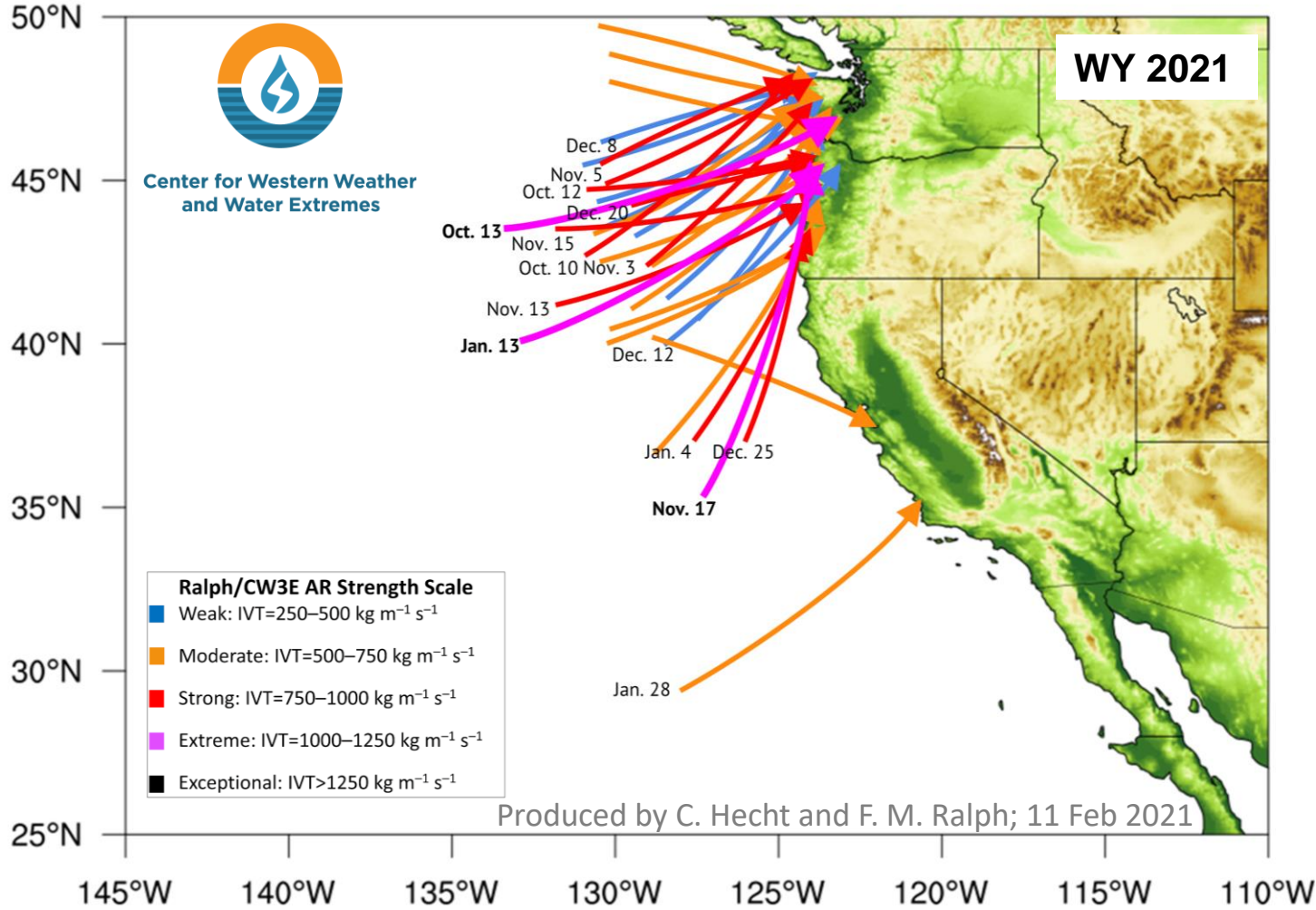


Water Year 2021 Landfalling Atmospheric Rivers: Oct-Feb Summary

AR Strength	AR Count
Weak	8
Moderate	13
Strong	11
Extreme	3
Exceptional	0

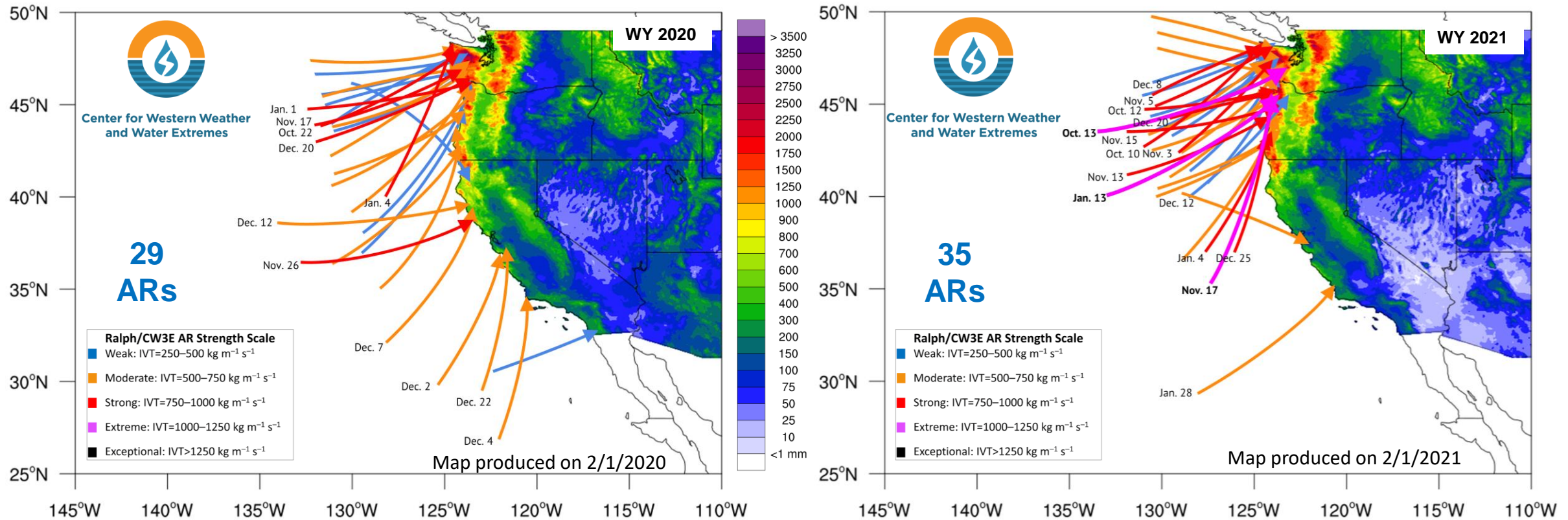
Regions Impacted by Each AR	
State/Region	AR Conditions
Washington	33
Oregon	34
Northern CA	20
Central CA	9
Southern CA	14

35 atmospheric rivers have made landfall over the U.S. West Coast during Water Year 2021



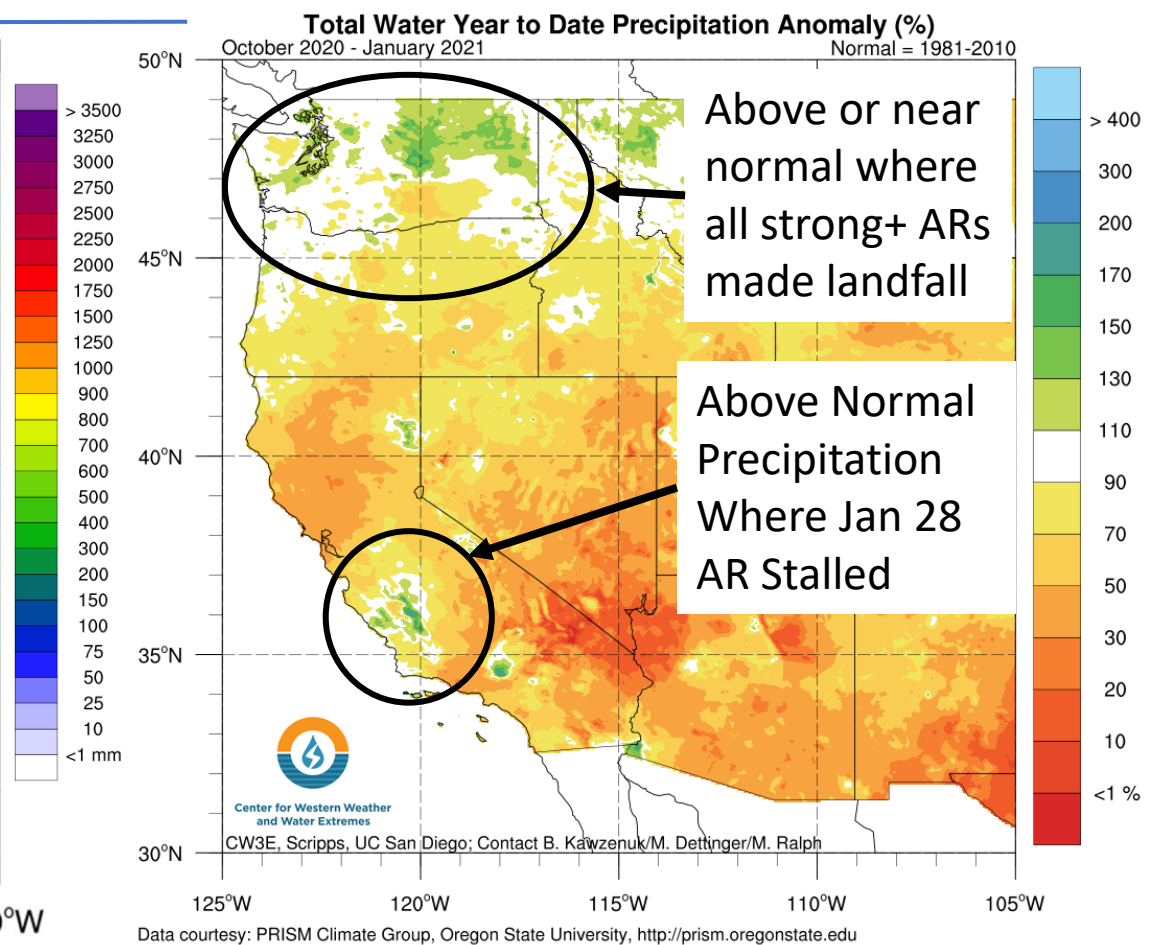
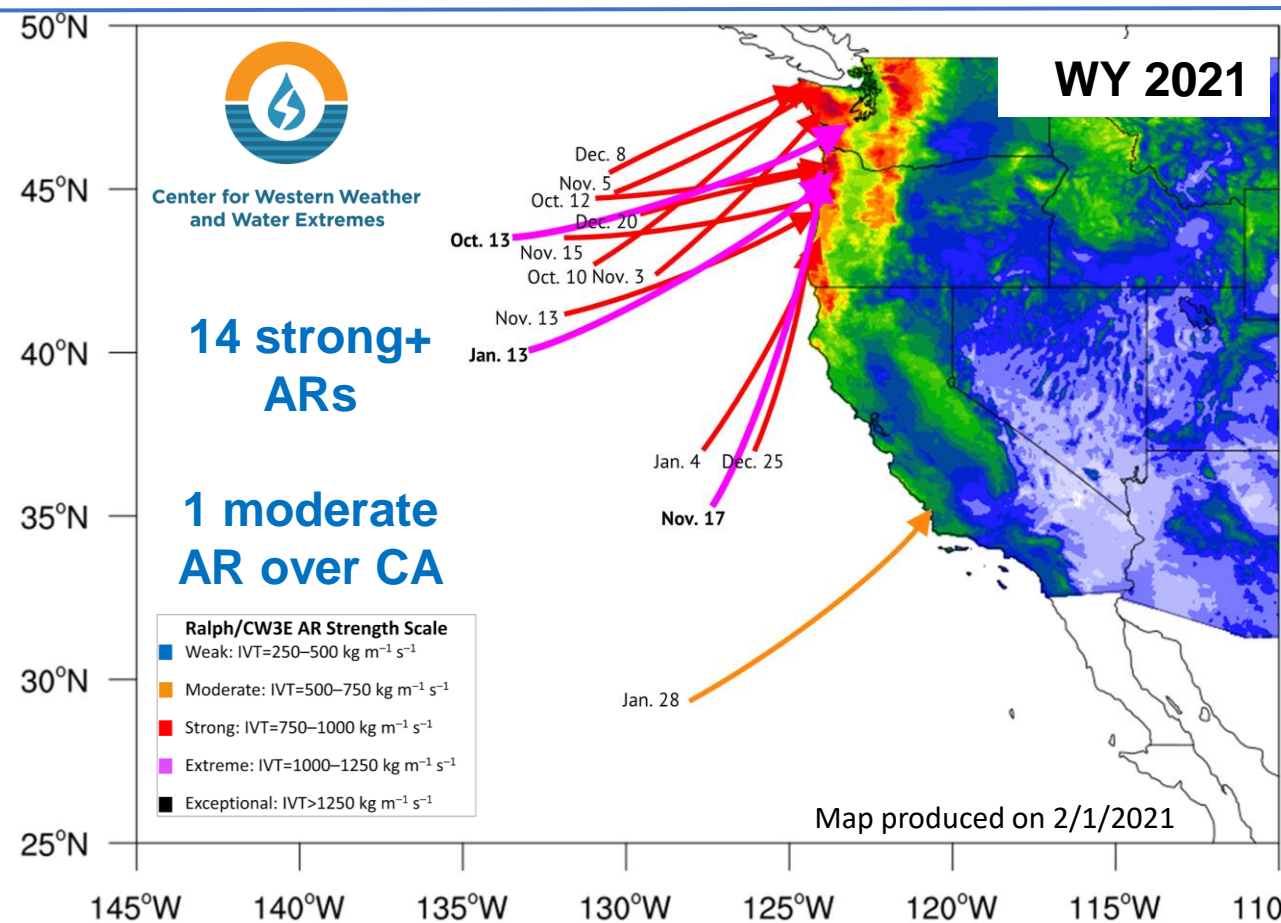
*Arrows are placed on the map where each AR was strongest over the coast

Water Year 2021 Compared to Water Year 2020



- The 4 months of Water Year 2021 experienced a total of **35 landfalling ARs** over the U.S. West Coast, 6 more than the first 4 months of Water Year 2020 .
- Water Year 2021 also experienced more than twice as many strong or greater ARs (14) compared to Water Year 2020 (6).
- While Water Year 2021 saw more ARs in its first 4 months compared to Water Year 2020, a large majority of those ARs were strongest over the Pacific Northwest (OR and WA).
- The average landfall latitude thus far in Water Year 2021 was 45.9°N compared to 43.9°N during the first half of Water Year 2020
- The lack of landfalling ARs over Southern CA and Baja California has resulted in much drier conditions over the southwestern U.S. compared to WY 2020

Water Year 2021 Precipitation Summary



- The lack of strong or greater magnitude ARs over CA resulted in a large deficit from normal precipitation across much of the state.
- The first impactful AR to make landfall over CA was strongest over Central CA on January 28th and brought moderate AR conditions to a large stretch of the CA coast.
- The AR also stalled over Central CA from north of Point Conception, which is one of the few locations in Ca that has received above normal precipitation

Highlights of January 28th AR over CA

Storm-Total Precipitation

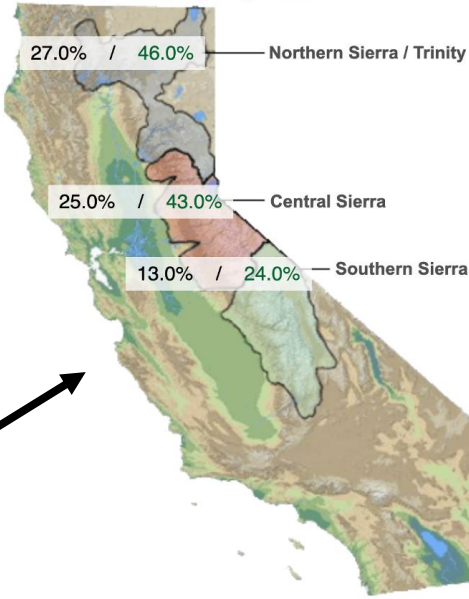
Station	3-day Precip (in)	Normal Annual Precip (in)	% of Normal Annual Precip)
Big Sur	13.38	44.88	29.8%
Santa Cruz	6.32	31.35	20.2%
Paso Robles	5.88	15.20	38.7%
King City	4.55	12.06	37.7%
Modesto	3.70	13.11	28.2%
Friant Government Camp	3.47	14.93	23.2%
Salinas	3.06	12.83	23.9%
Los Banos	2.96	9.95	29.7%
Merced	2.83	12.50	22.6%
Coalinga	2.53	8.25	30.7%

Sources: NOAA/NWS Hanford, <https://www.weather.gov/hnx/>
 NOAA/NWS Los Angeles, <https://www.weather.gov/lox/>
 NOAA/NWS Sacramento, <https://www.weather.gov/sto/>
 NOAA/NWS San Francisco, <https://www.weather.gov/mtr/>

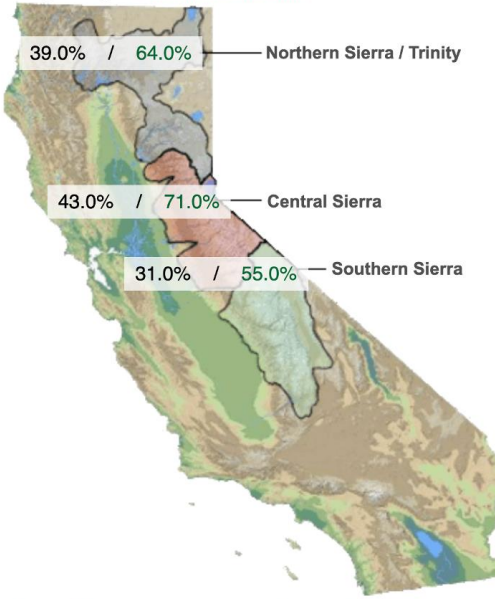
- The AR that was strongest over Central CA on January 28th highlights how one or two ARs can play a large role during the water year.
- Several locations throughout CA received 30-40% of its normal annual precipitation from this one AR.

Snowpack Monitoring

Provided by the California Cooperative Snow Surveys
 Data For: 26-Jan-2021
 % Apr 1 Avg. / % Normal for this Date



Provided by the California Cooperative Snow Surveys
 Data For: 29-Jan-2021
 % Apr 1 Avg. / % Normal for this Date



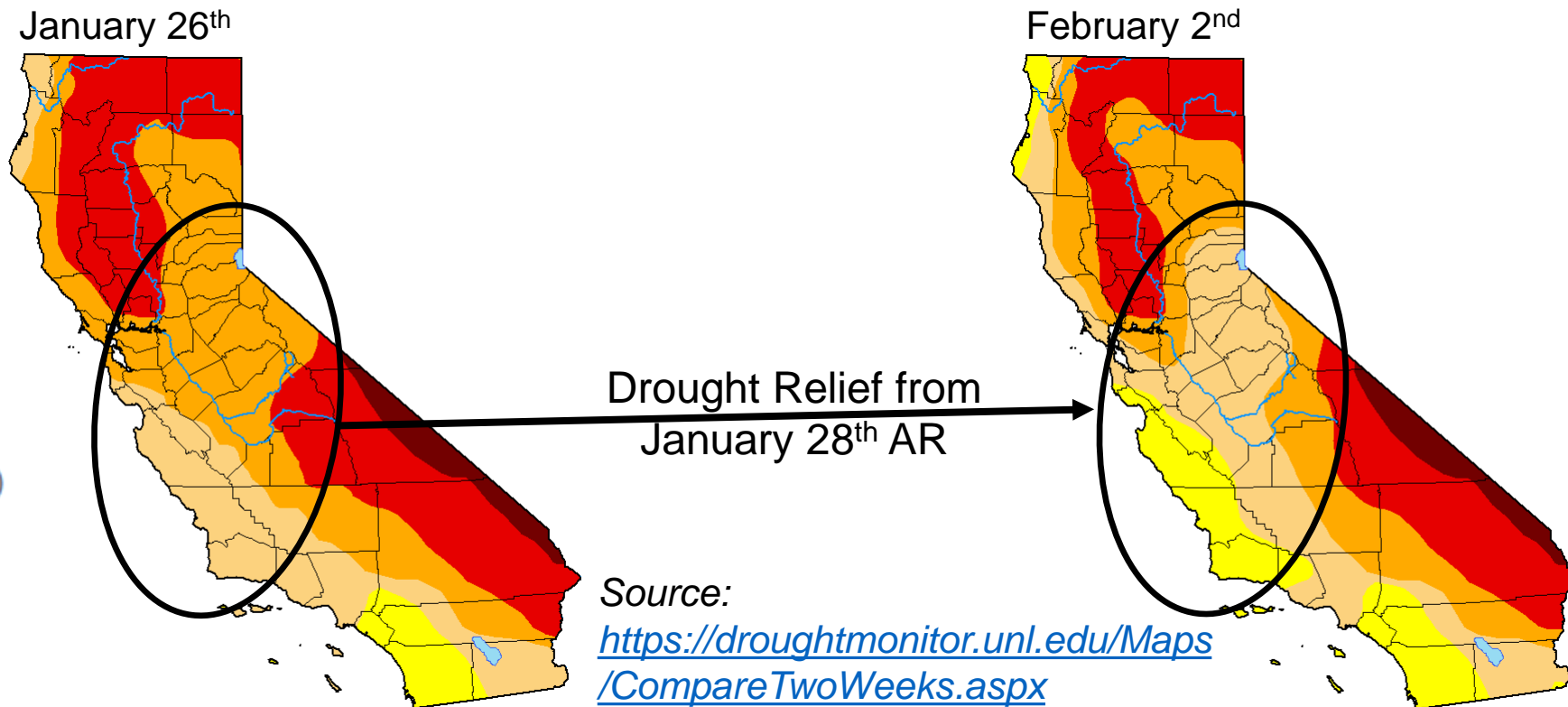
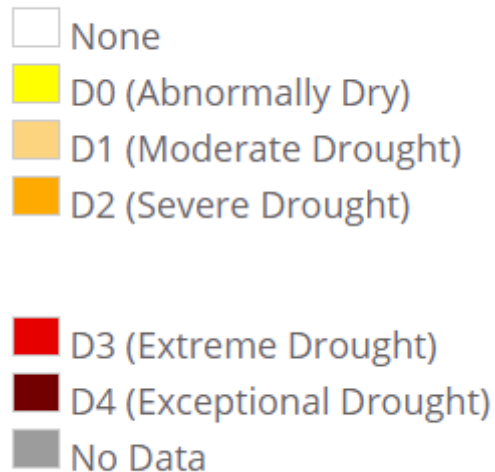
Source: California Department of Water Resources, <https://www.wcc.nrcs.usda.gov/>

- Low freezing levels allowed for this AR to also produce a large contribution to the Sierra Nevada Snowpack.
- Statewide snowpack increased from 42% of normal to 66% of normal for 29 January.
- Visit <https://cw3e.ucsd.edu/cw3e-event-summary-26-29-january-2021/> for a full summary on the event*

Highlights of January 28th AR over CA

CA Drought Monitor Index

Drought Classification



Source:

<https://droughtmonitor.unl.edu/Maps/CompareTwoWeeks.aspx>

- The January 28th AR also helped to mitigate drought conditions in California, especially where the AR stalled over the Central Coast.
- The Central Coast of CA went from Moderate Drought on January 26th to Abnormally dry on February 2nd.
- Locations where the AR penetrated inland over the Central Valley and Sierra Nevada went from Severe Drought to Moderate Drought.

Highlights of January 28th AR over CA

Mudslide along River Road near Salinas, CA



Source: Brian Emfinger, Live Storms Media

Home Damaged by Mudslide near River Road



Source: Monterey County Regional Fire Department

- Intense rainfall also caused debris flows within the River Fire burn scar near Salinas, CA
- The collapse of the hillside above River Road resulted in an extensive mudflow that damaged at least 20 homes

Landslide on Highway 1 near Big Sur, CA



Source: Heath Johnston, Caltrans

- While only a few storms can help mitigate drought and contribute to California's water supply, each storm can also create hydrologic impacts, highlighting how ARs can be both beneficial and hazardous.
- A narrow cold frontal rainband on the periphery of the AR produced high-intensity short duration precipitation that led to debris flows over burn scars as well as other hydrologic impacts.
- Several mudslides were observed over Central and Southern CA, while a landslide closed Highway 1 near Big Sur.
- Visit <https://cw3e.ucsd.edu/cw3e-event-summary-26-29-january-2021/> for a full summary on the event*