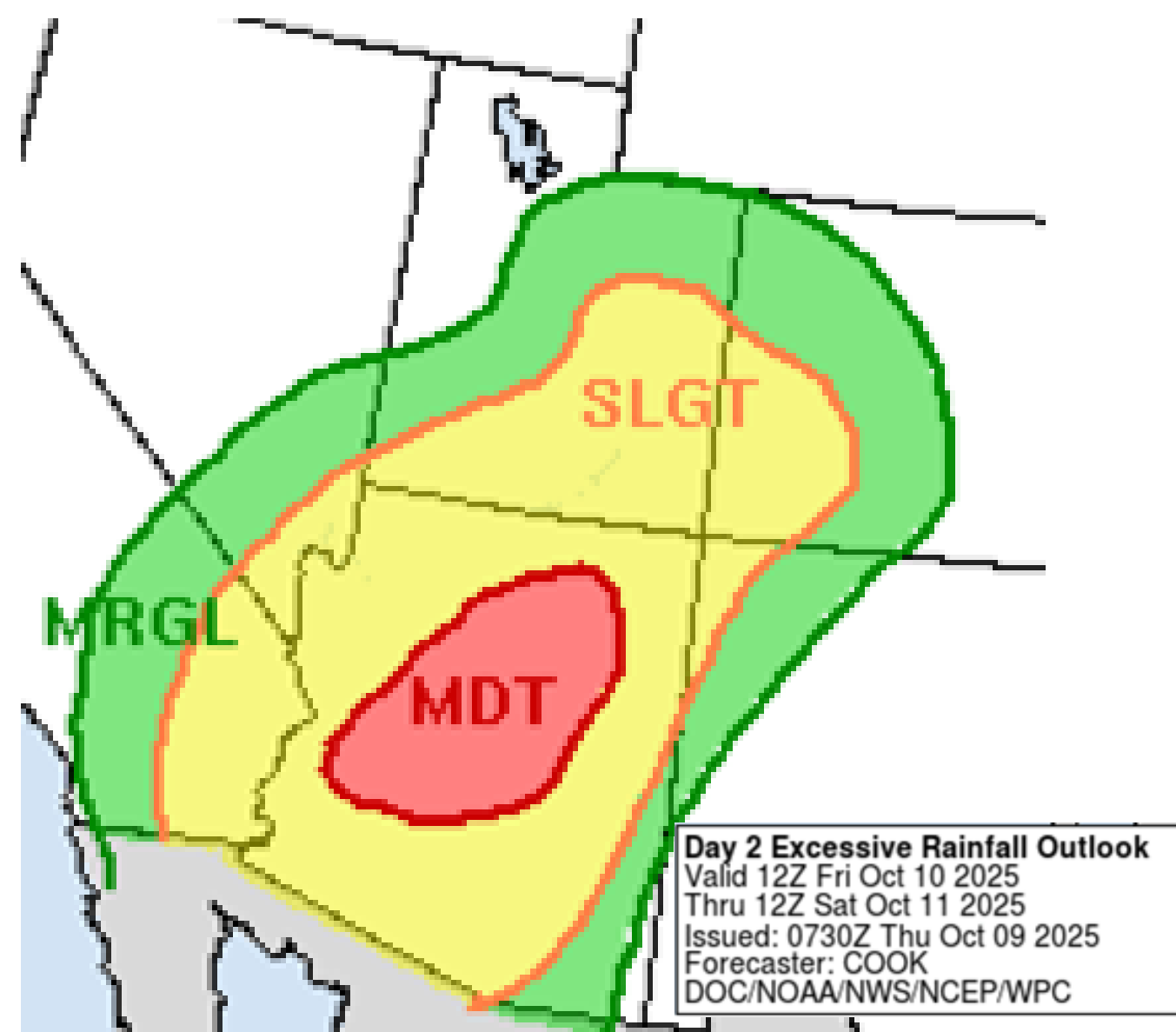
Precipitation Outlook: 9 October 2025

WPC Excessive Rainfall Outlooks: PRE and Priscilla

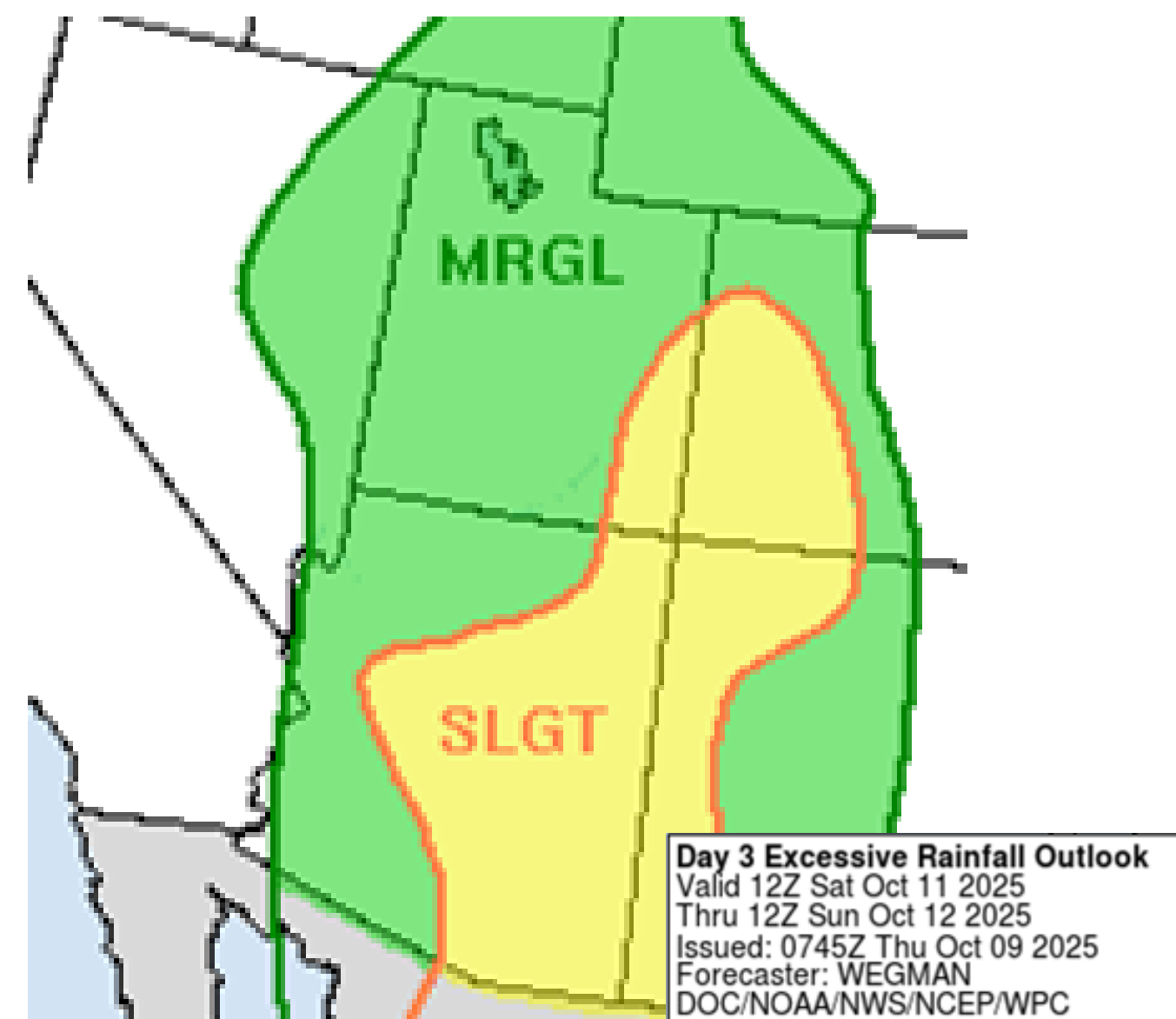
WPC Day 1 ERO
Valid: 5 AM PT 10 Oct



WPC Day 2 ERO
Valid: 5 AM PT 11 Oct



WPC Day 3 ERO
Valid: 5 AM PT 12 Oct



- The NWS Weather Prediction Center (WPC) has issued a **moderate risk** (level 3 of 4; $\geq 40\%$ probability of flooding) excessive rainfall outlook (ERO) over Central AZ for Fri 10 Oct into Sat 11 Oct associated with the trough presence and ample forcing for ascent in the region of significant atmospheric moisture.
- **Slight** (level 2 of 4; $\geq 15\%$ probability of flooding) and **Marginal risk** (level 1 of 4; $\geq 5\%$ probability of flooding) EROs have been issued across Southern California and the Colorado Basin for Thu 9 Oct through Sun 12 Oct for this event.

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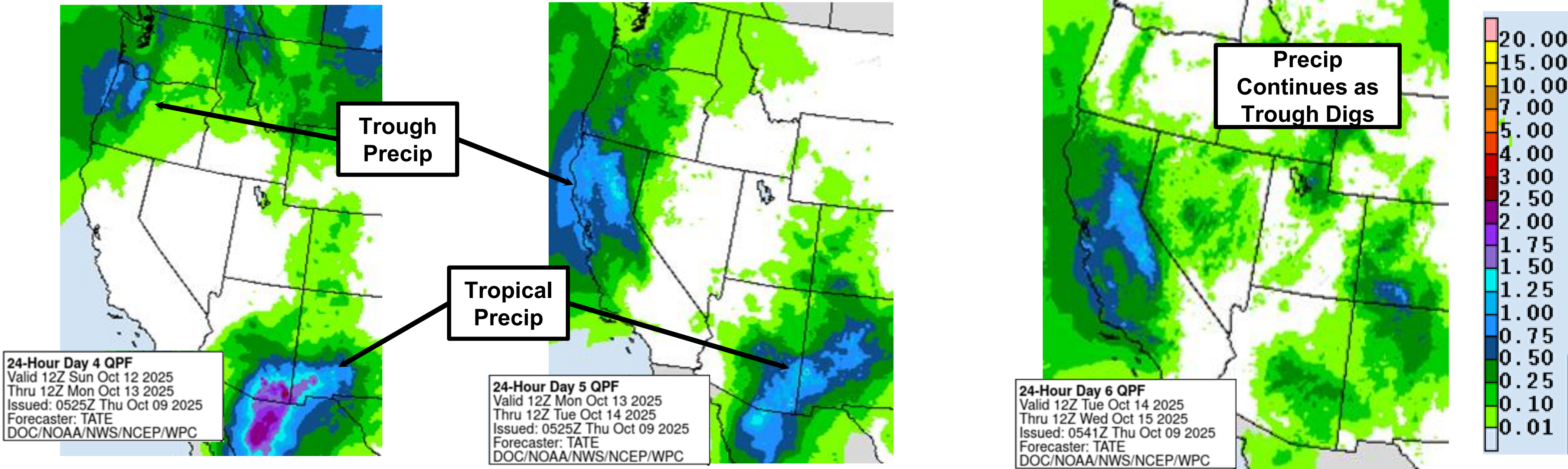


WPC Precipitation Forecast: Remnants of TS Raymond and USWC Trough

WPC Day 4 24-h QPF
Valid: 5 AM PT 13 Oct

WPC Day 5 24-h QPF
Valid: 5 AM PT 14 Oct

WPC Day 6 24-h QPF
Valid: 5 AM PT 15 Oct



- The WPC is forecasting 1–3 in. of precipitation in Southwestern Arizona and Southeastern/Central New Mexico associated with the remnants of Tropical Storm Raymond for Sun 12 Oct through Tue 14 Oct.
- At the same time, the mid-level trough digging off the US West Coast drives precipitation across the US West Coast, with the highest accumulation forecast over the Sierra Nevada. The WPC is forecasting > 1 in. of precipitation over portions the Cascades, the Sierra Nevada and Oregon and California Coasts for Sun 12 Oct through Tue 14 Oct.

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WPC Excessive Rainfall Outlooks: Second Event

WPC Day 4 ERO

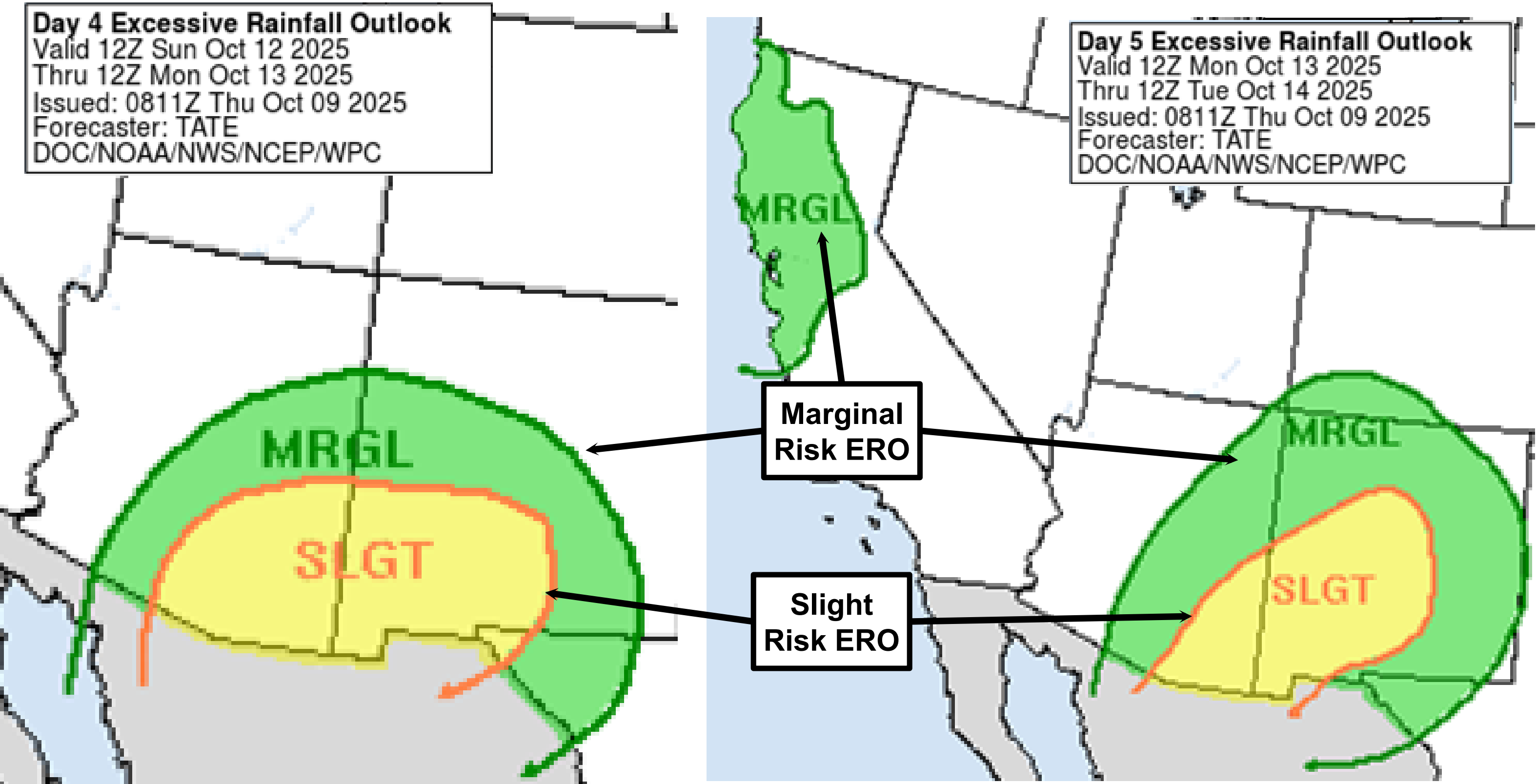
Valid: 5 AM PT 13 Oct

Day 4 Excessive Rainfall Outlook
Valid 12Z Sun Oct 12 2025
Thru 12Z Mon Oct 13 2025
Issued: 0811Z Thu Oct 09 2025
Forecaster: TATE
DOC/NOAA/NWS/NCEP/WPC

WPC Day 5 ERO

Valid: 5 AM PT 14 oct

Day 5 Excessive Rainfall Outlook
Valid 12Z Mon Oct 13 2025
Thru 12Z Tue Oct 14 2025
Issued: 0811Z Thu Oct 09 2025
Forecaster: TATE
DOC/NOAA/NWS/NCEP/WPC

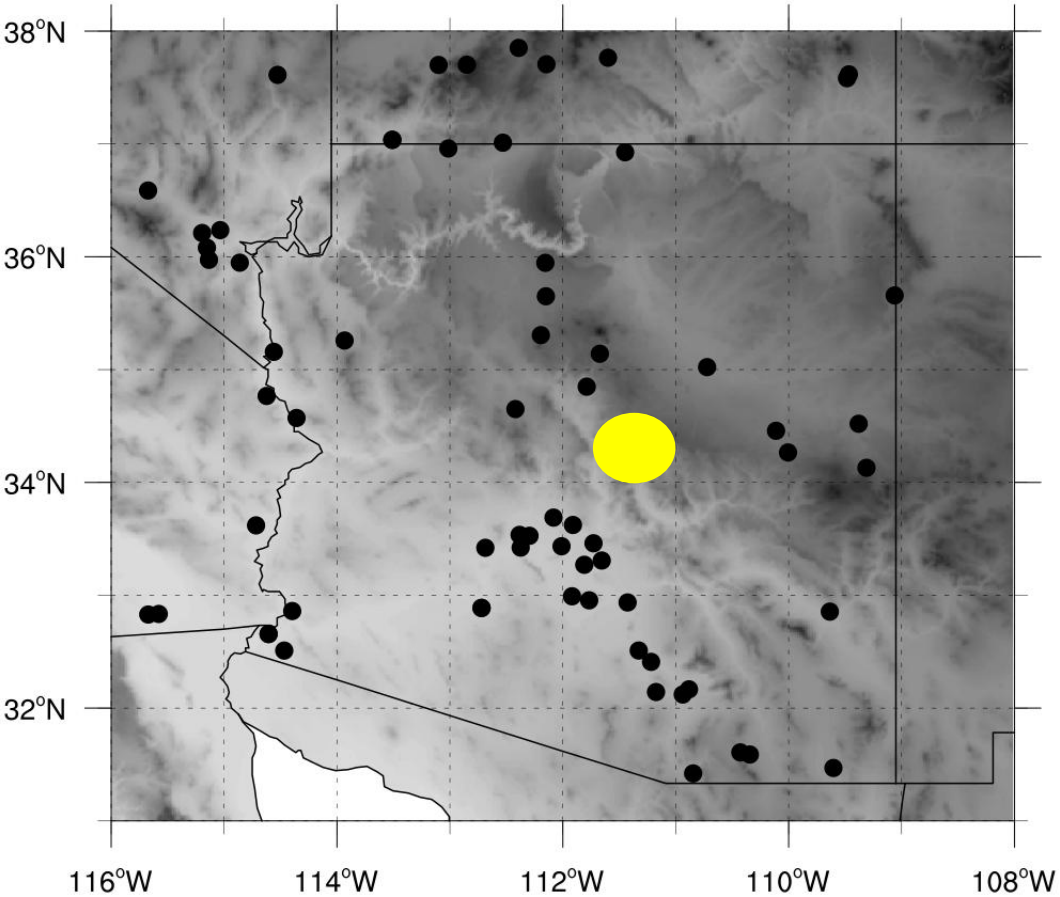
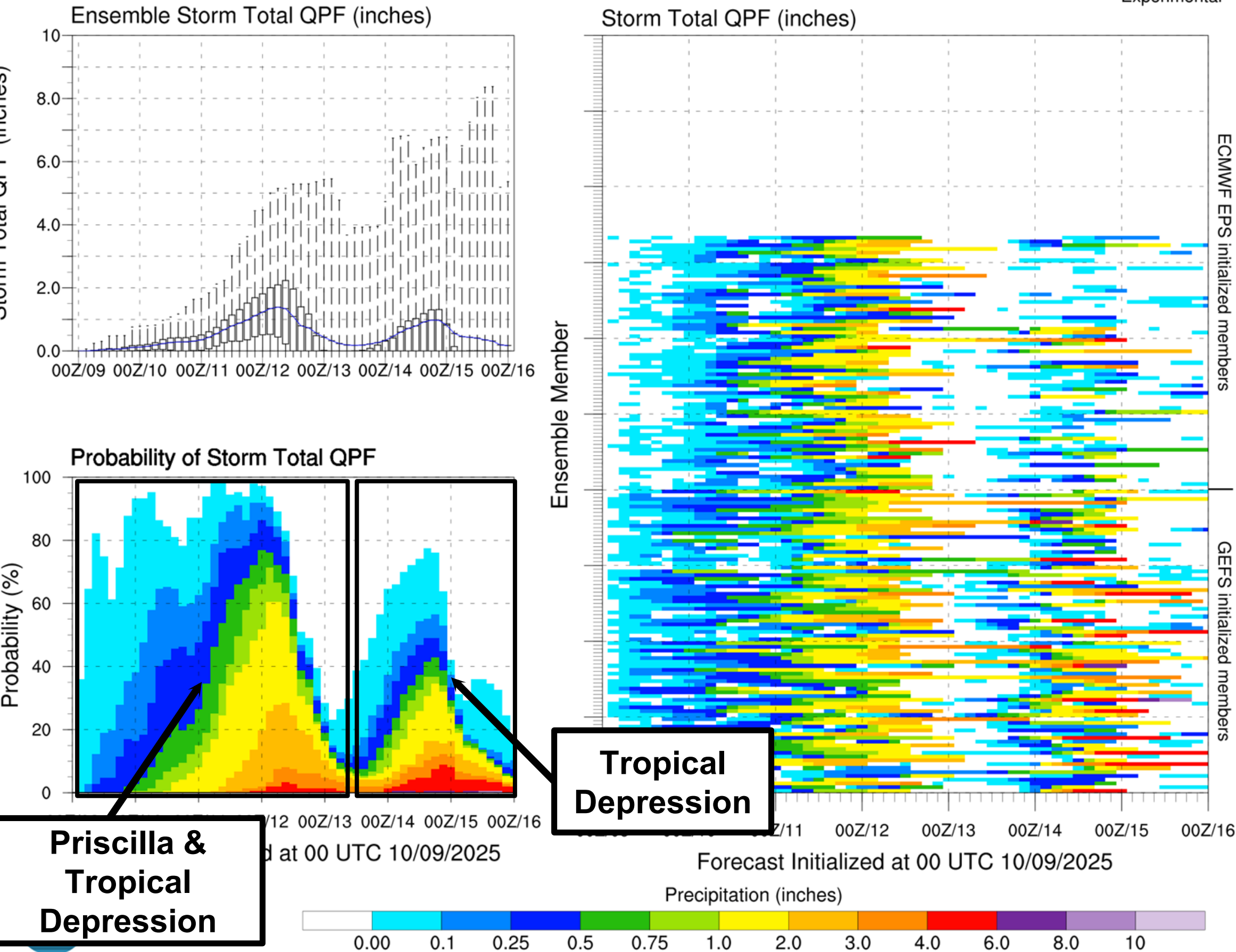


- The WPC has issued a **slight risk** (level 2 of 4; $\geq 15\%$ probability of flooding) ERO for the Southwestern Arizona and Southeastern/Central New Mexico Sun 12 Oct through Tue 14 Oct due to moisture entering the region from Tropical Storm Raymond.
- **Marginal risk** (level 1 of 4; $\geq 5\%$ probability of flooding) EROs have been issued for the for Arizona and across New Mexico for Sun 12 Oct through Tue 14 Oct as well as along the Northern California coast and Sacramento Valley for Mon 13 Oct through Tue 14 Oct.

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West-WRF Ensemble Precipitation Forecast

West-WRF Ensemble Initialized: 00 UTC 10/09/2025
Payson (34.26°N, 111.34°W)
*Experimental

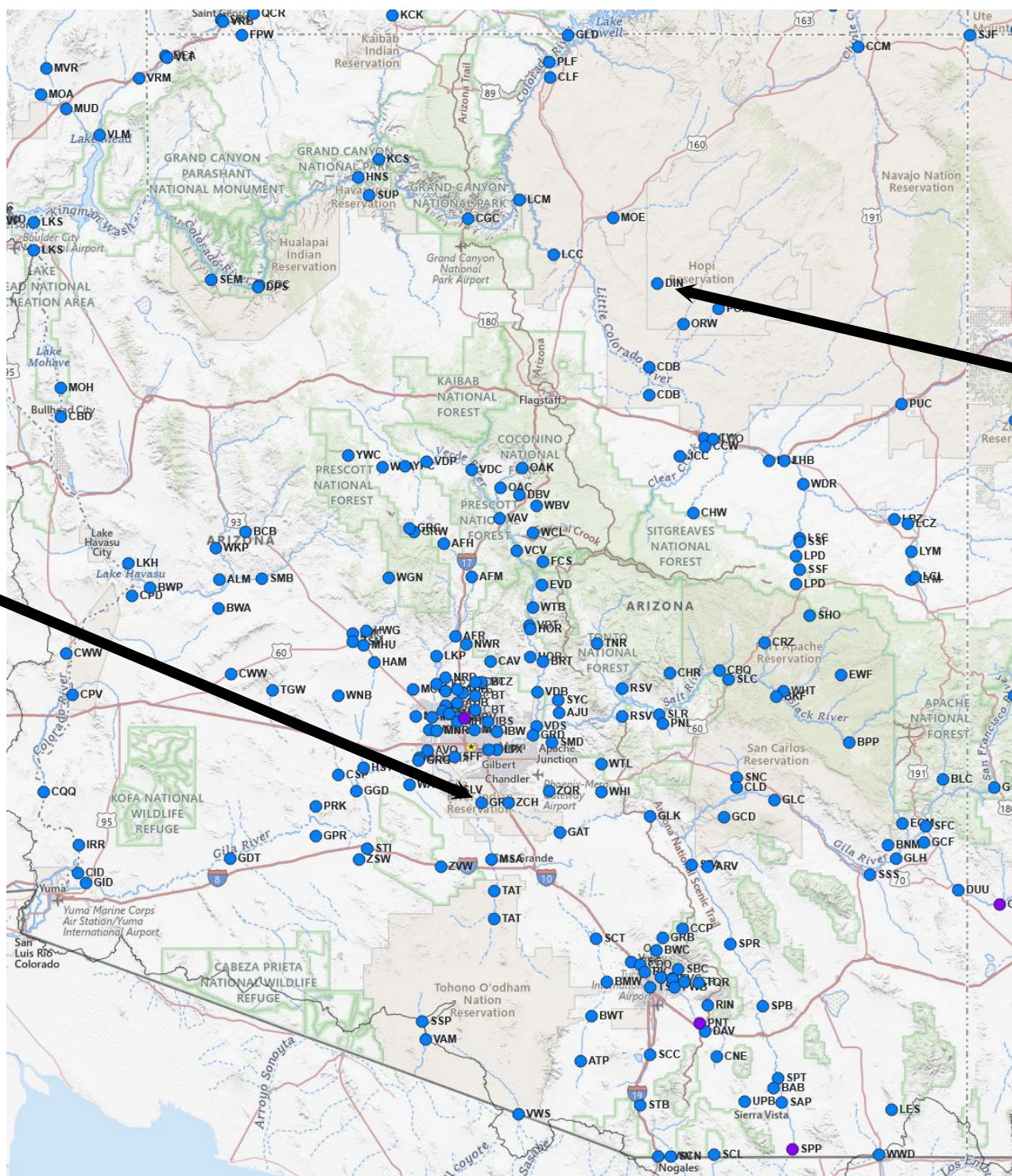
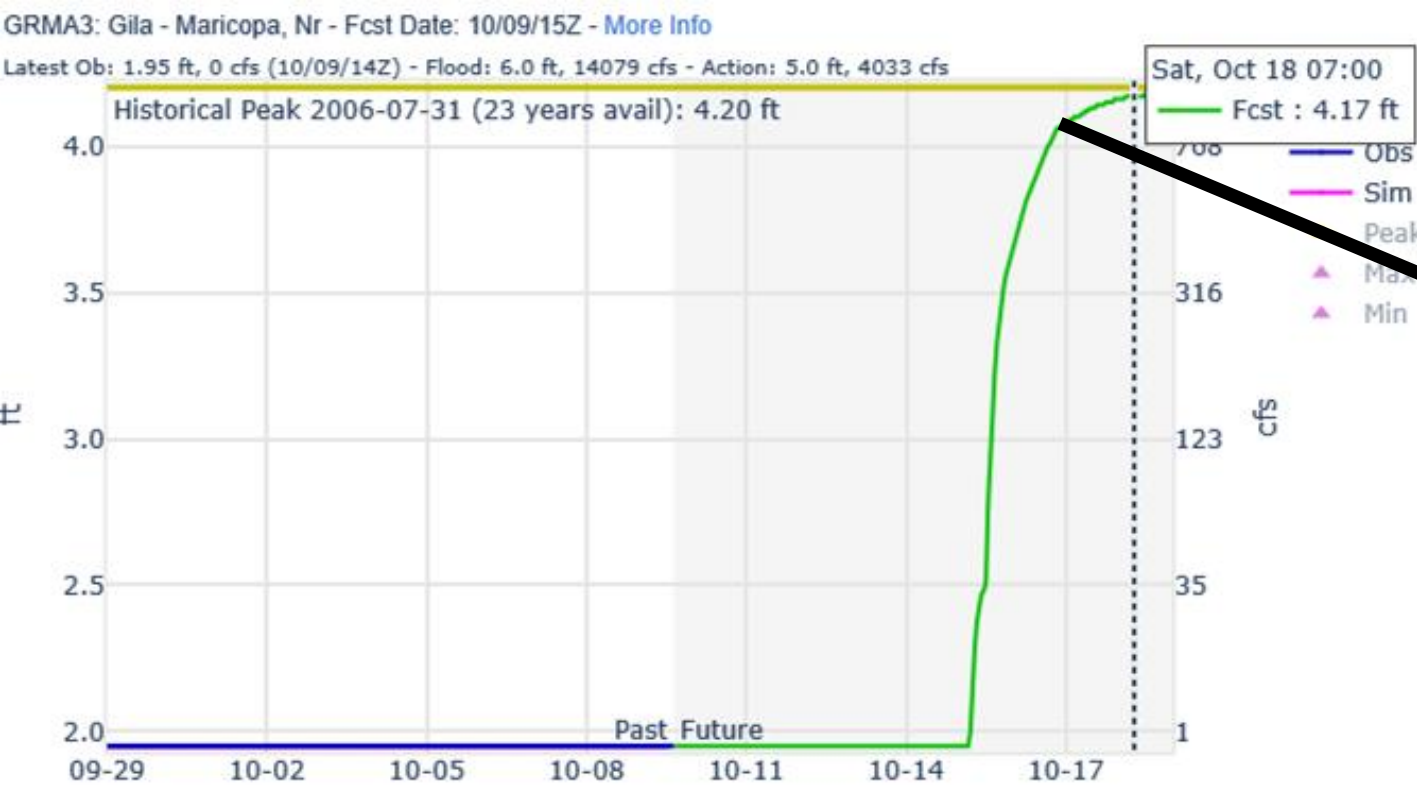


- The West-WRF ensemble shows 60% of members forecasting 1–2 in. of precipitation for 00Z 9 – 00Z 12 Oct at a location along the Mogollon Rim in Central Arizona during with the first precipitation event.
- ~25% of members forecast totals exceed 2 inches, with accumulations increasing early on 12 Oct with the initial moisture from Tropical Storm Raymond.
- ~35% of members are forecasting 1–2 in. for 12Z 13 – 00Z 15 Oct with the remnants of Tropical Storm Raymond at this location

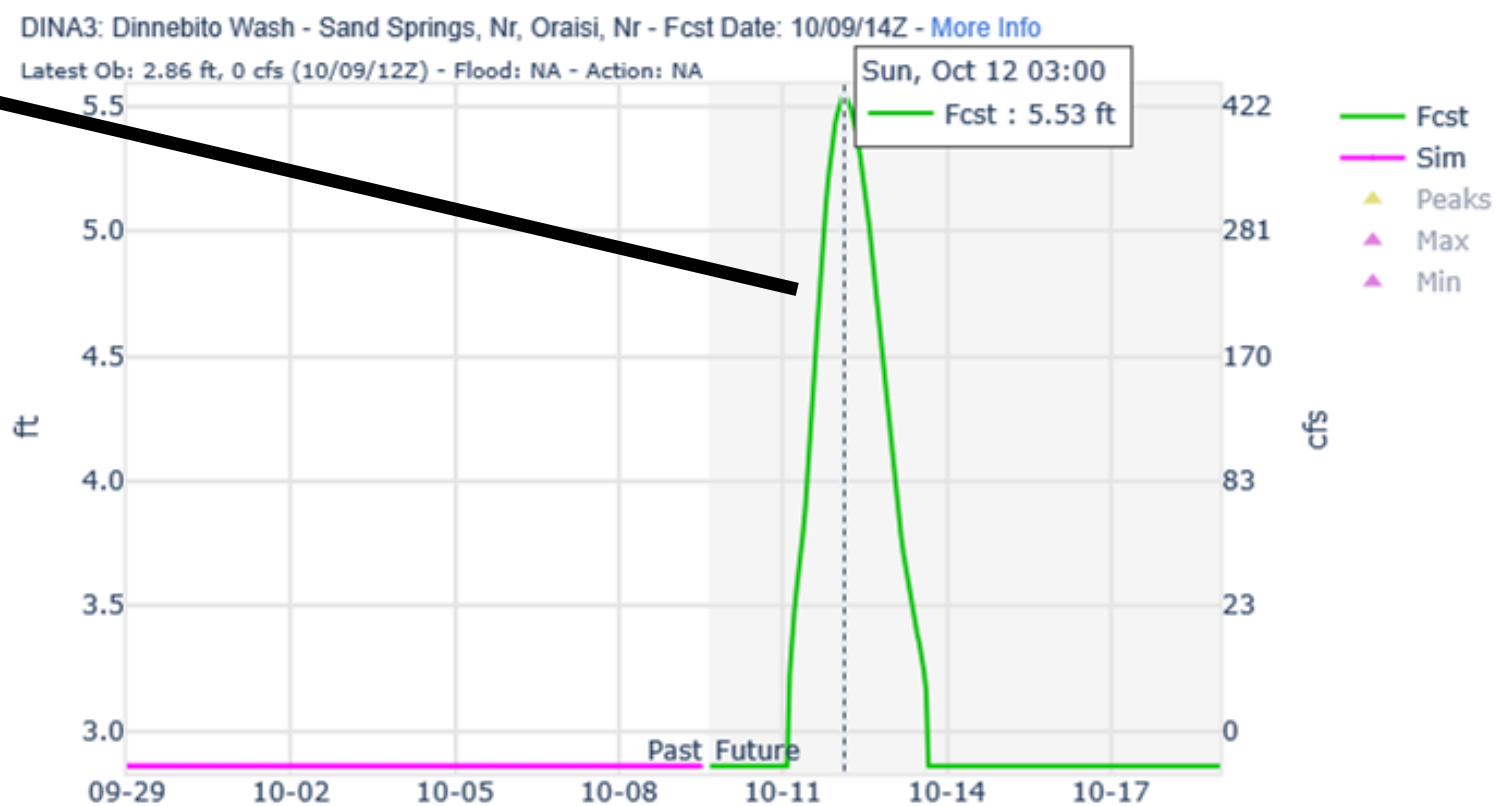
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CBRFC Streamflow Forecasts

Gila River Near Maricopa
Valid: 10 AM PST 9–18 Oct



Dinnebito Wash Near Sand Springs
Valid: 5 AM PT 13 Mar

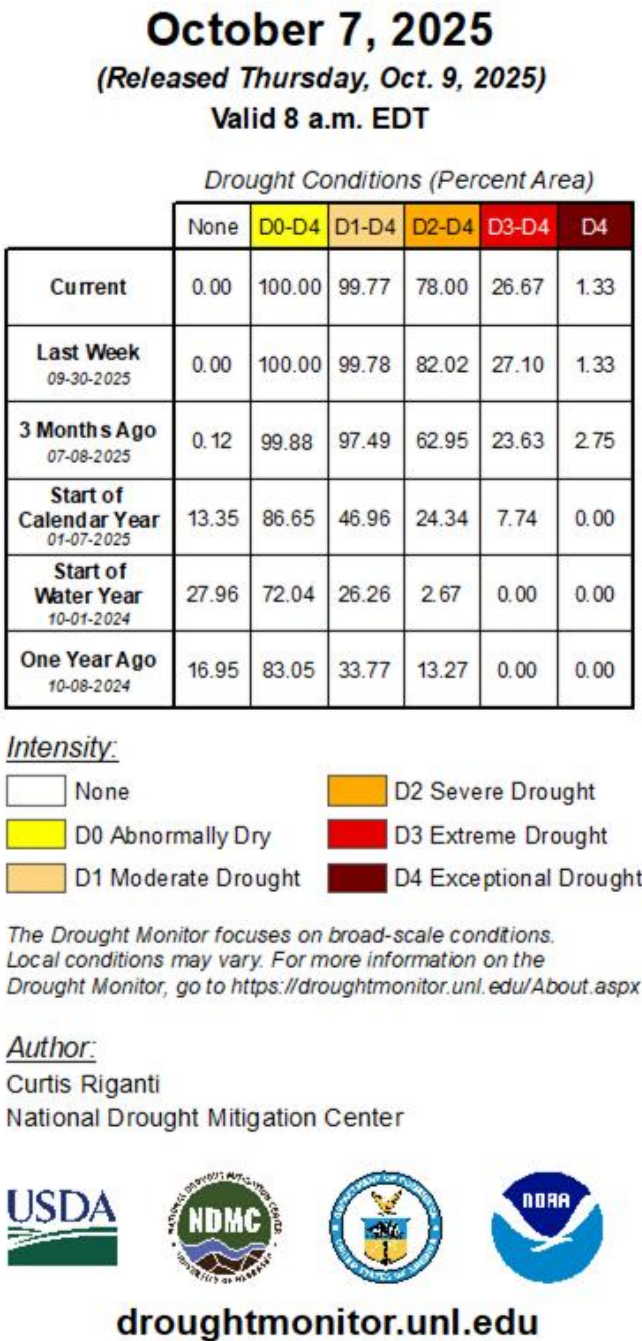
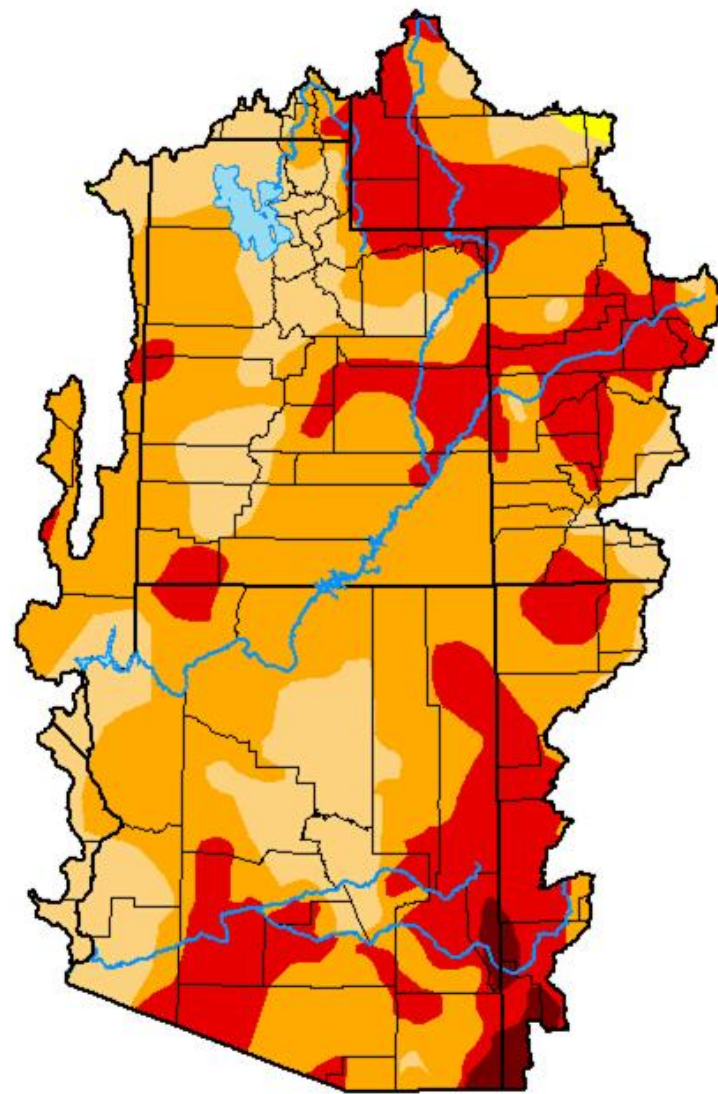


- The Colorado Basin River Forecast Center (CBRFC) is forecasting river stages to rise across the state but no gauges are currently forecast to reach action stage.
- River levels are forecast to rise to just below historical peaks at some gauges, with the Gila River near Maricopa approaching its historical peak (*left*).

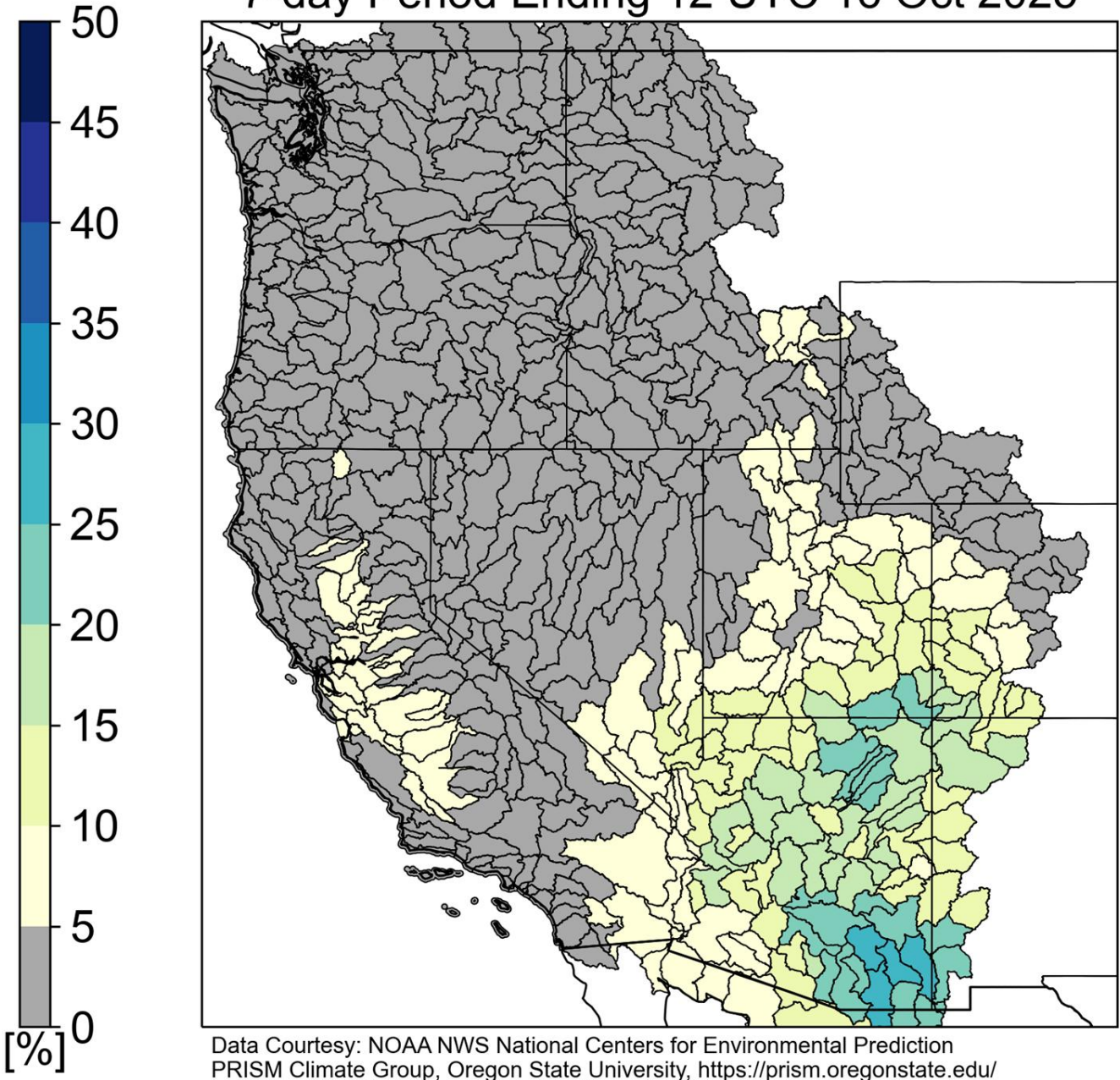
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Beneficial Impacts

U.S. Drought Monitor
Colorado Basin RFC



NBM Percent of Normal WY Precipitation
7-day Period Ending 12 UTC 16 Oct 2025



- Despite the potential for flooding, precipitation from these storms will likely bring some drought relief to the Colorado River Basin. According to the latest U.S. Drought Monitor update, 78% of the region is experiencing Severe Drought (D2) or worse conditions, and 27% of the region is experiencing Extreme Drought (D3) or worse conditions.
- The National Blend of Models (NBM) is forecasting as much as 20-30% of normal annual precipitation in some watersheds over northeastern and southeastern Arizona during the next 7 days.