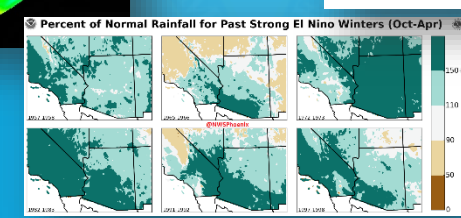
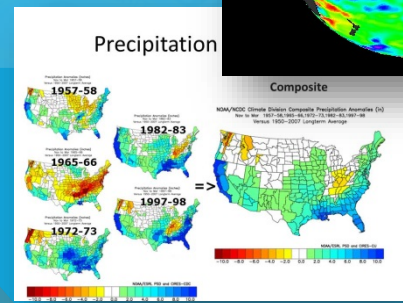
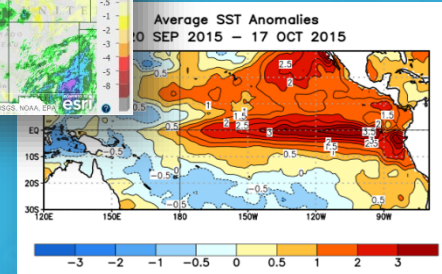
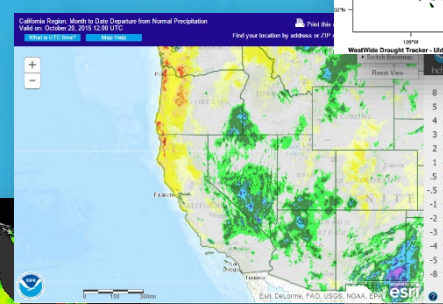
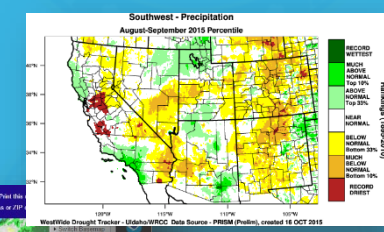
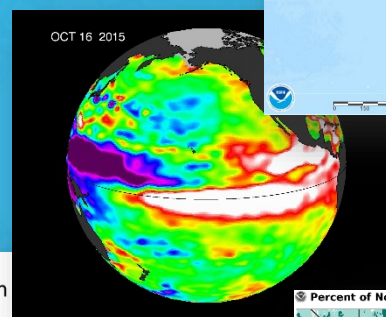


FEMA RIX RISC MEETING - 21 OCT 2015

EL NIÑO - STATUS AND WHAT TO EXPECT



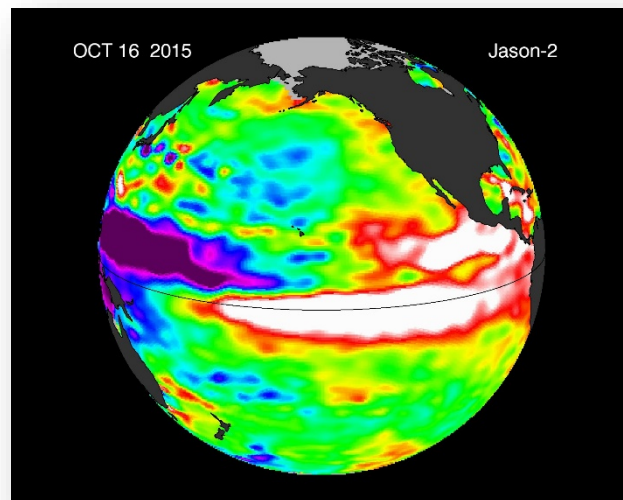
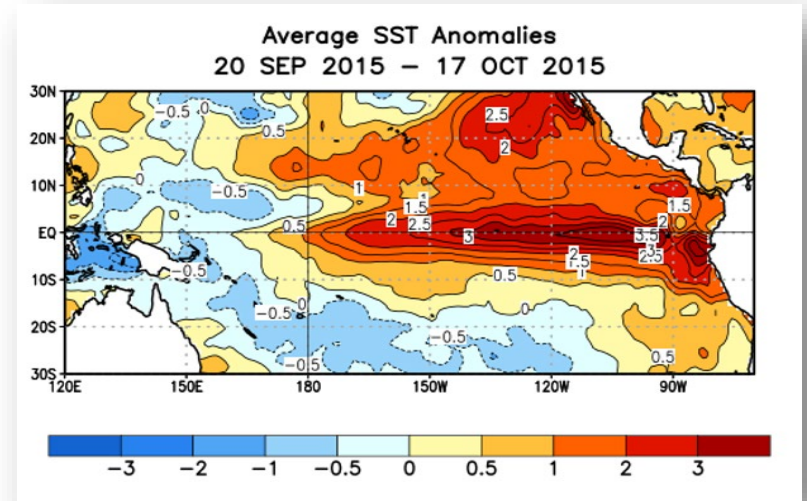


OUTLINE

- **Current Status/Forecast of El Niño**
- **Official Outlook**
- **Historical “Strong” El Niño Reminder**
- **What Could We Expect?**
- **Impacts – Real/Potential**

ENSO STATUS

- **Sea Surface Temperature (SST) Anomalies**
 - Positive values stretch from the coast of South America to the Dateline
 - Positive values cover a large portion of the eastern Pacific north of the Equator
 - Positive values even off the coast of North America



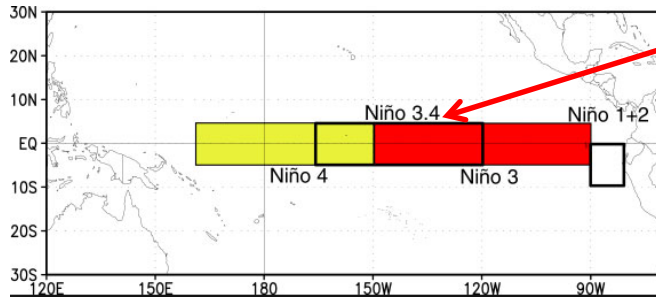
- **Sea level height anomalies**
 - Positive values along the Equator and much of the tropical eastern Pacific
 - Classic El Niño signature



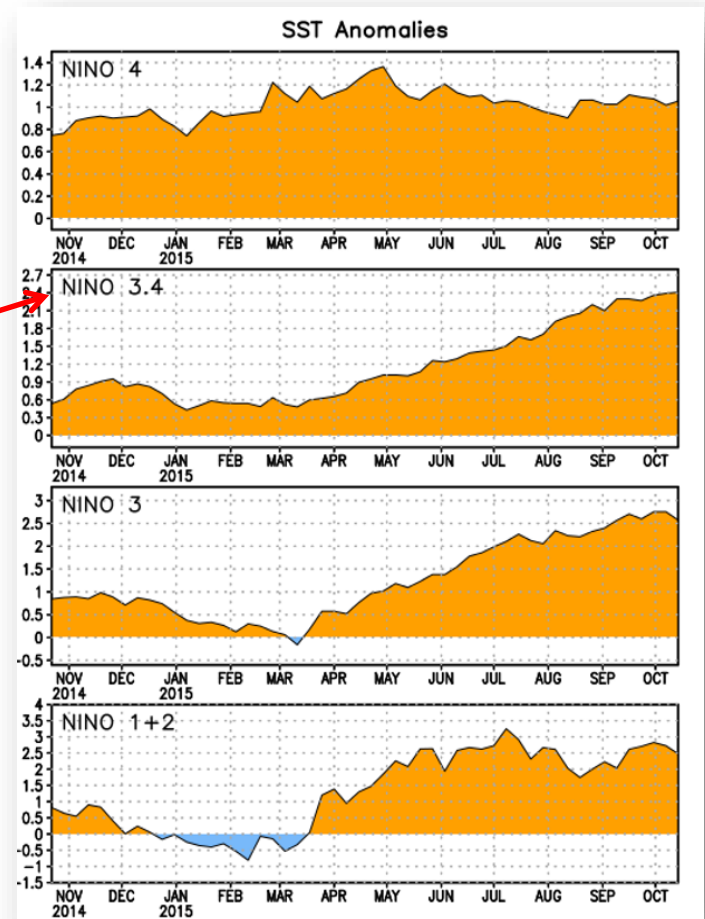
ENSO STATUS

- **Sea Surface Temperature (SST) Anomalies**

- Latest weekly (Oct 19) value of Niño 3.4 region is **+2.4°C (Strong)**

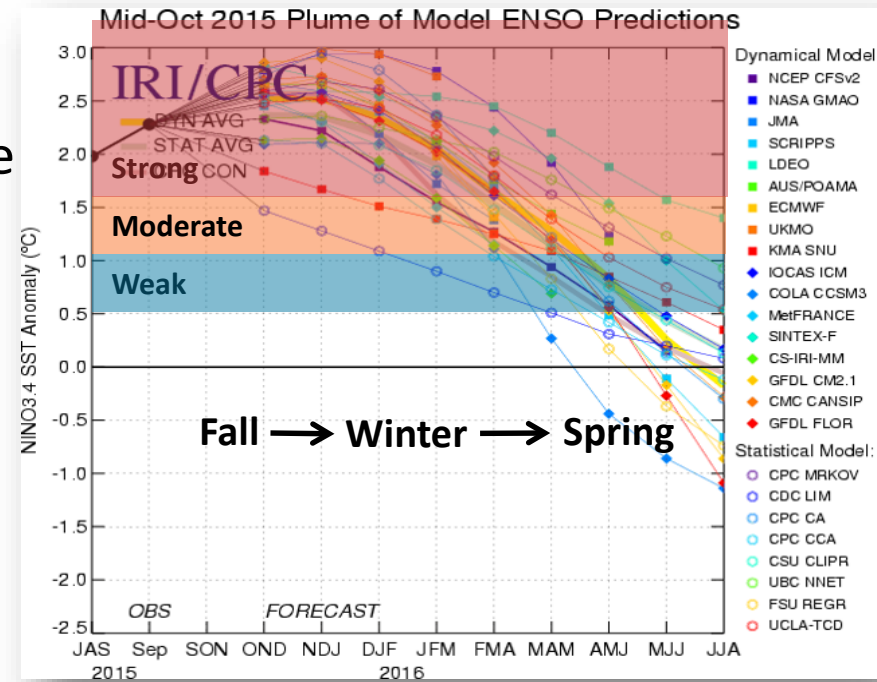


- Trend continues upward since March 2015
- Significant positive values in all Niño regions



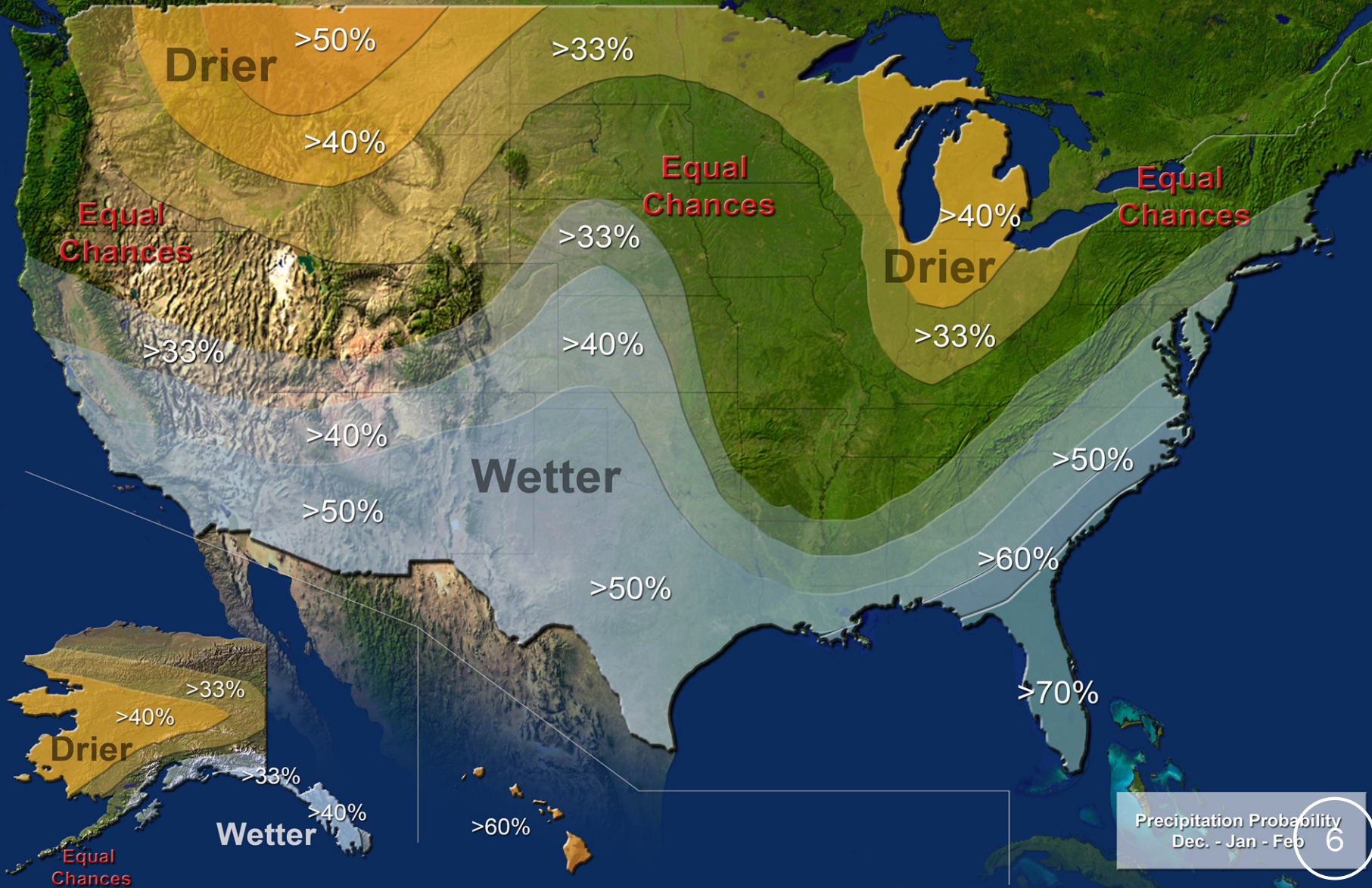
ENSO OUTLOOK

- **CPC continues an El Niño Advisory**
 - A **95%** chance that El Niño conditions/impacts will continue through the Northern Hemisphere winter 2015-16
 - Gradual weakening thereafter through spring 2016
- **Nearly all models continue to predict this strong event to peak in the next 2 months**
- **Potentially among the strongest El Niño events in recorded history**
 - Strongest events: 72-73, 82-83, and 97-98



U.S. Winter Outlook

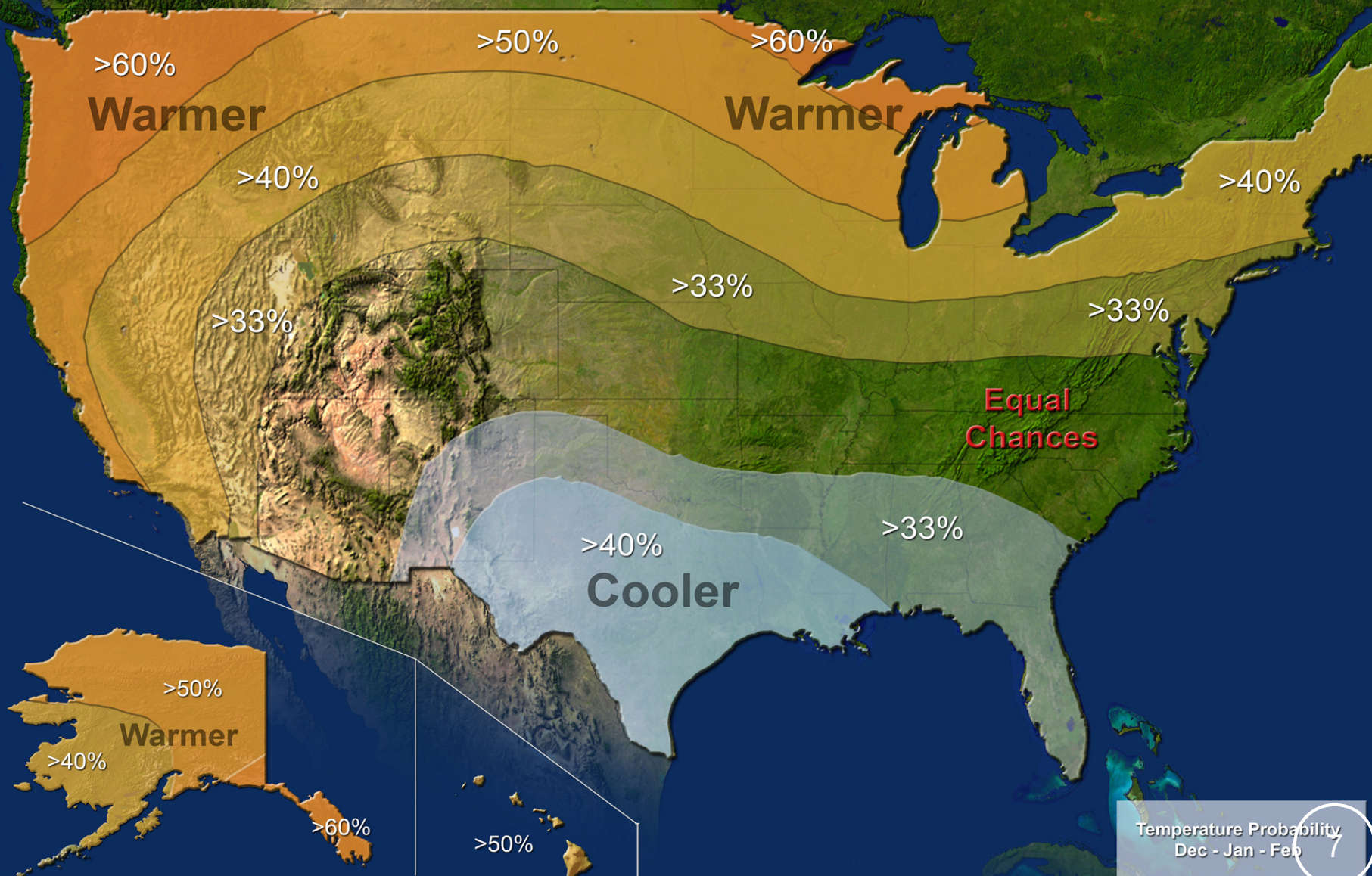
Precipitation



Precipitation Probability
Dec. - Jan - Feb **6**

U.S. Winter Outlook

Temperature

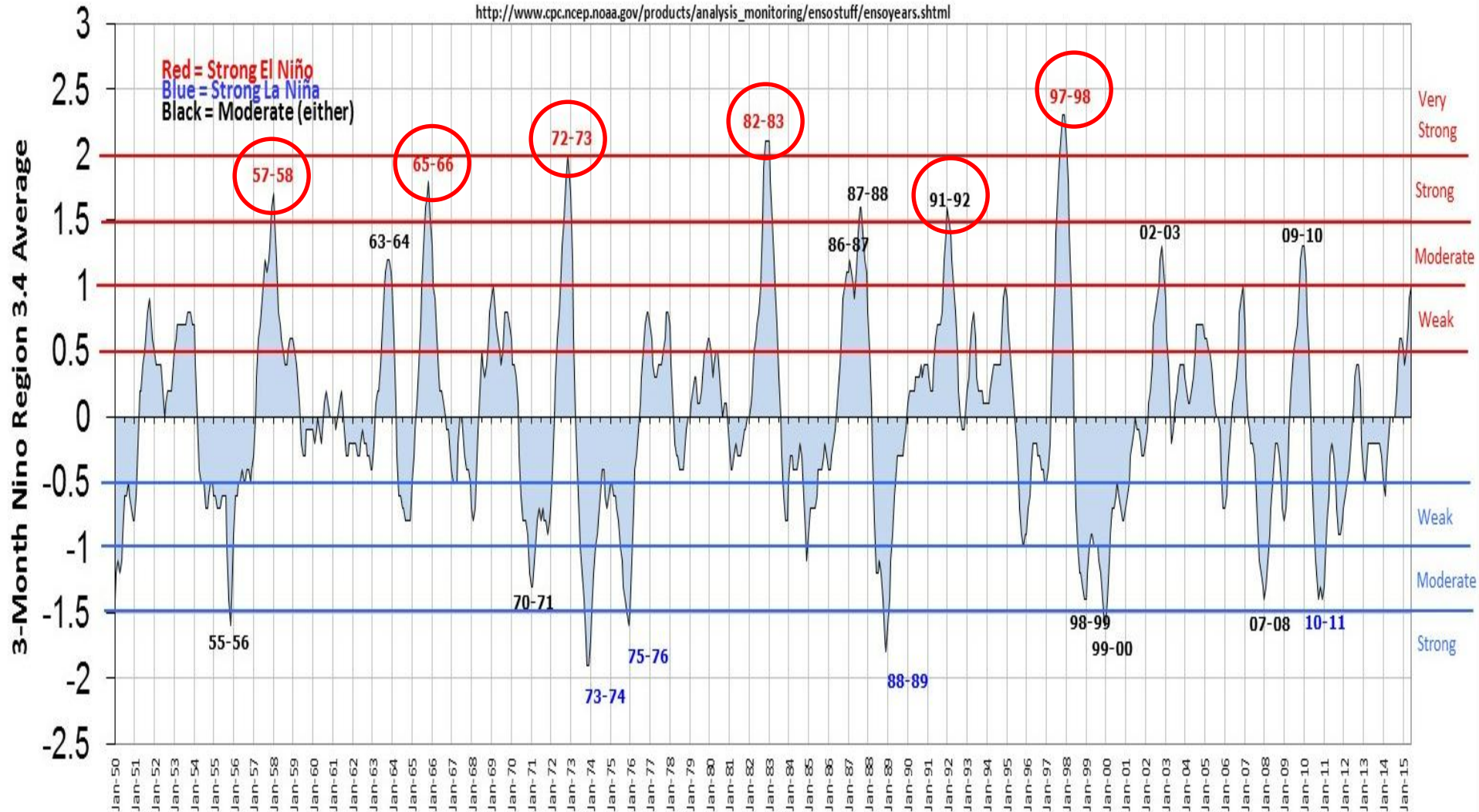




ENSO Since 1950

Oceanic Niño Index (ONI)

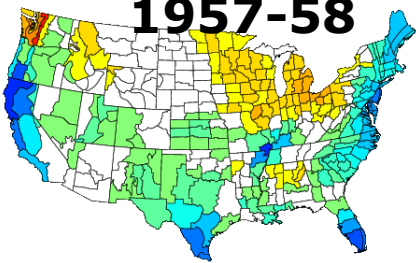
http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/ensostuff/ensoyears.shtml



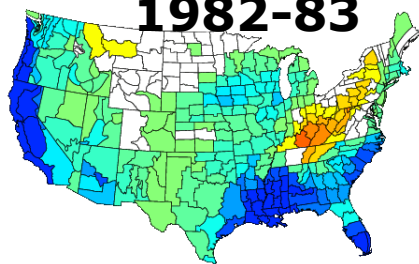


Precipitation Anomalies

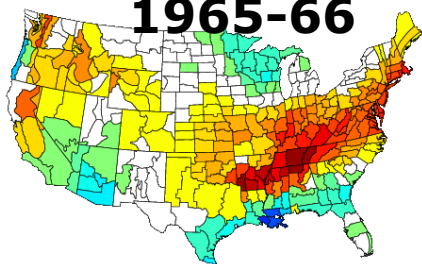
NOAA/NCDC Climate Division Precipitation Anomalies (in)
Nov to Mar 1957-58
Versus 1950-2007 Longterm Average



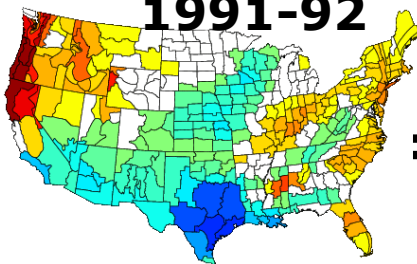
NOAA/NCDC Climate Division Precipitation Anomalies (in)
Nov to Mar 1982-83
Versus 1950-2007 Longterm Average



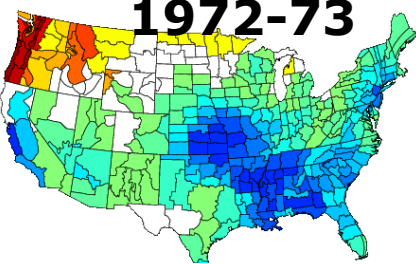
NOAA/NCDC Climate Division Precipitation Anomalies (in)
Nov to Mar 1965-66
Versus 1950-2007 Longterm Average



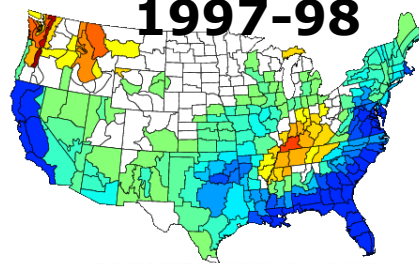
NOAA/NCDC Climate Division Precipitation Anomalies (in)
Nov to Mar 1991-92
Versus 1950-2007 Longterm Average



NOAA/NCDC Climate Division Precipitation Anomalies (in)
Nov to Mar 1972-73
Versus 1950-2007 Longterm Average

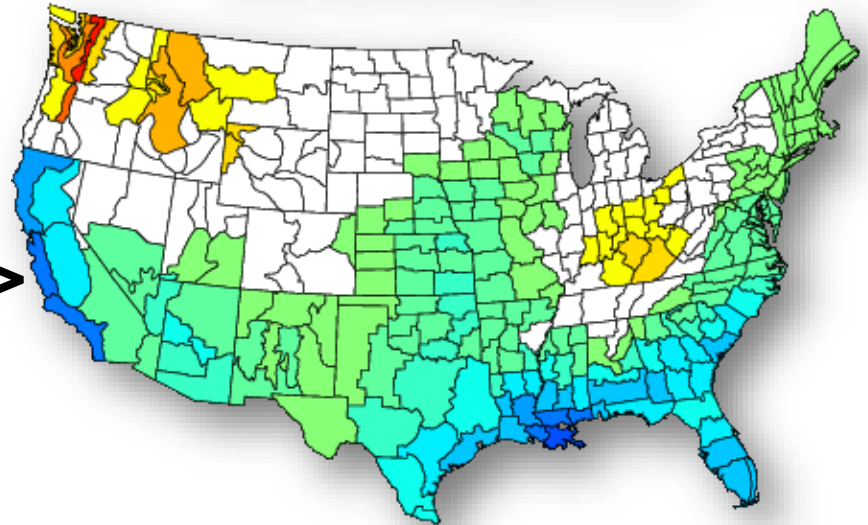


NOAA/NCDC Climate Division Precipitation Anomalies (in)
Nov to Mar 1997-98
Versus 1950-2007 Longterm Average

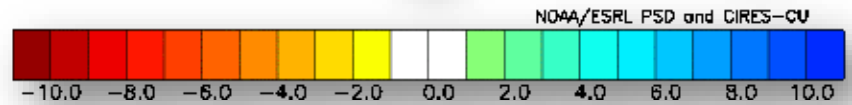
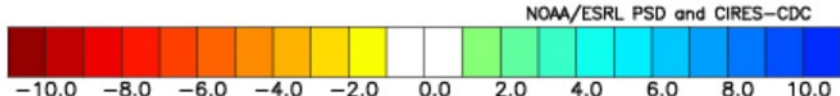


Composite

NOAA/NCDC Climate Division Composite Precipitation Anomalies (in)
Nov to Mar 1957-58, 1965-66, 1972-73, 1982-83, 1991-92, 1997-98
Versus 1950-2007 Longterm Average



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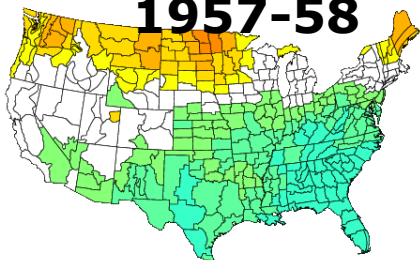
NOAA/ESRL PSD and CIRES-CU

NOAA/ESRL PSD and CIRES-CDC

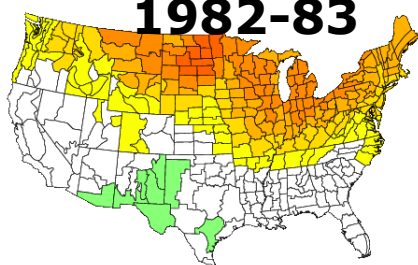


Temperature Anomalies

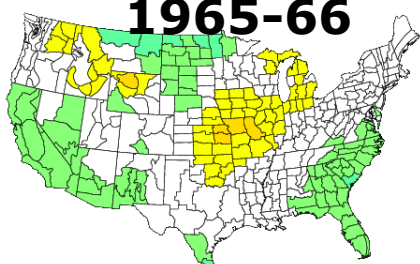
NOAA/NCDC Climate Division Temperature Anomalies (F)
Nov to Mar 1957-58
Versus 1950-2007 Longterm Average



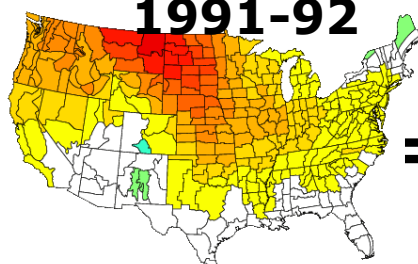
NOAA/NCDC Climate Division Temperature Anomalies (F)
Nov to Mar 1982-83
Versus 1950-2007 Longterm Average



NOAA/NCDC Climate Division Temperature Anomalies (F)
Nov to Mar 1965-66
Versus 1950-2007 Longterm Average

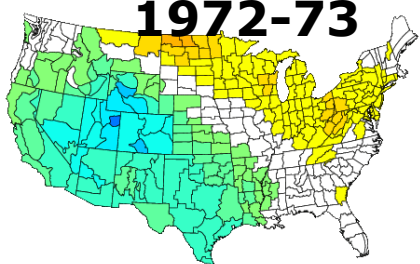


NOAA/NCDC Climate Division Temperature Anomalies (F)
Nov to Mar 1991-92
Versus 1950-2007 Longterm Average

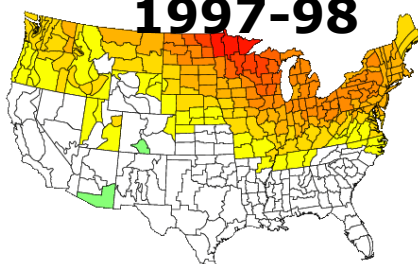


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NOAA/NCDC Climate Division Temperature Anomalies (F)
Nov to Mar 1972-73
Versus 1950-2007 Longterm Average

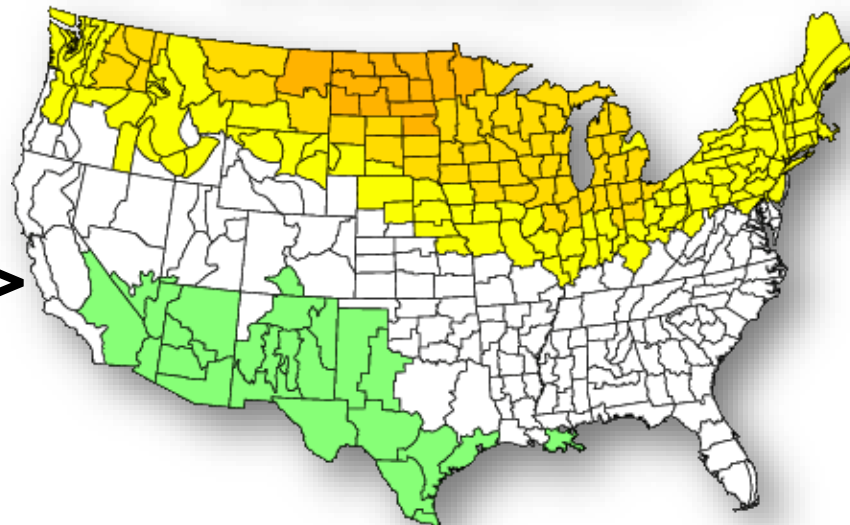


NOAA/NCDC Climate Division Temperature Anomalies (F)
Nov to Mar 1997-98
Versus 1950-2007 Longterm Average

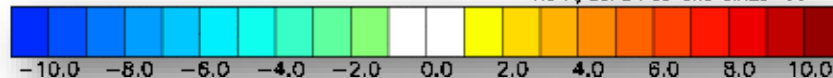


Composite

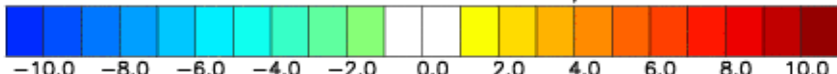
NOAA/NCDC Climate Division Composite Temperature Anomalies (F)
Nov to Mar 1957-58, 1965-66, 1972-73, 1982-83, 1991-92, 1997-98
Versus 1950-2007 Longterm Average



NOAA/ESRL PSD and CIRES-CU



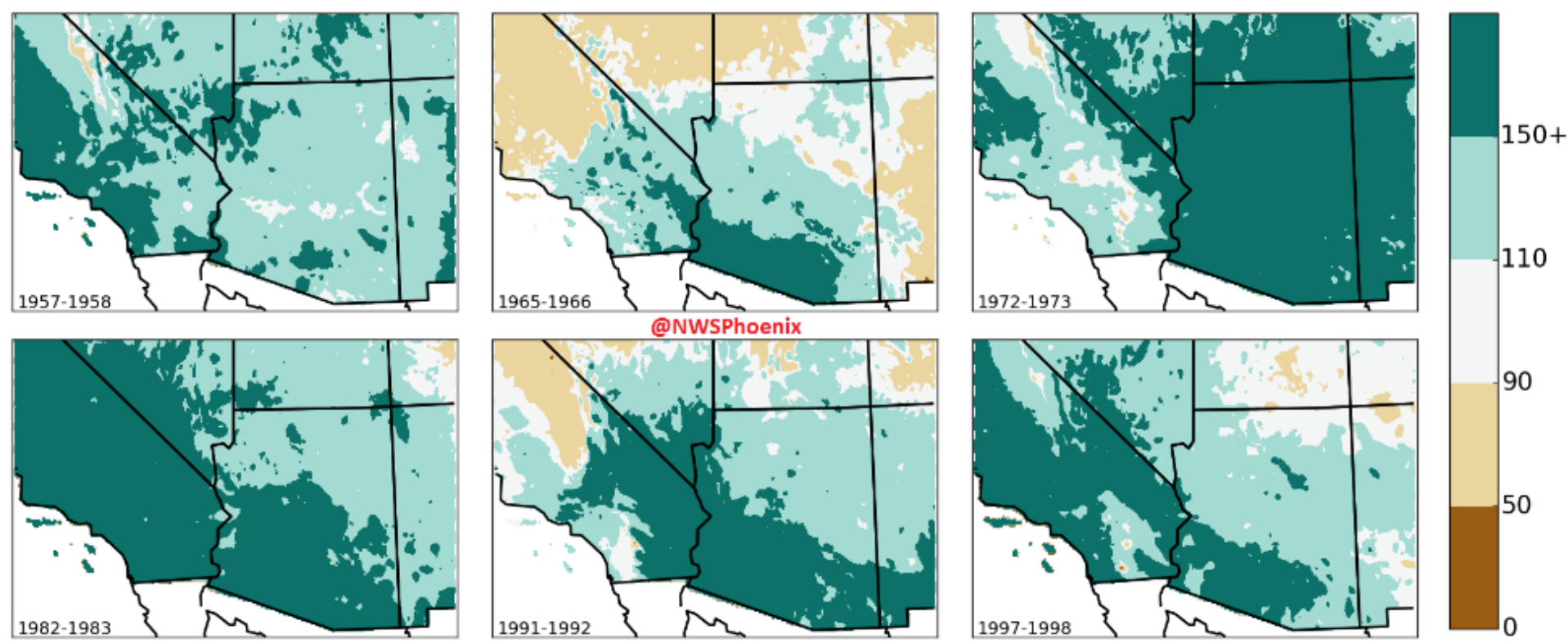
NOAA/ESRL PSD and CIRES-CU





Past Strong El Niño Winters

 Percent of Normal Rainfall for Past Strong El Niño Winters (Oct-Apr) 

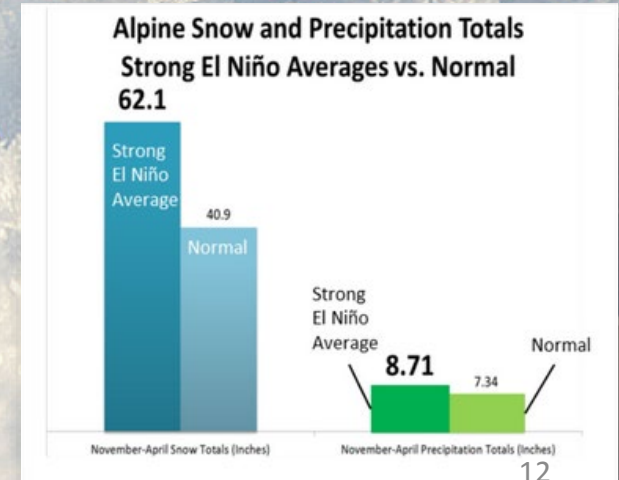
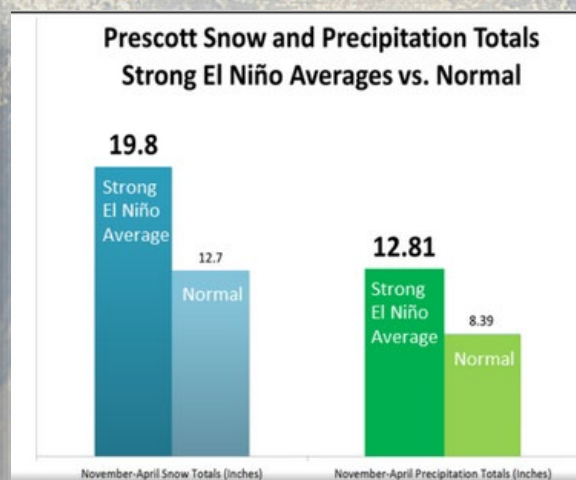
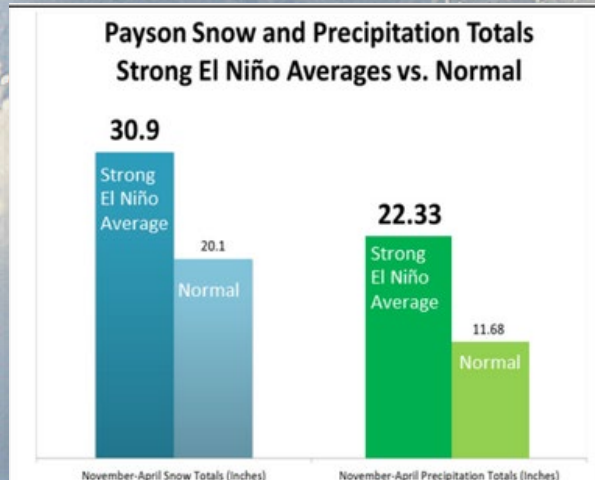
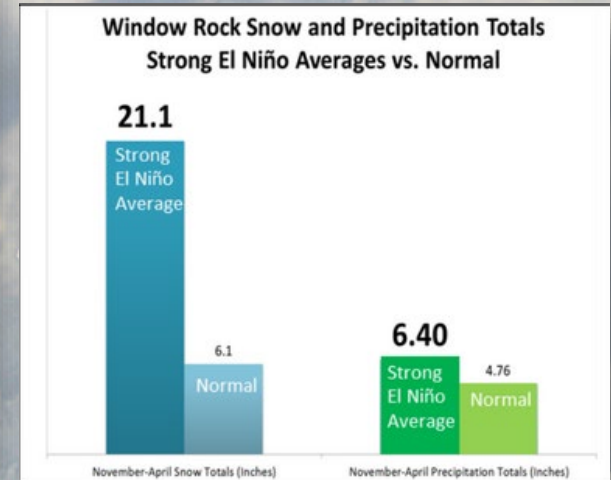




Past Strong El Niños and Snowfall

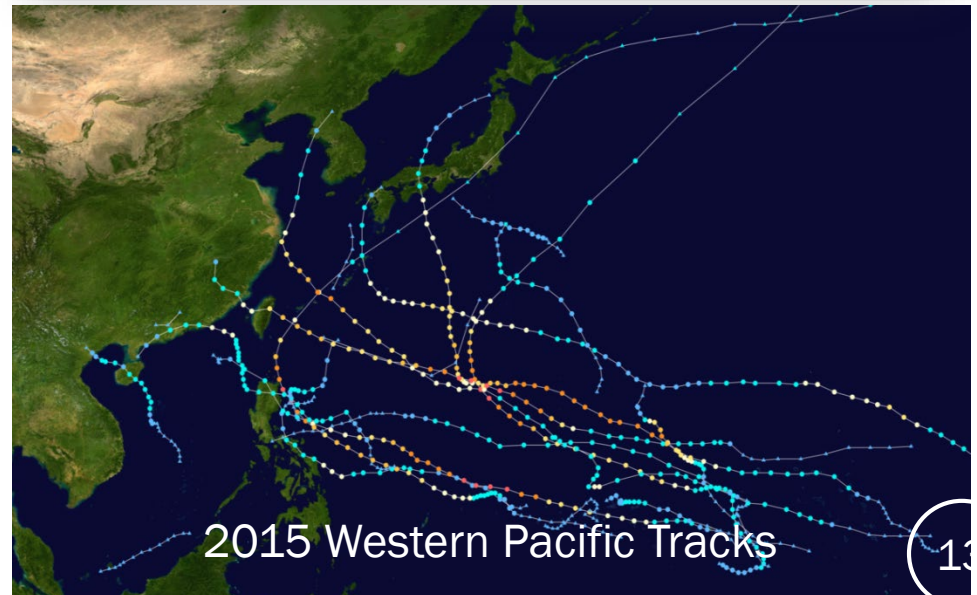
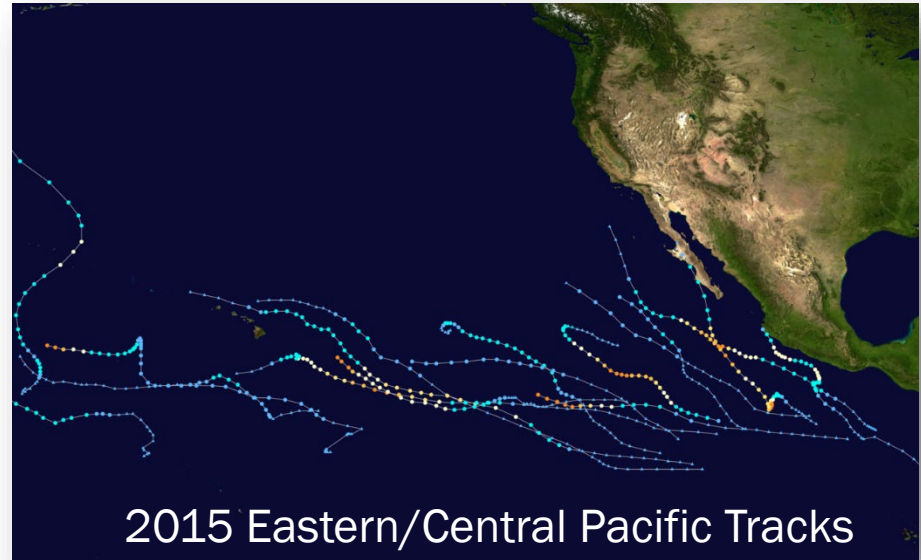
California Statewide Snow Water Equivalent

Water Year	April 1 SWE	Northern Sierra 8 Station Index
1958	171%	141%
1966	83%	72%
1973	148%	103%
1983	227%	177%
1988	29%	70%
1992	60%	72%
1998	158%	165%



PACIFIC TROPICAL CYCLONE IMPACT STATUS

- **Eastern Pacific**
 - 15-22 Named Storms(**15**)
 - 7-12 Hurricanes(**12**)
 - 5-8 Major Hurricanes(**8**)
 - 2 Fatalities
 - \$18.9M Damages(2015 USD)
- **Central Pacific**
 - 5-8 Tropical Cyclones(**15**)
 - **4 greater than all-time record**
- **Western Pacific**
 - 30 Tropical Cyclones(**23**)



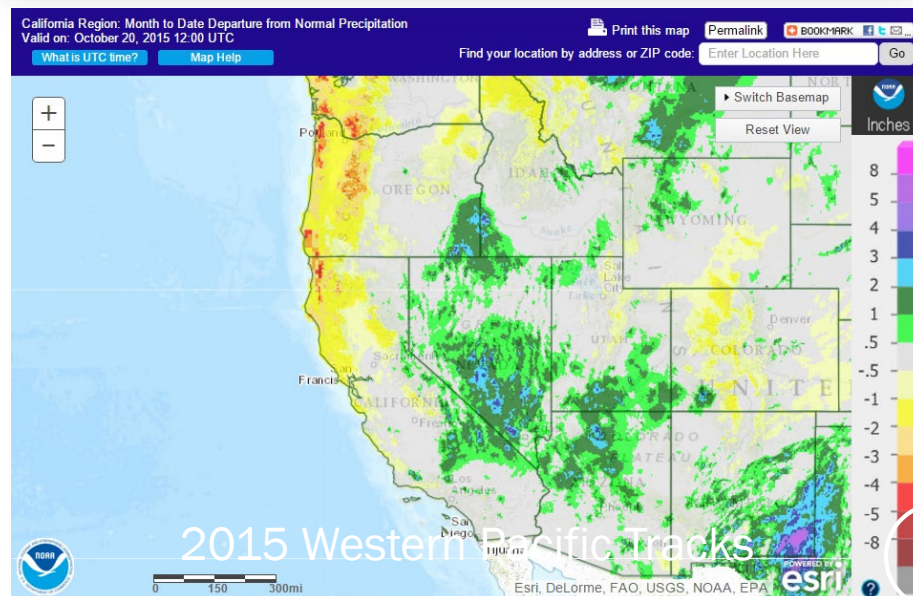
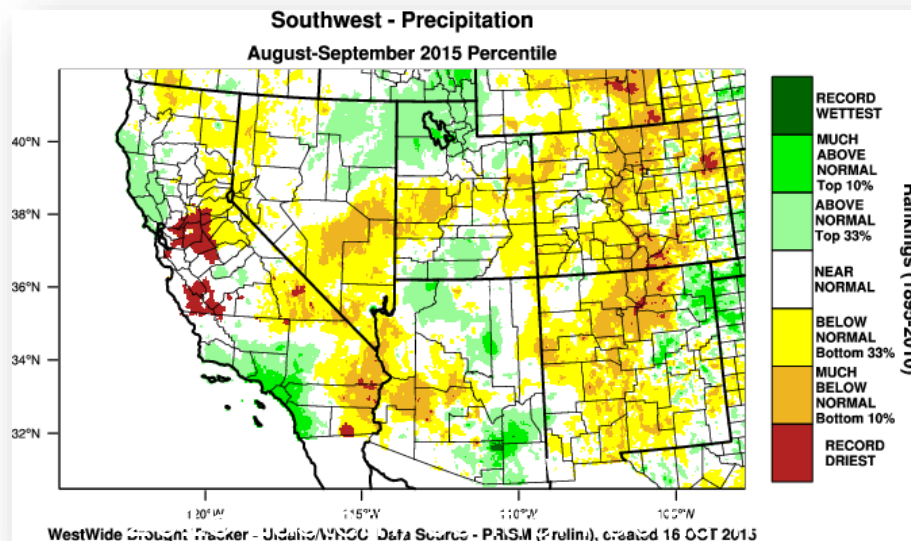
CONUS IMPACT STATUS

- **Aug-Sep 2015**

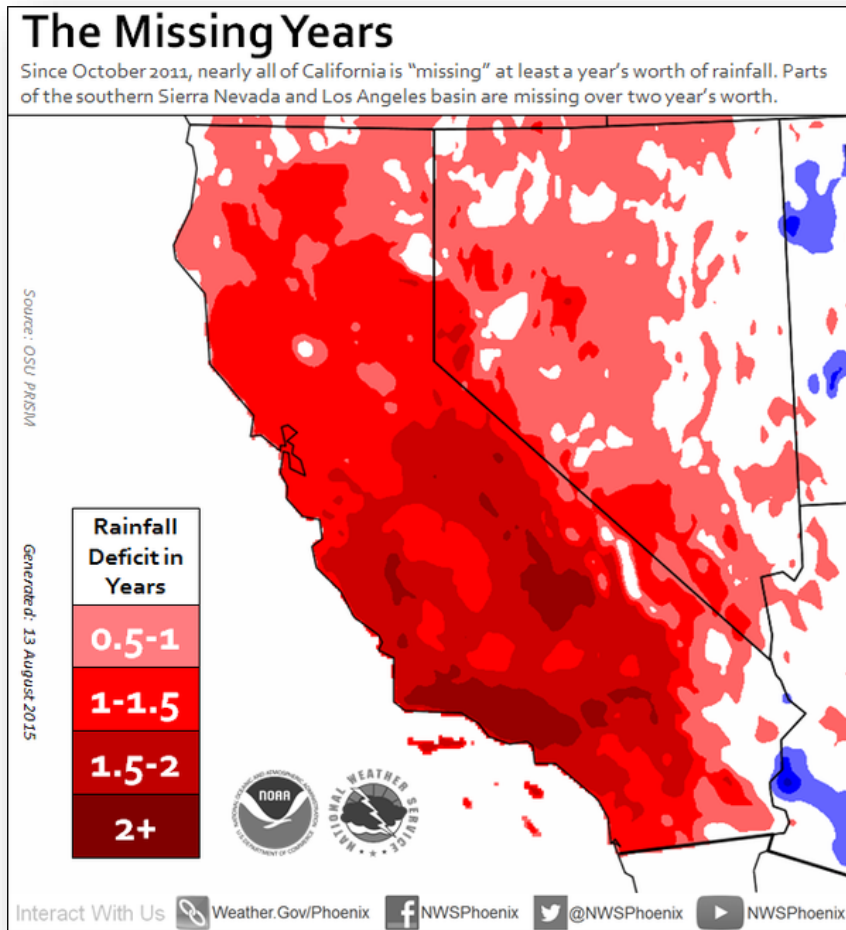
- Delayed/weaker monsoon
- Rains in SoCal from decaying tropical system (mid Sep)
- Rains in NorCal from remains of Hur. Guillermo (early Aug)

- **Since Oct 1st 2015**

- Late season convection with tropical origins
 - Northern AZ
 - Southern NV
 - SoCal deserts
 - I-5 heavy rain event
 - Cuyama heavy rain event



Possible Drought Buster?



- It would take 2+ years worth of rainfall
 - In some locations
 - On top of normal rainfall
- Not at all likely
- **Drought is expected to continue**
- Some amelioration likely if...



SUMMARY

- A strong El Niño event is currently ongoing and forecast
- Impacts are ongoing in the Pacific as well as CONUS of late
- The NWS remains highly confident that this El Niño event will continue through the winter and weaken through the spring 2016
- This event could be among the strongest El Niño events in recorded history. The 3 strongest El Niño events occurred in: 72-73, 82-83, and 97-98
- The strongest correlations with enhanced precipitation occur across southern CA and AZ during the winter associated with strong El Niño's
- The 3 strongest El Niño events resulted in above normal precipitation throughout CONUS FR9



SUMMARY CONTINUED

- **Even if California/Nevada does receive above average precipitation this coming winter, it likely will not erase a 4 year drought**
- **Individual storms can produce flooding, even in a drought**
 - I-5 heavy rain event
 - Cuyama heavy rain event
- **For more information on El Niño/Winter Outlook:**

<https://www.climate.gov/news-features/videos/2015-16-winter-outlook>



Questions and Contacts

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Bill Ward 808-532-6415 bill.ward@noaa.gov

www.weather.gov

"Climate is what you expect,
Weather is what you get". ~ R. Heinlein

