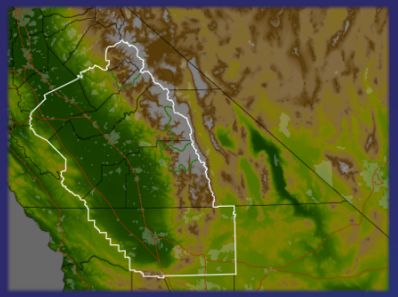
Recapping the 2015-16 El Nino Event

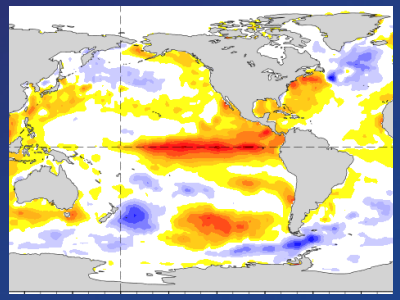
&

Examining the 2016-17 Winter Outlook

National Weather Service
Hanford, California

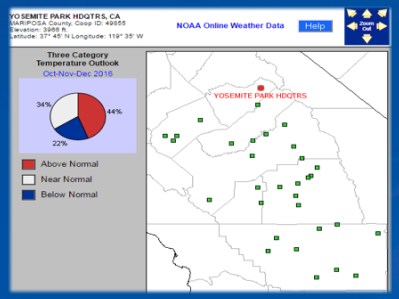


Introduction



El Nino 2015-16

Winter 2016-17



Resources

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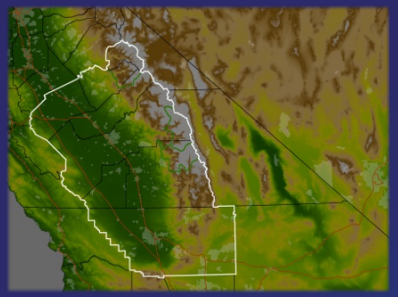

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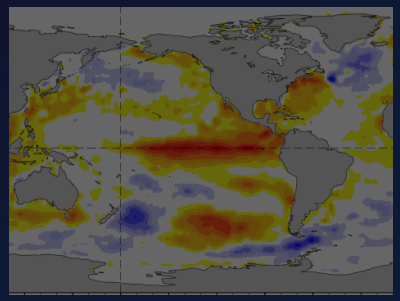

El Nino 2015-16

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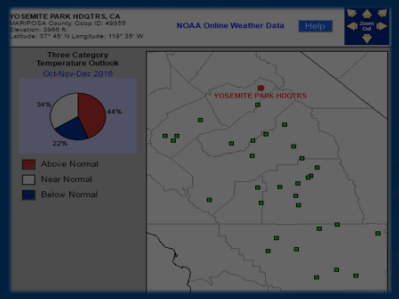

Resources

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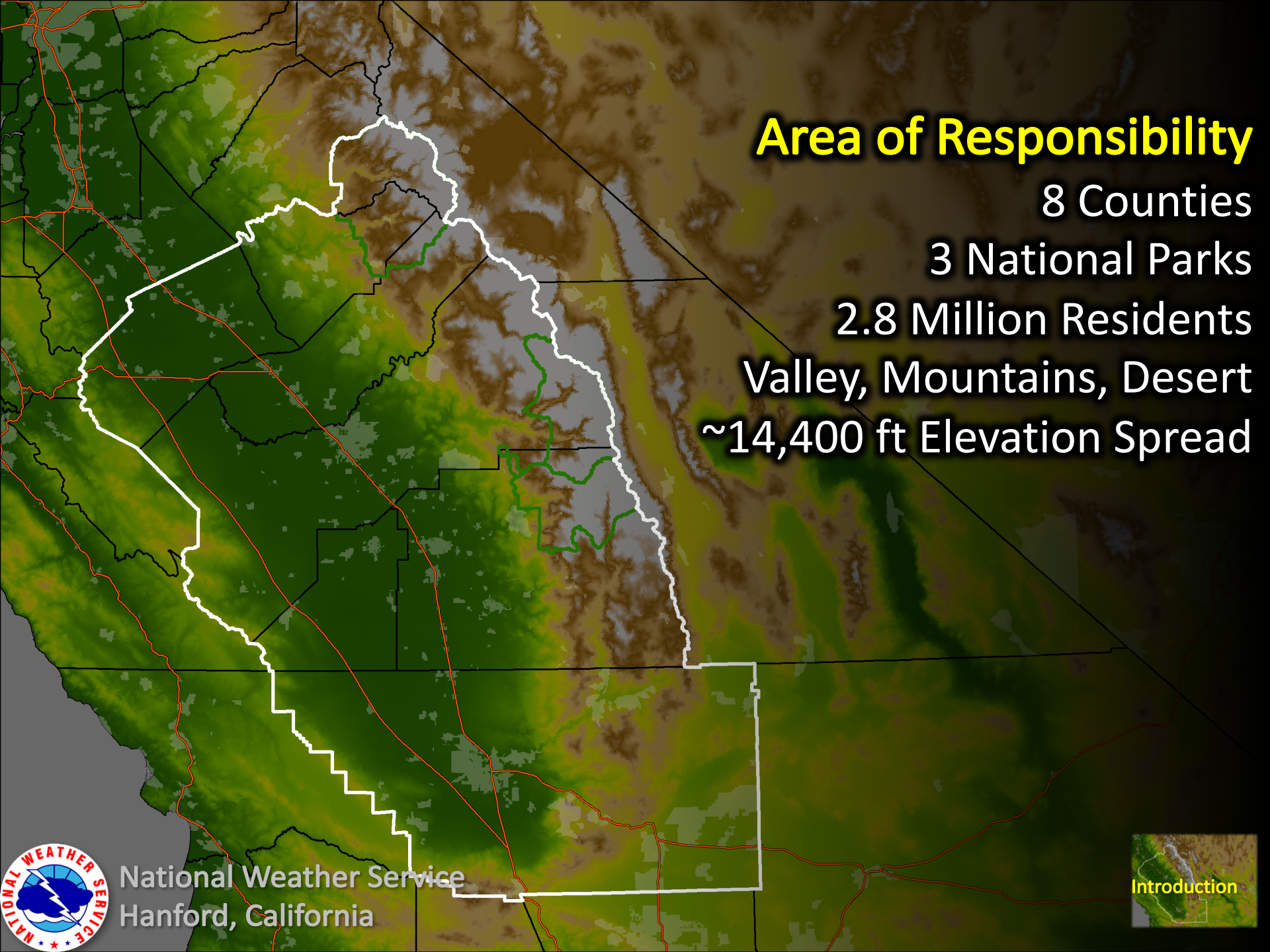

Area of Responsibility
8 Counties
3 National Parks
2.8 Million Residents
Valley, Mountains, Desert
~14,400 ft Elevation Spread
National Weather Service
Hanford, California
Introduction

Office Programs/Responsibilities

Aviation

Climatology

Public Forecasts

Outreach/Decision Support Services

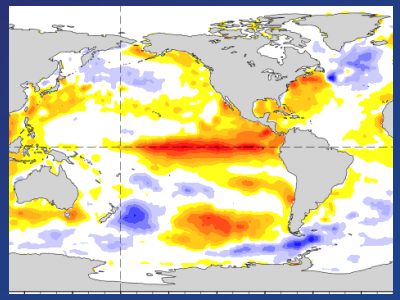
Fire Weather

Hydrology

Electronics Maintenance

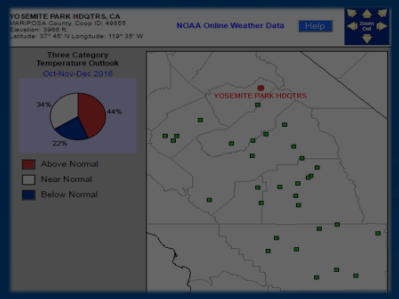
Social Media

Introduction



El Nino 2015-16

Winter 2016-17



Resources

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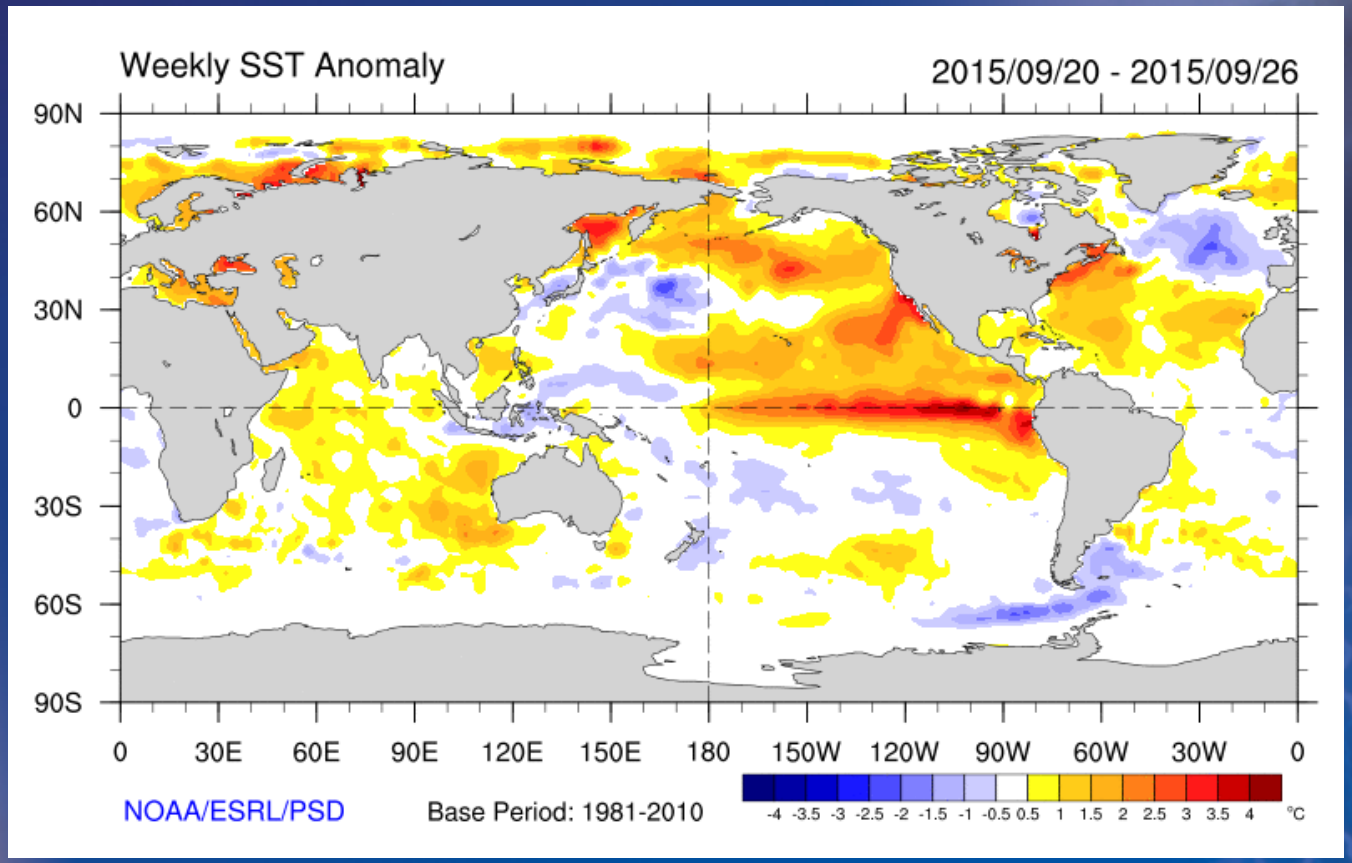
What is El Nino?

Above average sea surface temperature anomalies in the Equatorial Pacific Ocean.



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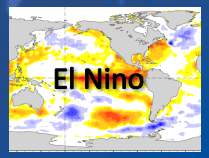
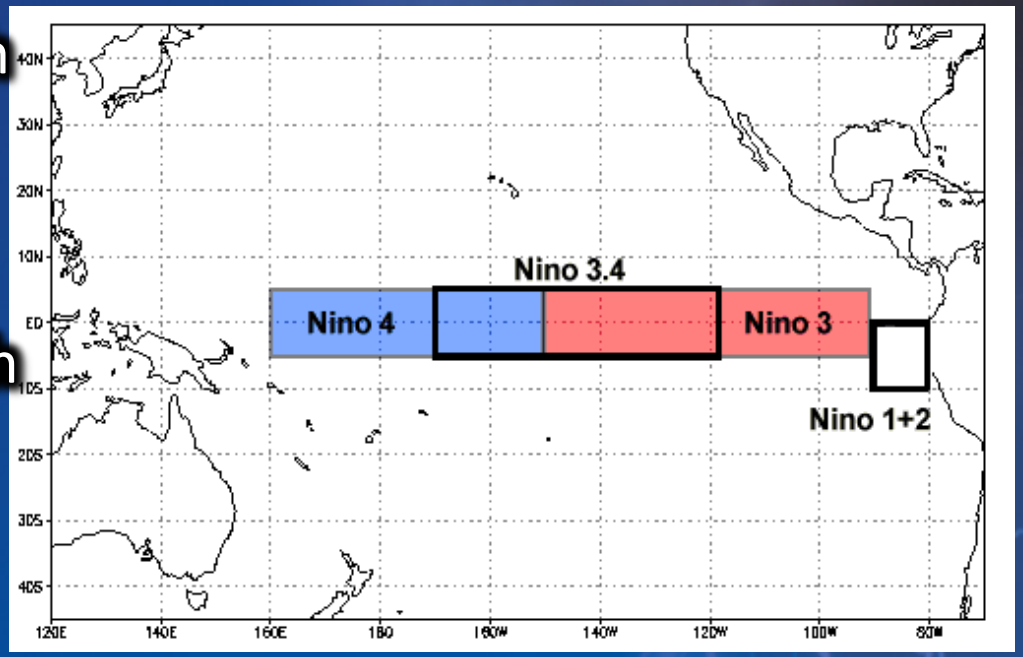


How do we quantify/measure El Nino?

We calculate the 3-month mean SST anomalies in the Nino 3.4 region. Value is commonly referred as the Oceanic Nino Index (ONI).

El Nino is present if the 3-month mean exceeds +0.5°C for 5 consecutive months.

La Nina is present if the 3-month mean exceeds -0.5°C for 5 consecutive months.



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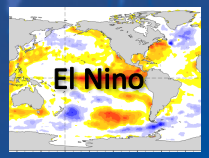
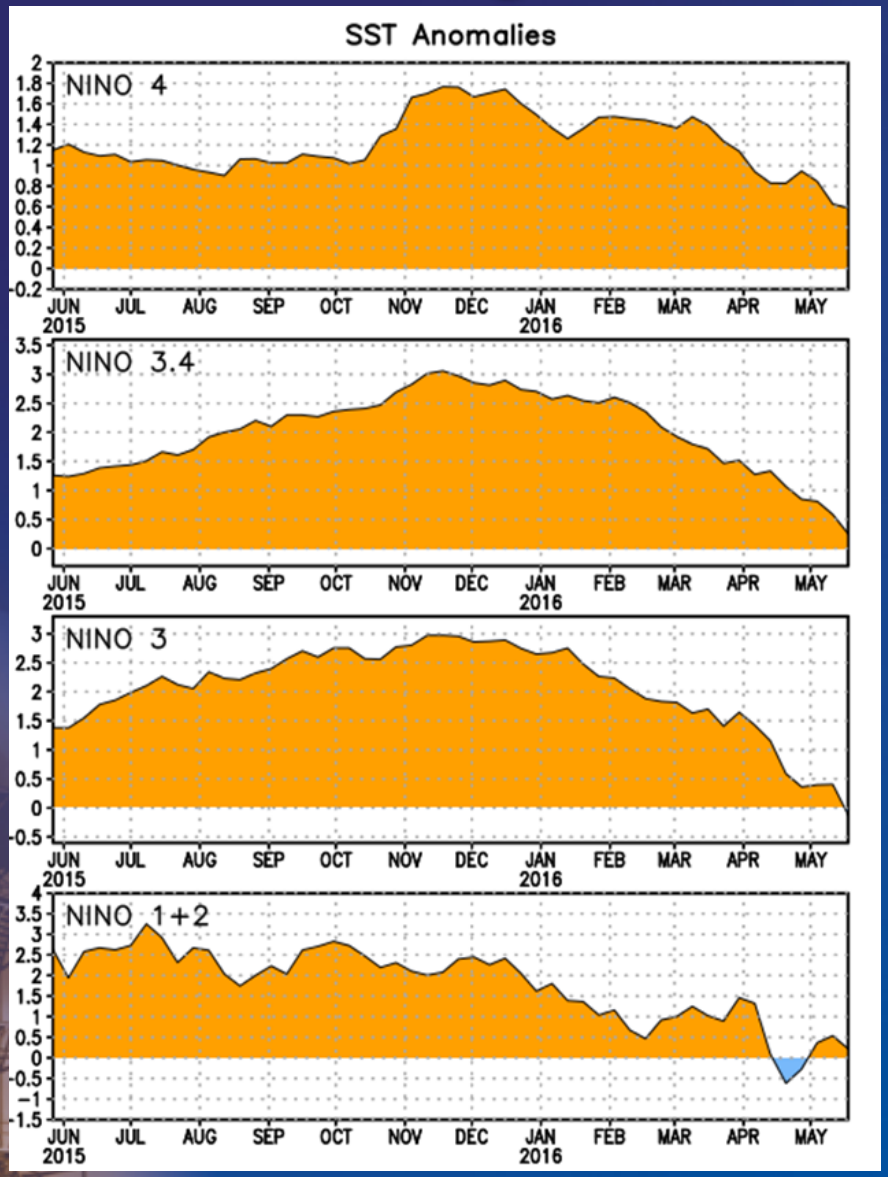
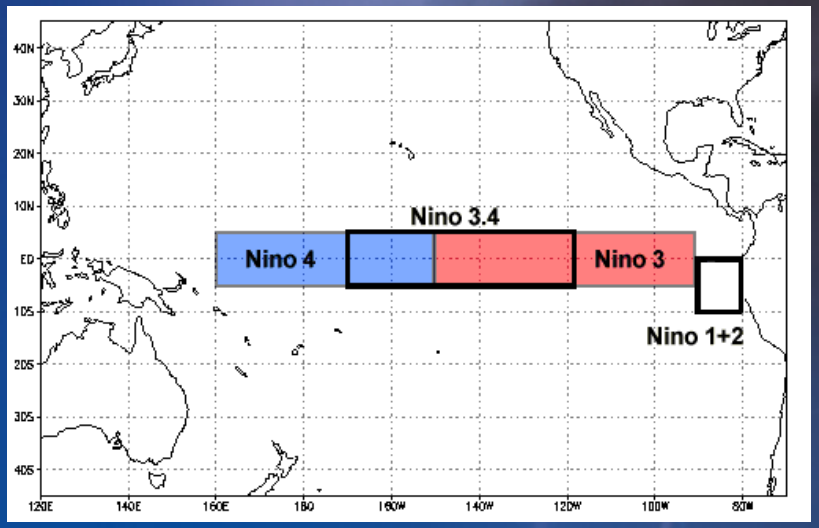
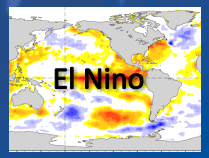


El Nino 2015-16 by the Numbers



Weekly SST Anomalies





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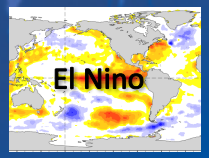
Previous Strong El Ninos

ONI Values During Strong El Nino Episodes												
Year	JJA	JAS	ASO	SON	OND	NDJ	DJF	JFM	FMA	MAM	AMJ	MJJ
1957-58	1	1.2	1.1	1.2	1.3	1.6	**1.7**	1.5	1.2	0.8	0.7	0.6
1965-66	1	1.3	1.6	1.7	**1.8**	1.5	1.3	1	0.9	0.6	0.3	0.2
1972-73	1.1	1.3	1.5	1.8	2	**1.9**	1.7	1.2	0.6	0	-0.4	-0.8
1982-83	0.8	1	1.5	1.9	**2.1**	**2.1**	**2.1**	1.8	1.5	1.2	1	0.7
1991-92	0.7	0.7	0.8	1.2	1.4	**1.6**	1.5	1.4	1.2	1	0.8	0.5
1997-98	1	1.4	1.7	2	2.2	**2.3**	**2.3**	2.1	1.8	1.4	1	0.5
2015-16	1	1.2	1.4	1.7	2	2.2	**2.3**	2.2	2	1.6	1.1	0.6

ONI (ERSSTv4) data goes back to 1950

The El Nino of 2015-16 matched the strength of the 1997-98 event.



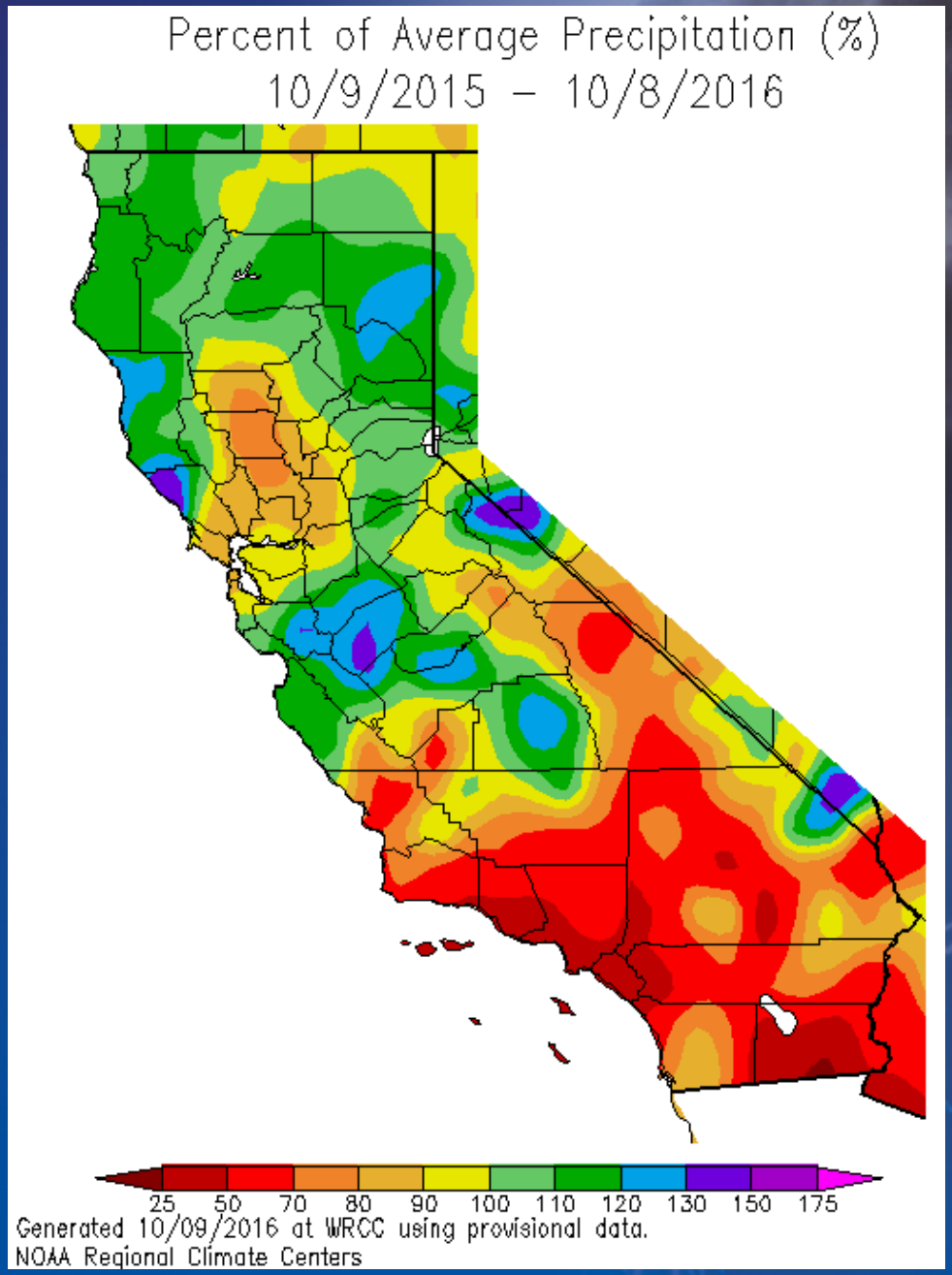
Precipitation 2015-2016

Above normal for:

- Northwest coastal areas
- Northern Sierra
- Northern San Joaquin Valley
  - Fresno: **~125% of normal**

Below normal for:

- Central/Southern San Joaquin Valley
  - Hanford: **~82% of normal**
  - Bakersfield: **~84% of normal**
- Southern California
- Central/Southern Sierra Nevada
- Mojave Desert



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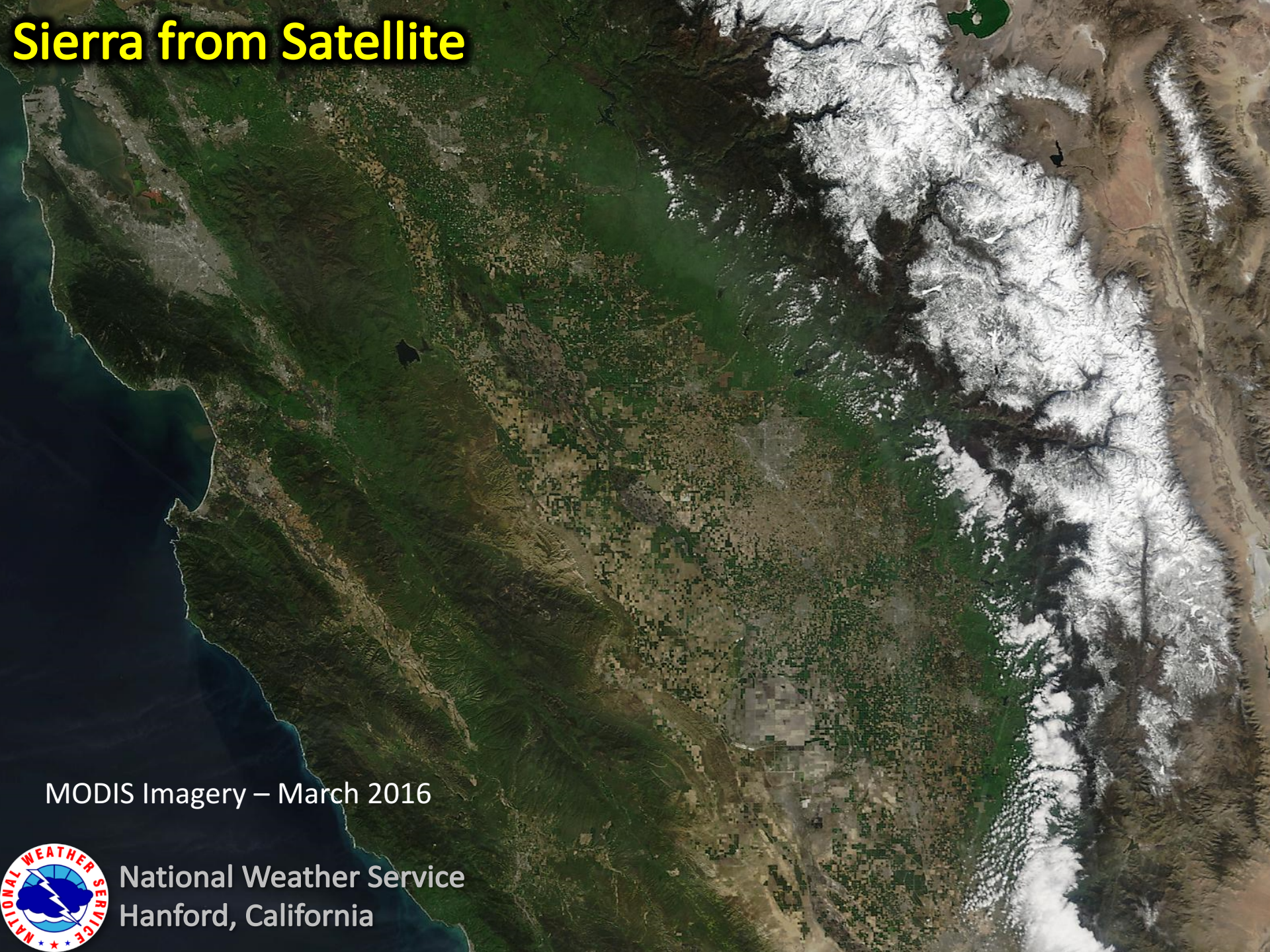
Sierra from Satellite



MODIS Imagery – March 2016

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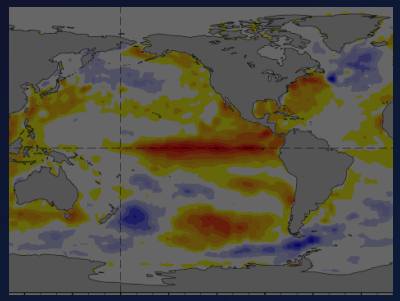
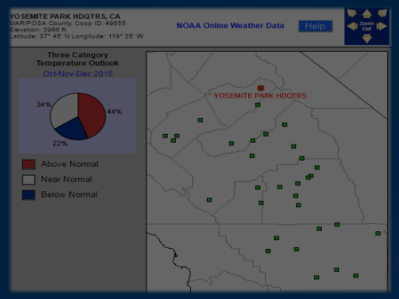
Hanford, California

Introduction



El Nino 2015-16

Winter 2016-17



Resources

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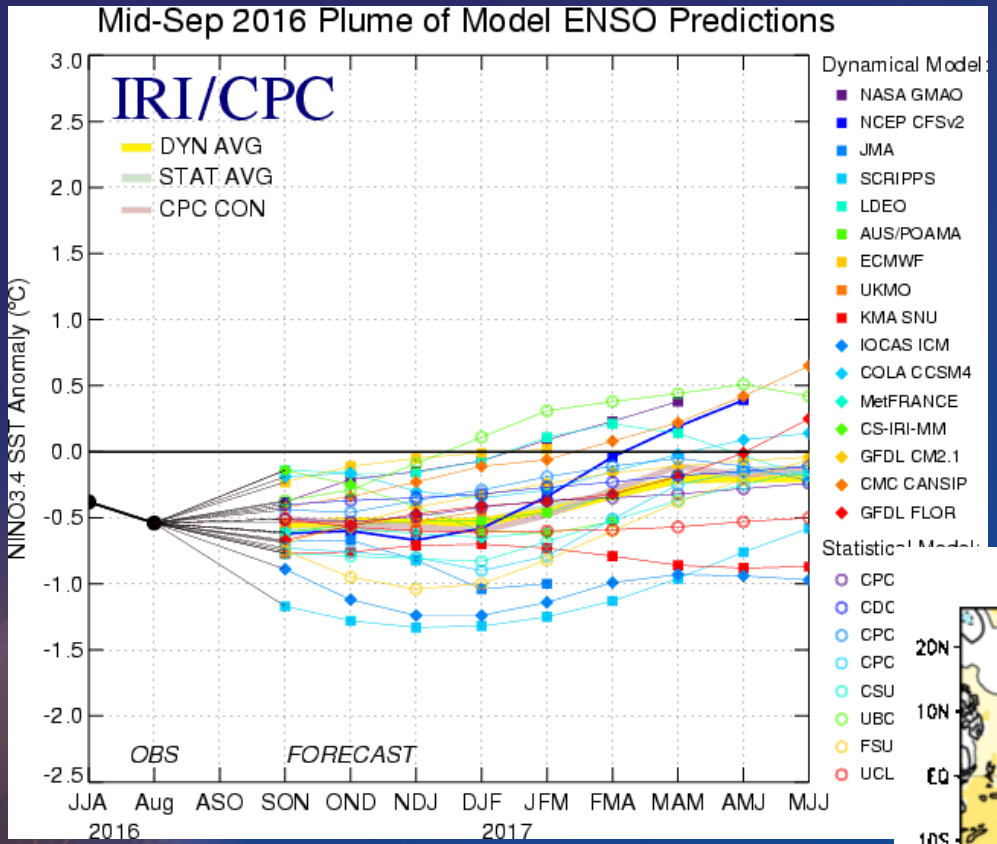
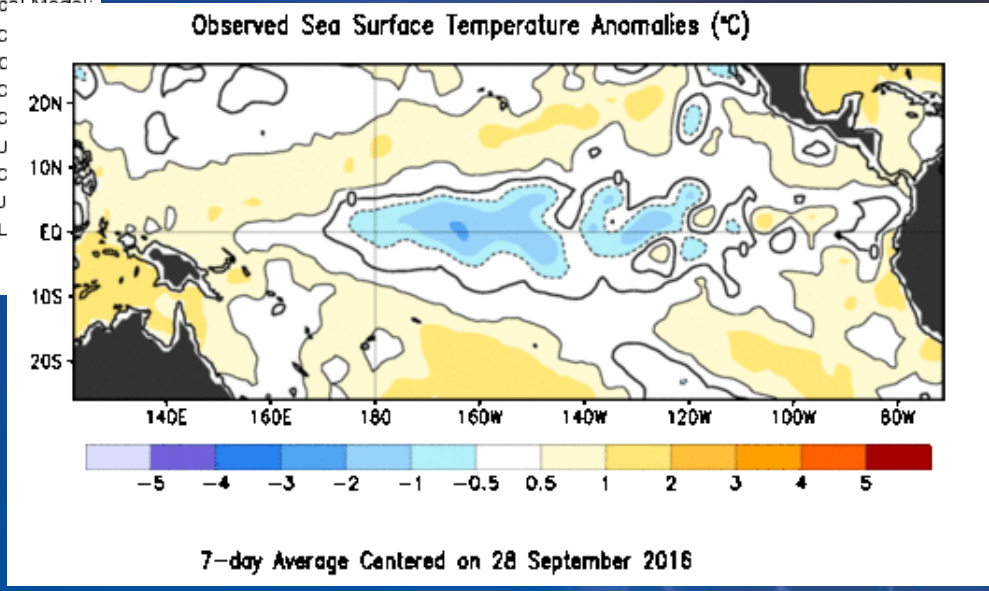
ENSO Status: Neutral





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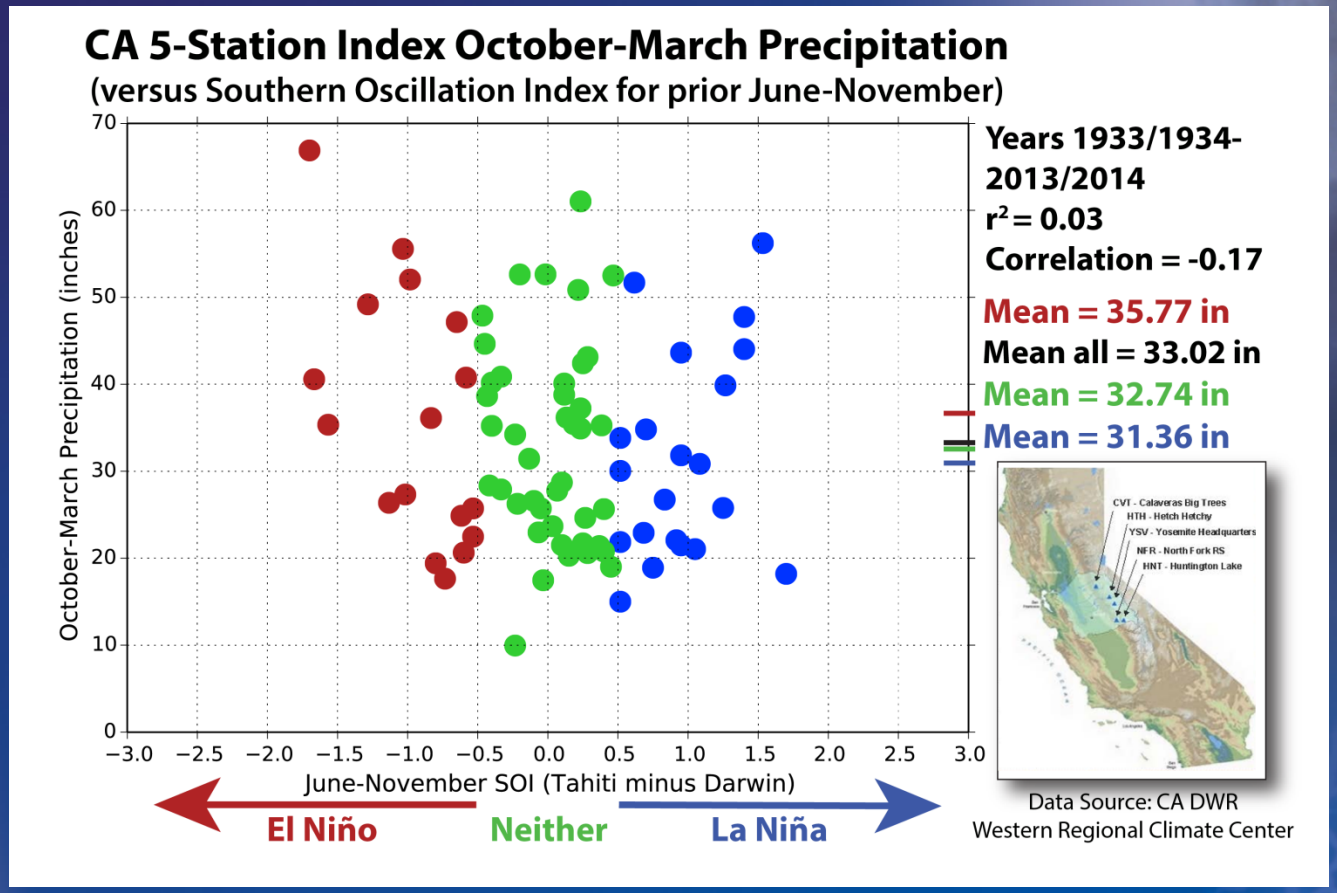
Hanford, California

Winter
2016-17

What have previous ENSO neutral winters yielded?



Wet, dry, and near normal conditions have all been observed in central California.

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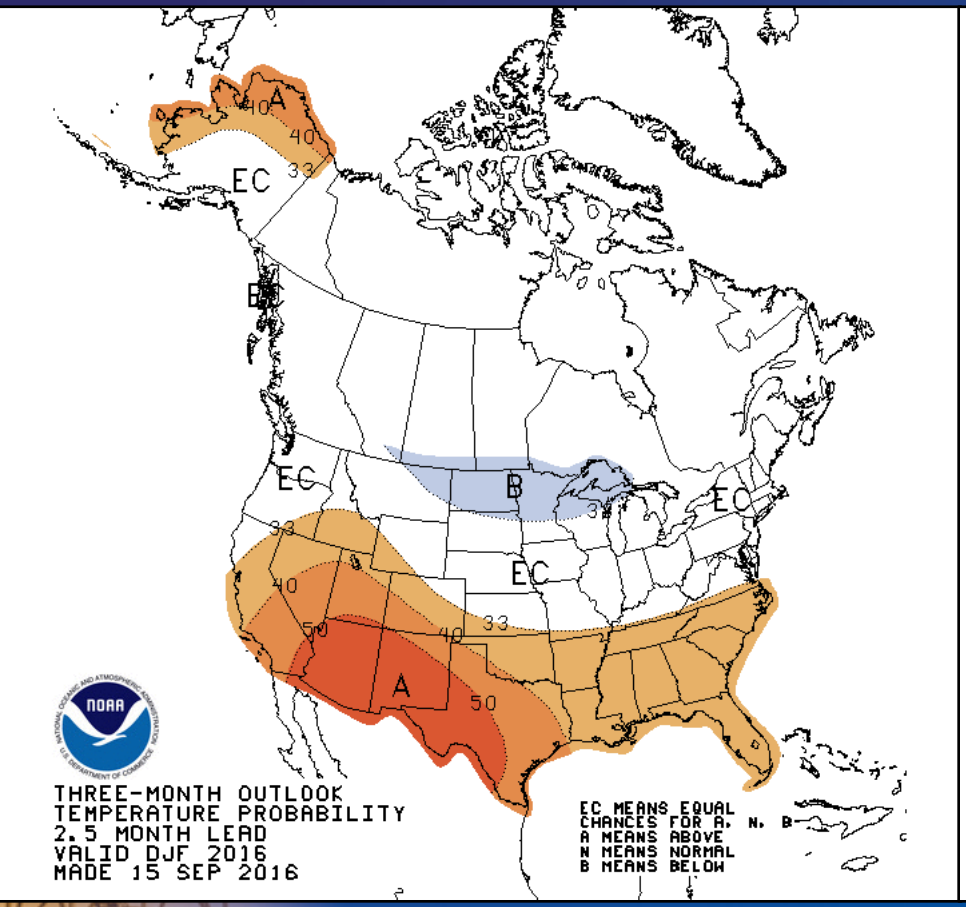
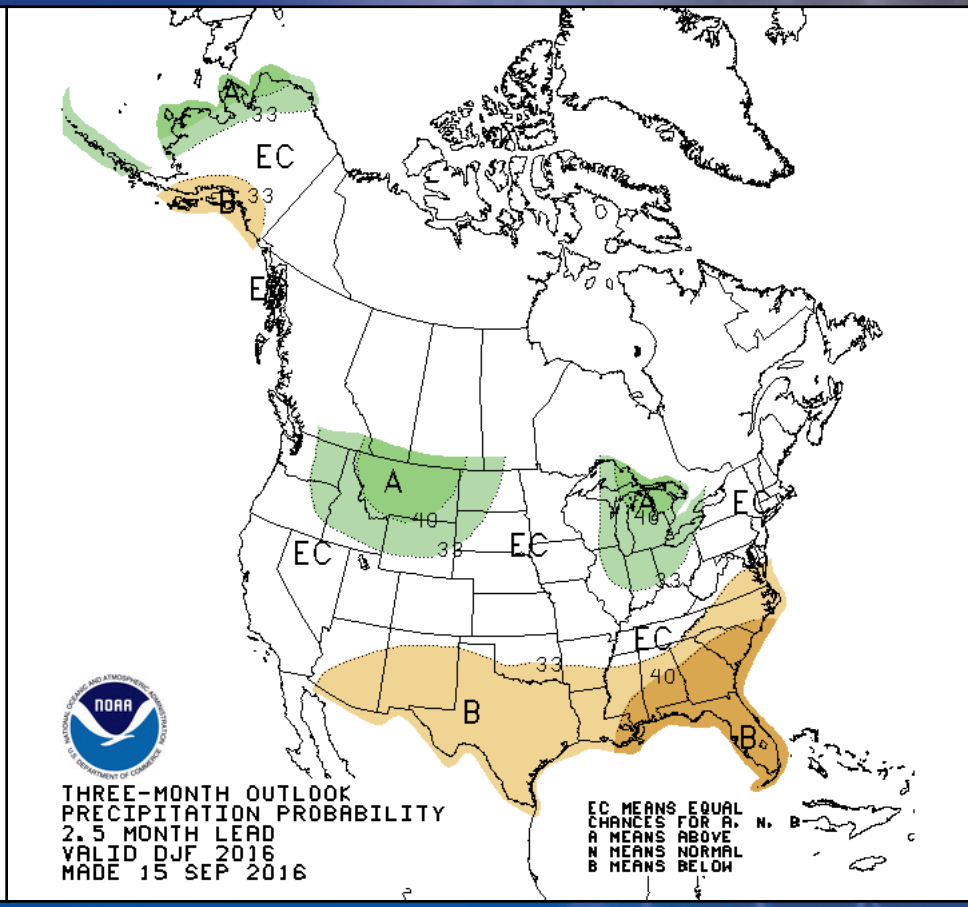
Winter 2016-17

Climate Prediction Center Outlooks Dec/Jan/Feb

Temperature



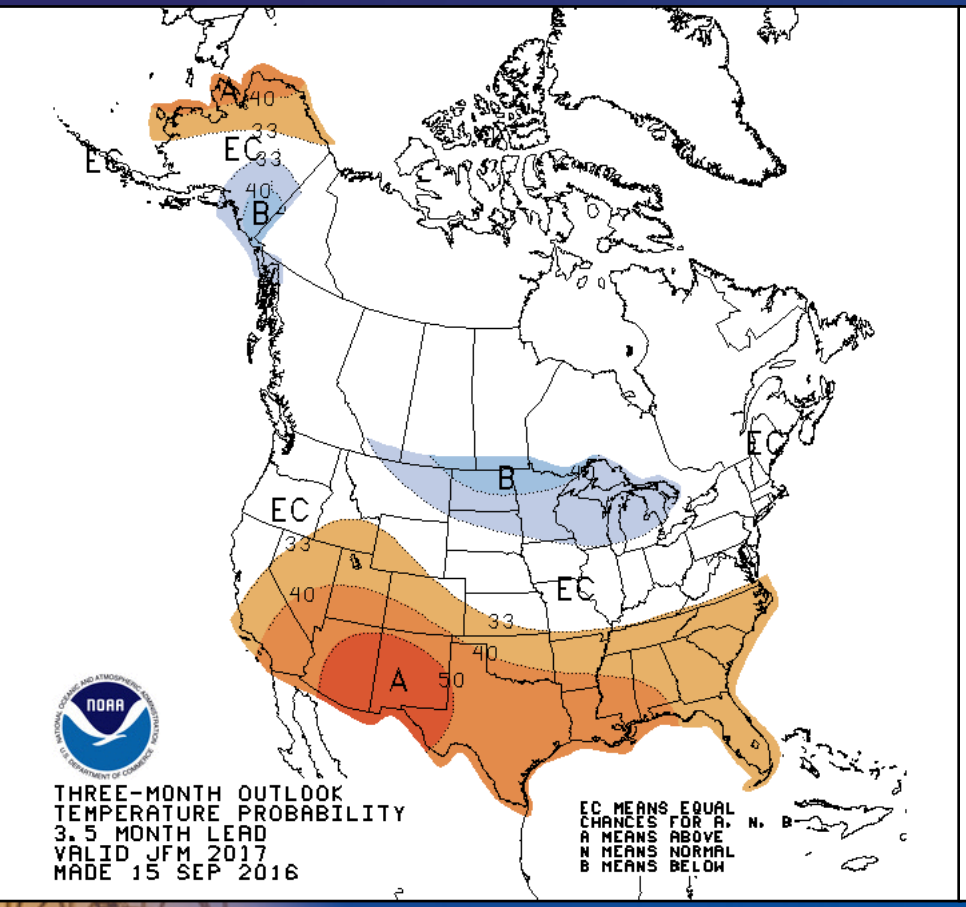
Precipitation



Climate Prediction Center Outlooks

Jan/Feb/Mar

Temperature



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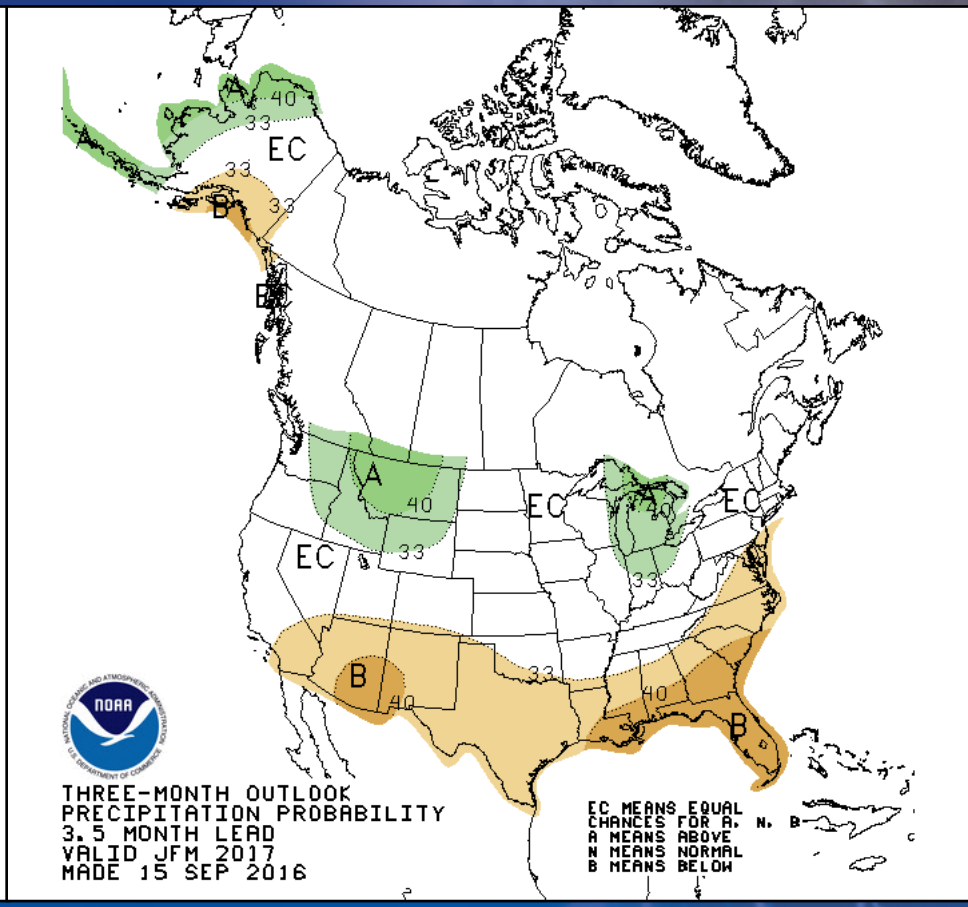
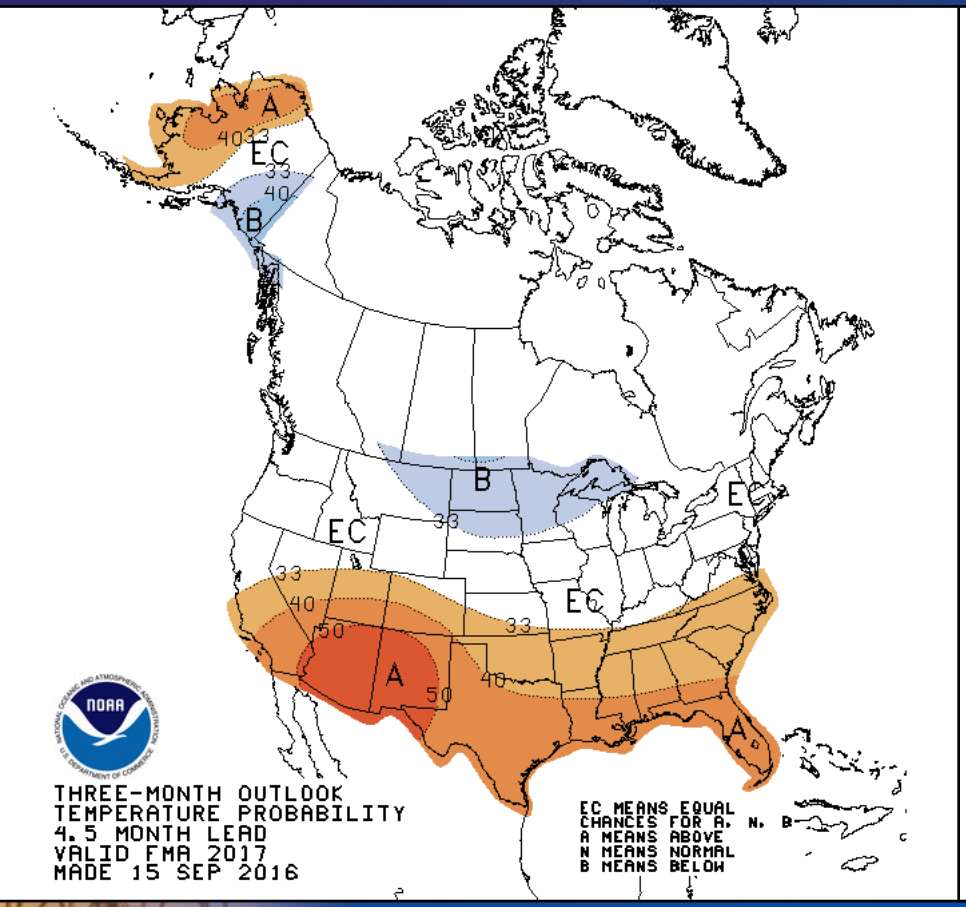


Climate Prediction Center Outlooks

Feb/Mar/Apr

Temperature



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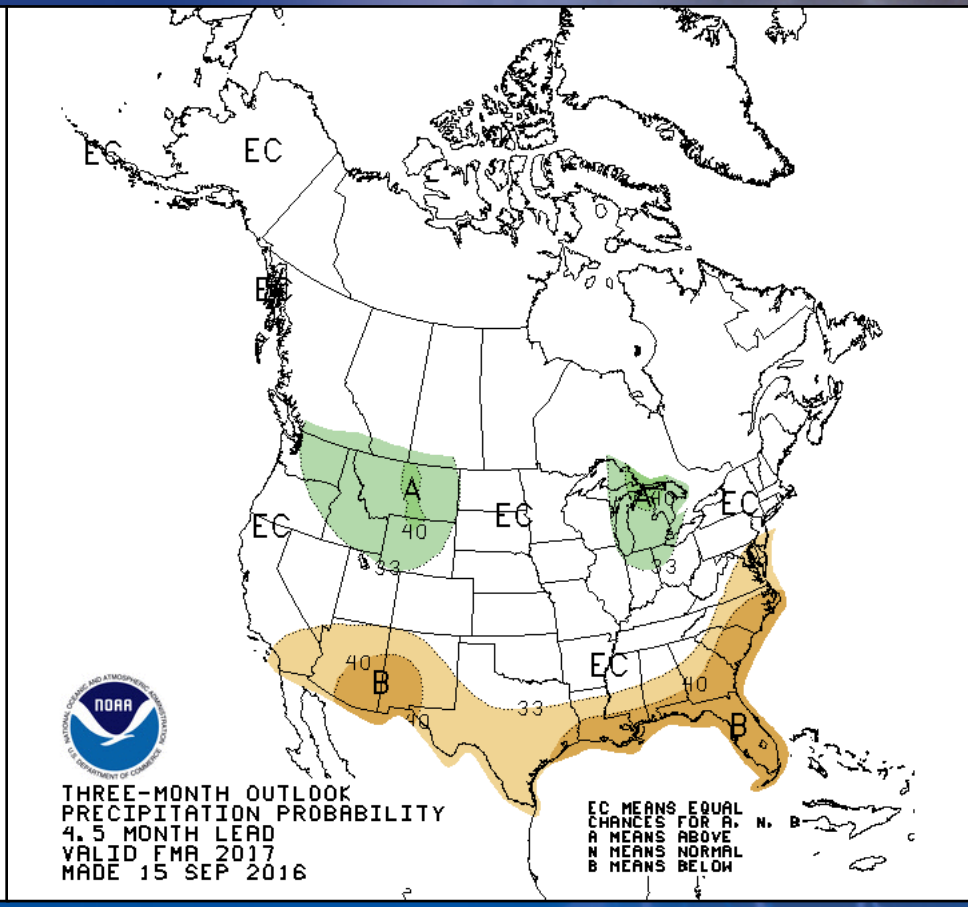


Climate Prediction Center Outlooks
Summary

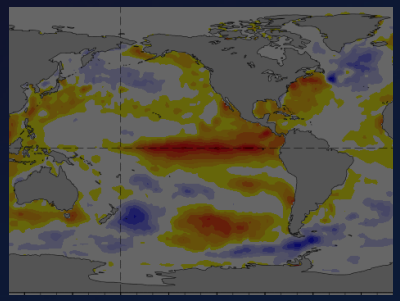
Temperature:

- Increased likelihood of **above normal temperatures** for the southern two-thirds of California.

Precipitation:

- Equal chances of either above or below normal precipitation. Southern California slightly favored for below normal precipitation.

Introduction



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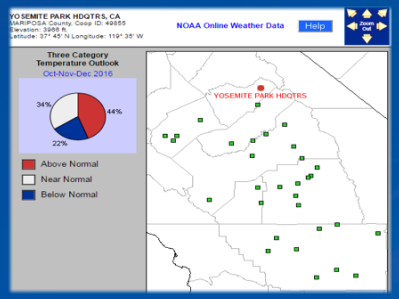

Resources

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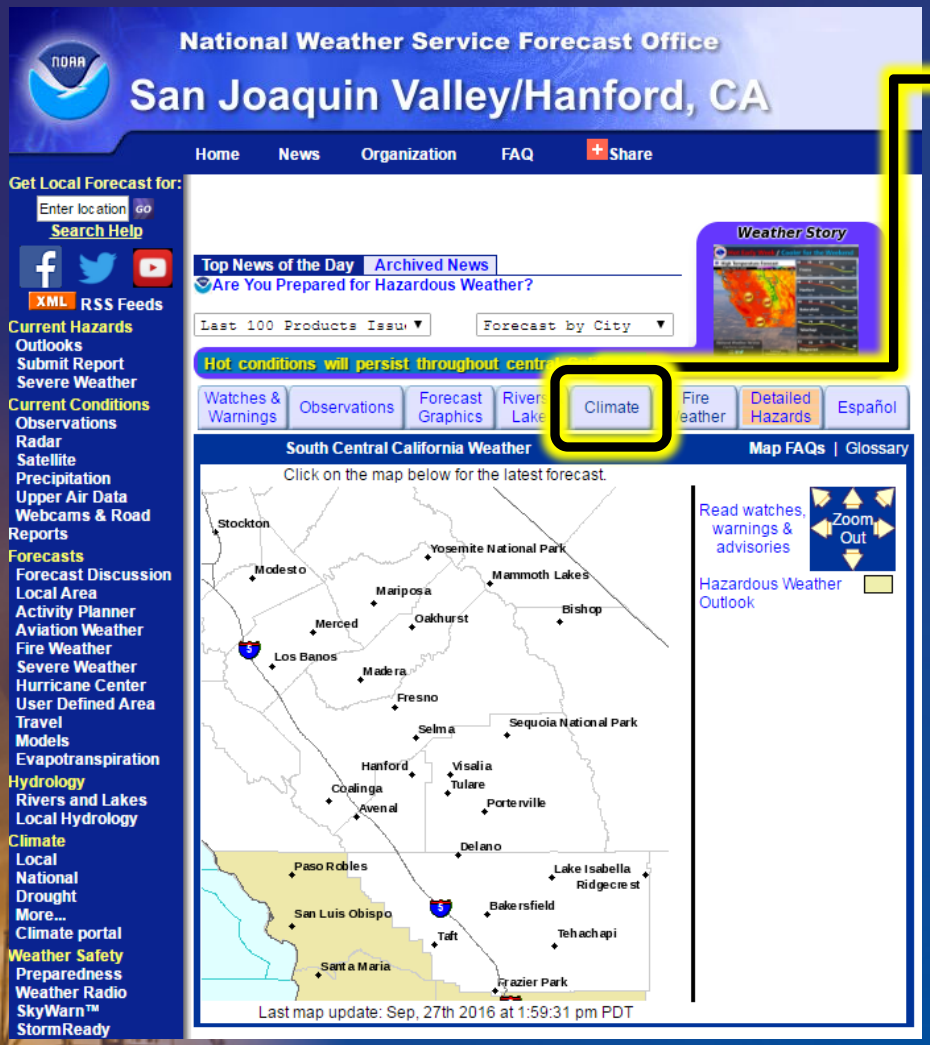
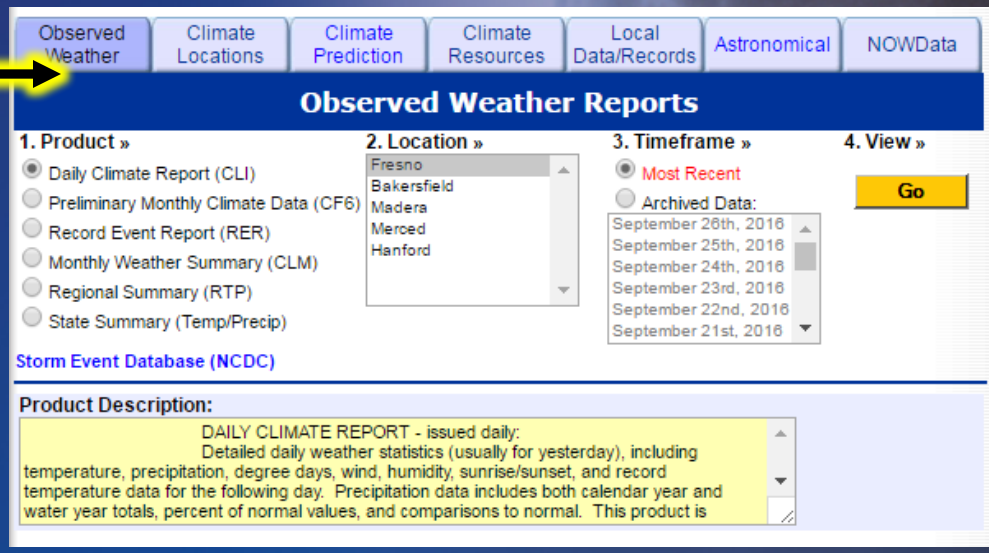
NWS Hanford Resources for Partners

NWS Hanford Webpage – weather.gov/hanford





- Daily Climate Reports
- Monthly Climate Reports

NWS Hanford Resources for Partners

NWS Hanford Webpage – weather.gov/hanford

Observed Weather | Climate Locations | Climate Prediction | Climate Resources | Local Data/Records | Astronomical | NOWData

Climate Prediction and Variability

Climate Prediction
Long range forecasts across the U.S.

Climate Prediction Web Sites

- Climate Prediction Center (CPC)
- Climate Diagnostics Center (CDC)

Week Two Forecasts (6-14 days)

- 6-10 Day Temperature Forecast Map
- 6-10 Day Precipitation Forecast Map
- 8-14 Day Temperature Forecast Map
- 8-14 Day Precipitation Forecast Map
- 6-10 Day & 8-14 Day Forecast Discussions
- U.S. Hazards Assessment

Monthly (30 day) Outlooks

- CPC Monthly Outlook
- Monthly Outlook Discussion
- Monthly & Seasonal Outlook Maps

Seasonal (90 day) Outlooks

- CPC Seasonal Outlooks
- Seasonal Outlook Discussion
- Monthly & Seasonal Outlook Maps

Climate Variability
Topics important to climate assessment and prediction

Information on El Niño and La Niña

- CPC's El Niño / La Niña Page
- El Niño Theme Page
- What is La Niña
- ENSO Diagnostic Discussion

Drought Information

- U.S. Drought Assessment

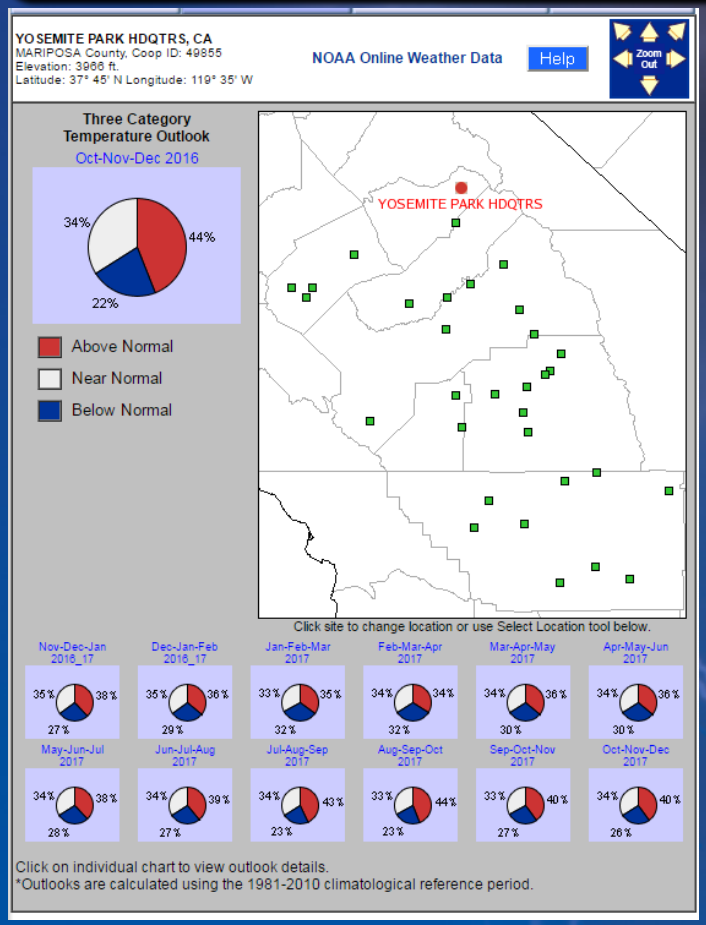
Intraseasonal Oscillations

- Monitoring Intraseasonal Oscillations
- Madden-Julian Oscillation
- Daily Indices

Teleconnections

- Northern Hemisphere Teleconnections
- Daily Indices
- Forecasts of Teleconnection Indices

- Climate Outlooks from CPC
- Local temperature outlooks for point locations, such asYosemite National Park



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Hanford, California

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Other Resources

- NWS Hanford on Social Media:
  - Twitter: @NWSHanford
  - Facebook: /NWSHanford
- Climate Prediction Center - www.cpc.ncep.noaa.gov/
- Neighboring NWS Forecast Offices:
  - NWS Sacramento: weather.gov/sacramento
  - NWS Monterey/San Francisco: weather.gov/monterey
  - NWS Los Angeles/Oxnard: weather.gov/losangeles
  - NWS San Diego: weather.gov/sandiego
  - NWS Las Vegas: weather.gov/lasvegas
  - NWS Reno: weather.gov/reno
- Western Regional Climate Center - wrcc.dri.edu/
- Drought Monitor: drought.gov

NWS Hanford Resources for Partners

Getting in Contact with Us!

NWS Hanford on Social Media:

Twitter: @NWSHanford

Facebook: /NWSHanford

Email:

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kevin.lynott@noaa.gov

hnx.webmaster@noaa.gov

Phone:

559.584.3752

(Staffed 24/7/365)

Thank you!

Questions?

National Weather Service
Hanford, California