



# National Weather Service SF Bay Area / Monterey Bay Regions Climate and Winter Season Weather Briefing



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**Ryan** @chilesconsin  
@NWSBayArea here is entrance to Pt Reyes Park .

23h

3 6 25



# National Weather Service

## SF Bay Area / Monterey Bay Regions

### Climate and Winter Season Weather Briefing



## Topics

### **Climate Change**

- Information
- Short and long term impacts

### **Communication & Preparation**

- Ways to get the message
- Sources for information

### **Seasonal Prediction**

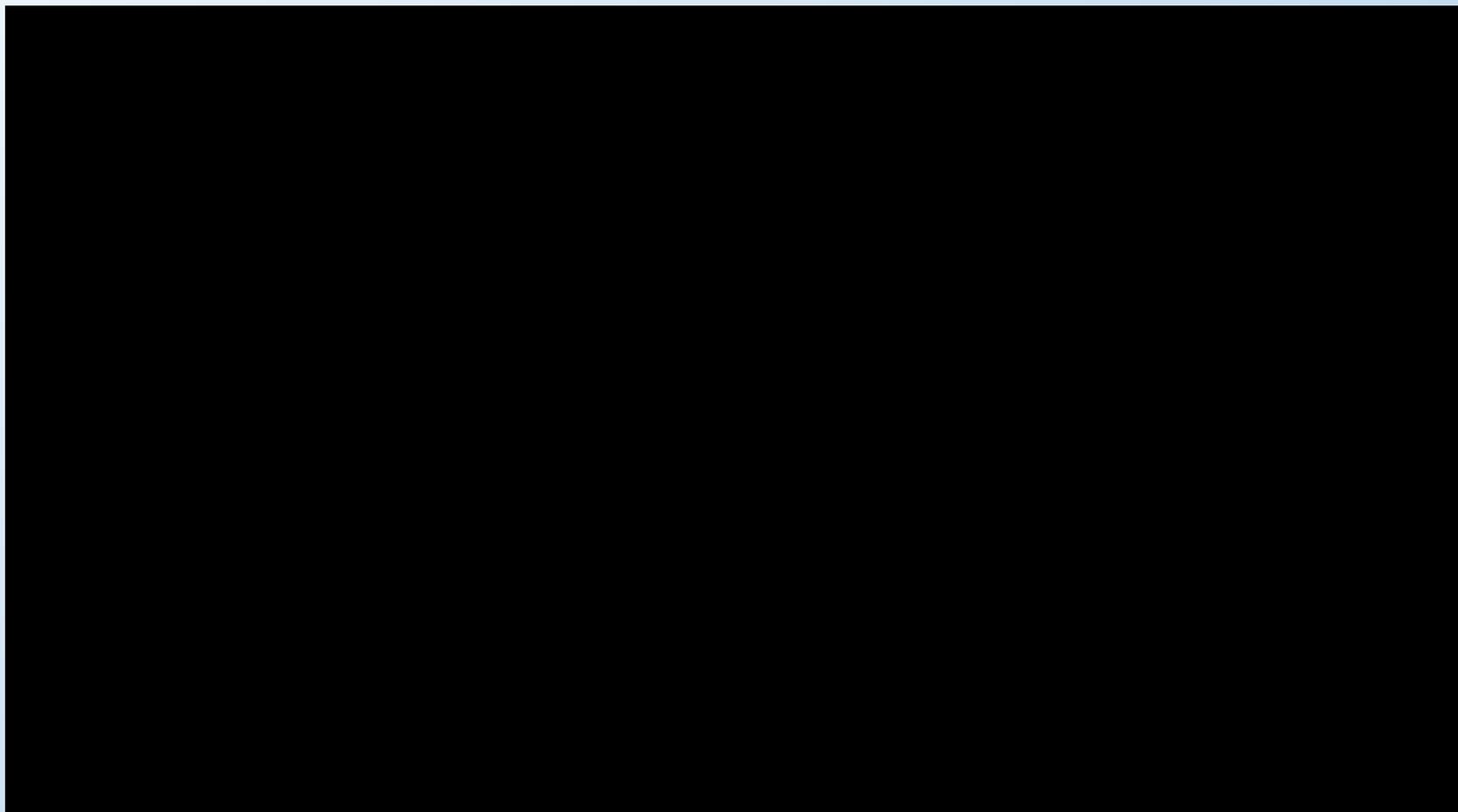
- El Niño Southern Oscillation (ENSO)
- Winter 2018 – 2019 review
- ENSO and other players for this coming winter season
- Winter season forecast



# National Weather Service

## SF Bay Area / Monterey Bay Regions

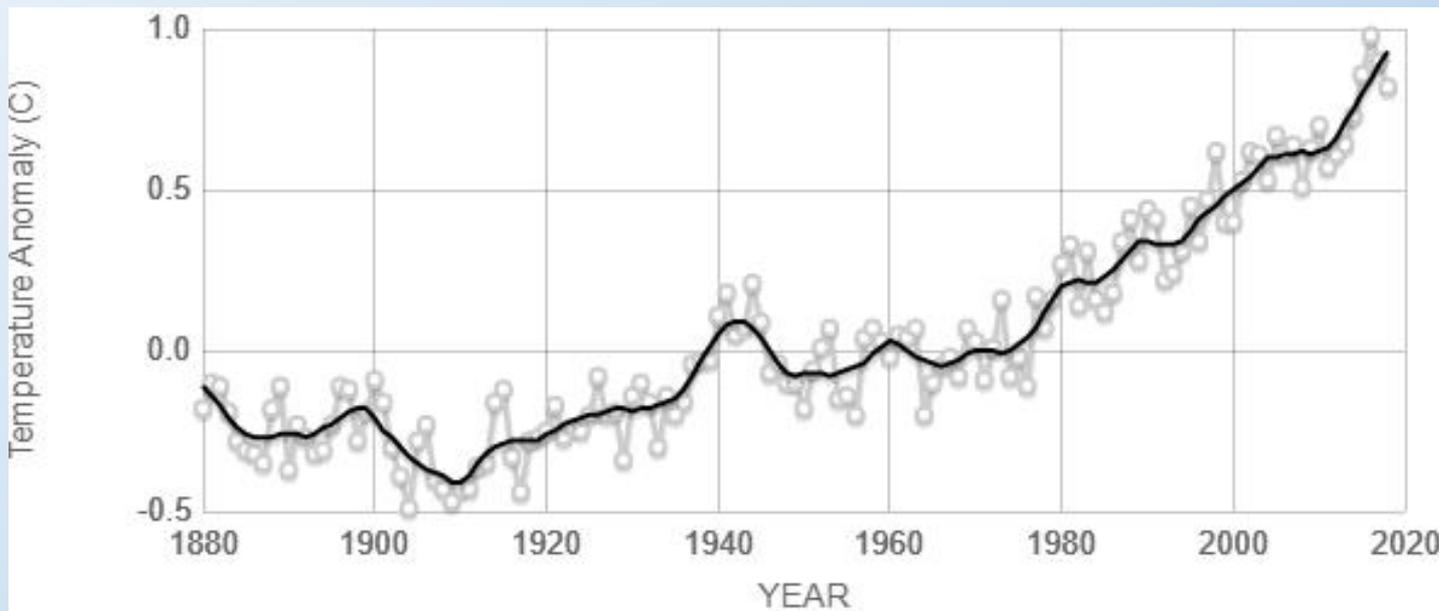
### Climate and Winter Season Weather Briefing



Climate Background Information



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Source: [climate.nasa.gov](https://climate.nasa.gov)



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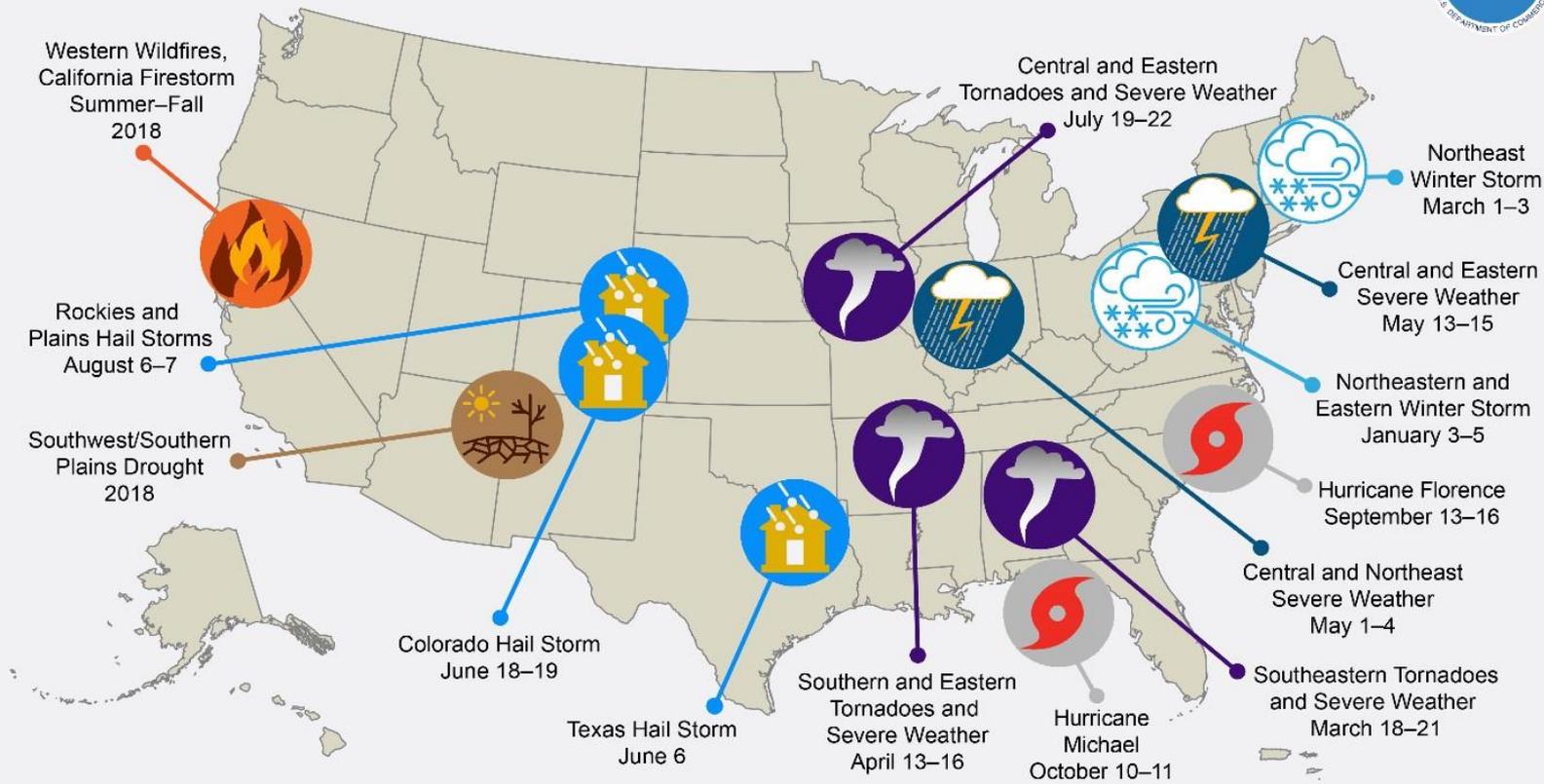




# National Weather Service SF Bay Area / Monterey Bay Regions Climate and Winter Season Weather Briefing



## U.S. 2018 Billion-Dollar Weather and Climate Disasters



This map denotes the approximate location for each of the 14 separate billion-dollar weather and climate disasters that impacted the United States during 2018.



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## SF Bay Area / Monterey Bay Regions

### Climate and Winter Season Weather Briefing



## Severe Weather Events



Source: NOAA National Centers for Environmental Information

### Weather Disasters (1980-2018)

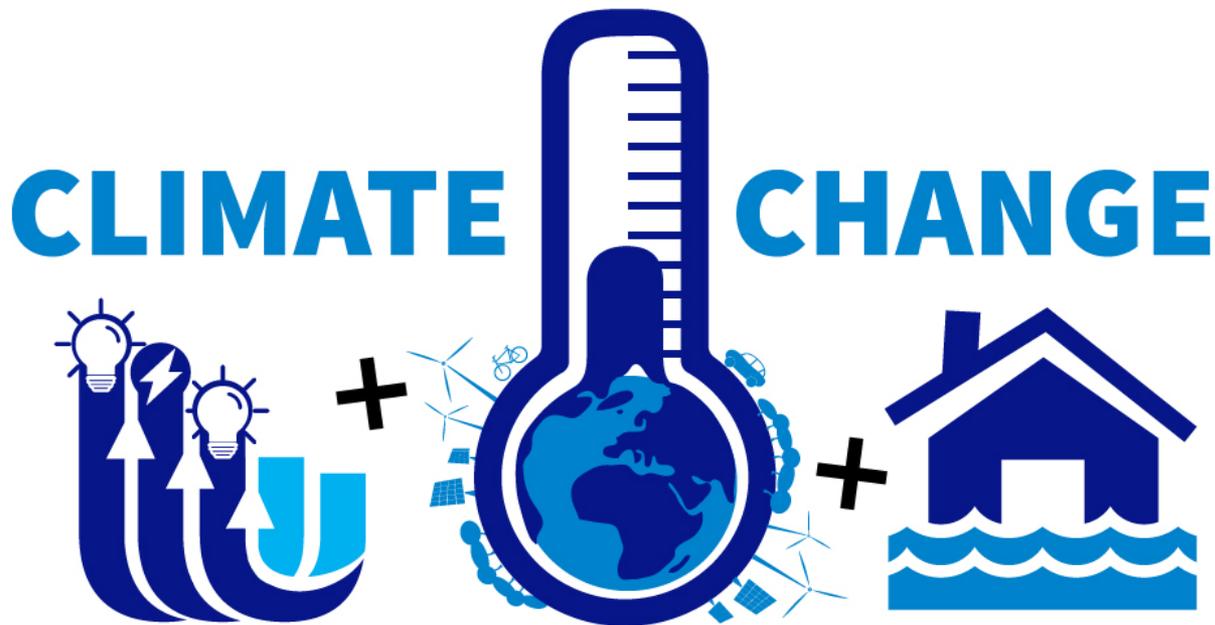
Drought .....	26
Flooding .....	29
Freeze .....	9
Severe Storm .....	103
Tropical Cyclone .....	42
Wildfire .....	16
Winter Storm .....	16

### Average Cost (billions)

Drought .....	\$9.4
Flooding .....	\$4.3
Freeze .....	\$3.3
Severe Storm .....	\$2.2
Tropical Cyclone .....	\$21.9
Wildfire .....	\$4.9
Winter Storm .....	\$3



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Temperatures Rise + Property Losses Increase +  
Power Costs Rise + Crop Yields Decrease \*



*\*If we continue on this path!*



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## SF Bay Area / Monterey Bay Regions

### Climate and Winter Season Weather Briefing



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# **National Weather Service**

## **SF Bay Area / Monterey Bay Regions**

### **Climate and Winter Season Weather Briefing**



## **Communication and Preparation**



# National Weather Service SF Bay Area / Monterey Bay Regions Climate and Winter Season Weather Briefing

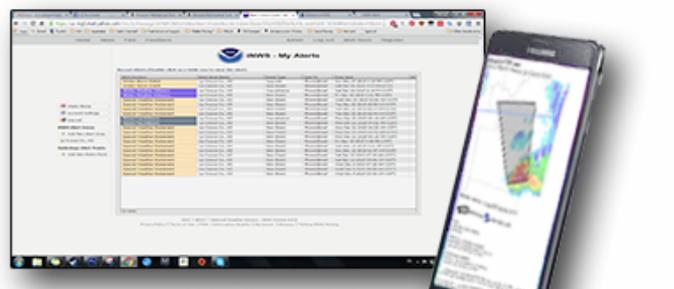


## iNWS - Interactive NWS

National Weather Service Mobile Decision Support Services (MDSS)

### iNWS MOBILE ALERTING

Receive customized text message and e-mail alerts for National Weather Service products that you care about.



### Welcome

InteractiveNWS (iNWS) is the home of new mobile and desktop innovations of the National Weather Service. This application suite allows NWS partners to receive National Weather Service products in new and innovative ways, such as text messaging and mobile-enabled webpages. iNWS strives to fulfill our mission of protecting life and property by using technology to reach out to our customers.

**Note:** If you are receiving alerts, but never signed up for them, they may be coming from a new FEMA public system called Weather Emergency Alerts (WEA). More information can be found at <http://ctia.org/wea>

iNWS is an experimental service intended for NWS core partners: emergency managers, community leaders, other government officials, and the media via electronic media.

DOC | NOAA | National Weather Service - iNWS Version 6.1.1

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[inws.ncep.noaa.gov](http://inws.ncep.noaa.gov)

Thursday • 8:48 AM

New event. Heat Advisory from 9/12/2019 11:00 AM to 7:00 PM PDT for Napa County, CA, Marin County, CA, Alameda... <https://inws.ncep.noaa.gov/a/a.php?i=38628601>



### iNWS Alert

New event: Heat Advisory for Alameda County, CA, Contra Costa  
[inws.ncep.noaa.gov](http://inws.ncep.noaa.gov)

Thu 8:48 AM



# National Weather Service SF Bay Area / Monterey Bay Regions Climate and Winter Season Weather Briefing



## WIRELESS EMERGENCY ALERTS

- Tsunami Warning
- Tornado Warning
- Extreme Wind Warning
- Flash Flood Warning
- Hurricane Warning
- Typhoon Warning
- Blizzard Warning
- Ice Storm Warning
- Dust Storm Warning





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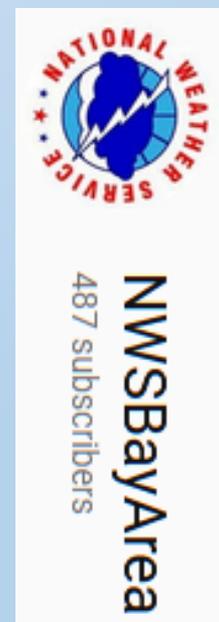
Social Media – @NWSBayArea



US National  
Weather Service  
San Francisco Bay  
Area/Monterey  
California ✓  
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**NWS Bay Area** ✓  
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# National Weather Service SF Bay Area / Monterey Bay Regions Climate and Winter Season Weather Briefing



## Potential for Isolated Showers this Weekend with Cooler Temperatures, Warmer Next Week

### National Weather Service - SF Bay Area/Monterey

Issued: 2:00 PM Wednesday, August 7, 2019

Point of Contact: 24/7 OPS - EM: 831-656-1717 | Media: 831-656-1724

#### Key Points - Expected Impacts

- Isolated rain showers are possible on Saturday across the North Bay.
- Below normal temperatures are expected this weekend.
- Temperatures will warm to above normal levels early next week.

#### Changes From Previous Briefing

*First issuance; no changes.*

#### North Bay

##### MODERATE Confidence

Cooler temperatures on Friday and Saturday with below normal highs expected  
Highs warming to 5-10 degrees above normal early next week

##### LOW Confidence

Isolated showers will develop Friday night through Saturday

#### Details:

- Isolated showers are possible Friday night and into Saturday.
- Rainfall amounts are expected to be light with less than 0.10 inches of rain.
- High temperatures Friday and Saturday will range from the mid 70s to the lower 80s, which is about 5-10 degrees below normal.
- High temperatures will warm into the mid 80s to upper 90s early next week.
- Low temperatures will be close to normal.



# National Weather Service SF Bay Area / Monterey Bay Regions Climate and Winter Season Weather Briefing



## NWS Forecast Office San Francisco, CA

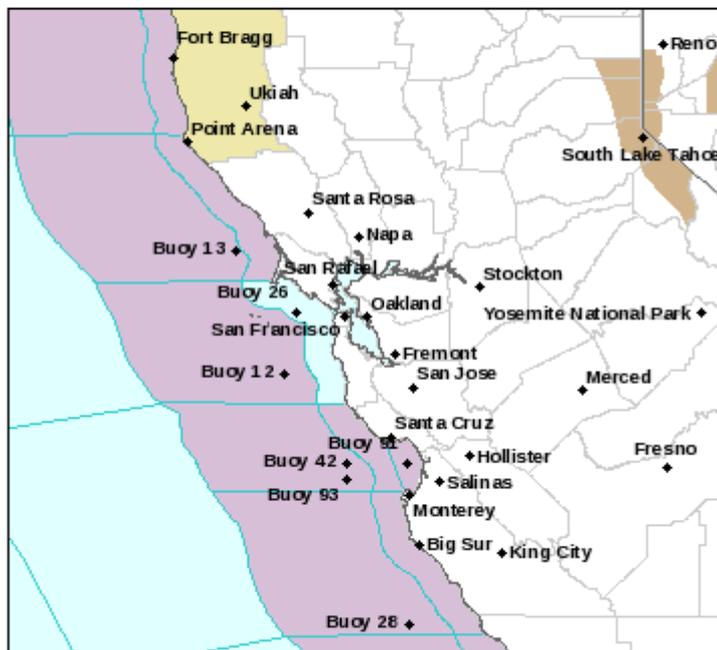
San Francisco Bay Area, CA

[Weather.gov](http://Weather.gov) > San Francisco Bay Area, CA

Weather Forecast Office

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Click a location below for detailed forecast.



[Watches,  
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Advisories](#)



[Small Craft Advisory](#)



[Lake Wind Advisory](#)



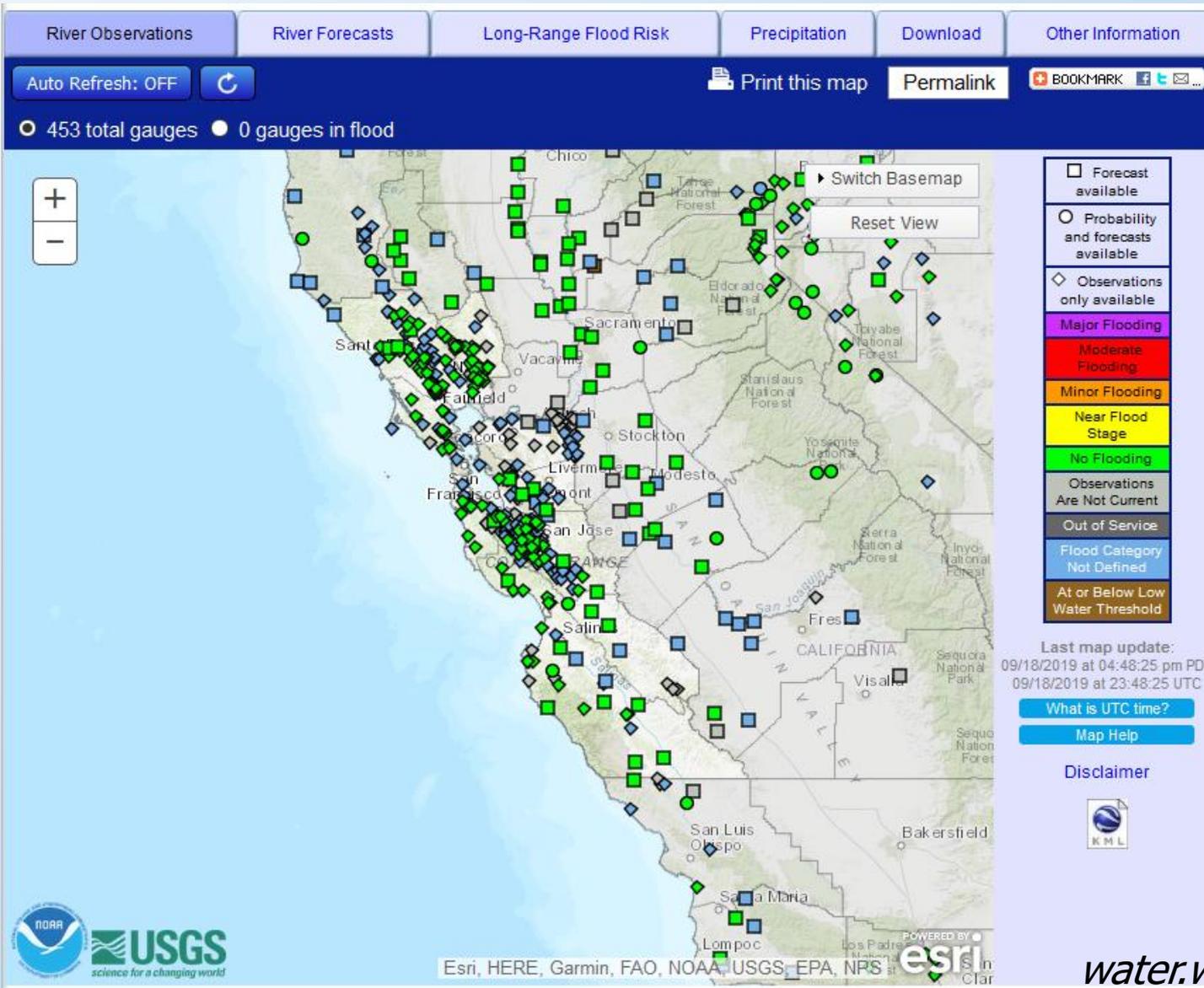
[Hazardous Weather  
Outlook](#)



Last Map Update: Wed, Sep. 18, 2019 at 4:41:41 pm PDT



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# National Weather Service

## SF Bay Area / Monterey Bay Regions

### Climate and Winter Season Weather Briefing



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Local forecast by "City, St" or ZIP Code

[Location Help](#)

#### NOAA / NWS News and Local CNRFC Information

**October 2019 Datum Change** - On the morning of October 1, 2019, the California Department of Water Resources will change the reporting of river stage data collected at 21 locations to the new NAVD88 datum (from NGVD29, Local, or USED datum). This will affect critical stages at 12 of these locations, which are official National Weather Service flood forecast points. For more information on these changes, please check out [this webpage](#) hosted by CDEC (California Data Exchange).

**2019 Tide Tables Available** - The 2019 tide tables are now available on our [river forecast page](#).

**NORMAL** All River Guidance (Flood Forecast) Points Are Currently and Forecast to Remain Below Critical Stages **NORMAL**

Recently-Issued CNRFC Text Products:

Text Product Description	( ID )	Date/Time Issued to Web

Home Page Version: [Interactive Map](#) | [Legacy](#)

[Download PNG](#)

[Show Data Table](#)

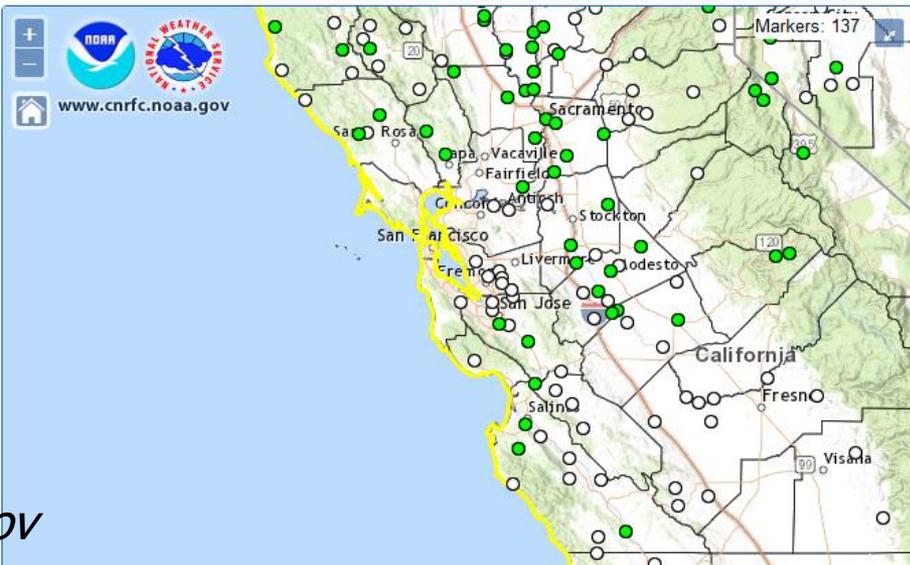
[Enlarge Map](#)

[PERMALINK](#)

**Geographic Overlays**

<input checked="" type="checkbox"/> CNRFC Boundary	<input type="checkbox"/> States	<input checked="" type="checkbox"/> Counties	<input type="checkbox"/> Lakes	<input type="checkbox"/> Rivers
<input type="checkbox"/> Drainage Basins	<input type="checkbox"/> National Parks	<input type="checkbox"/> Burn Areas	2018 — 2017 — 2016 —	



#### ▼ Rivers/Reservoirs

**Deterministic Forecasts**  
 Show only critical stages (fcst pts only)   
 Data updated: Wed Sep 18 2019 04:45 PM PDT  
 Forecast Points  Other Points

**Ensemble Forecasts**  
 Data updated: Wed Sep 18 2019 01:41 PM PDT  
 Ensemble Points

**Peak Exceedance Probabilities\***  
 Data updated: Wed Sep 18 2019 04:46 PM PDT

	10%	25%	50%	75%	90%
5-Day Peak	<input type="checkbox"/>				
10-Day Peak	<input type="checkbox"/>				

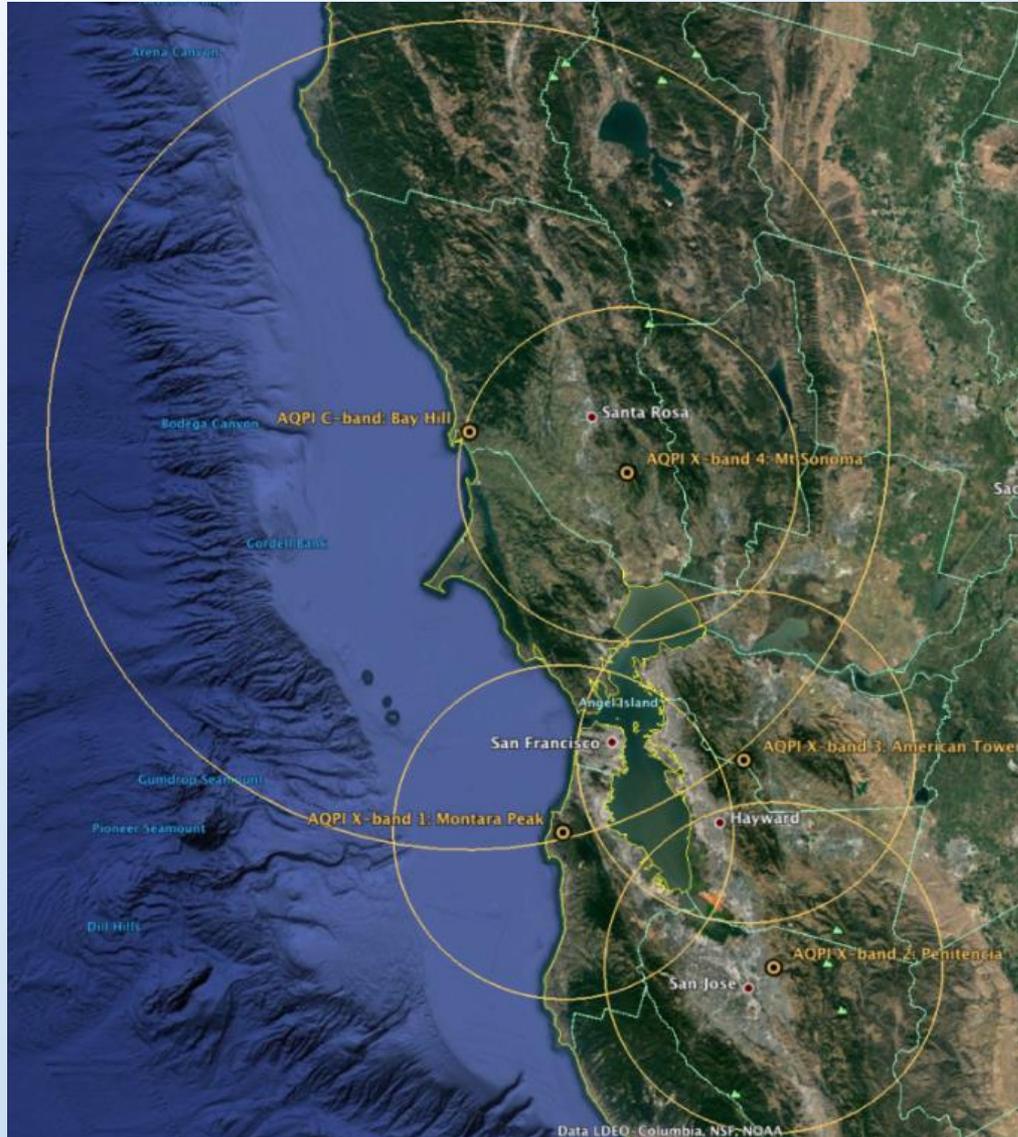
\*Exceedance probabilities are only available for selected forecast points.

**Observed Data**  
 Data updated: Wed Sep 18 2019 04:46 PM PDT  
 Show only critical stages (applies to fcst pts only)

	Latest Hour	1 Hr Ago	2 Hrs Ago	3 Hrs Ago
Forecast Points	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other Points	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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# National Weather Service SF Bay Area / Monterey Bay Regions Climate and Winter Season Weather Briefing



Number: 1/6 Time: Mon, 15 Oct 2018 19:46:39 GMT Beam Elevation: 0.5 degrees	Latest Time: Mon, 15 Oct 2018 20:29:47 GMT	Number: 1/6 Time: Not Available Beam Elevation: Not Available degrees	Latest Time: Not Available
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Animation Speed:

Image Opacity: 0%  100%

Looptime (minutes):

Realtime data  
 Historical data

Map1: MUX (0.5-deg reflectivity) [Match Map 2 View](#)

Map2: SCW (3.0-deg reflectivity) [Match Map 1 View](#)

Map Satellite

Base Reflectivity (dBZ)

-25 -20 -15 -10 -5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

Map Satellite

Reflectivity (dBZ - before attenuation correction)

-25 -20 -15 -10 -5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

[U.S. Department of Commerce](#) | [National Oceanic and Atmospheric Administration](#)  
[Earth System Research Laboratory](#) | [Physical Sciences Division](#)  
<https://www.esrl.noaa.gov/psd/about/contacts.html>

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## SF Bay Area / Monterey Bay Regions

### Climate and Winter Season Weather Briefing



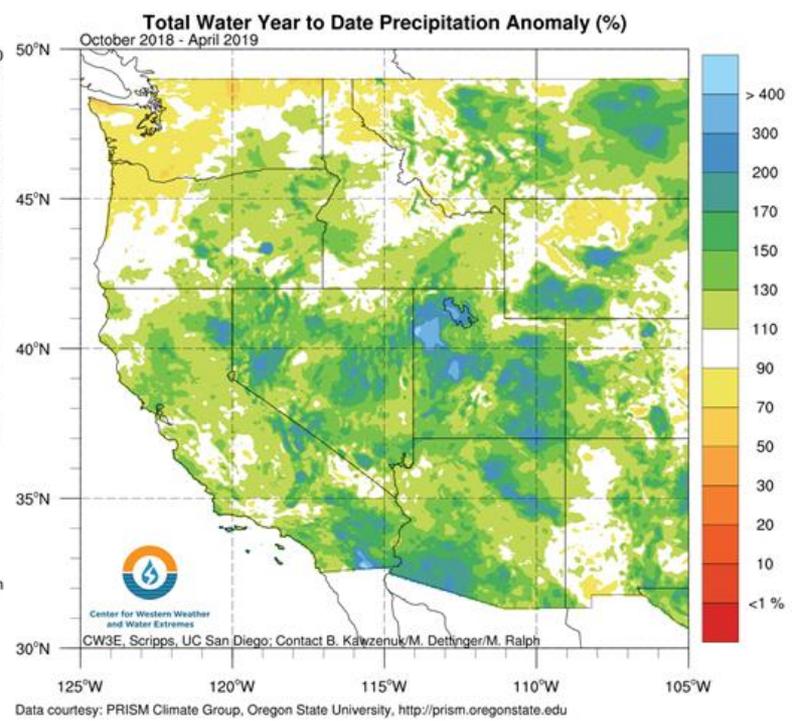
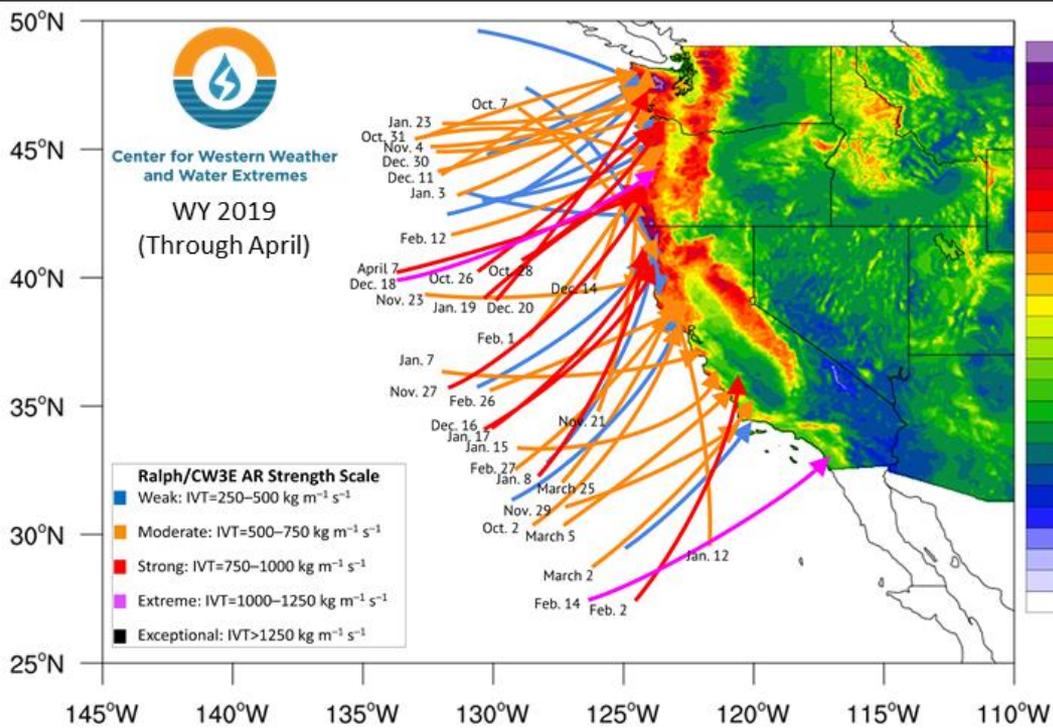
## Seasonal Prediction



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## Water Year to Date Summary (October through April)



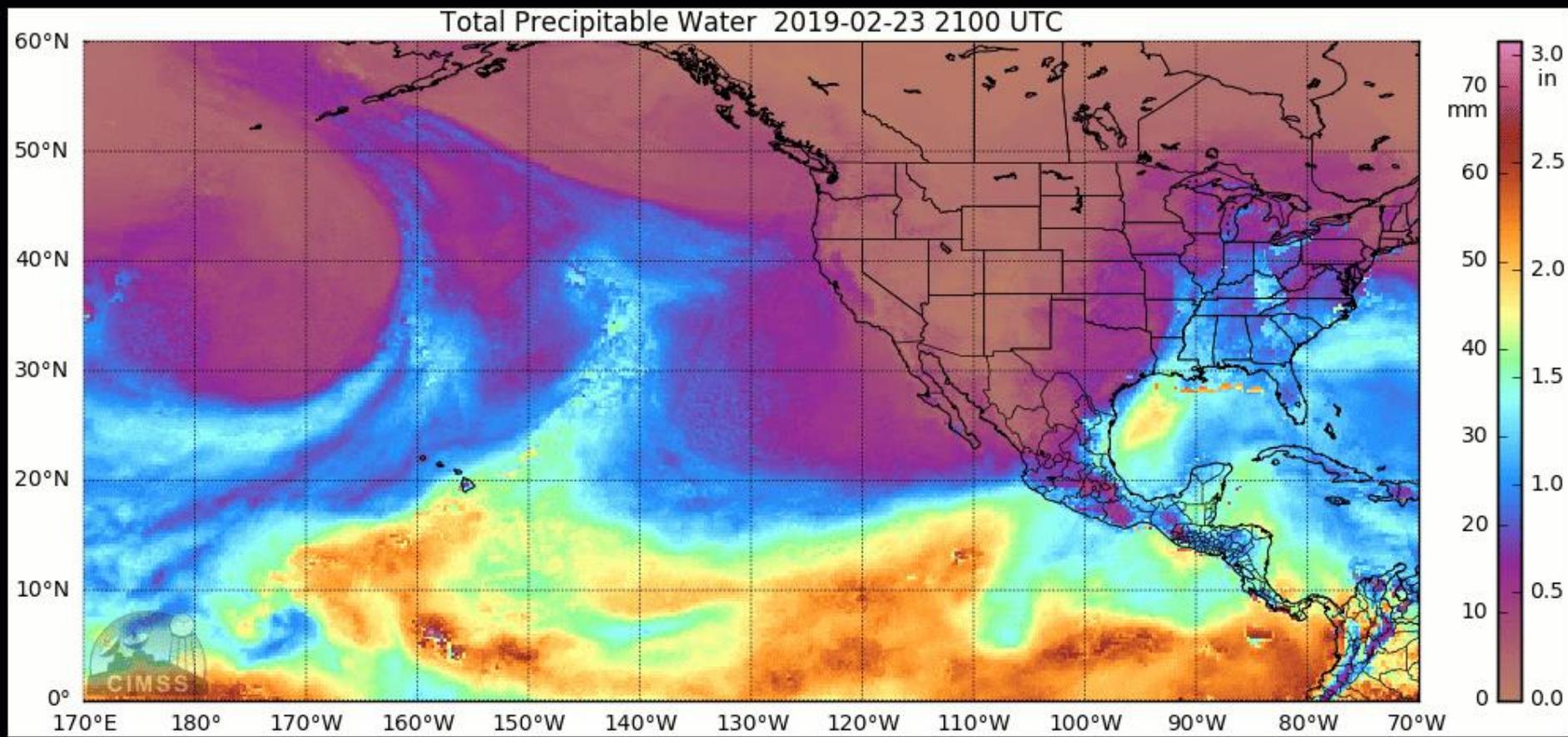
The 6 ARs that made landfall during April 2019 brings the Water Year total to 47 (11 Weak, 24 Moderate, 10 Strong, and 2 Extreme)

The total number that made landfall through April 2018 was 45, two less than this year (16 Weak, 16 Moderate, 11 Strong, and 2 Extreme)

- Through April 2019, a majority of the Western U.S. has received near normal or above normal water year to date precipitation
- Western and Northern WA and Northwestern OR are the only locations that received below normal precip.



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Late February Atmospheric River – North Bay



# National Weather Service SF Bay Area / Monterey Bay Regions Climate and Winter Season Weather Briefing



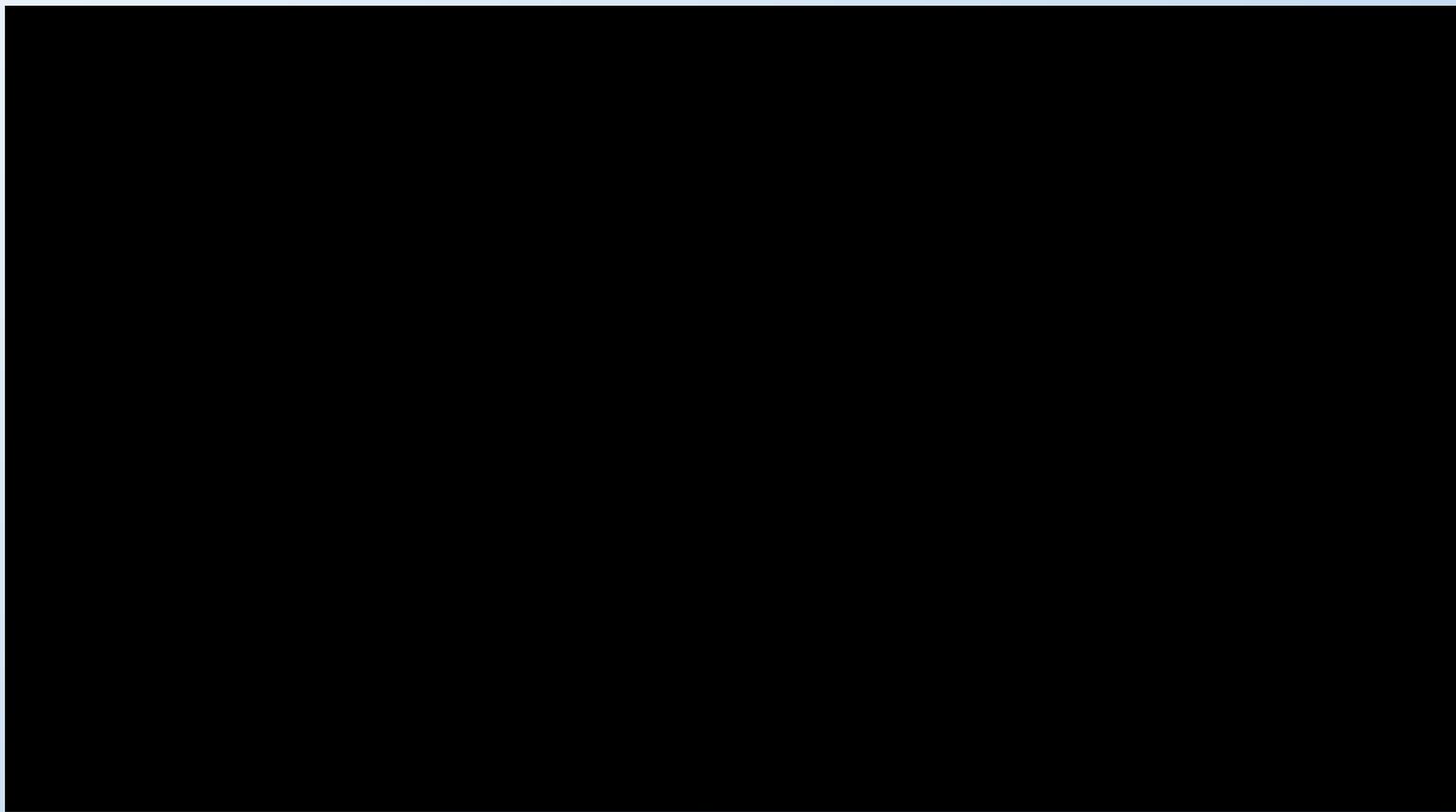
Late February Atmospheric River – North Bay



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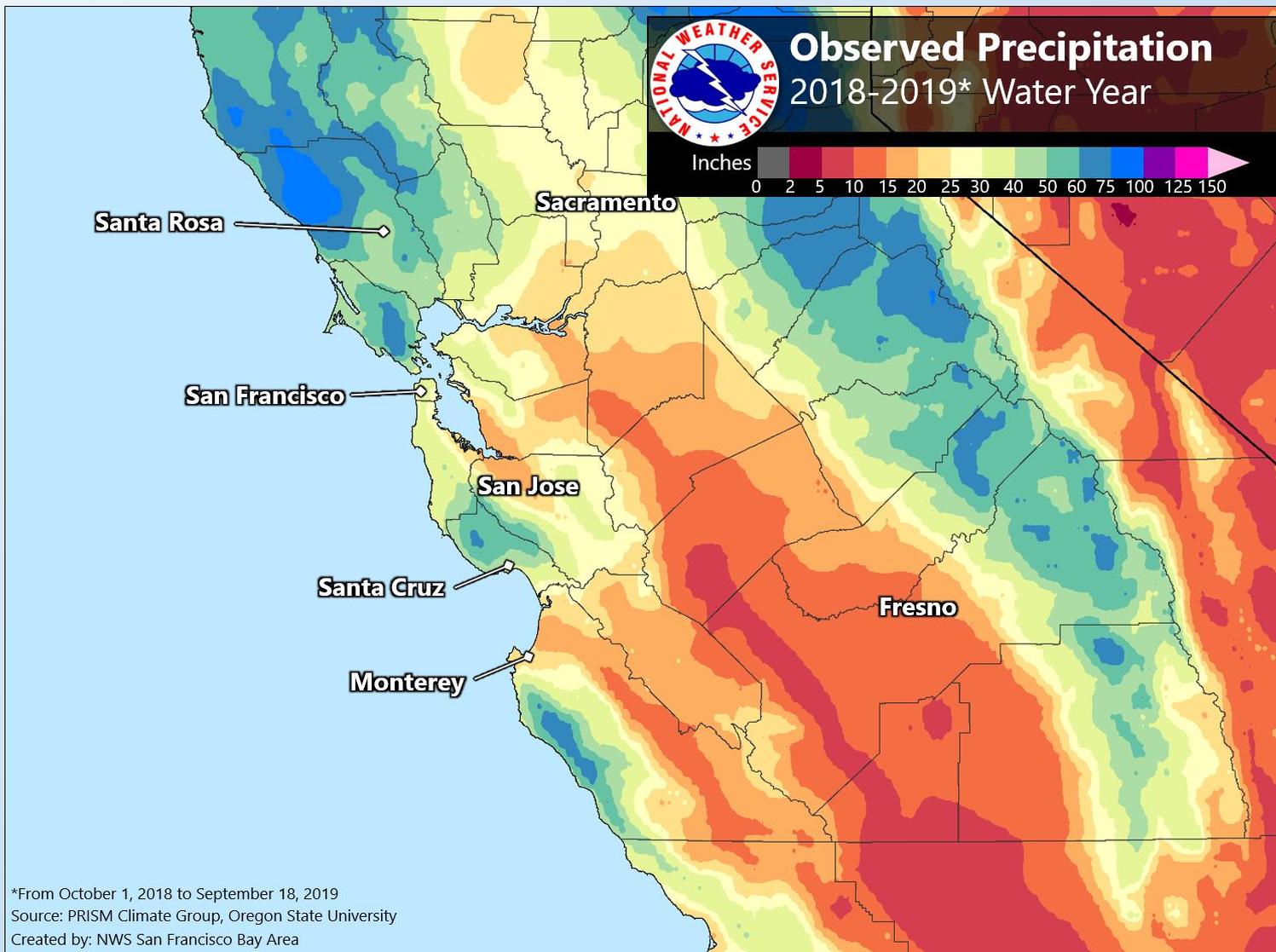
### Climate and Winter Season Weather Briefing



Late February Atmospheric River – North Bay



# National Weather Service SF Bay Area / Monterey Bay Regions Climate and Winter Season Weather Briefing

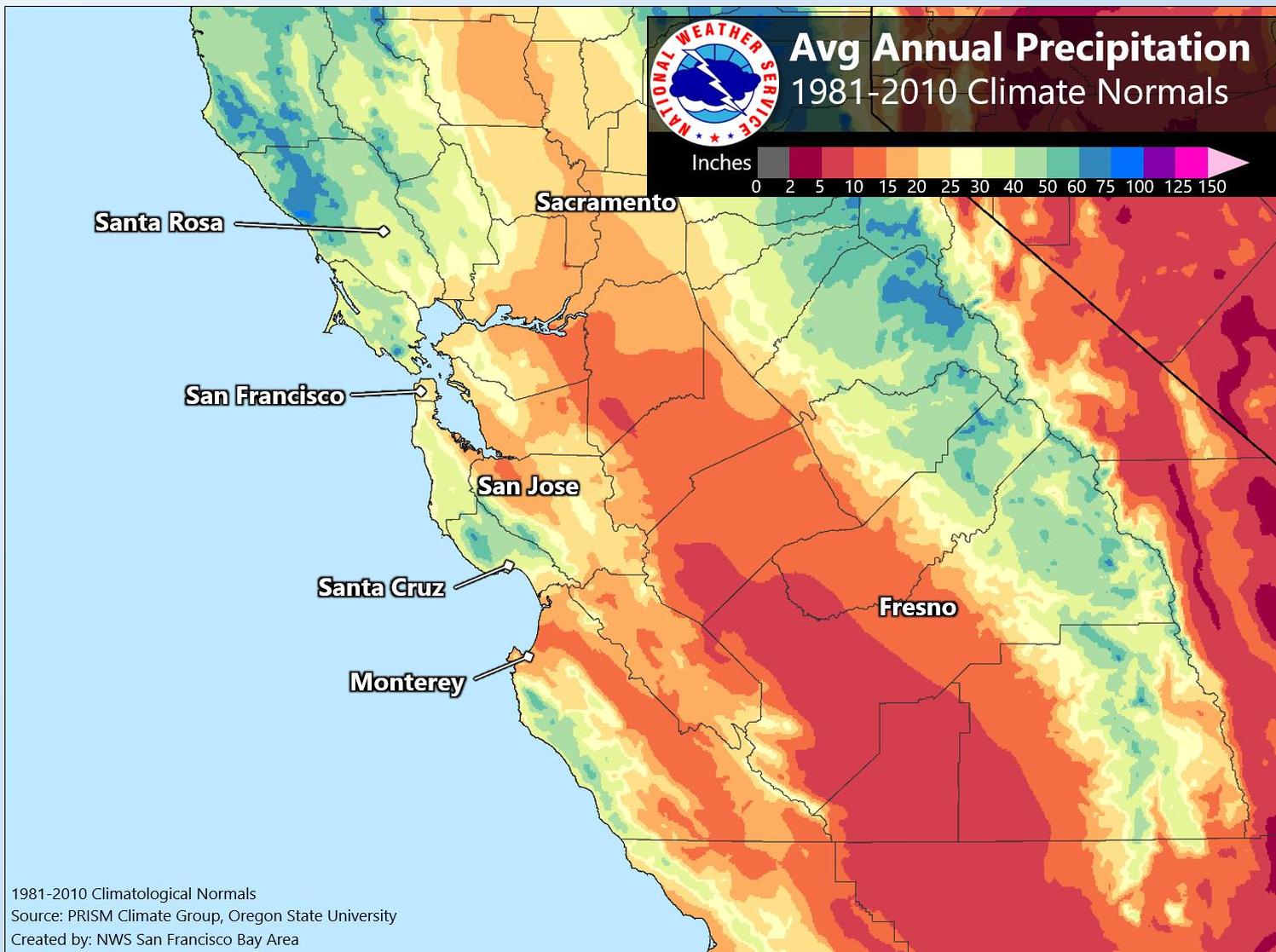


\*From October 1, 2018 to September 18, 2019  
Source: PRISM Climate Group, Oregon State University  
Created by: NWS San Francisco Bay Area

Water Year 2018/2019 Totals



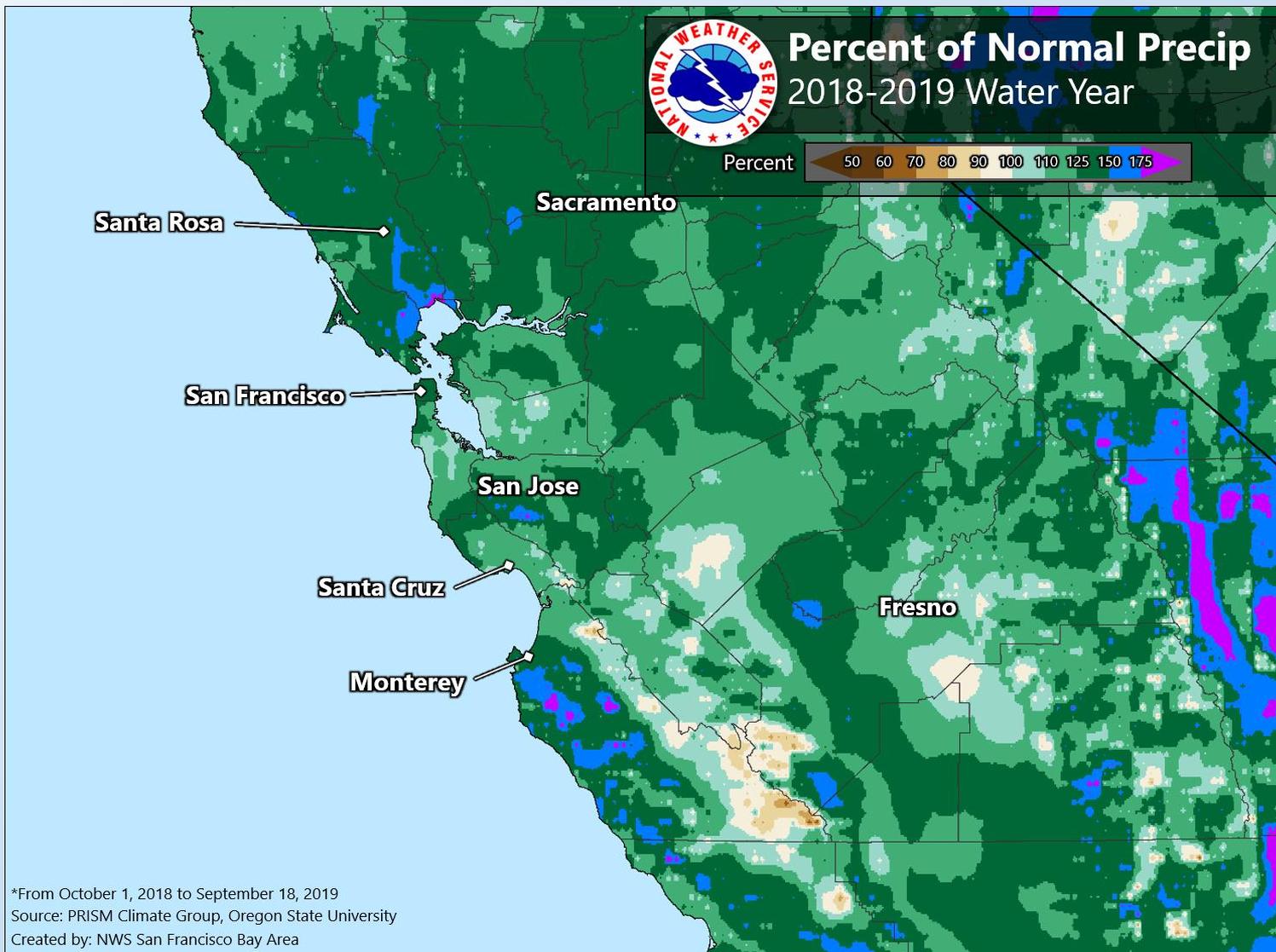
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Water Year Average



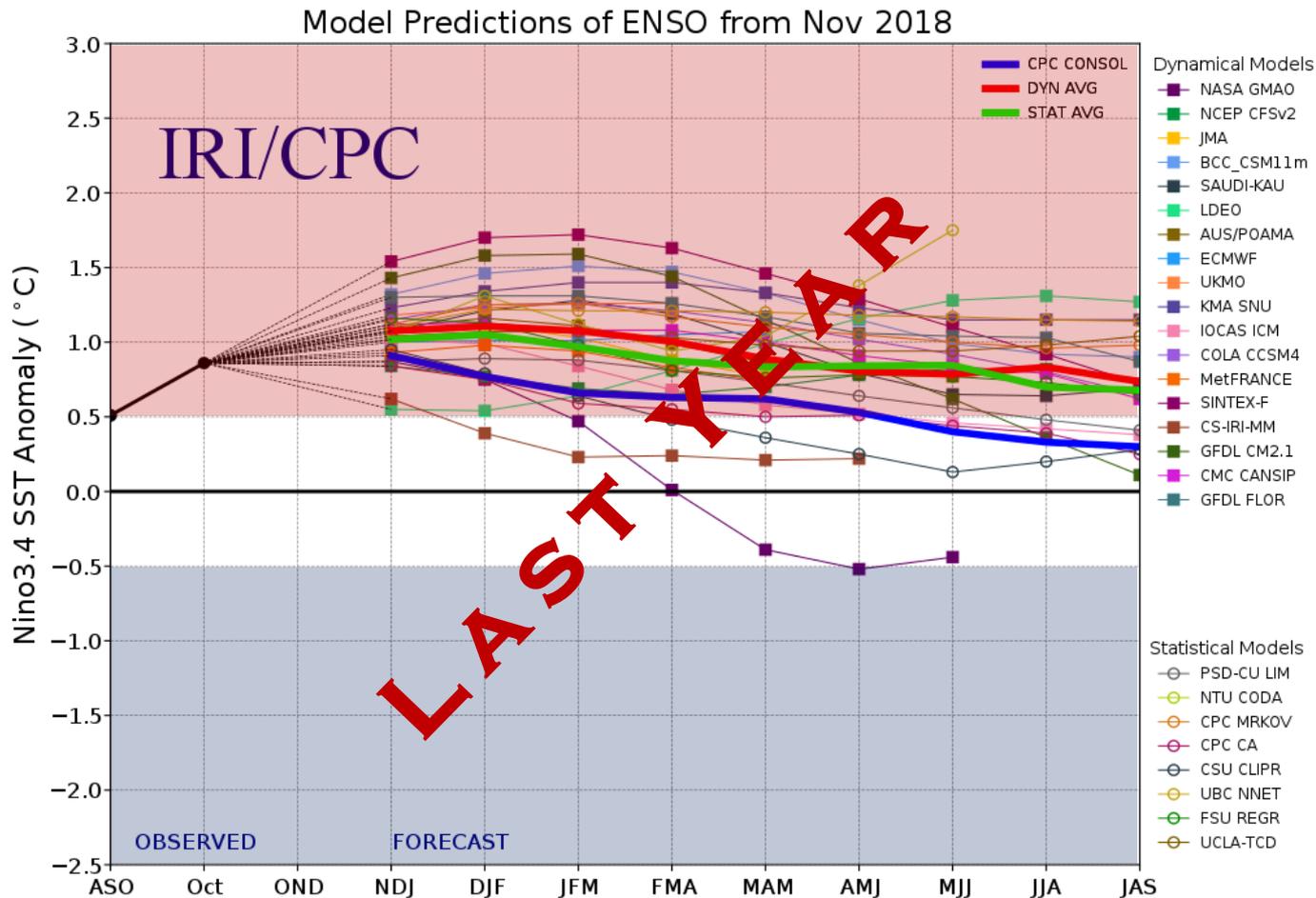
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Water Year 2018/2019 % of normal

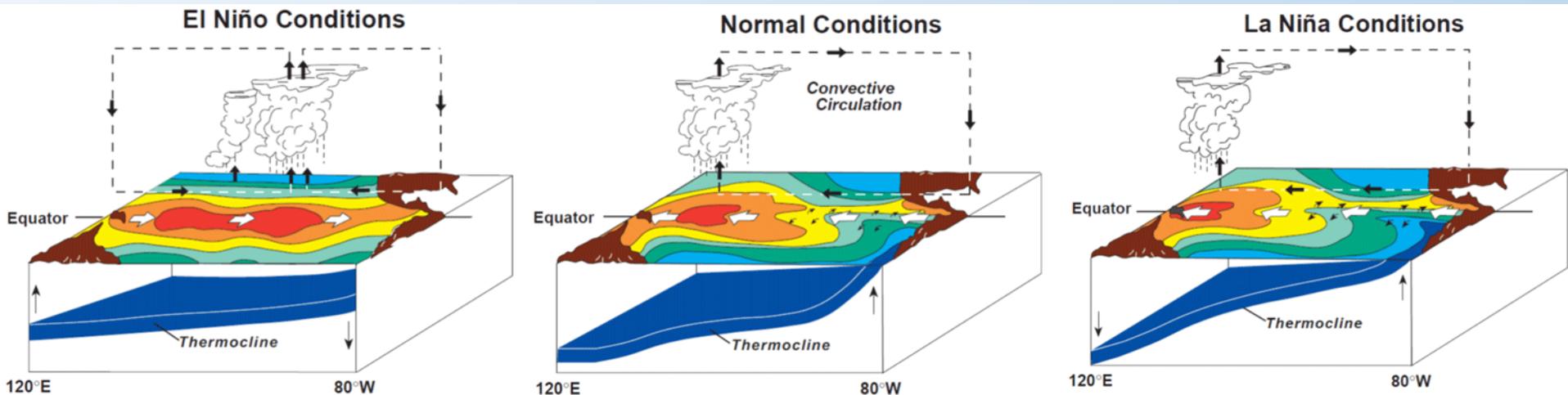


# National Weather Service SF Bay Area / Monterey Bay Regions Climate and Winter Season Weather Briefing

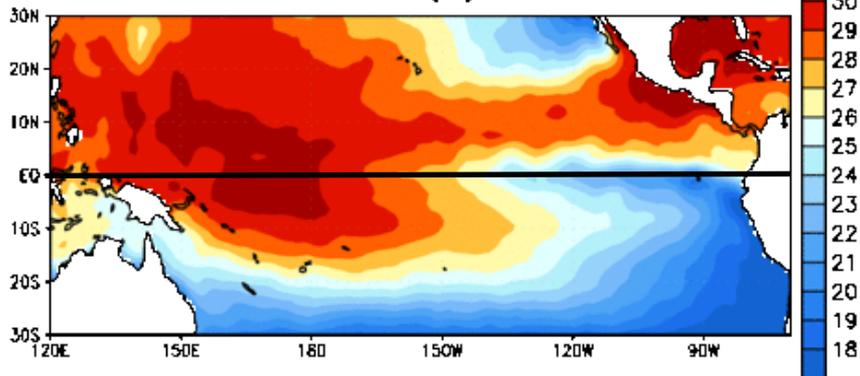




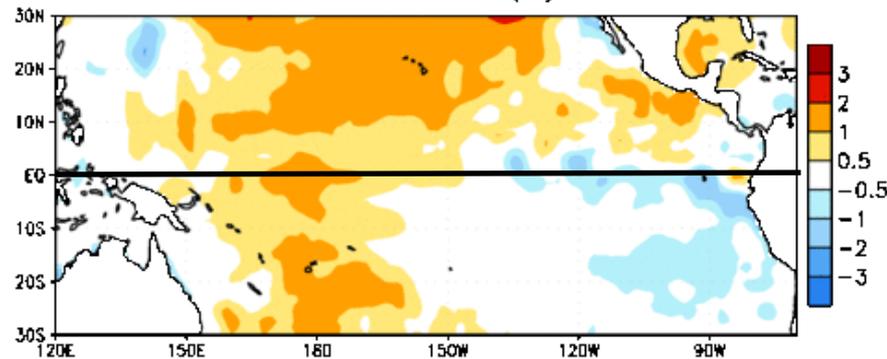
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Week centered on 14 AUG 2019  
SST (°C)



Week centered on 14 AUG 2019  
SST Anomalies (°C)





# National Weather Service SF Bay Area / Monterey Bay Regions Climate and Winter Season Weather Briefing

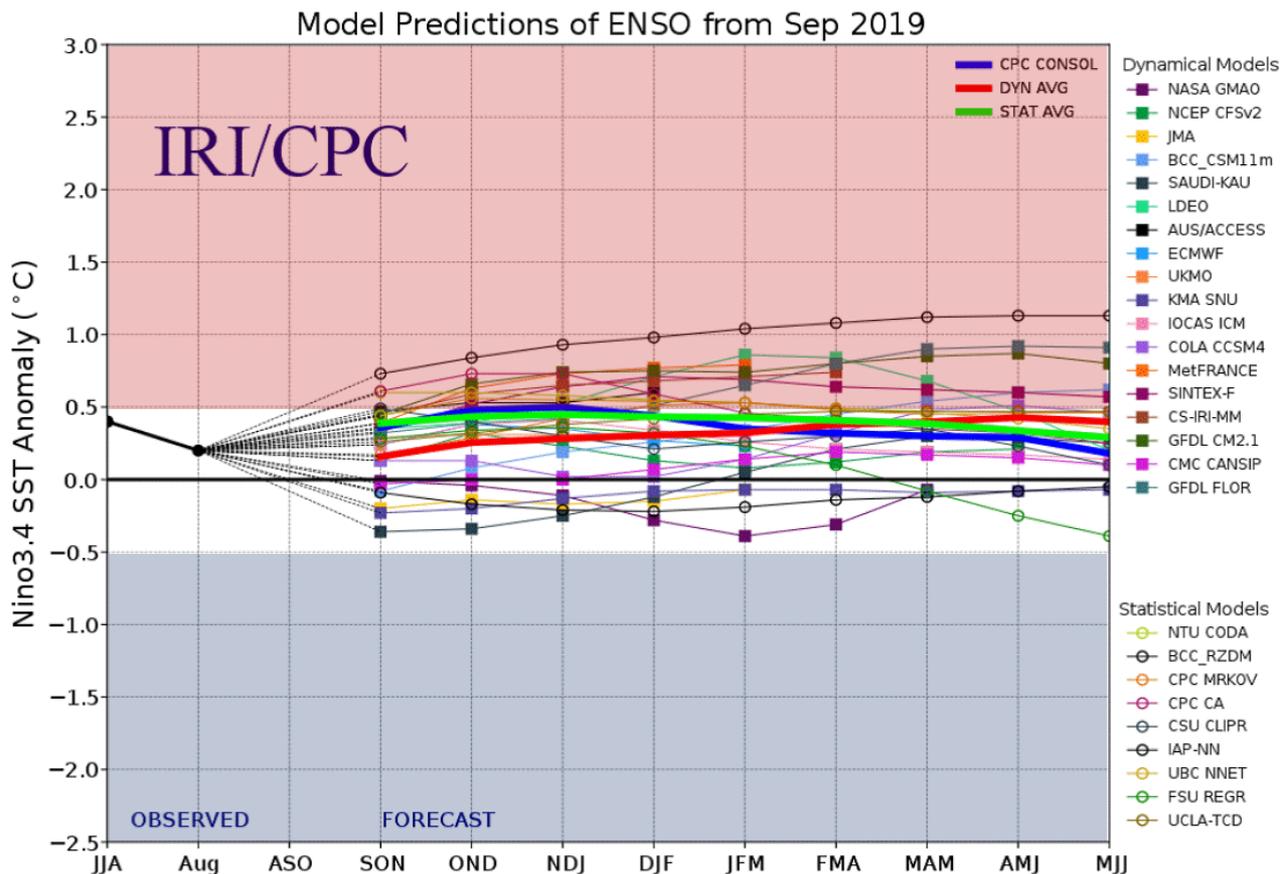


Figure 6. Forecasts of sea surface temperature (SST) anomalies for the Niño 3.4 region (5°N-5°S, 120°W-170°W). Figure updated 19 September 2019.



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## CPC/IRI Early-Month Official ENSO Forecast Probabilities

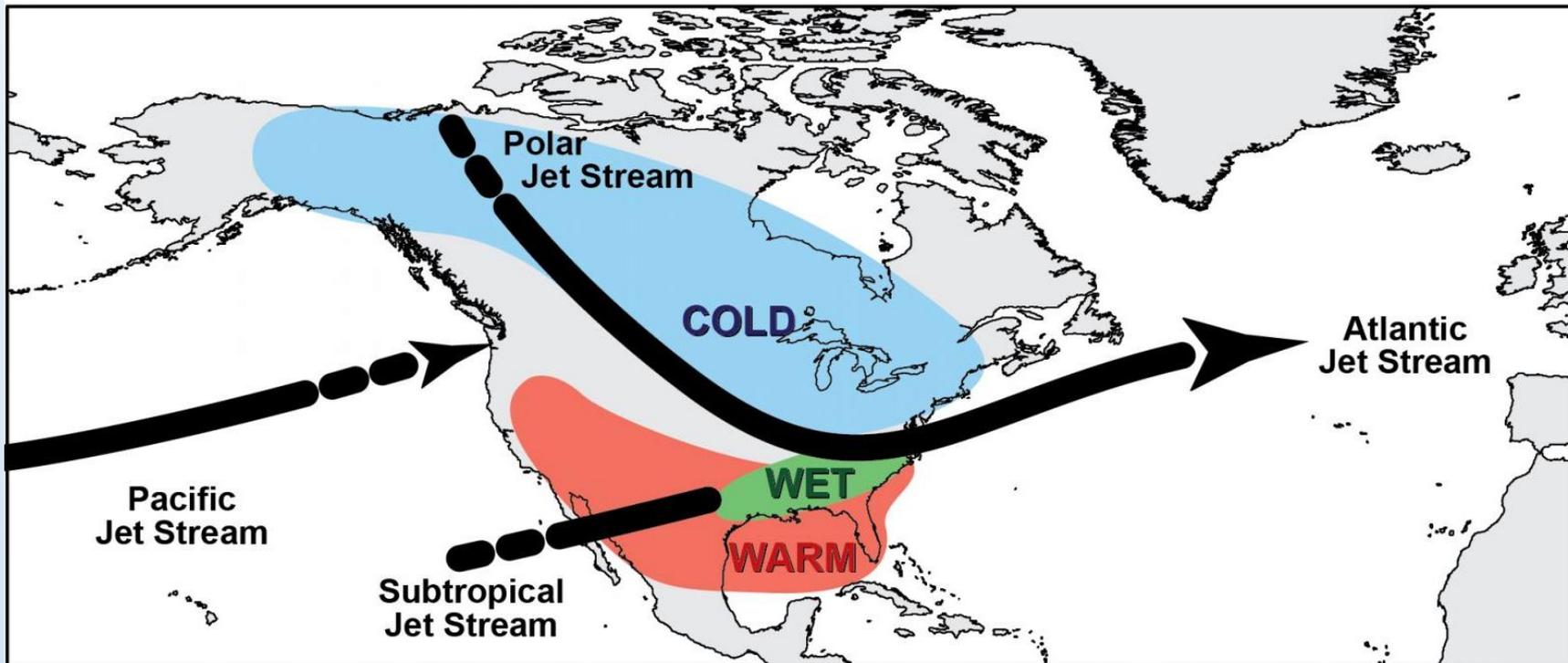
Season	La Niña	Neutral	El Niño
SON 2019	1%	87%	12%
OND 2019	5%	71%	24%
NDJ 2019	8%	65%	27%
DJF 2019	9%	62%	29%
JFM 2020	10%	60%	30%
FMA 2020	12%	59%	29%
MAM 2020	13%	59%	28%
AMJ 2020	14%	57%	29%
MJJ 2020	15%	57%	28%



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ENSO-Neutral Winter Pattern





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NWSBayArea

Wind



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Ocean



# National Weather Service

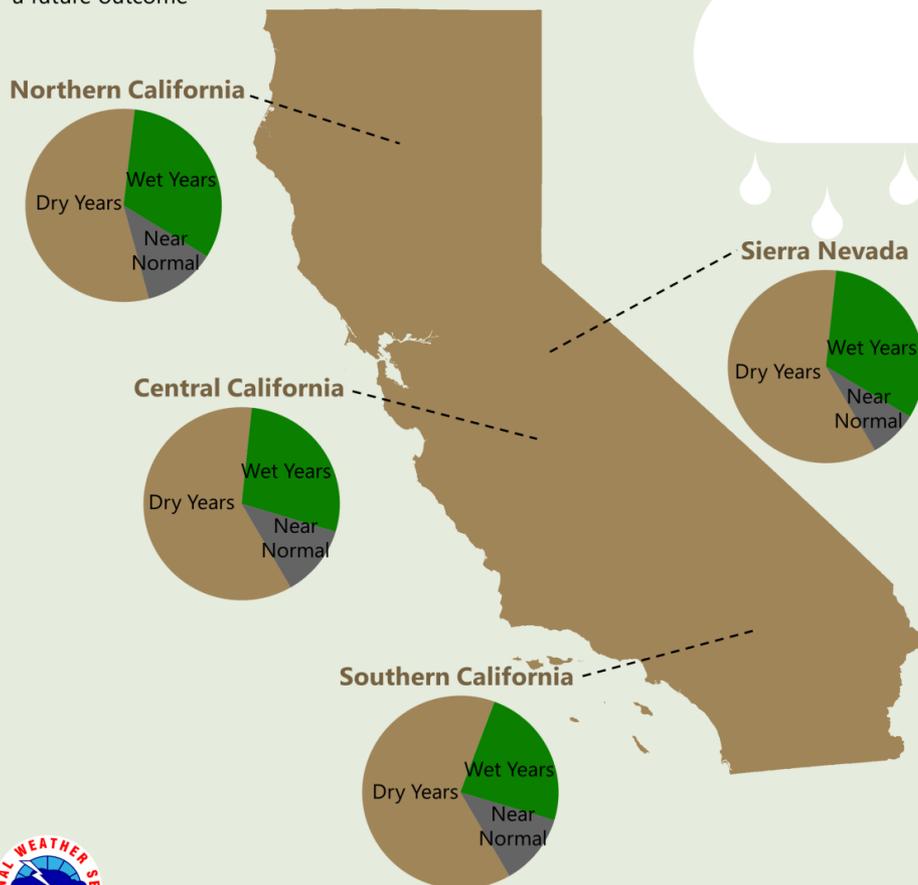
## SF Bay Area / Monterey Bay Regions

### Climate and Winter Season Weather Briefing



## ENSO Neutral Conditions

When neither El Niño nor La Niña conditions are in place, everything is on the table for California. Past neutral years have yielded more dry winter seasons than normal or wet ones, but past conditions do not guarantee a future outcome



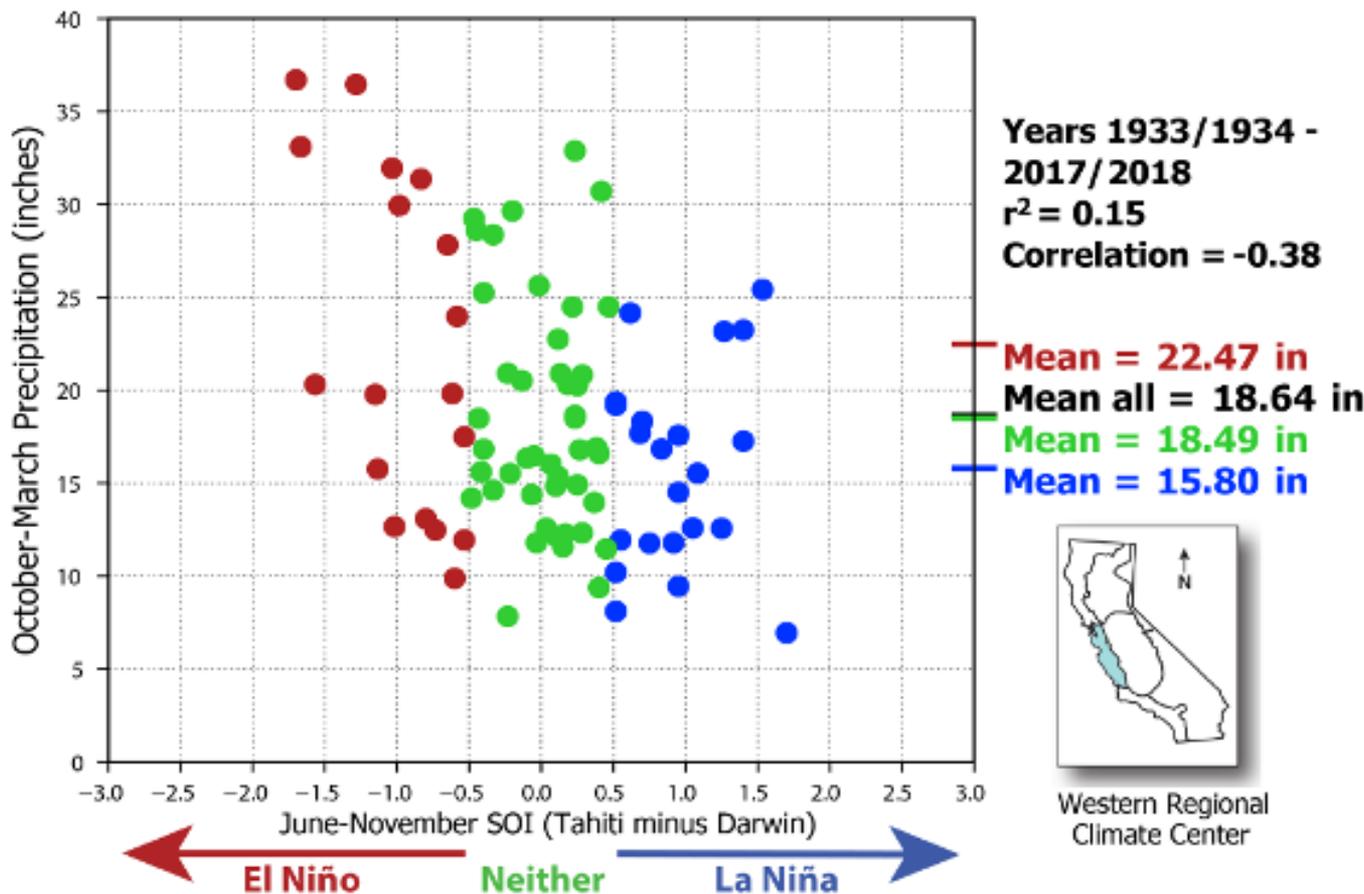
Based on 25 historical ENSO Neutral Seasons  
Data: PRISM, Oregon State University



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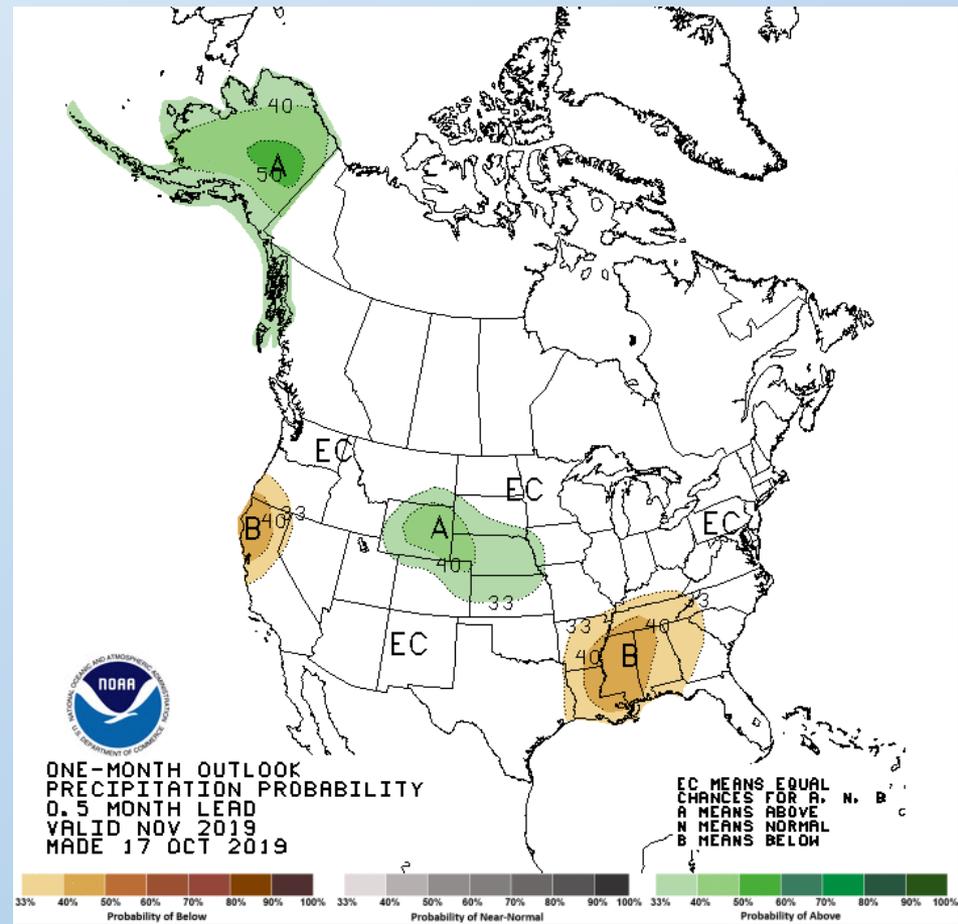
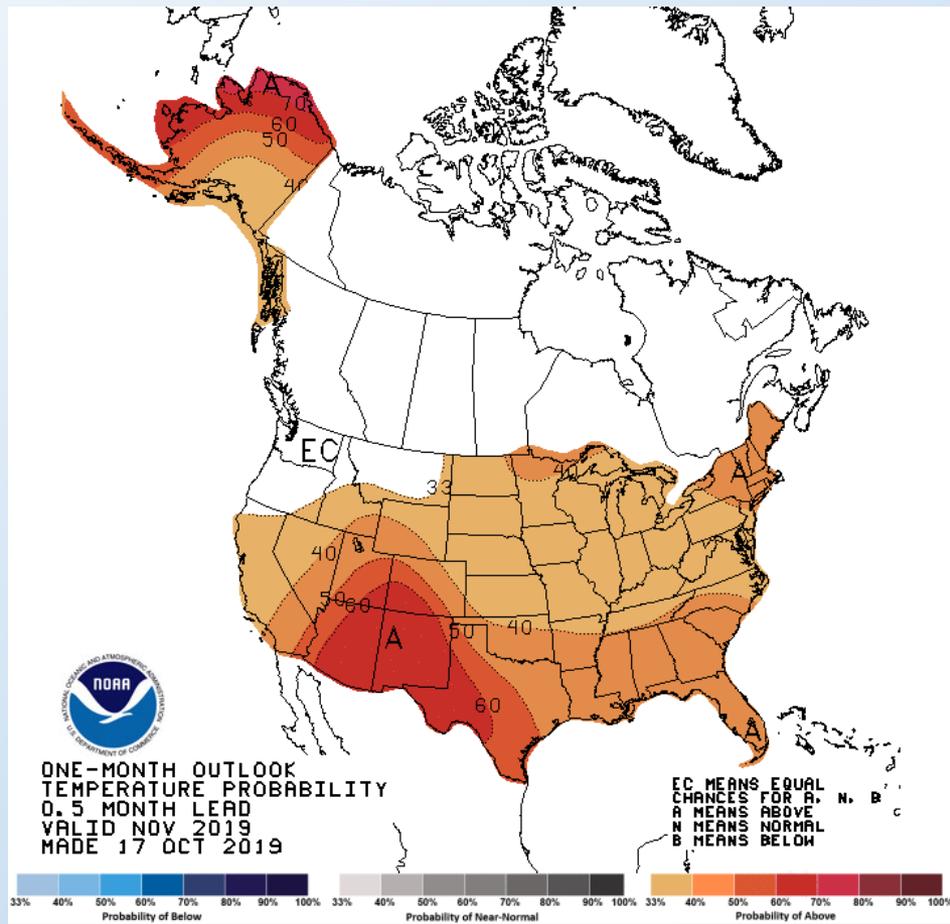


## CA Division 4 October-March Precipitation (versus Southern Oscillation Index for prior year June-November)



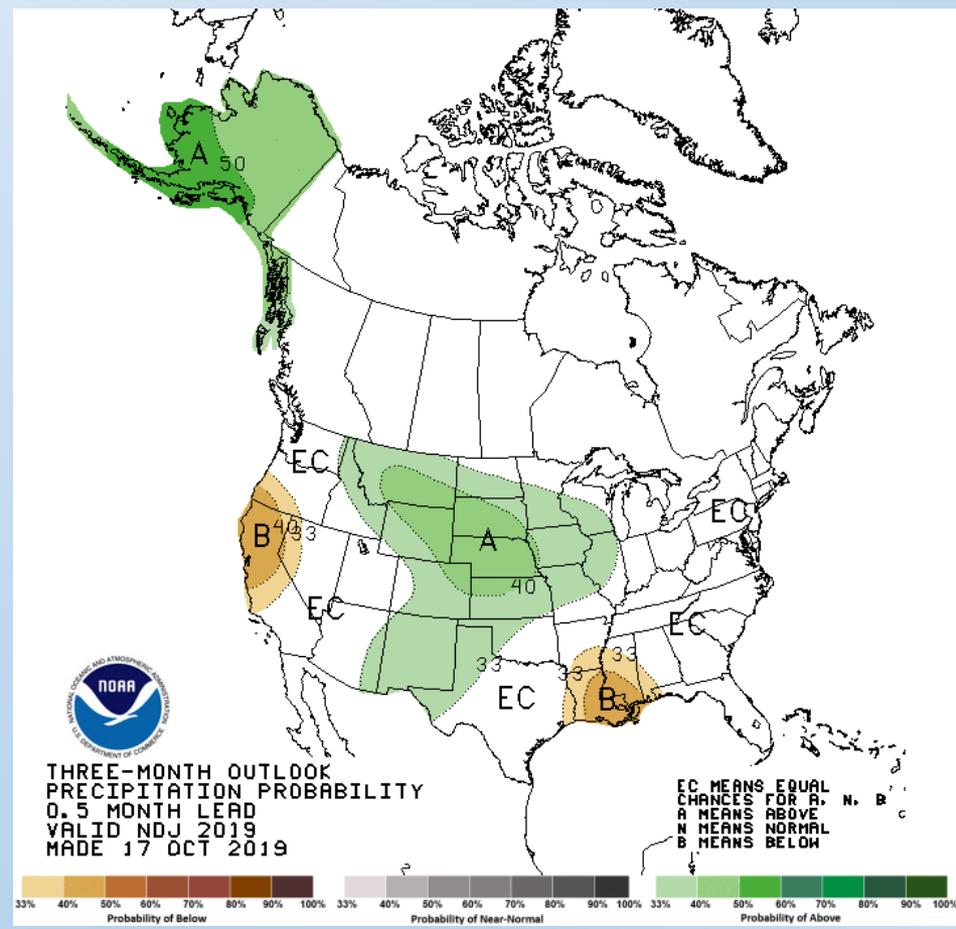
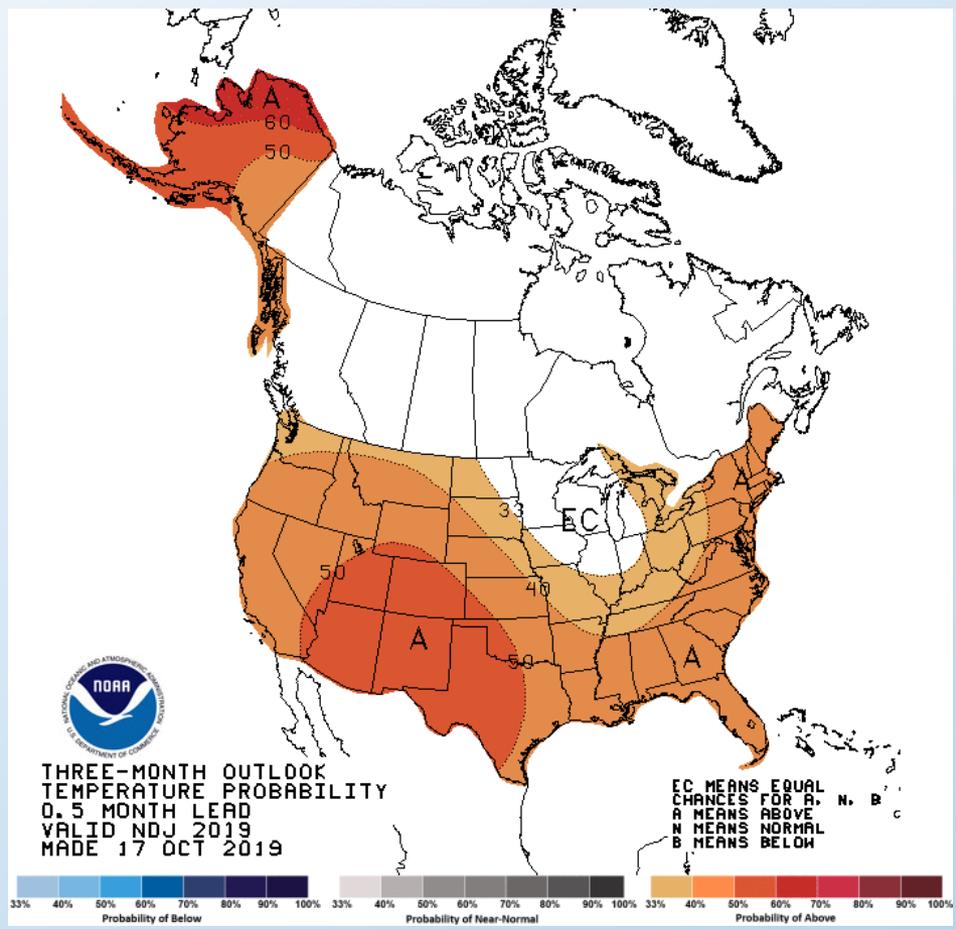


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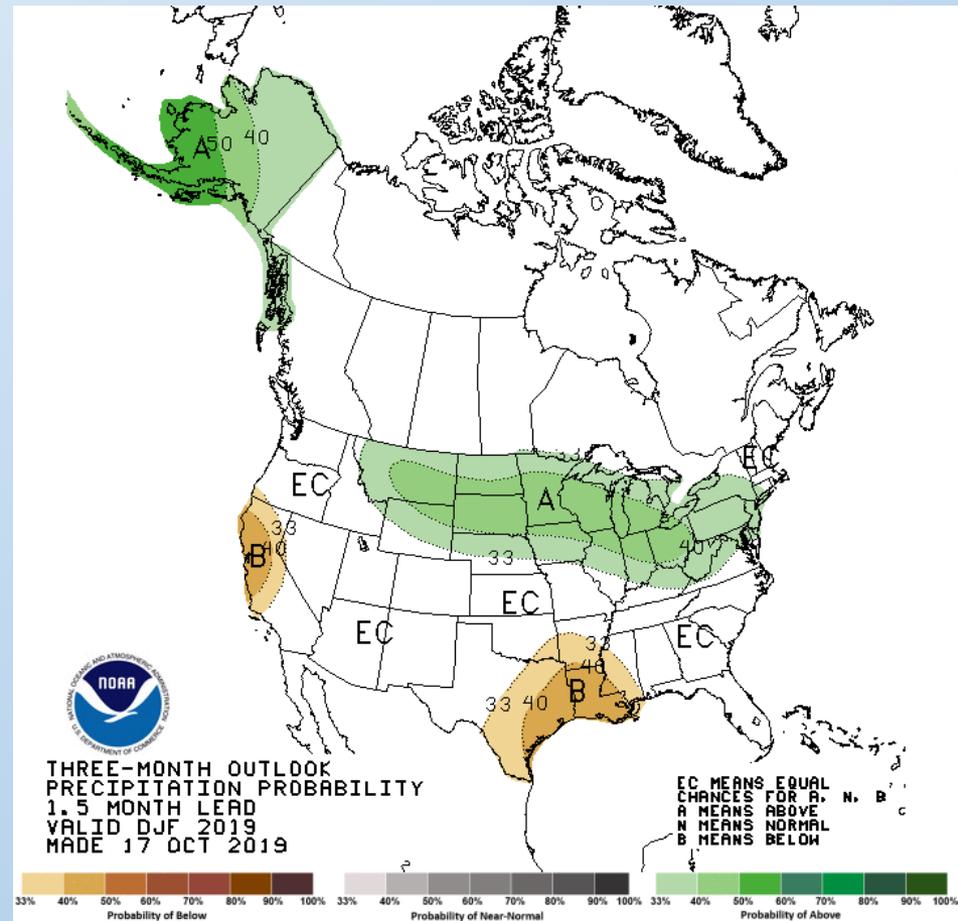
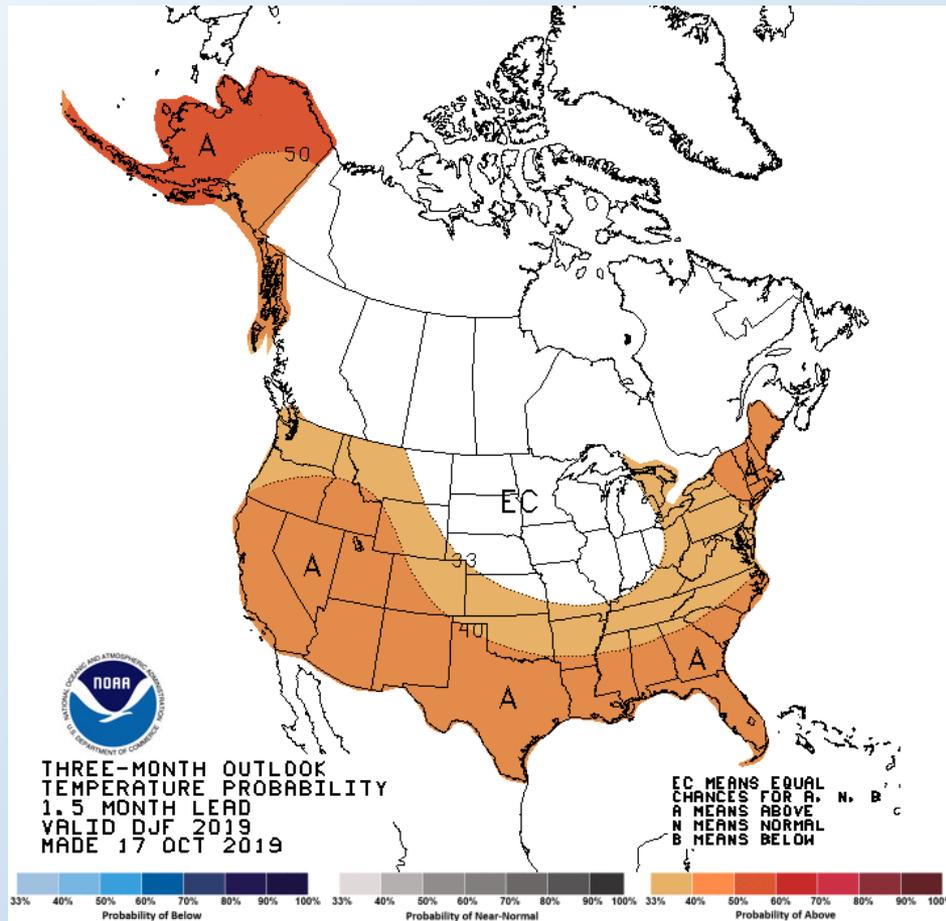
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November – December – January



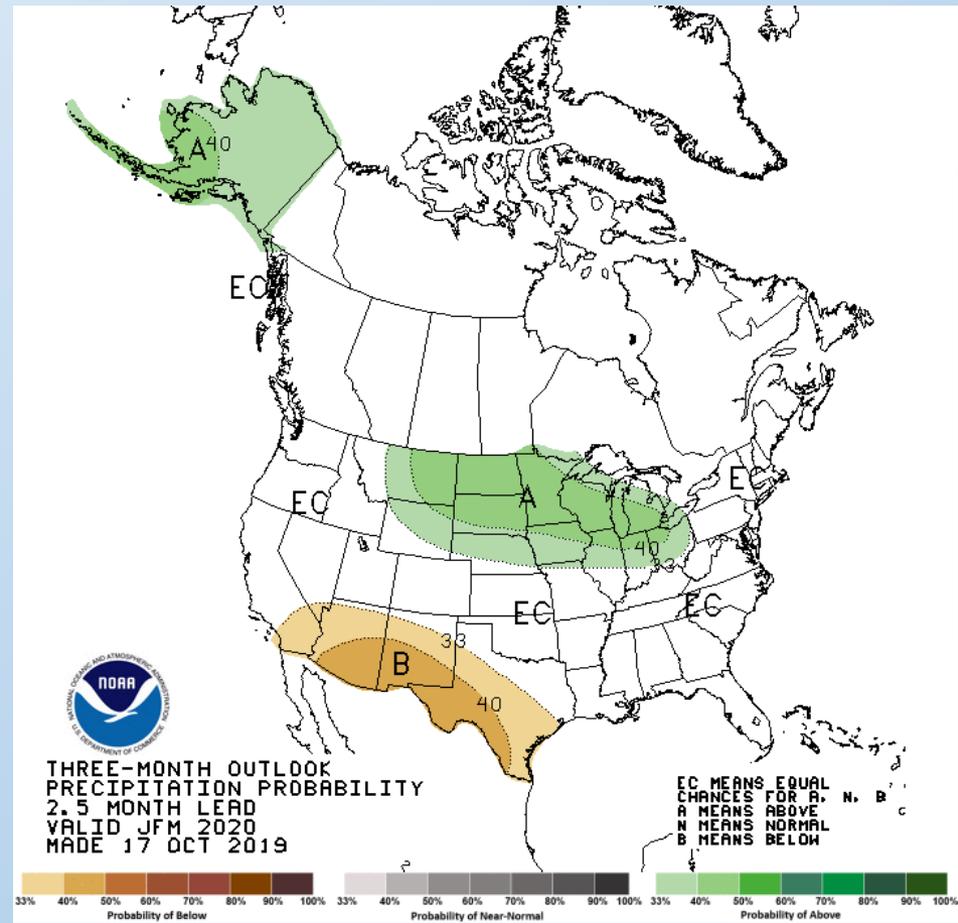
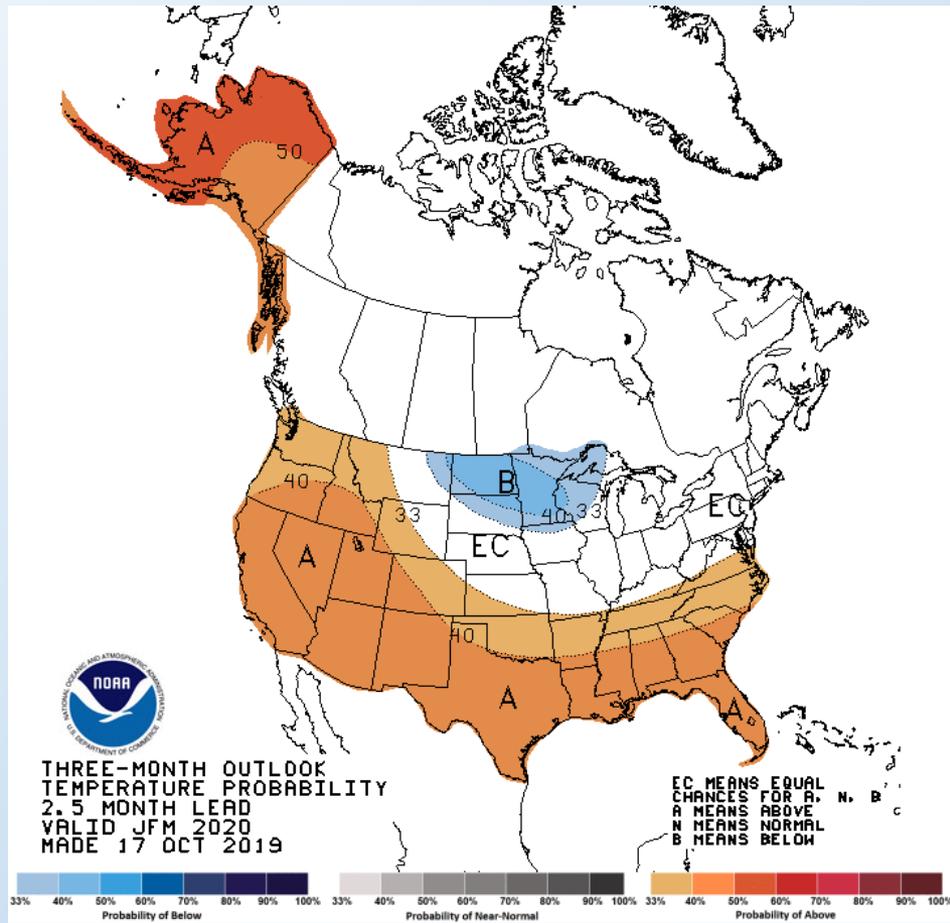
# National Weather Service SF Bay Area / Monterey Bay Regions Climate and Winter Season Weather Briefing



December – January – February



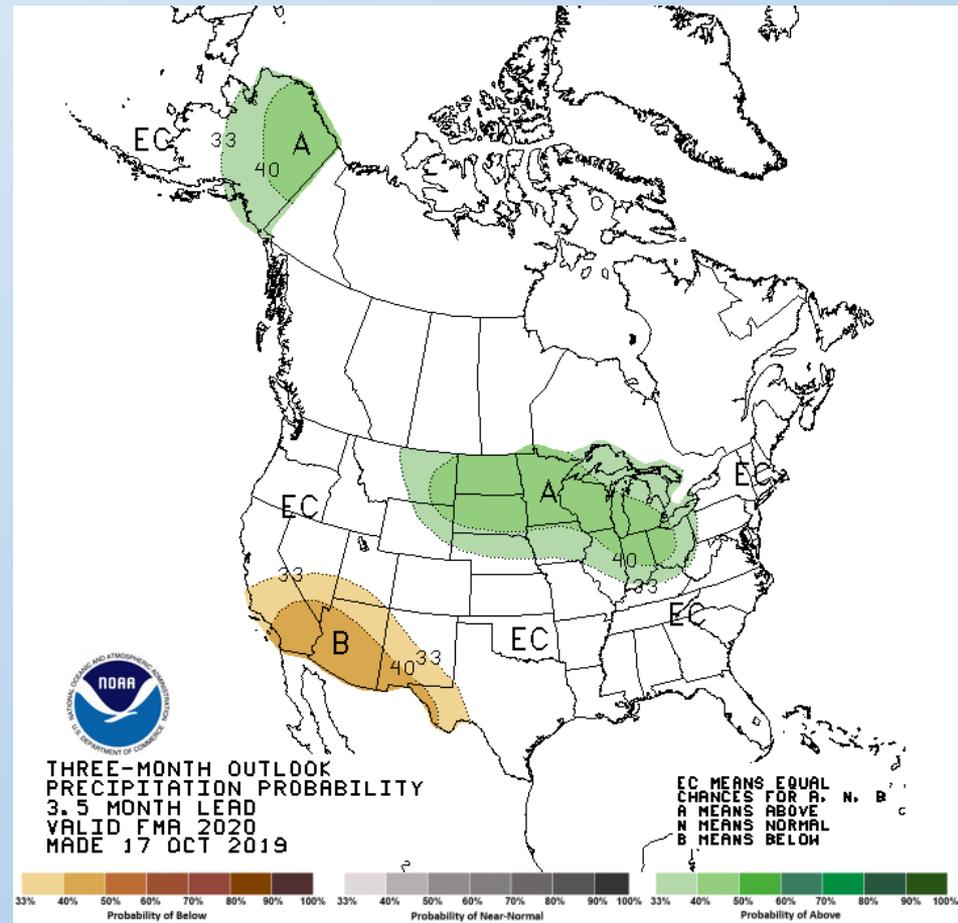
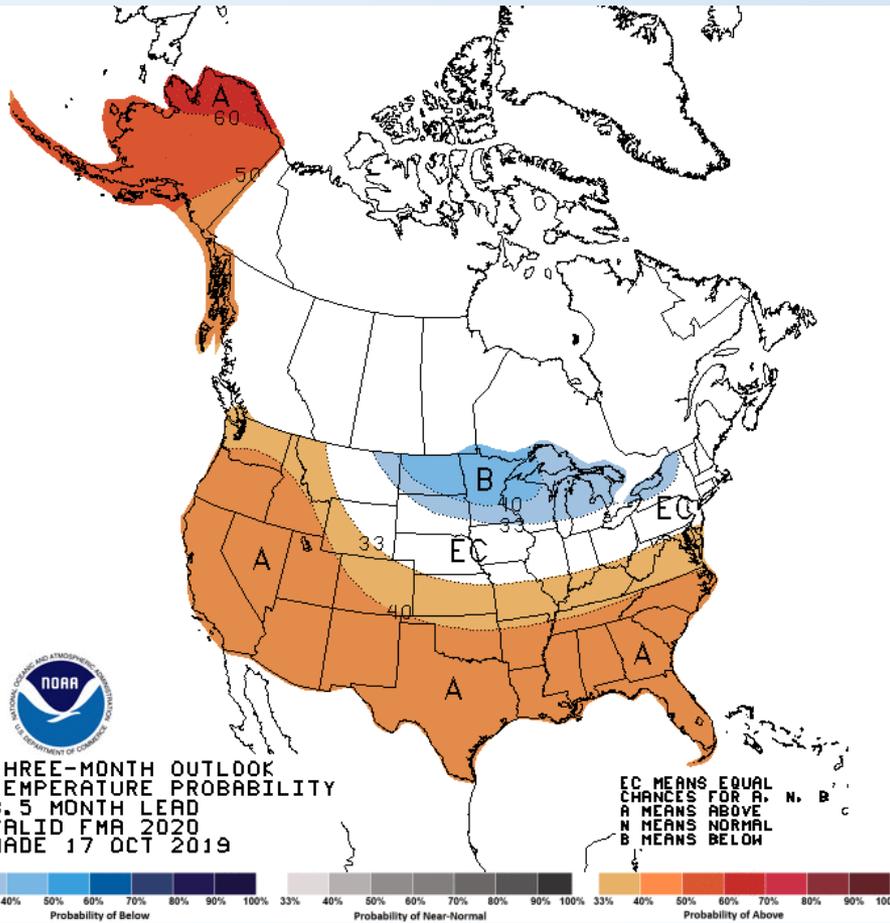
# National Weather Service SF Bay Area / Monterey Bay Regions Climate and Winter Season Weather Briefing



January – February – March



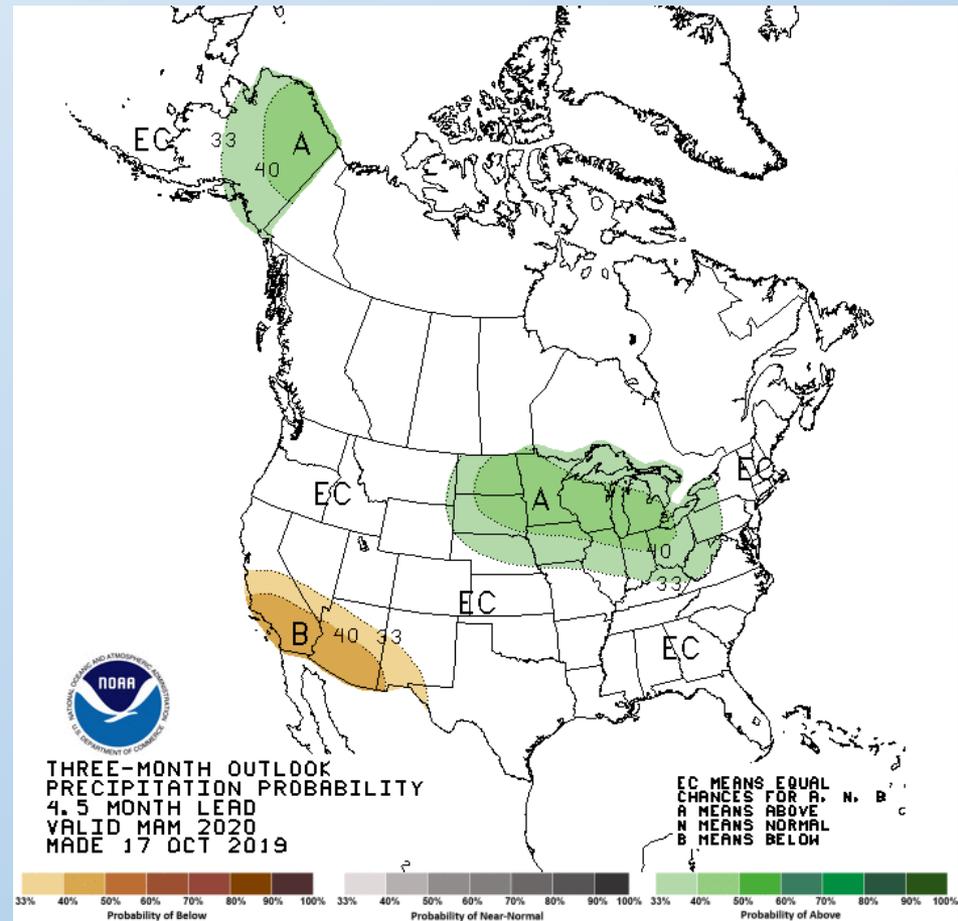
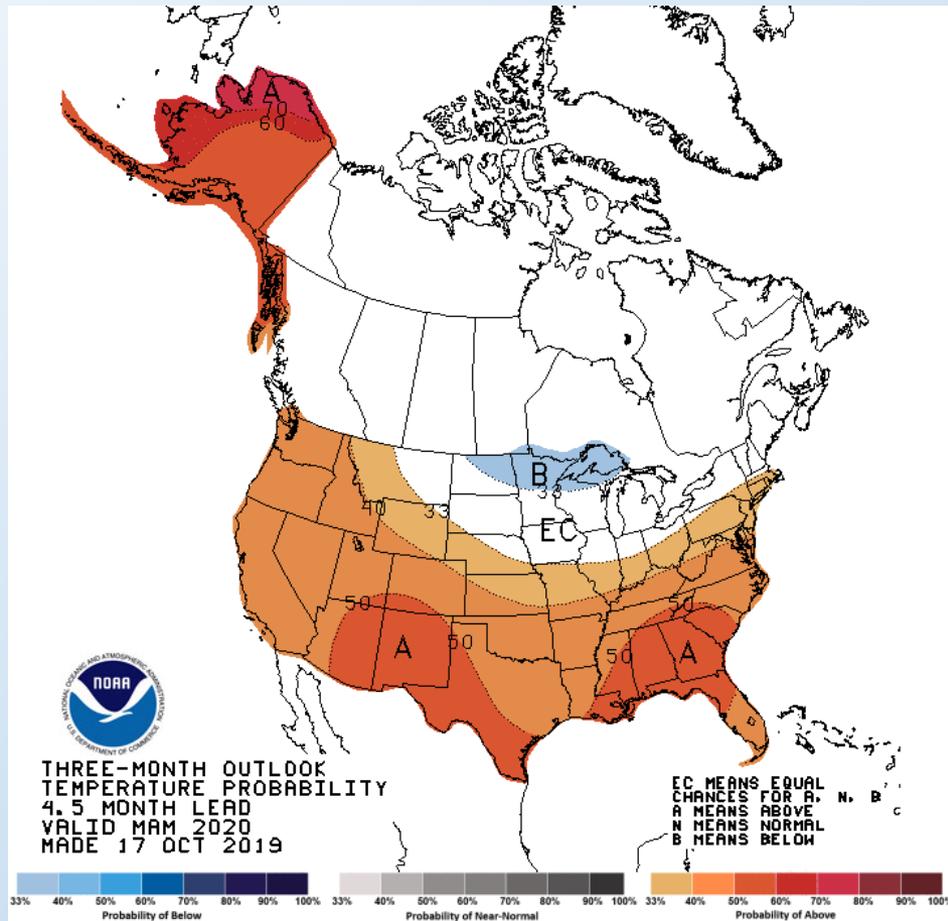
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February – March – April



# National Weather Service SF Bay Area / Monterey Bay Regions Climate and Winter Season Weather Briefing



March – April – May



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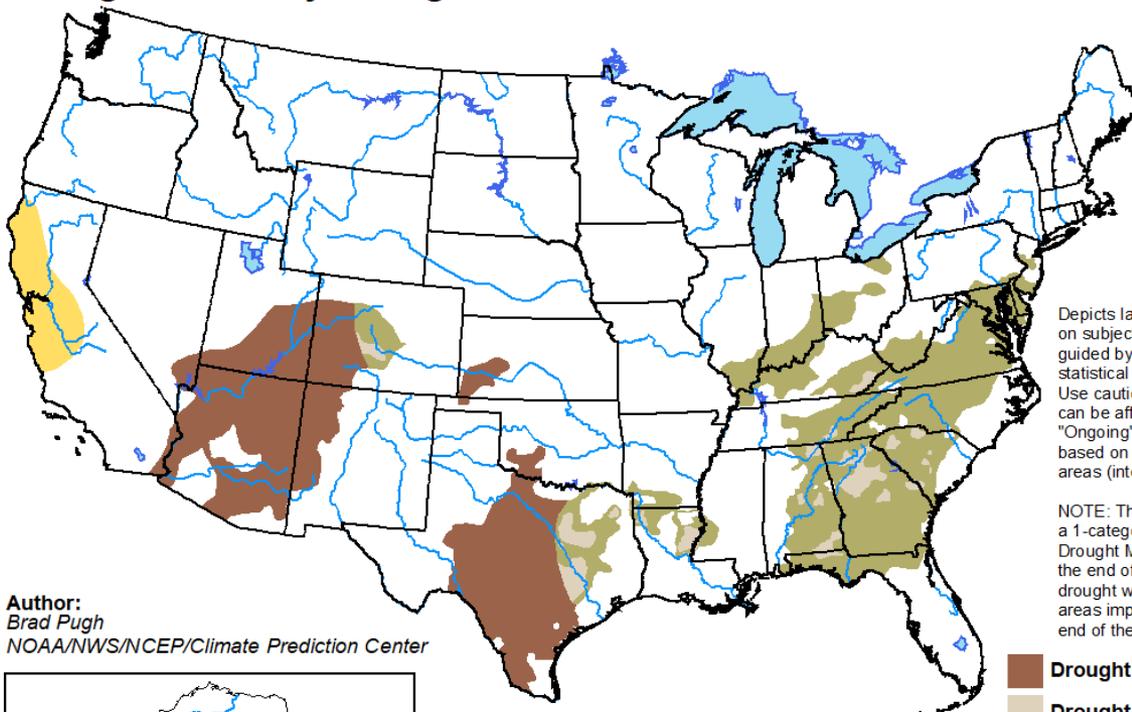
### Climate and Winter Season Weather Briefing



#### U.S. Seasonal Drought Outlook

##### Drought Tendency During the Valid Period

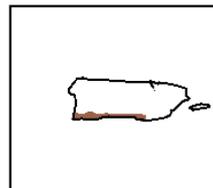
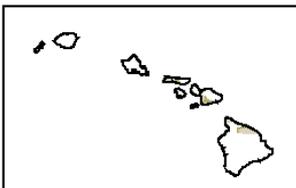
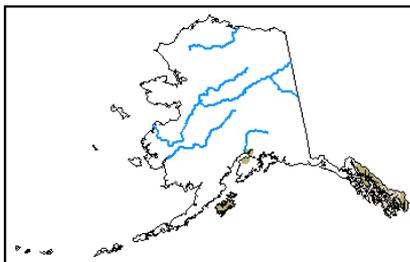
Valid for October 17, 2019 - January 31, 2020  
Released October 17, 2019



Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

Author:  
Brad Pugh  
NOAA/NWS/NCEP/Climate Prediction Center



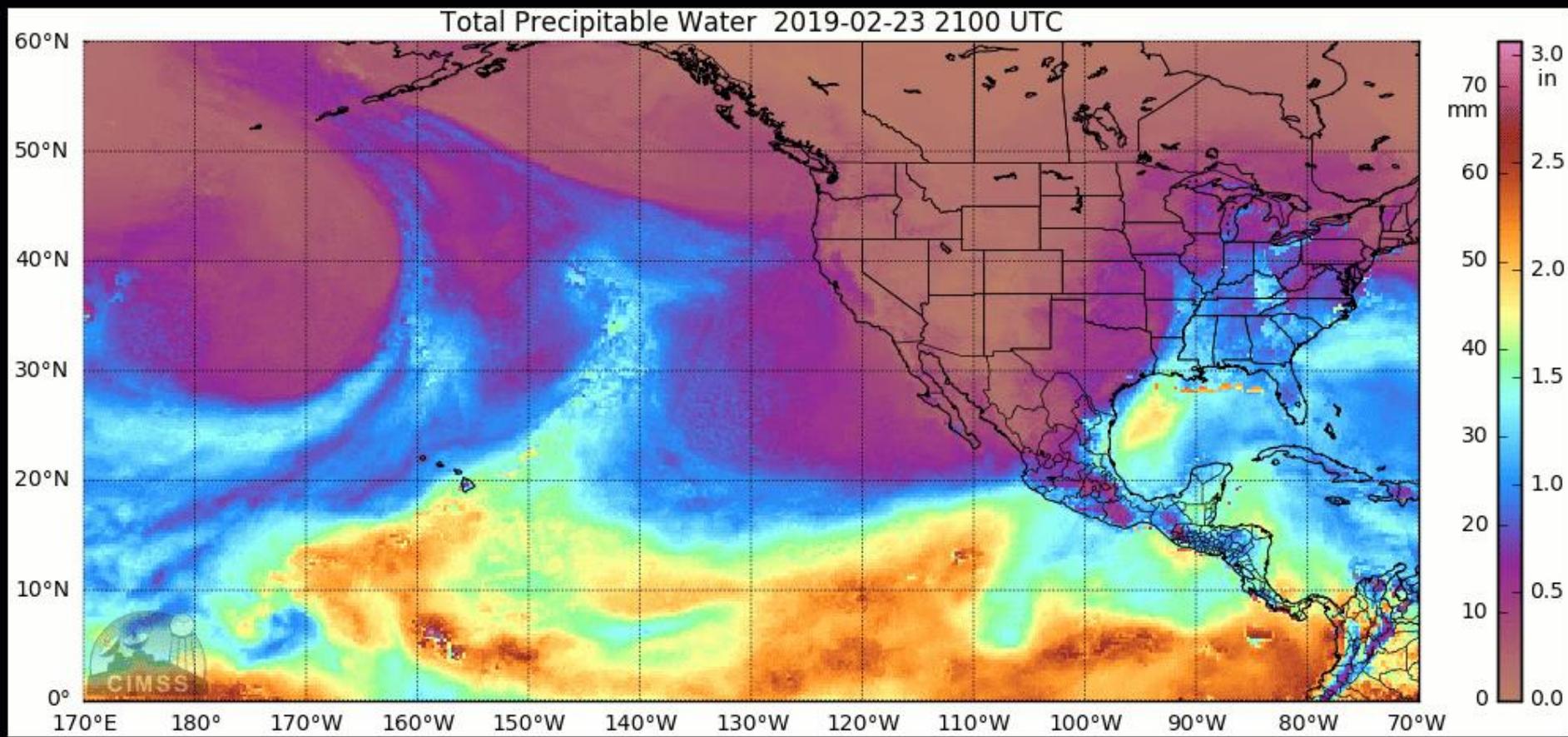
- Drought persists
- Drought remains but improves
- Drought removal likely
- Drought development likely



<http://go.usa.gov/3eZ73>



# National Weather Service SF Bay Area / Monterey Bay Regions Climate and Winter Season Weather Briefing



Atmospheric Rivers *will* happen again



# National Weather Service SF Bay Area / Monterey Bay Regions Winter Season Weather/Climate Briefing



Patch.com

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