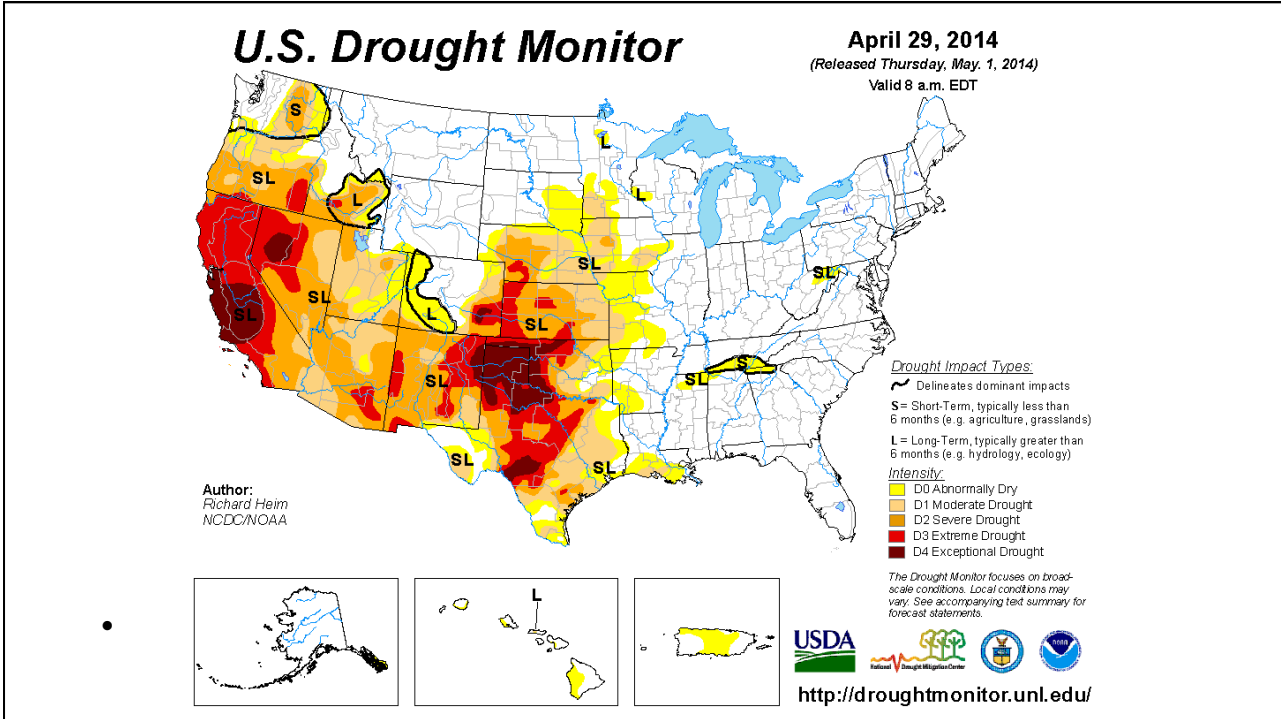
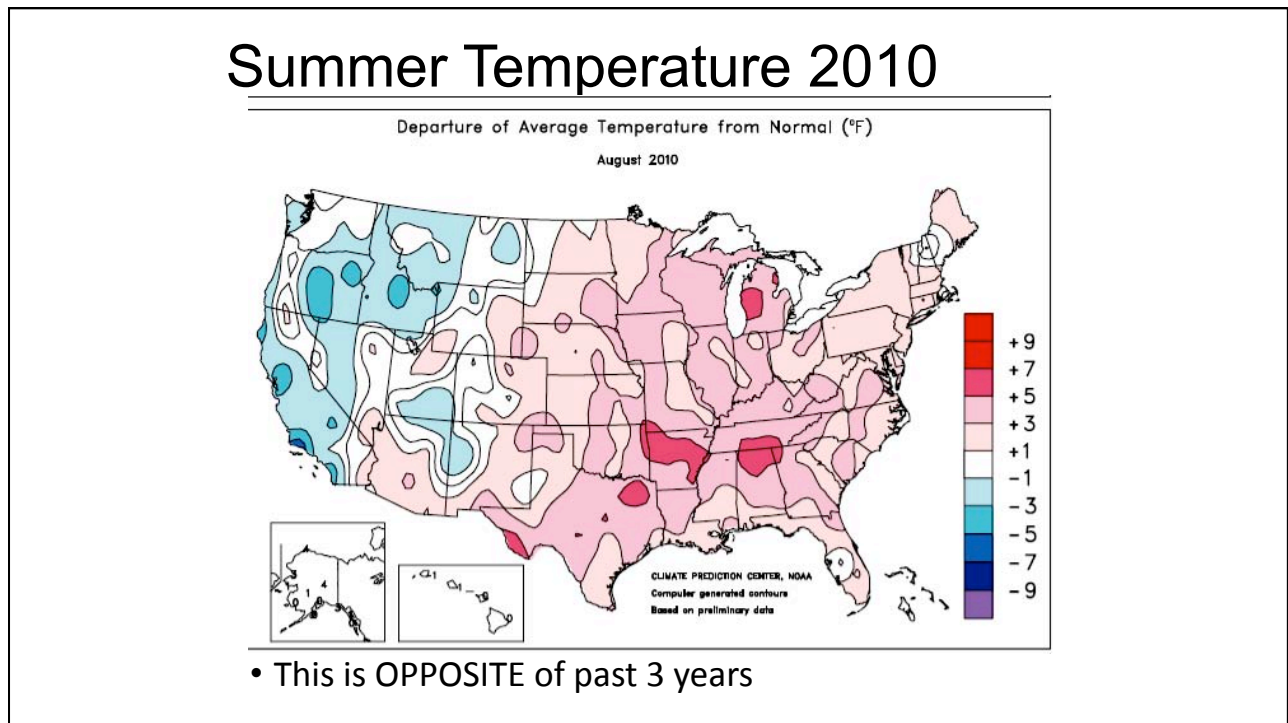
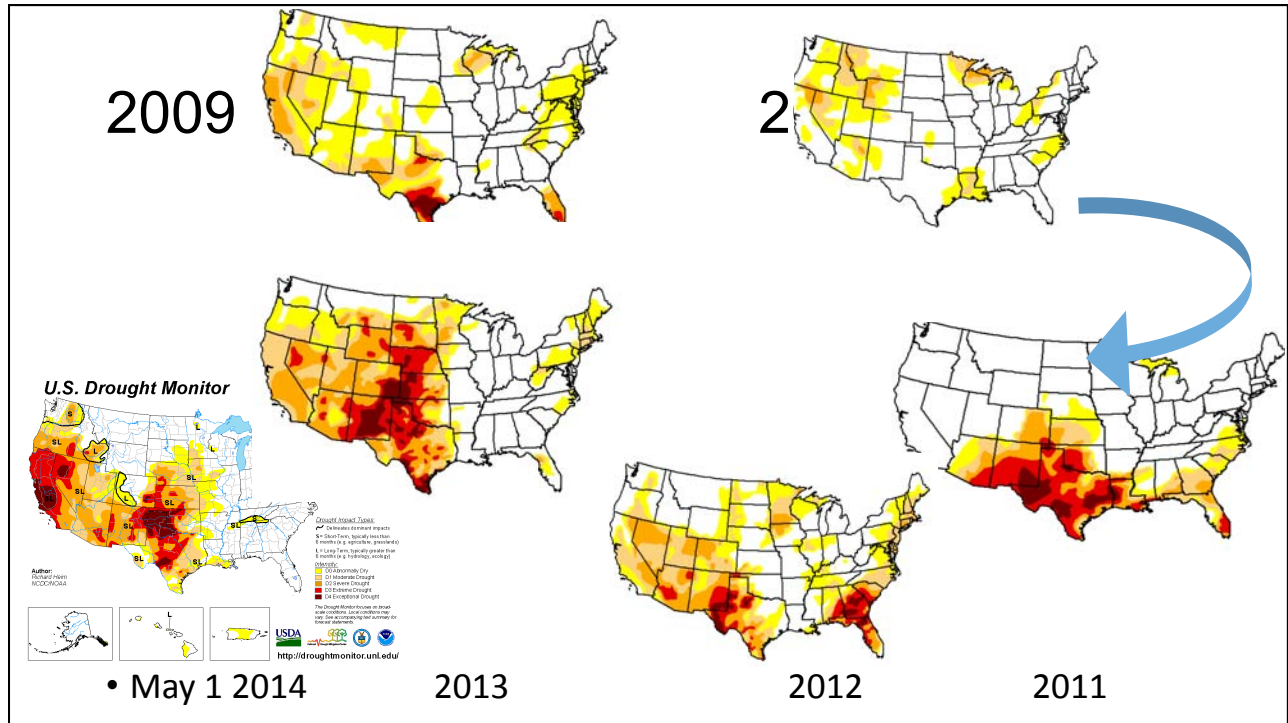


# Weather Impacting Agriculture

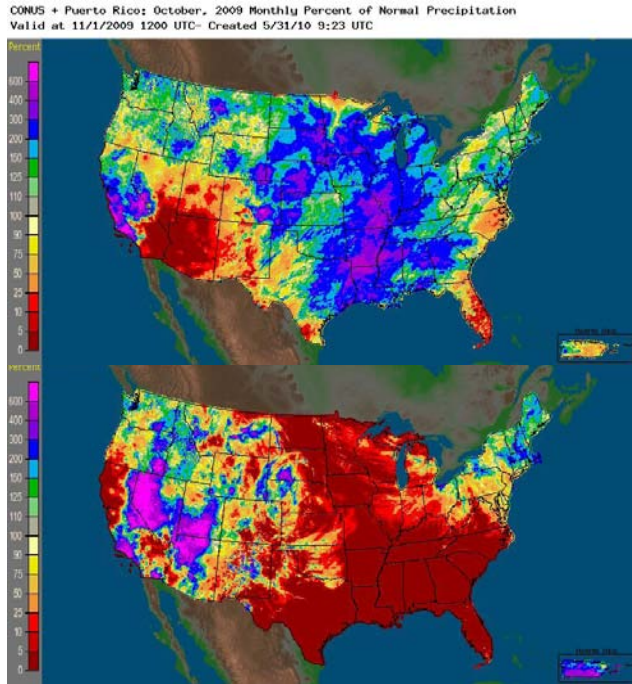




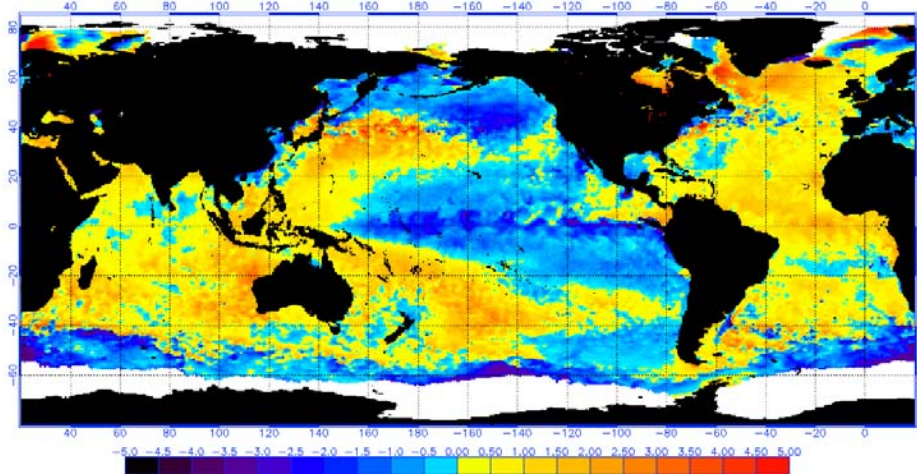
Oct

**October 2009**

**October 2010**

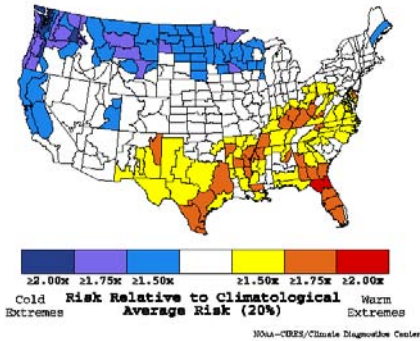


NOAA/NESDIS 50 KM GLOBAL ANALYSIS: SST Anomaly (degrees C), 11/8/2010  
(white regions indicate sea-ice)

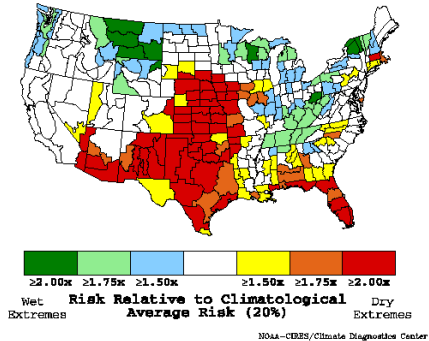


# Jan-Mar risk with La Nina

JFM Temperature Extremes During La Nina  
Risk of Extreme Warm or Cold Years



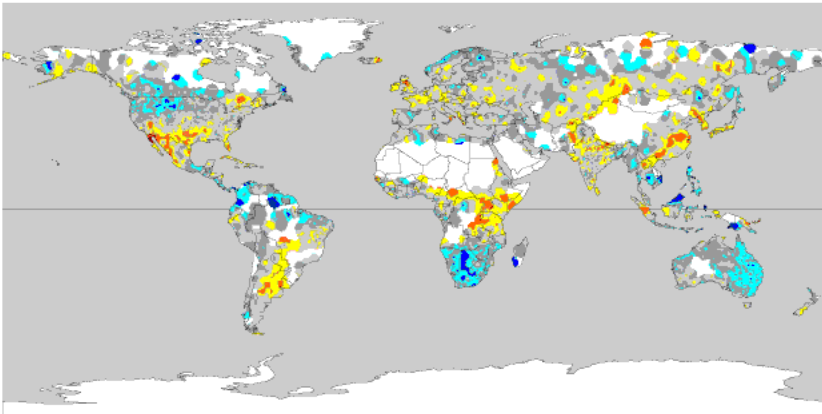
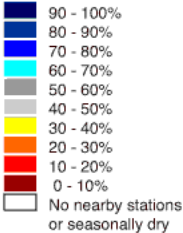
JFM Precipitation Extremes During La Nina  
Risk of Extreme Wet or Dry Years



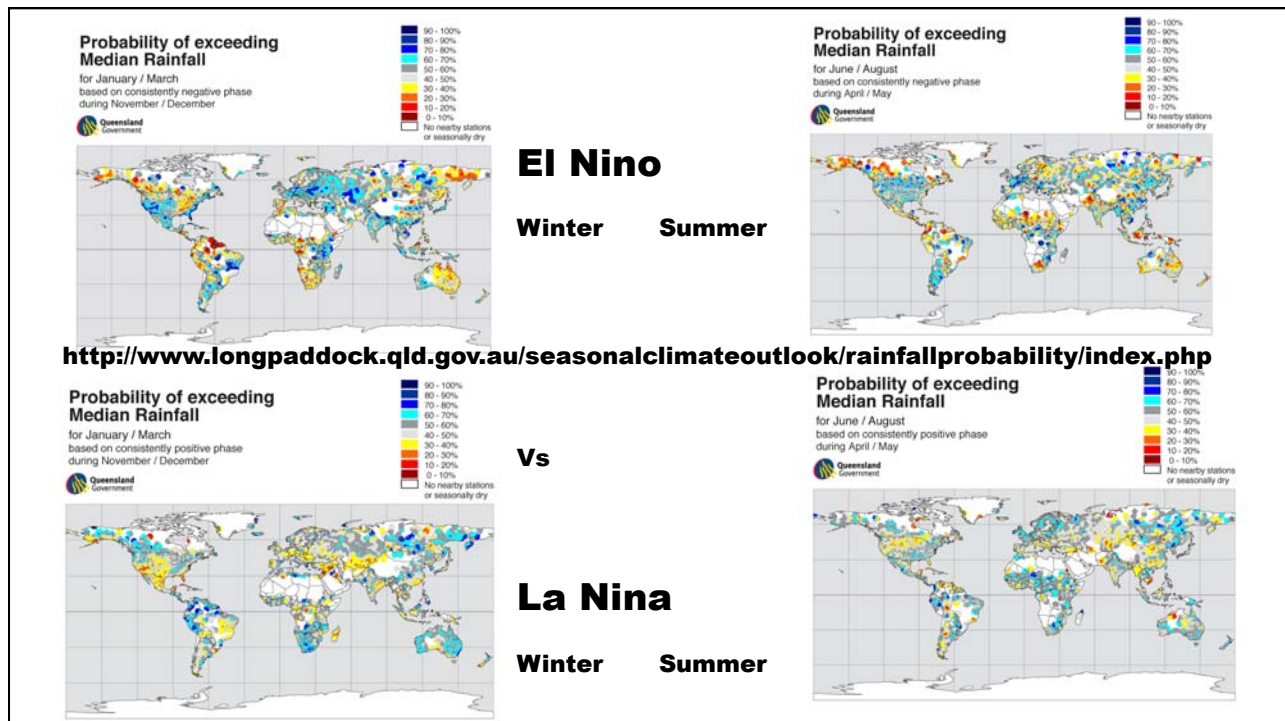
<http://www.esrl.noaa.gov/psd/enso/climaterisks/>

## Probability of exceeding Median Rainfall

for November / January  
based on consistently positive phase  
during September / October

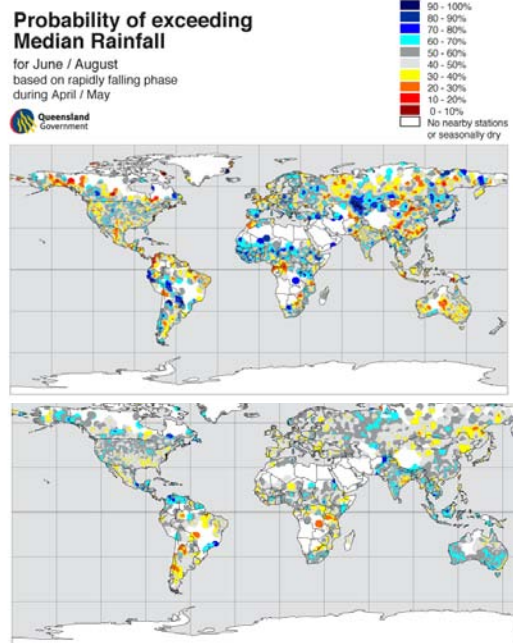


**The shift from one configuration to the other is often as important as the El Nino or La Nina itself. It is not uncommon for extreme weather to result when strong systems shift positions or collide.**



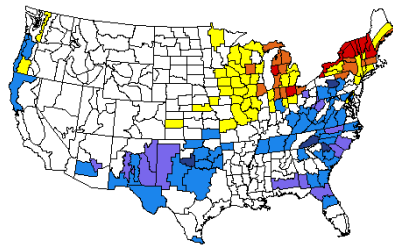
**Moving toward La Nina**

**Moving toward El Nino**



## July-Sep risk with La Nina

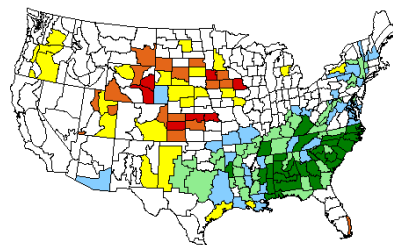
JAS Temperature Extremes During La Nina  
Risk of Extreme Warm or Cold Years



■  $\geq 2.00x$ 
■  $\geq 1.75x$ 
■  $\geq 1.50x$ 
■  $\geq 1.50x$ 
■  $\geq 1.75x$ 
■  $\geq 2.00x$

Cold Risk Relative to Climatological Average Risk (20%) Warm Extremes

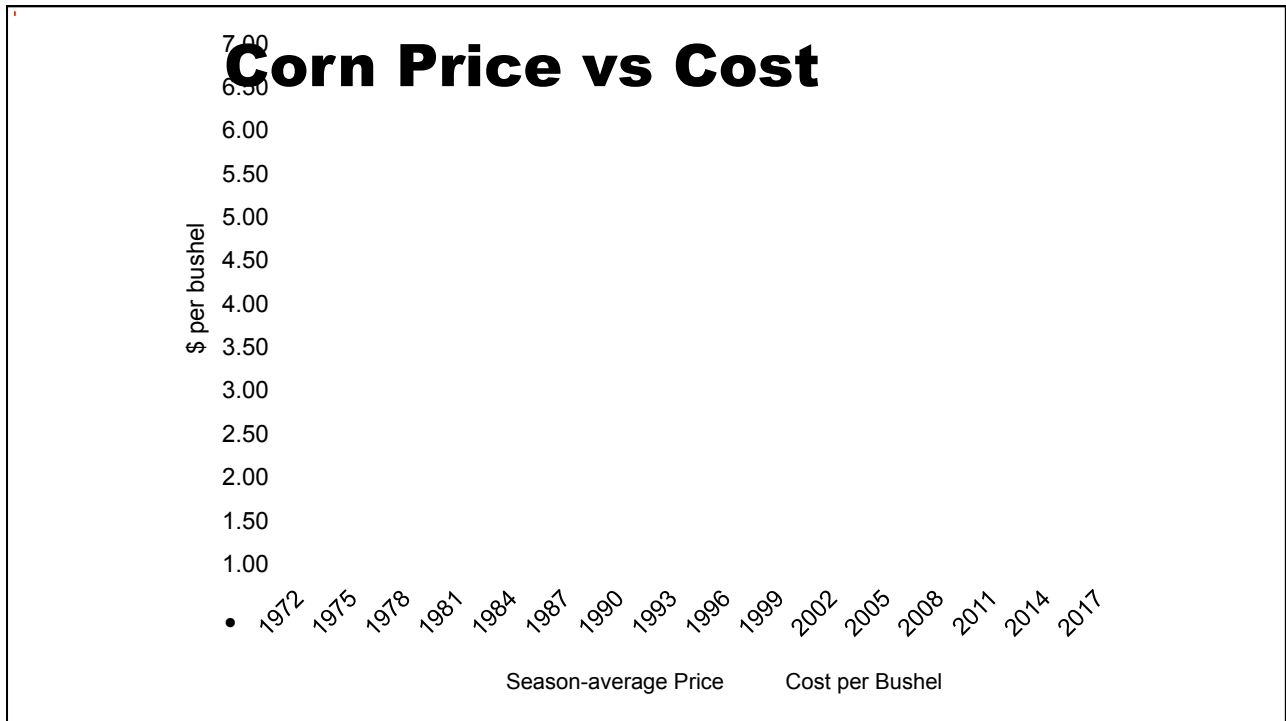
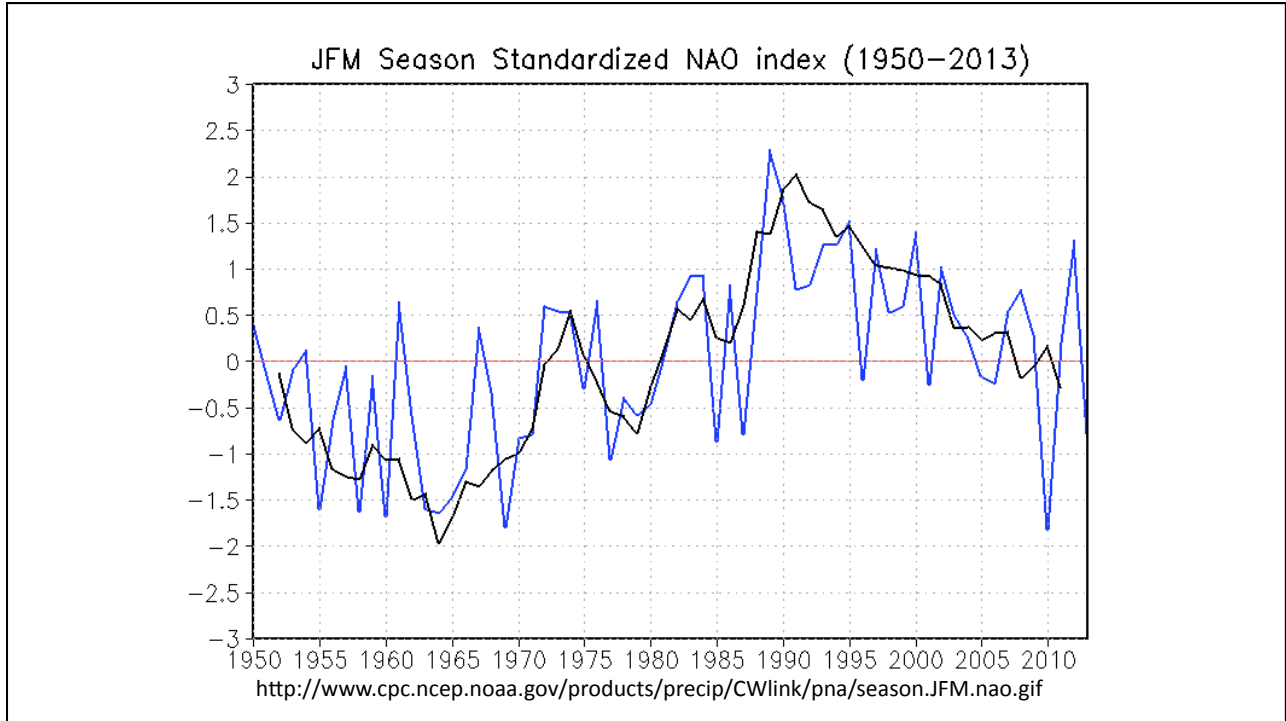
JAS Precipitation Extremes During La Nina  
Risk of Extreme Wet or Dry Years

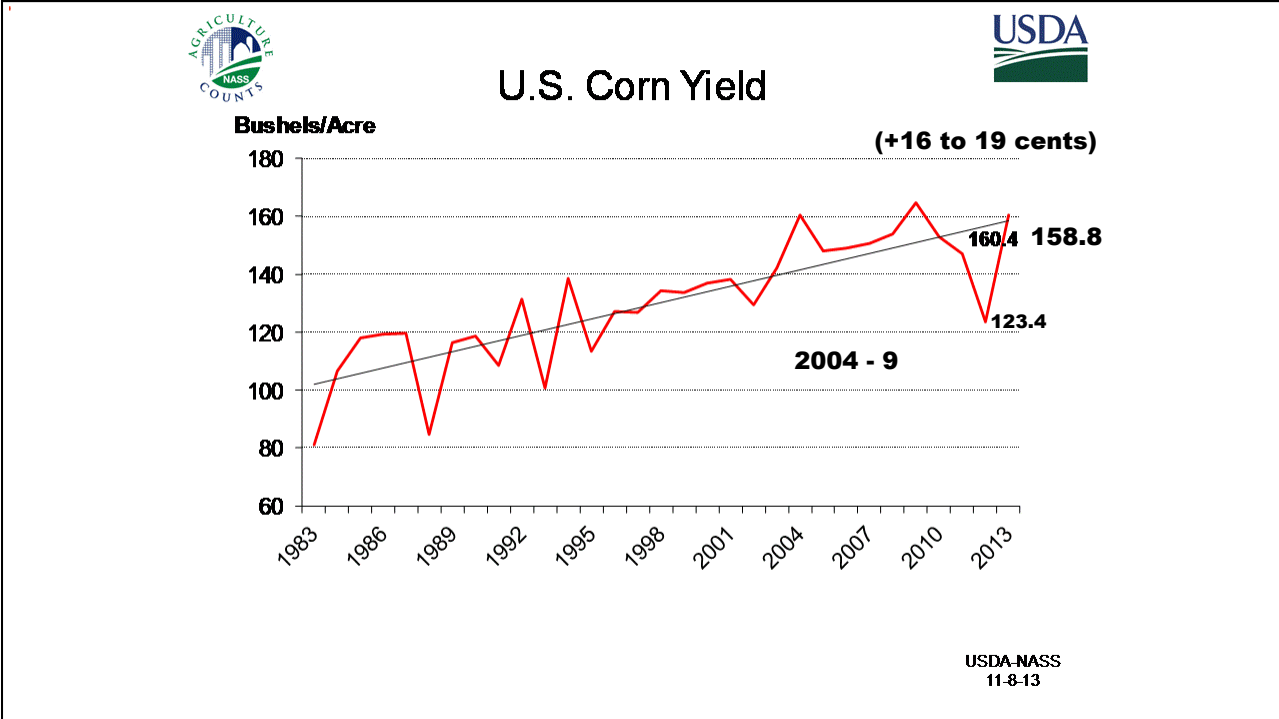


■  $\geq 2.00x$ 
■  $\geq 1.75x$ 
■  $\geq 1.50x$ 
■  $\geq 1.50x$ 
■  $\geq 1.75x$ 
■  $\geq 2.00x$

Wet Risk Relative to Climatological Average Risk (20%) Dry Extremes

**With La Niña the risk of having an “extreme” hot year exceeds the risk of extreme cold. However, the graphic is not the most meaningful possible as the risk of hot and the risk of cold BOTH increase (i.e. the deviation about the mean widens).**





### 11-month outlook based on persistent climate anomalies

**70% risk of below trend**

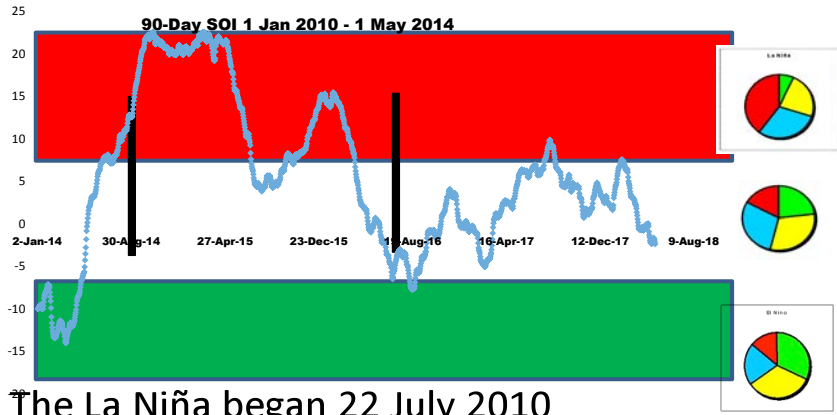
**53% risk of above**

**70% risk of above**

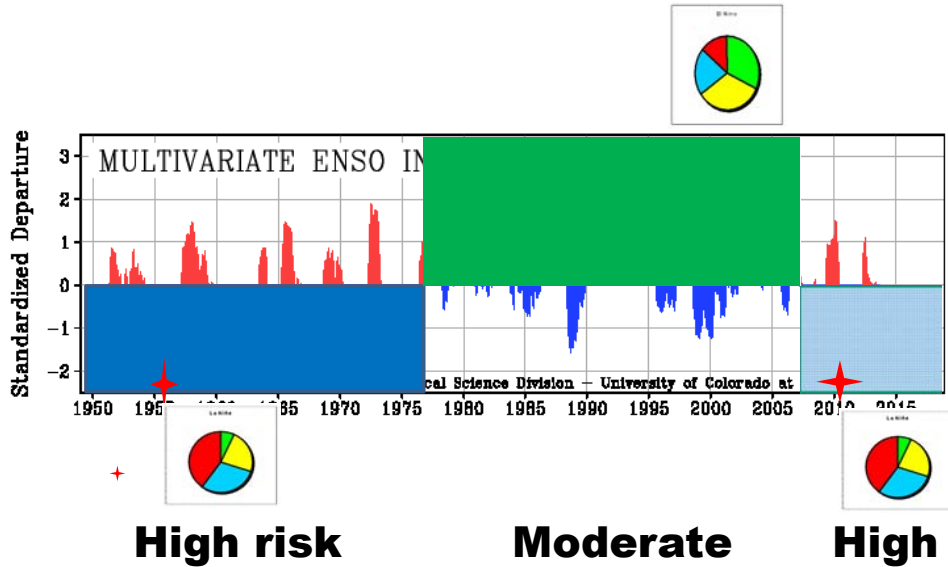
- Chance of U.S. Corn yield <90% of trend yield (**Red**), 90-100% (**Blue**), 100-110% (**yellow**), >110% (**Green**) for (left to right) La Niña, neutral, El Niño summers.
- Like analysis was done for ENSO+PDO+NAO combinations.
- Corn buyers/sellers can manage the risk of crop yield exceeding or falling below government determined demand levels.

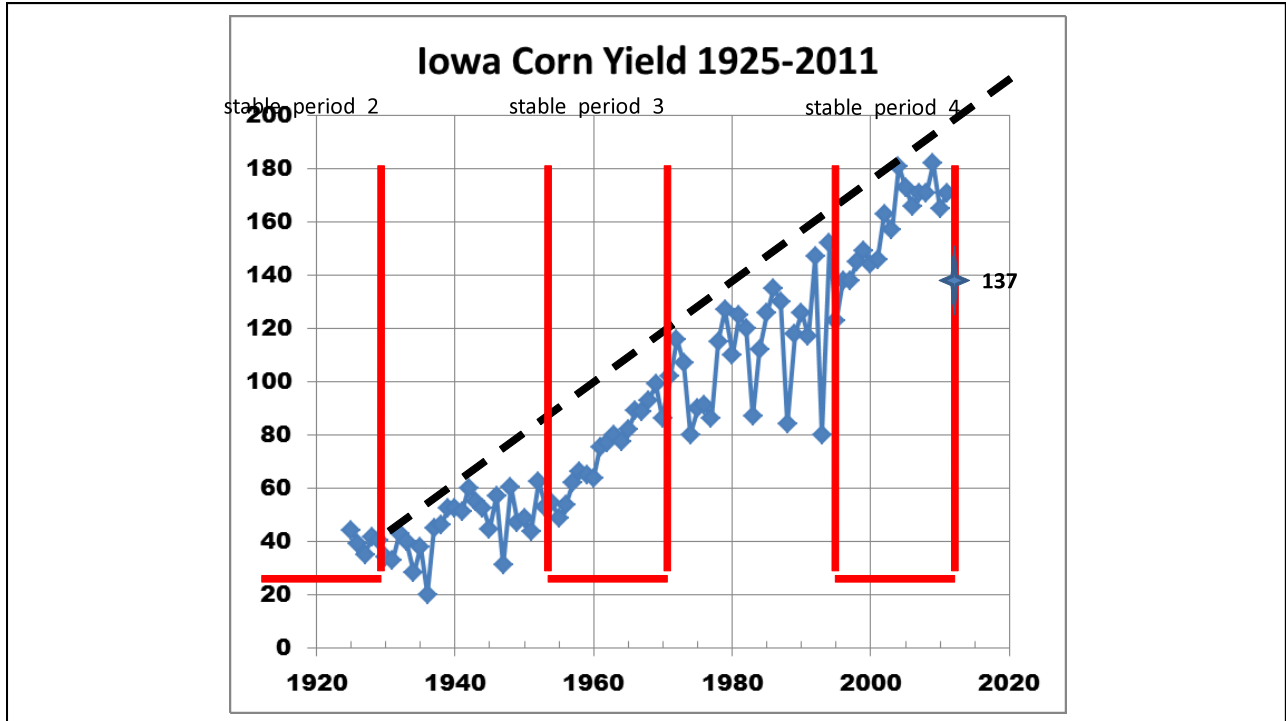


# ENSO History 2010-



- The La Niña began 22 July 2010
- The La Niña ended 21 March 2012





## Tree Rings

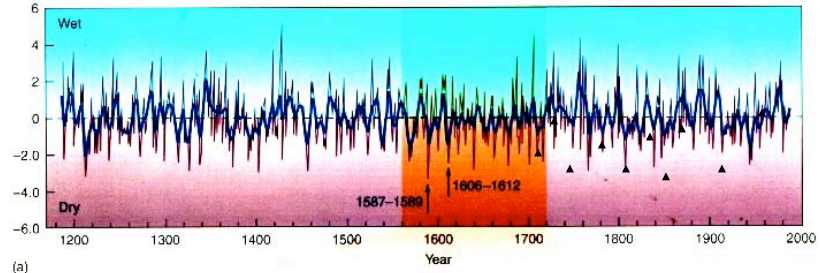
**Roanoke, NC cypress tree.**  
**Dennis Blanton, Wm & Mary College, David Stahle, Univ. of Arkansas.**

Virginia  
Cape May  
Blackwater River  
Nottoway River  
Jamestown Colony  
Roanoke Island  
**U.S. drought starts here.**

Lost Colony Drought: 1587-1589  
Jamestown Drought: 1606-1612

1587  
1606  
1612

# 800 Year Rain (Virginia)



(a)

