



Center for Western Weather  
and Water Extremes

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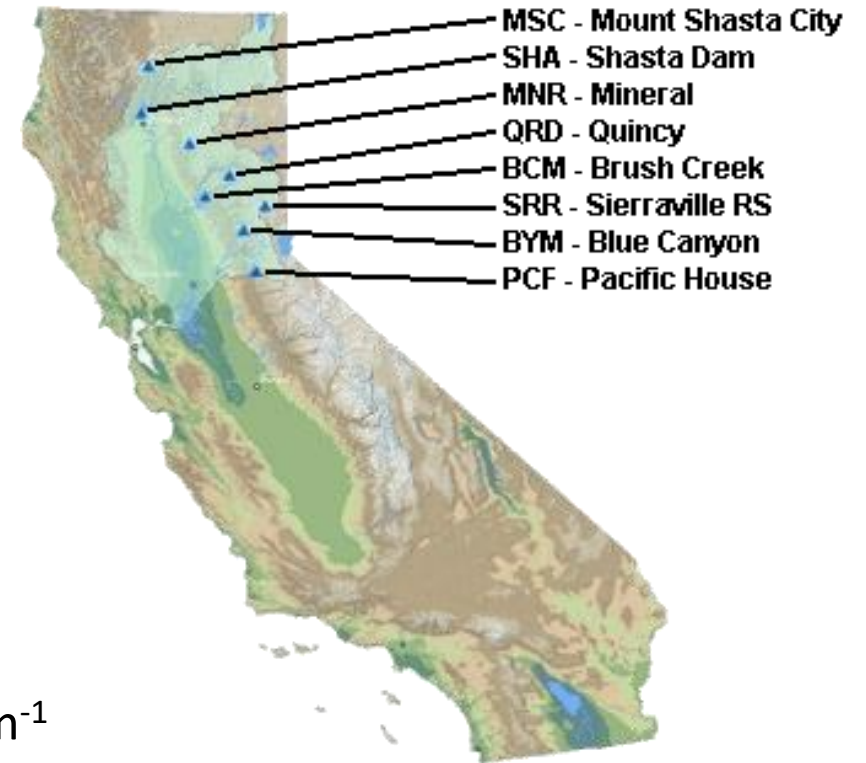
# Top Ten Precipitation Events in Water Year 2016

Brian Kawzenuk, Julie Kalansky, Marty Ralph



# Top Ten Precipitation Events – Water Year 2016

- Top precipitation events were determined based on storm total precipitation measured by the Northern Sierra 8-Station Index (shown on map)
- The top ten events produced a total of 30.09 in. (76.44 cm) of precipitation over 27 days
- 30.09 in. of precipitation represents 51.89% of the total water year to date (Oct. – May) precipitation
  - 60.2% of normal water year precipitation
- All events were analyzed to determine if an Atmospheric River was present
  - All events were associated with an AR as defined by  $IVT > 250 \text{ kg m}^{-1} \text{ s}^{-1}$  and  $IWV > 20 \text{ mm}$  in a long narrow feature
  - 8 were considered moderate ARs ( $IVT > 500 \text{ kg m}^{-1} \text{ s}^{-1}$  over land)
  - 6 were considered strong ARs ( $IVT > 750 \text{ kg m}^{-1} \text{ s}^{-1}$  over land)



# Top Ten Precipitation Events – Water Year 2016

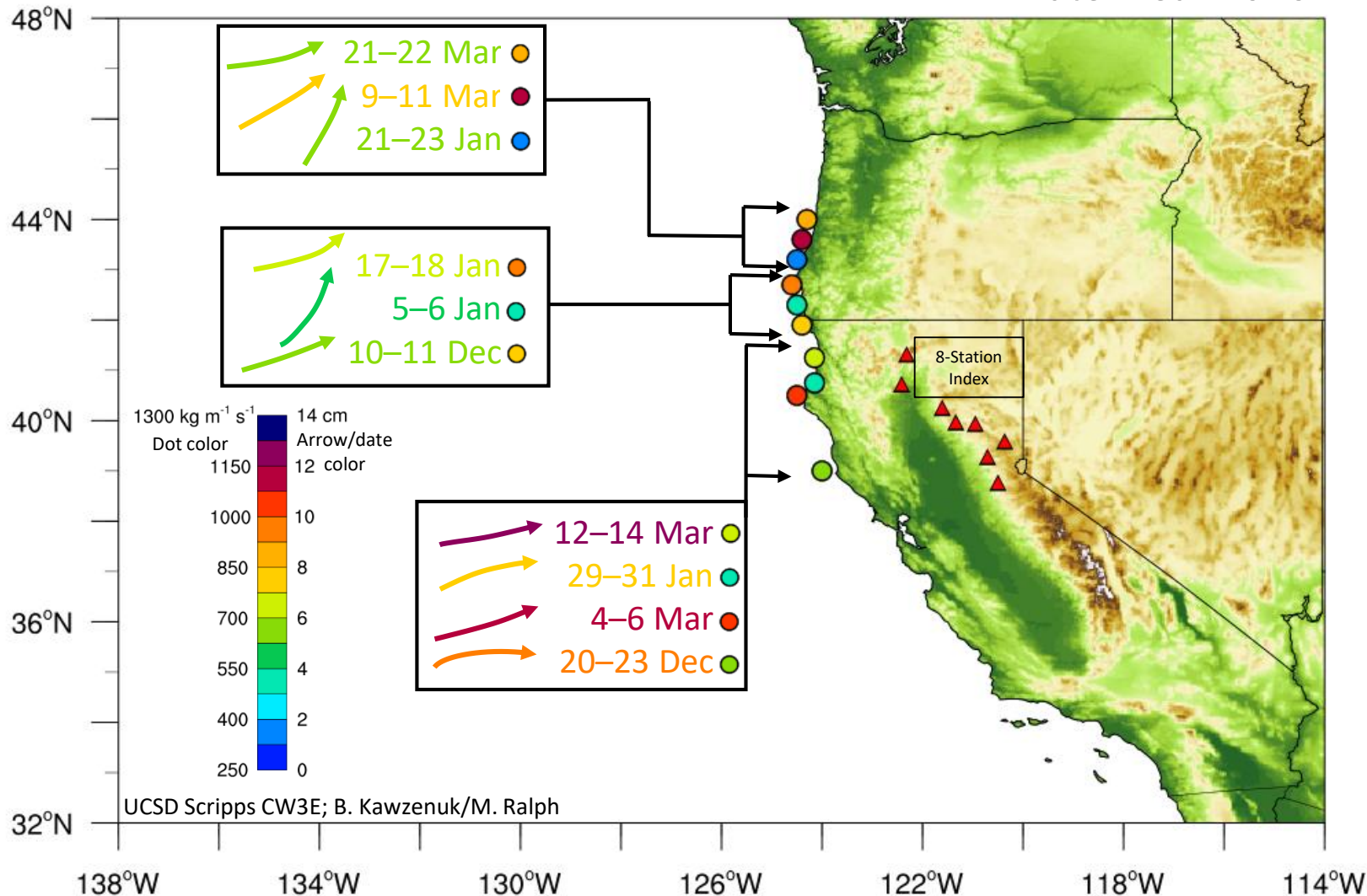
Date	Rank	Precipitation (8-Station Index; in/cm)			AR Conditions	
		Max Daily	Storm Total	% of WY16	Max IVT ( $\text{kg m}^{-1} \text{s}^{-1}$ )	Max IWB (mm)
3/12-3/14	1	2.33 / 5.91	4.78 / 12.15	8.26	516.151	29.6
3/4-3/6	2	2.33 / 5.93	4.67 / 11.85	8.06	1029.76	32.5
12/20-12/23	3	1.93 / 4.91	3.86 / 9.80	6.66	688.147	31.6
1/29-1/31	4	1.49 / 3.79	3.08 / 7.83	5.32	769.184	34.9
3/9-3/11	5	1.69 / 4.29	2.78 / 7.07	4.81	1075.79	32.4
1/17-1/18	6	1.67 / 4.24	2.74 / 6.97	4.74	827.984	32.4
12/10-12/11	7	1.66 / 4.21	2.87 / 5.81	3.95	988.251	33.3
1/21-1/23	8	1.09 / 2.77	2.04 / 5.18	3.52	922.705	30.1
3/21-3/22	9	1.11 / 2.81	2.01 / 5.11	3.47	393.109	25.7
1/5-1/6	10	1.02 / 2.59	1.84 / 4.67	3.18	497.867	28.8
		<b>Total</b>	<b>30.09 / 76.44</b>	<b>51.98</b>		

Maximum IWB/IVT values are calculated along the U.S. West Coast and may not be at the same time or location  
IVT/IWB data from GFS analysis



# AR Locations and Orientation

Water Year 2016



Each dot represents the location of maximum IVT during each precipitation event

- Color is representative of maximum IVT value

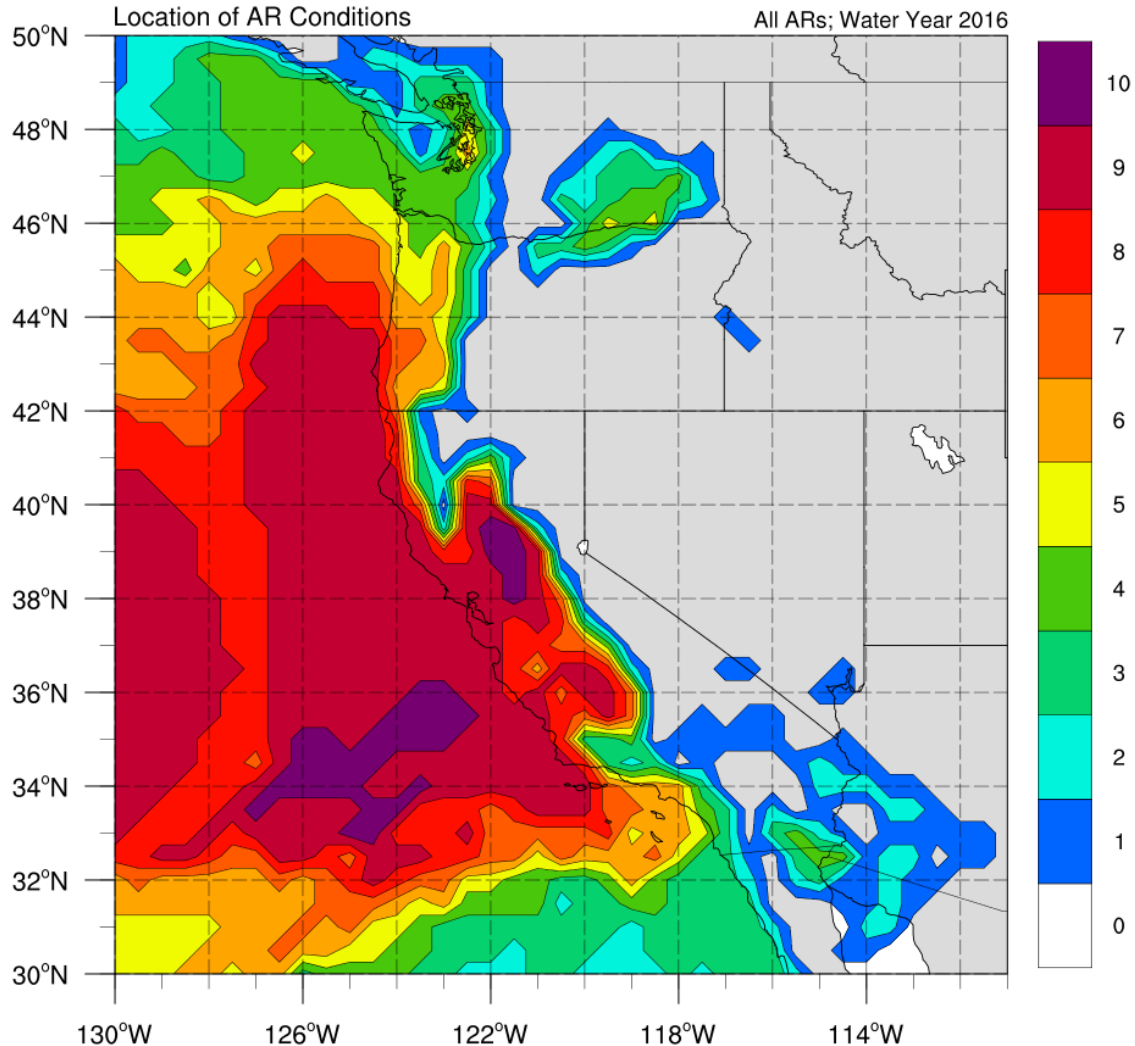
Dates of event and approximate AR orientation is shown for each event

- Color is representative of total precipitation amount measured by the 8-Station Index during the event (48, 72, or 96 hours)



# Location of AR Conditions

AR conditions are defined as IWV >20 mm and IVT >250 kg m<sup>-1</sup> s<sup>-1</sup>. Data from the GFS 0.5° analysis

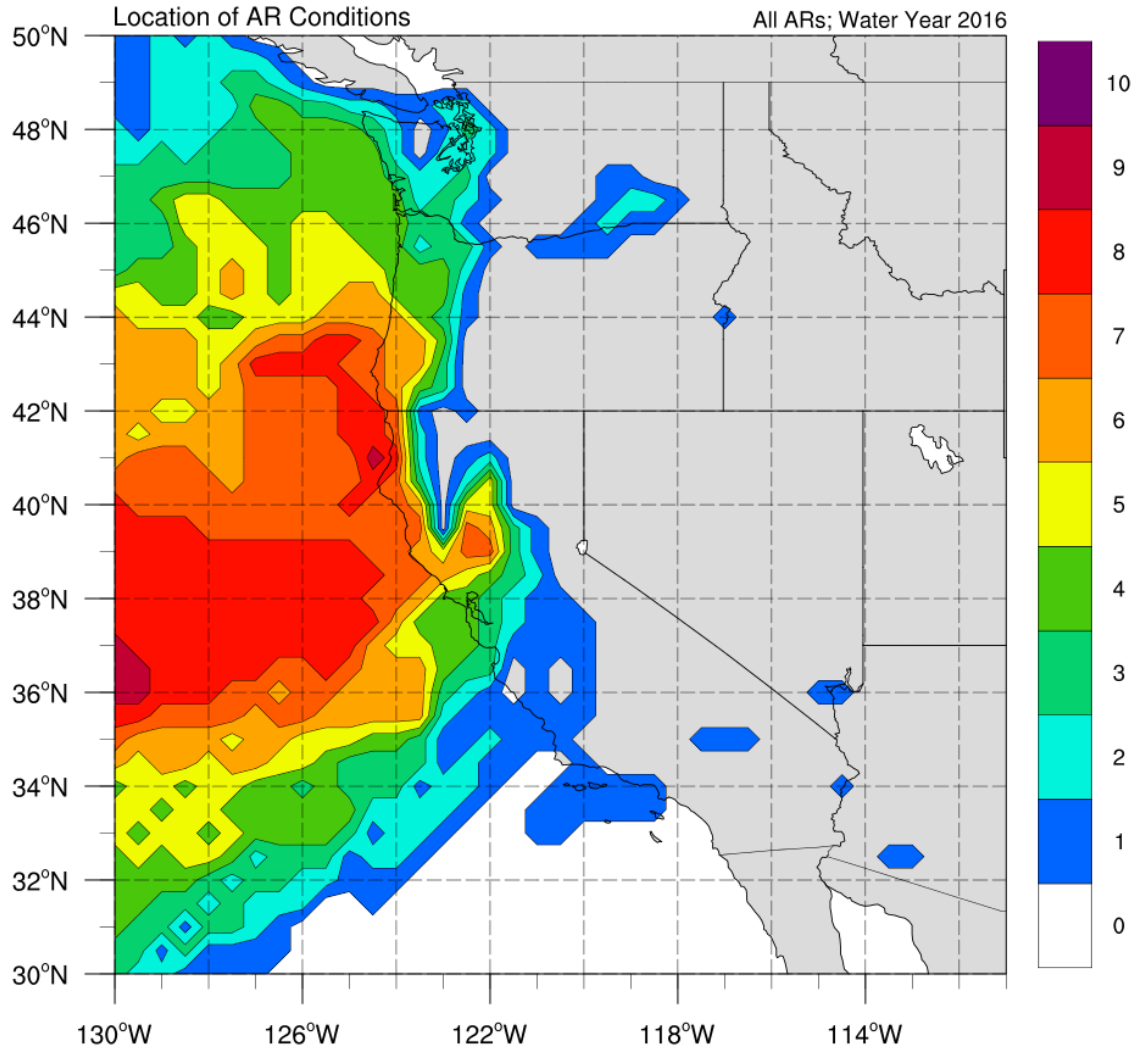


- Shading shows where AR conditions were met during the ten events
- Locations within the ten contour (purple) experienced AR conditions during all ten events
  - AR conditions penetrated inland to the north central valley in all cases
- Nine ARs made landfall over central/northern Ca



# Location of Moderate Strength AR Conditions

AR conditions are defined as IWV  $>20$  mm and IVT  $>500$  kg m<sup>-1</sup> s<sup>-1</sup>. Data from the GFS 0.5° analysis



- Shading shows where moderate strength AR conditions were met during the ten events
- Moderate strength AR conditions penetrated inland to the northern central valley and northern Sierra Nevada during 7 events
- Eight ARs made landfall over central/northern CA with moderate strength

