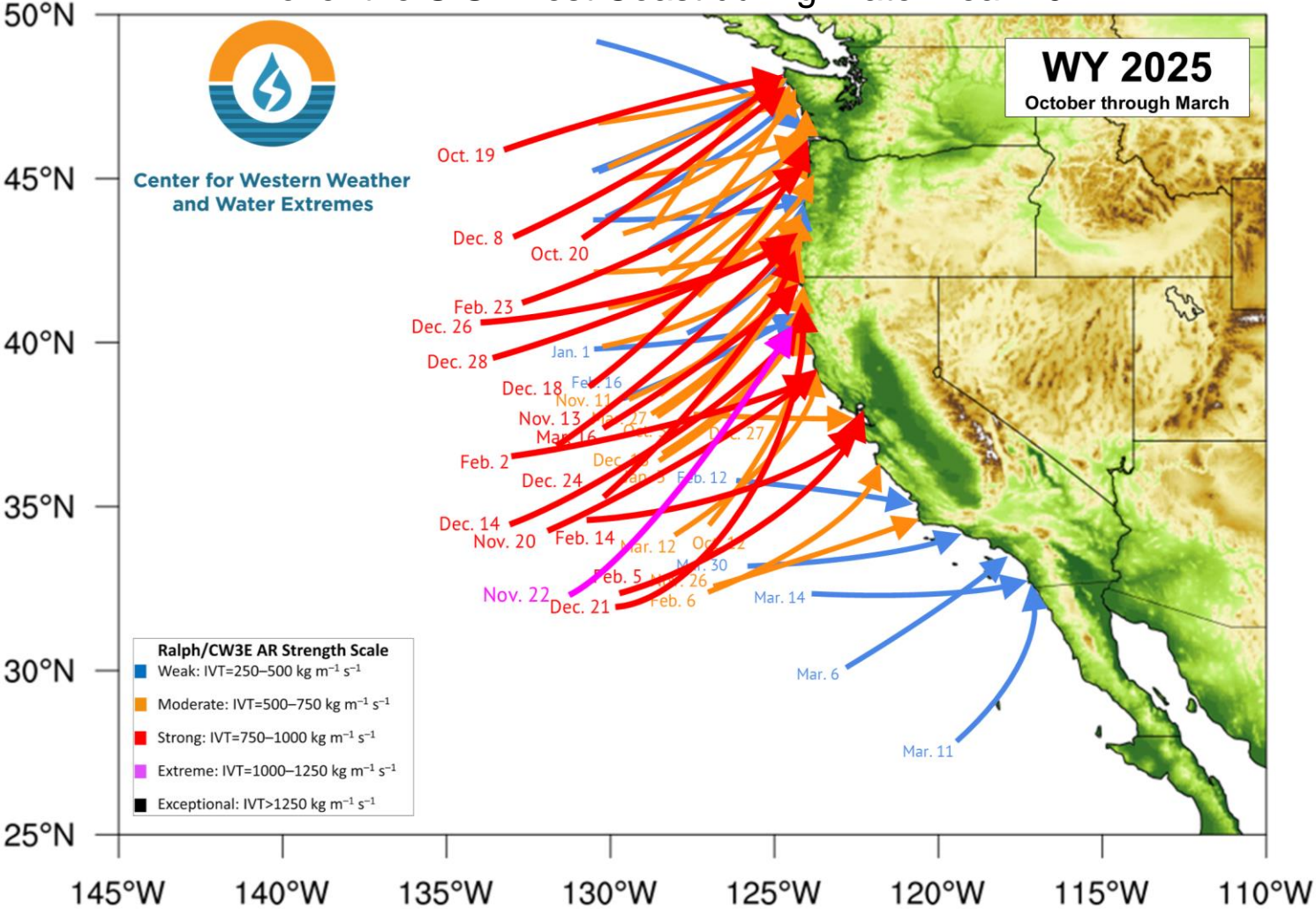


The Landfalling Atmospheric Rivers of Water Year (WY) 2025

AR Strength	AR Count
Weak	14
Moderate	25
Strong	16
Extreme	1
Exceptional	0

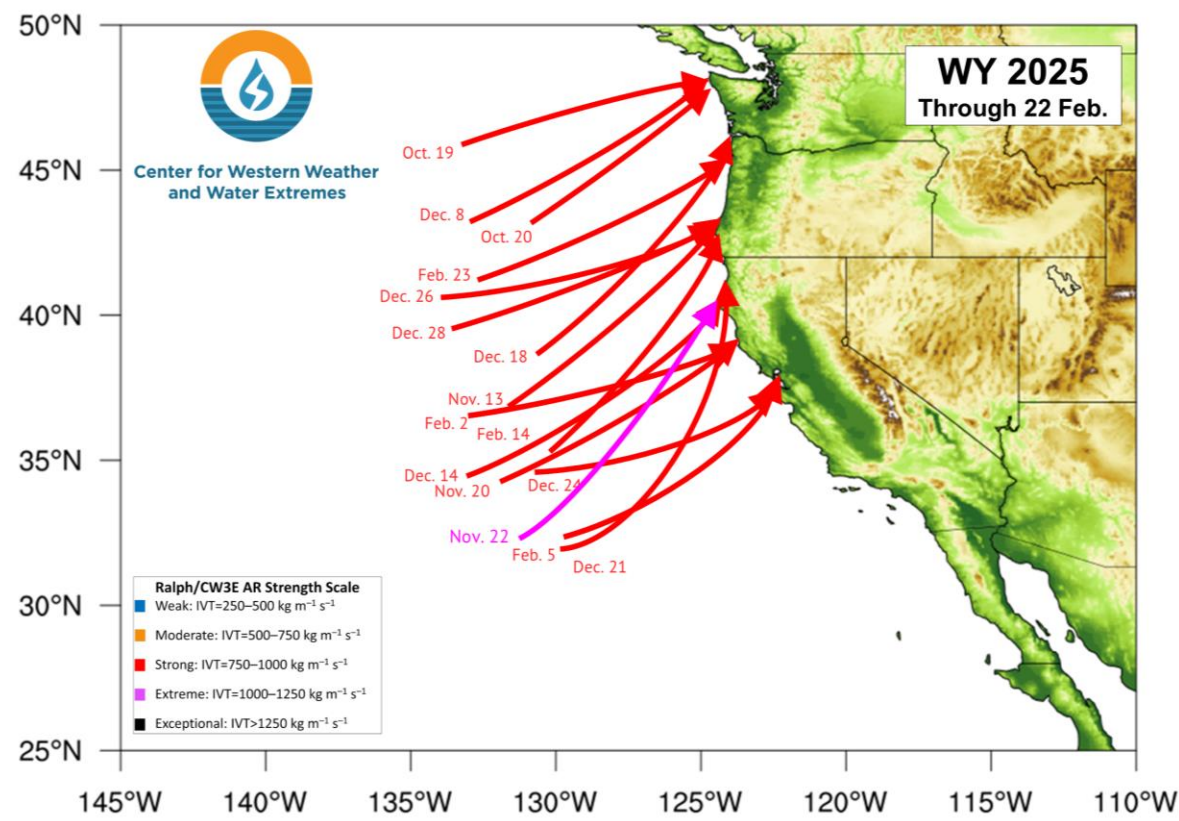
Regions Impacted by Each AR	
State/Region	ARs
Washington	41
Oregon	47
Northern CA	43
Central CA	24
Southern CA	12

56 atmospheric rivers made landfall over the U.S. West Coast during Water Year 2024



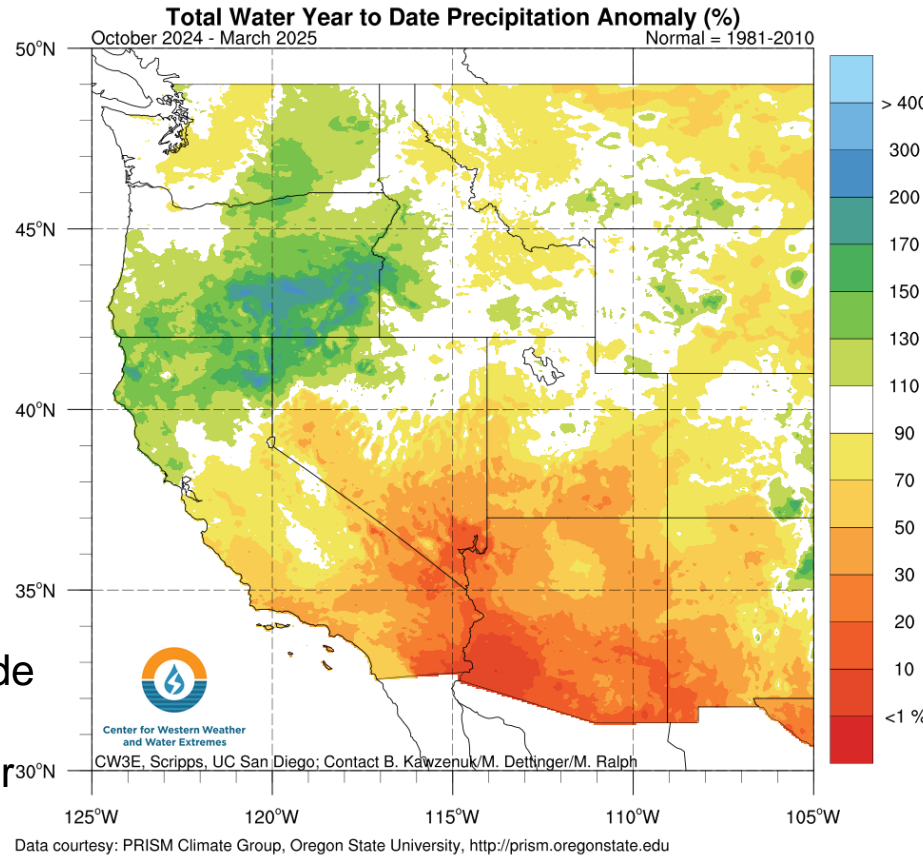
*Arrows are placed on the map where each AR was strongest over the coast

A Tale of Two Californias



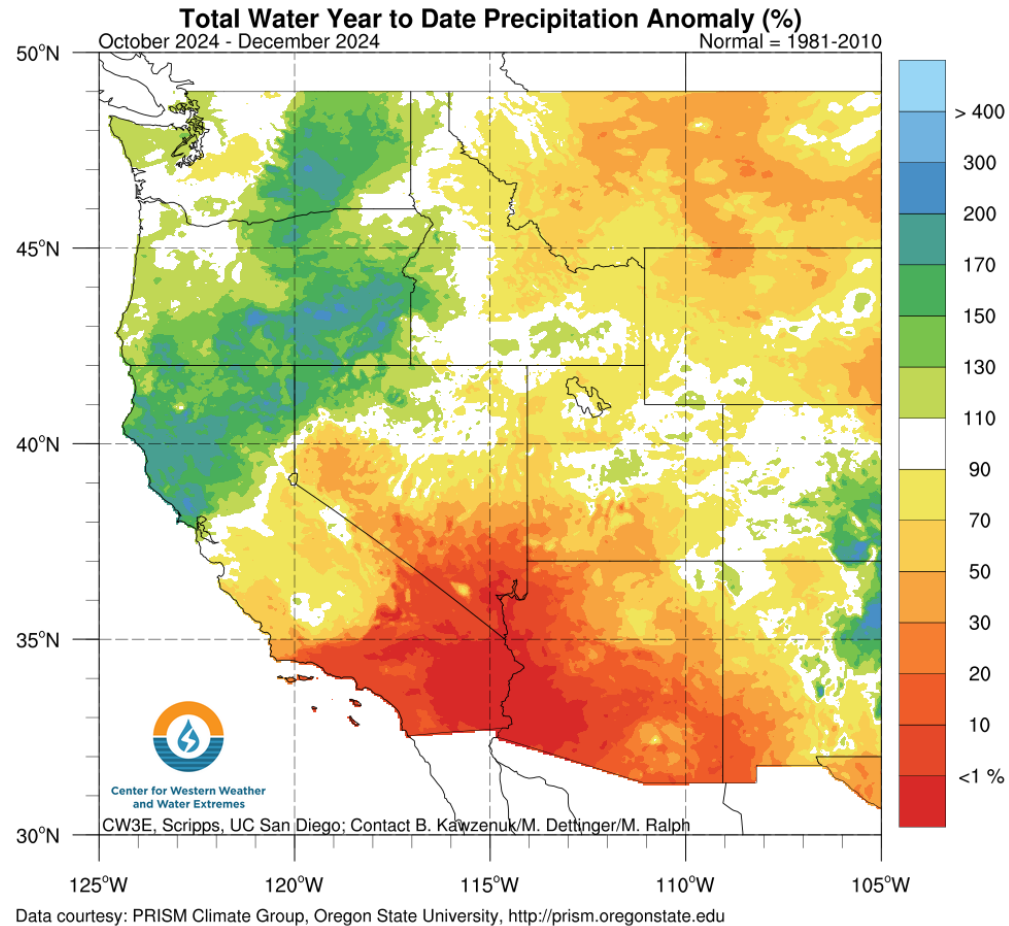
- Northern California, which averages 6 strong or greater magnitude ARs per year, experienced 9 instances in WY 2025 through April 1, leading to above normal precipitation accumulations
- In contrast, Southern California did not experience any strong or greater magnitude ARs and only one moderate strength AR
- This lack of activity over Southern California led to the region experiencing 70% or below normal precipitation accumulations through March

Breakdown by Region					
	Weak	Mod.	Str.	Ext.	Total
N. CA	12	14	8	1	35
C. CA	16	5	1	0	22
S. CA	10	1	0	0	11

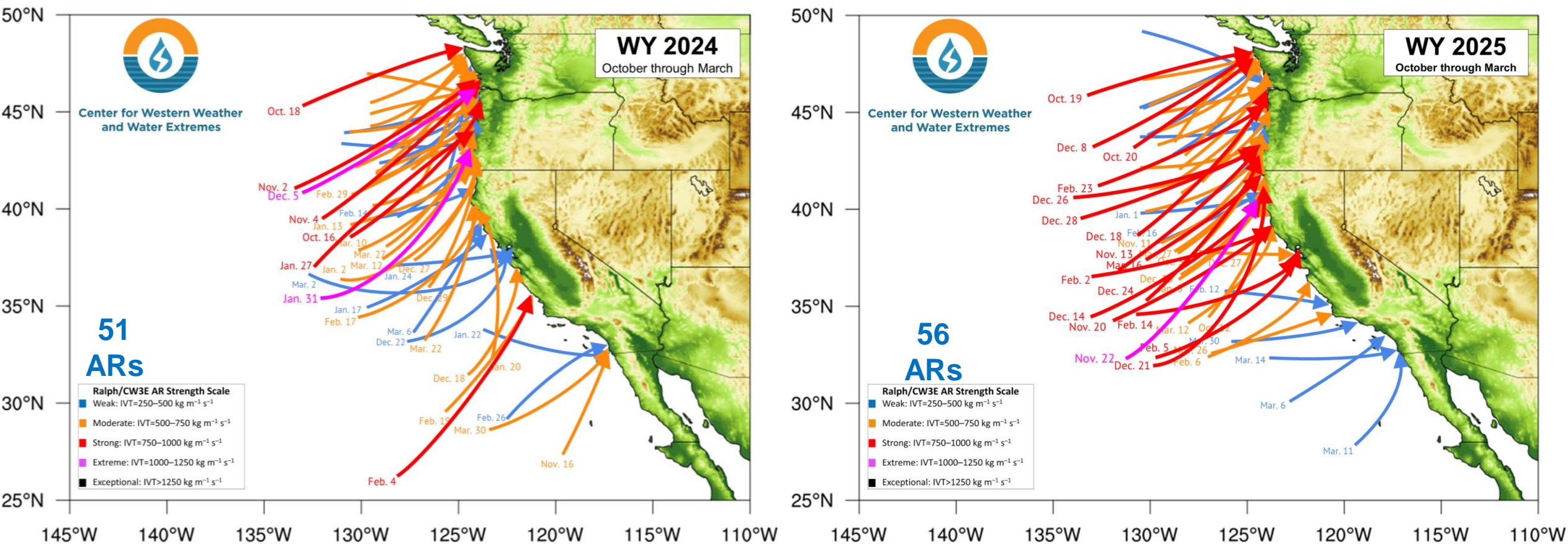


Dry Conditions in Southern California

- Through January 1st, Southern California only experienced 3 instances of weak AR conditions (south of Point Conception), resulting in <1% of normal precipitation through December
- Minimal precipitation through early January resulted in dry conditions and extreme fire weather extending well into the winter, a time that typically sees a reduction in fire activity

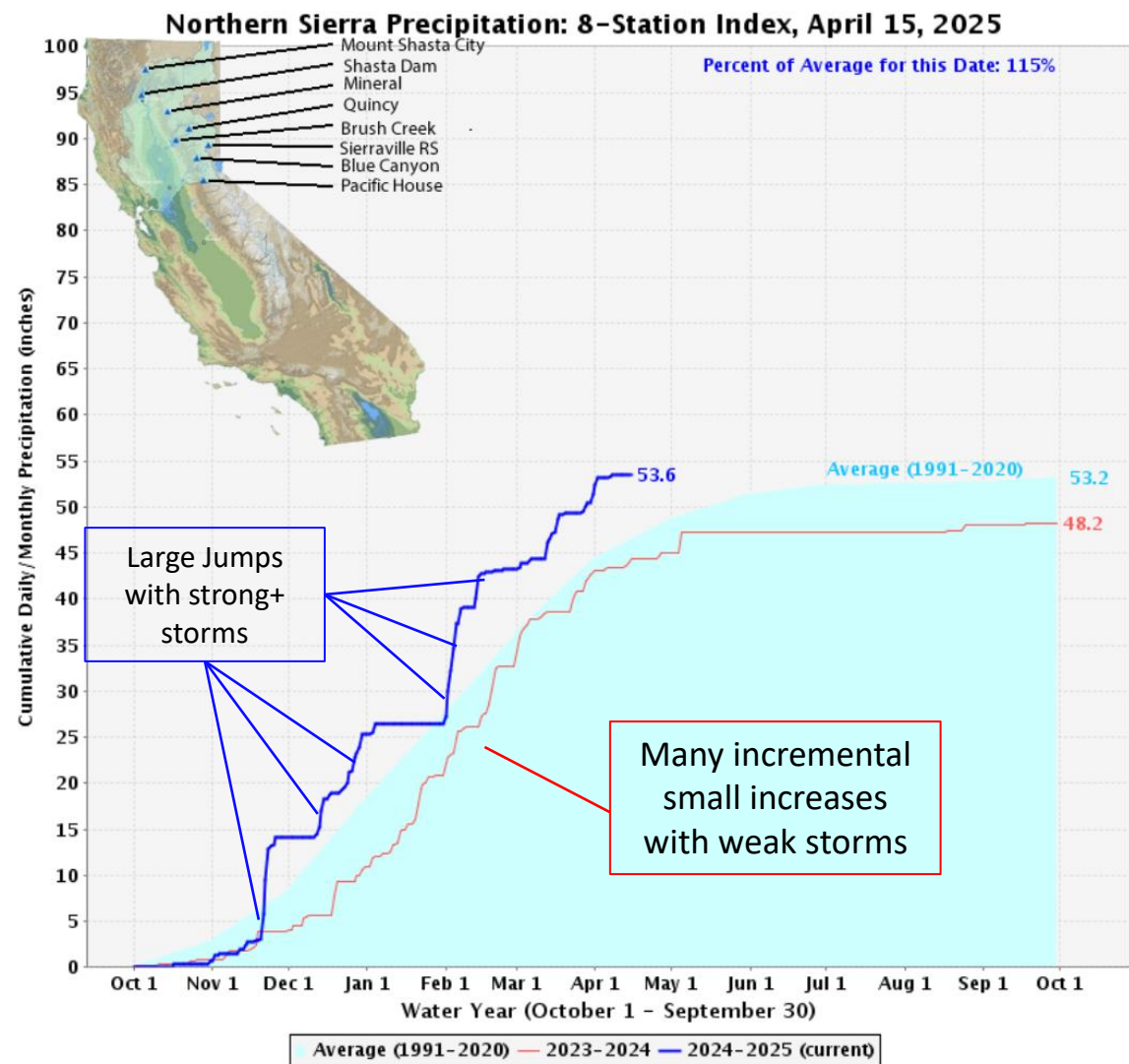


Water Year 2025 Compared to Water Year 2024



- Water Year 2025 experienced 5 more ARs compared to Water Year 2024 and a larger portion of the 2025 ARs were strong or greater magnitude (30% compared to 15%)
- More ARs were stronger over the Pacific Northwest during WY 2024, whereas stronger ARs shifted south to Oregon and Northern California in WY 2025 leading to above normal precipitation in this region.

Water Year 2025 Compared to Water Year 2024: Northern California



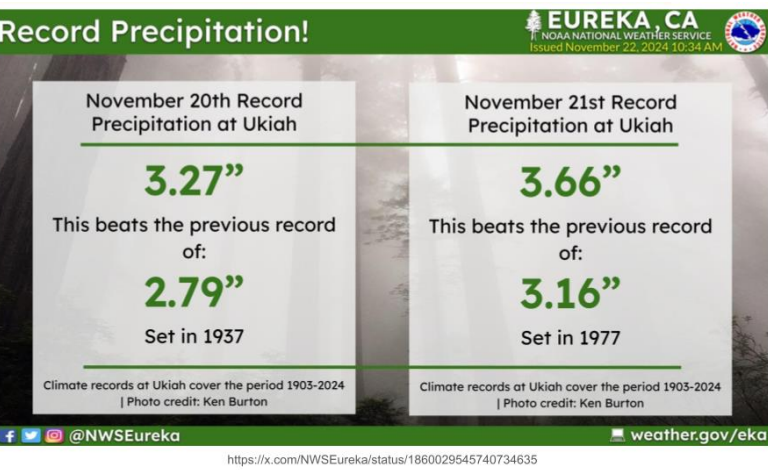
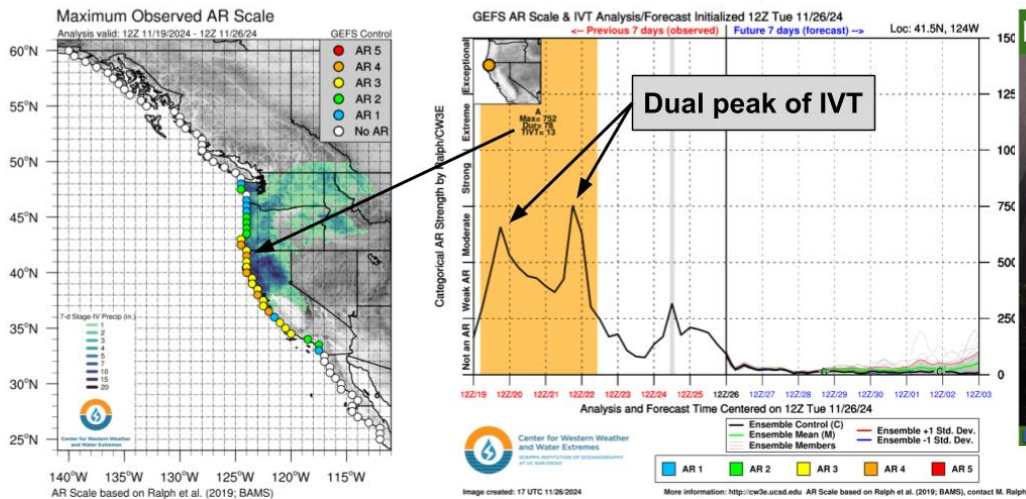
- The increased activity and larger proportion of strong or greater magnitude storms over Northern California led to the Northern Sierra 8-Station Index receiving ~10 more inches of precipitation during WY 2025 compared to 2024 (through March)
- Northern California experienced 9 more weak ARs in Water Year 2024, which led to a stepwise increase throughout the water compared to the large jumps in WY 2025 with the 8 additional strong or greater storms

2024	
Breakdown by Strength	
Strength	Number of Ars
Weak	26
Moderate	15
Strong	2
Extreme	0
Exceptional	0
Total	36

2025	
Breakdown by Strength	
Strength	Number of Ars
Weak	17
Moderate	16
Strong	9
Extreme	1
Exceptional	0
Total	43

WY 2025 Highlights: A Strong Start to California's Wet Season

Observed AR Scale - GEFS Control: 41.5 N, 124.0 W



<https://x.com/CaltransD2/status/1860348239414985101>

- The strongest atmospheric river to impact California this year occurred on 19–23 November, bringing strong AR conditions and heavy precipitation to a large portion of Northern California
- The strong AR conditions combined with the event's long duration led to Ukiah, California breaking daily precipitation records on both November 20th and November 21st
- Flooding, rockslides, and wind damage was reported across a wide swath of Oregon and Northern California



https://www.instagram.com/p/DCs34yTxVkg/?img_index=10&igsh=MzRIODBINWFIZA==

WY 2025 Highlights: A Switch to a Wetter Pattern in SoCal

- After Southern California experienced minimal AR activity through the first four months of the water year and Los Angeles dealt with extreme wildfire activity in January, storm tracks over the Pacific began to shift southward and increase AR activity over Southern California.
- This switch to a wetter pattern on the heels of extreme dry and intense fires increased the potential for post-fire debris flows over recently burned and hydrophobic soils.
- An atmospheric river on February 13th, brought moderate strength AR conditions to Coastal Southern California and resulted in numerous debris and ash flows across the recently burned Transverse Mountains.

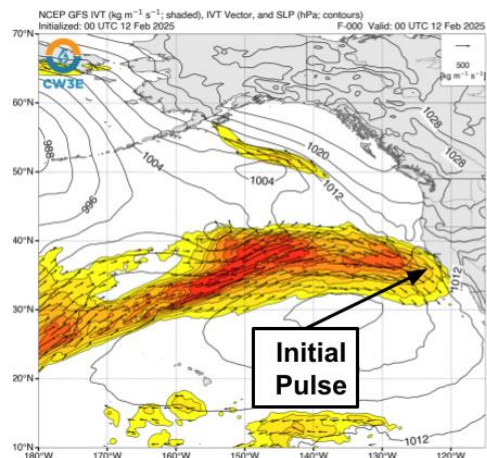


Debris flows onto the Pacific Coast Highway (left) and material covering Topanga Canyon Boulevard after a significant debris flow, both within the Palisades Fire Burn.

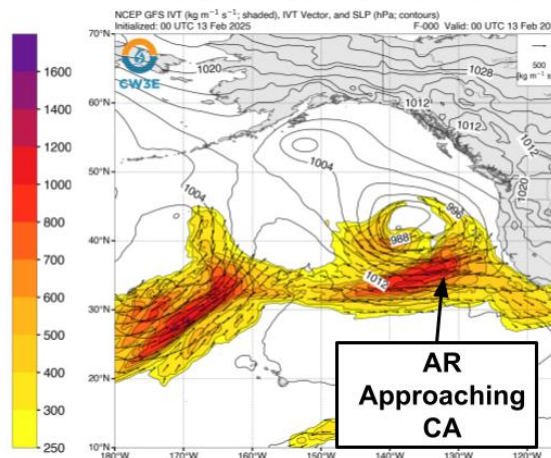
Credit: Caltrans District 7 (<https://x.com/CaltransDist7/status/1890150590044614933>,
<https://x.com/CaltransDist7/status/1890510423134208062>)

GFS IVT Analysis

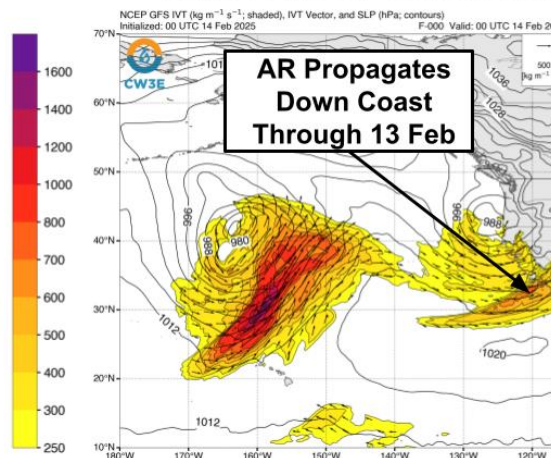
Valid: 4 PM PST 11 Feb 2025



Valid: 4 PM PST 12 Feb 2025



Valid: 4 PM PST 13 Feb 2025



AR Propagates
Down Coast
Through 13 Feb



A debris basin in Bailey Canyon captures a significant amount of material which flowed from the Eaton Fire burn car

Credit: Alert California (<https://alertcalifornia.org/>)