



Impacts of La Niña (and NAO) on Washington DC Winters

Winter Media Workshop

12/9/2011

Jared Klein

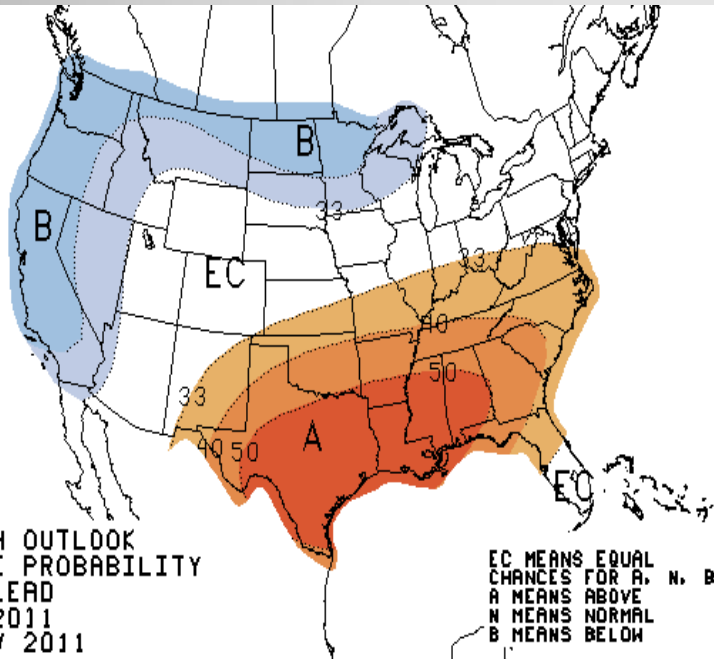
LWX Climate Program Leader



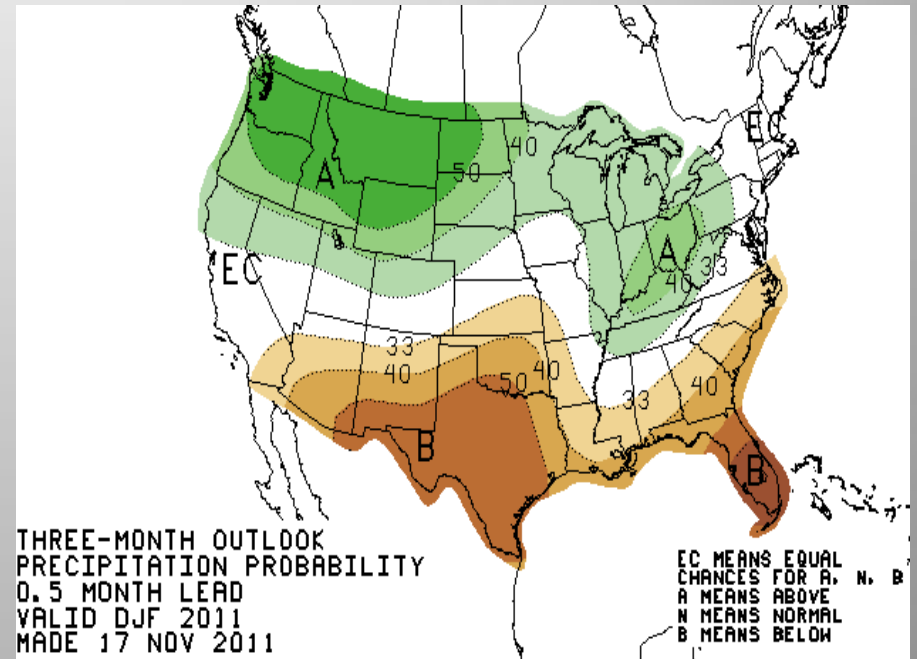
NOAA/CPC 2011-12 Winter Outlook

(Updated outlook- mid November)

Temperatures



Precipitation

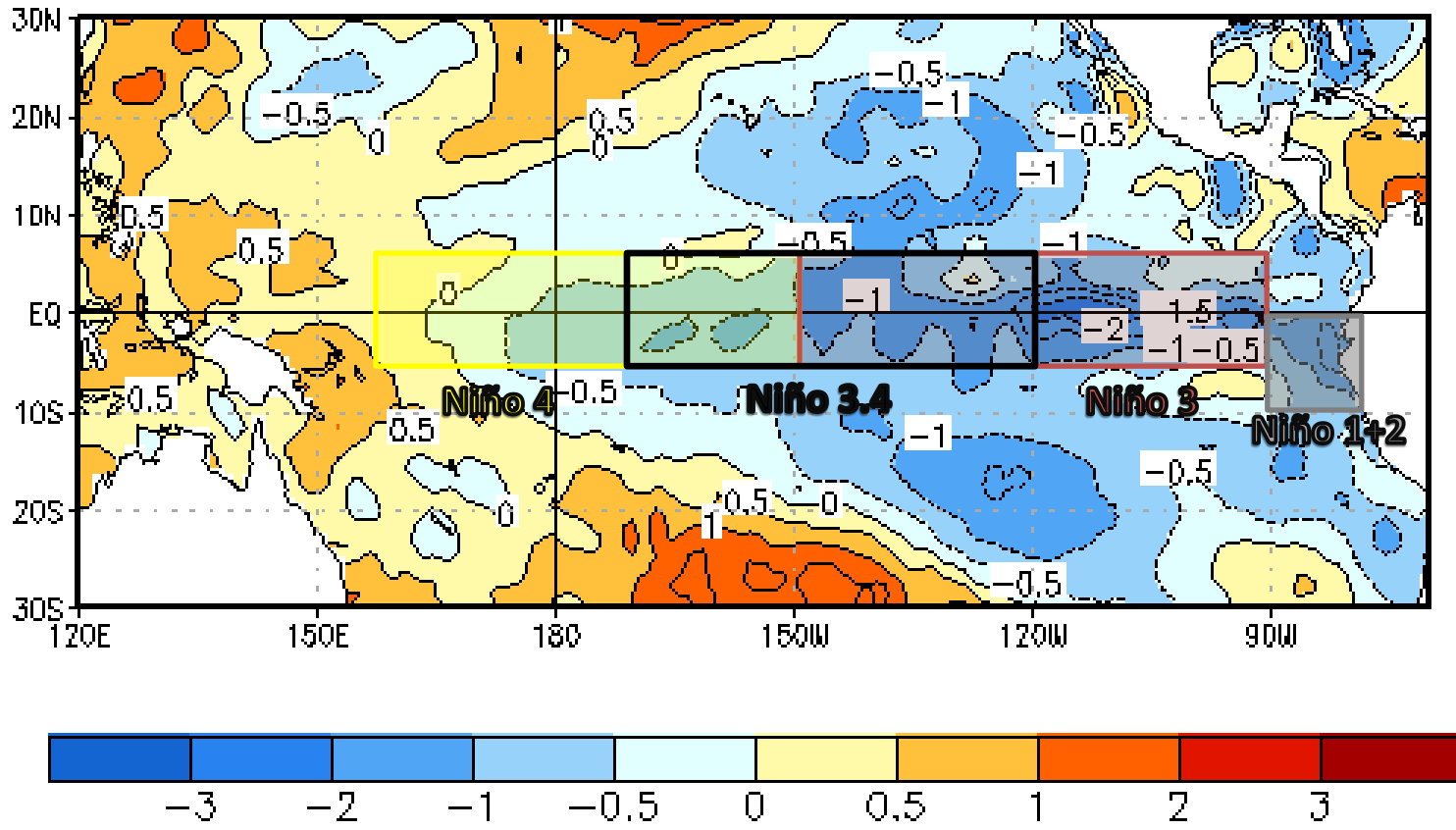


The seasonal outlooks combine the effects of long-term trends, soil moisture, and, when appropriate, ENSO.



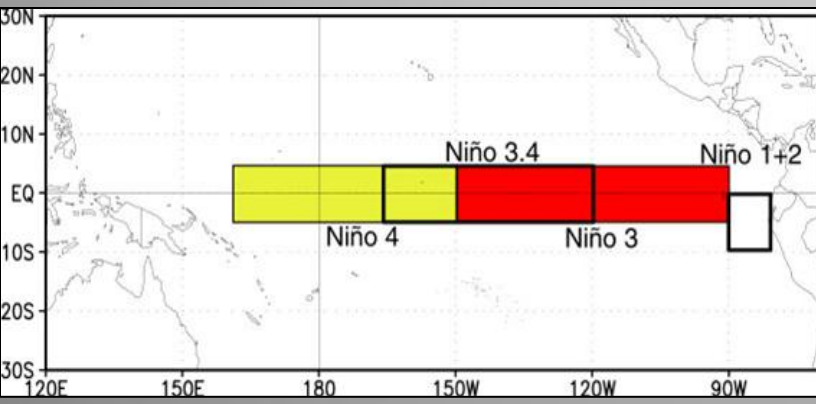
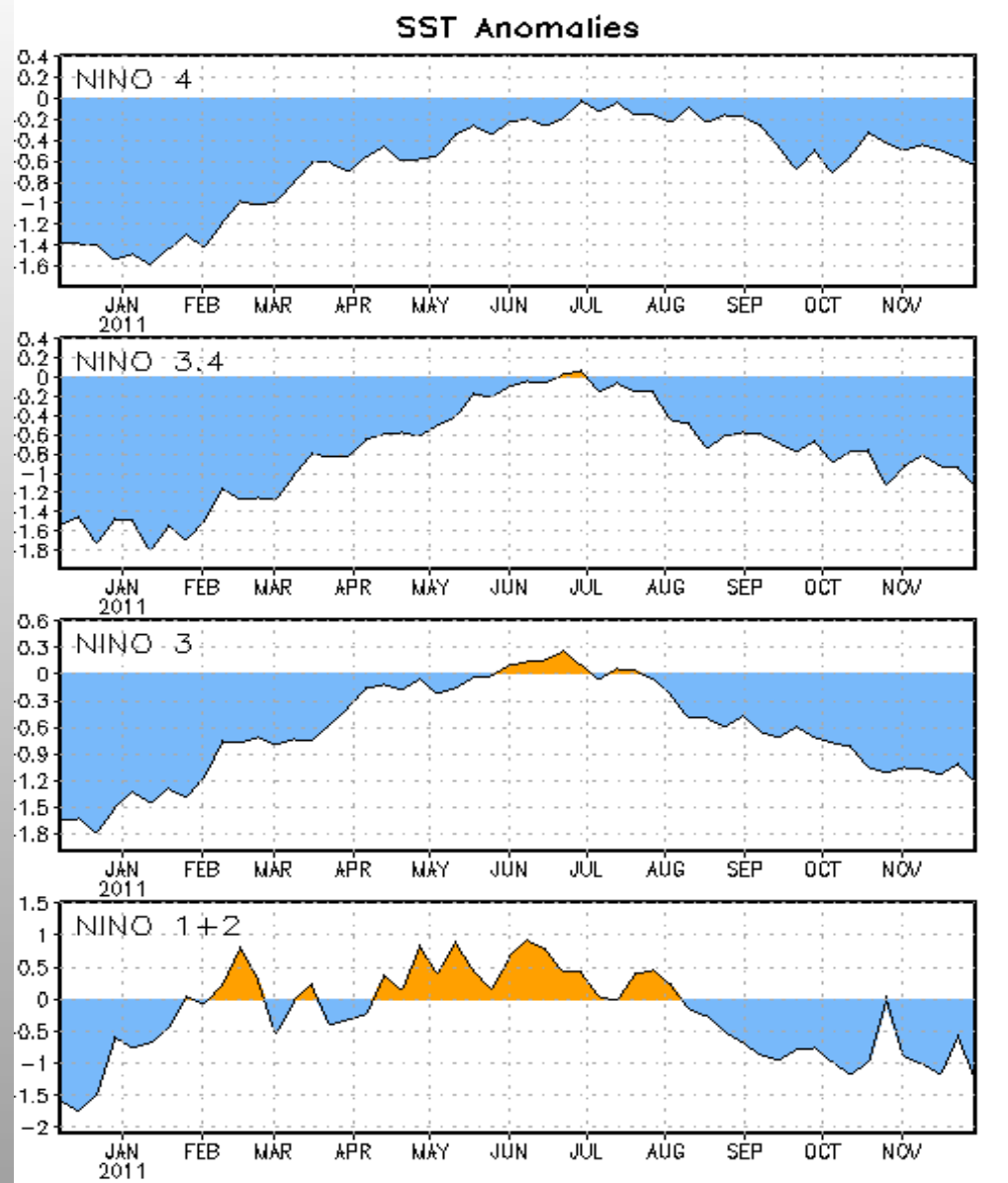
Current State of ENSO

Average SST Anomalies
6 NOV 2011 – 3 DEC 2011





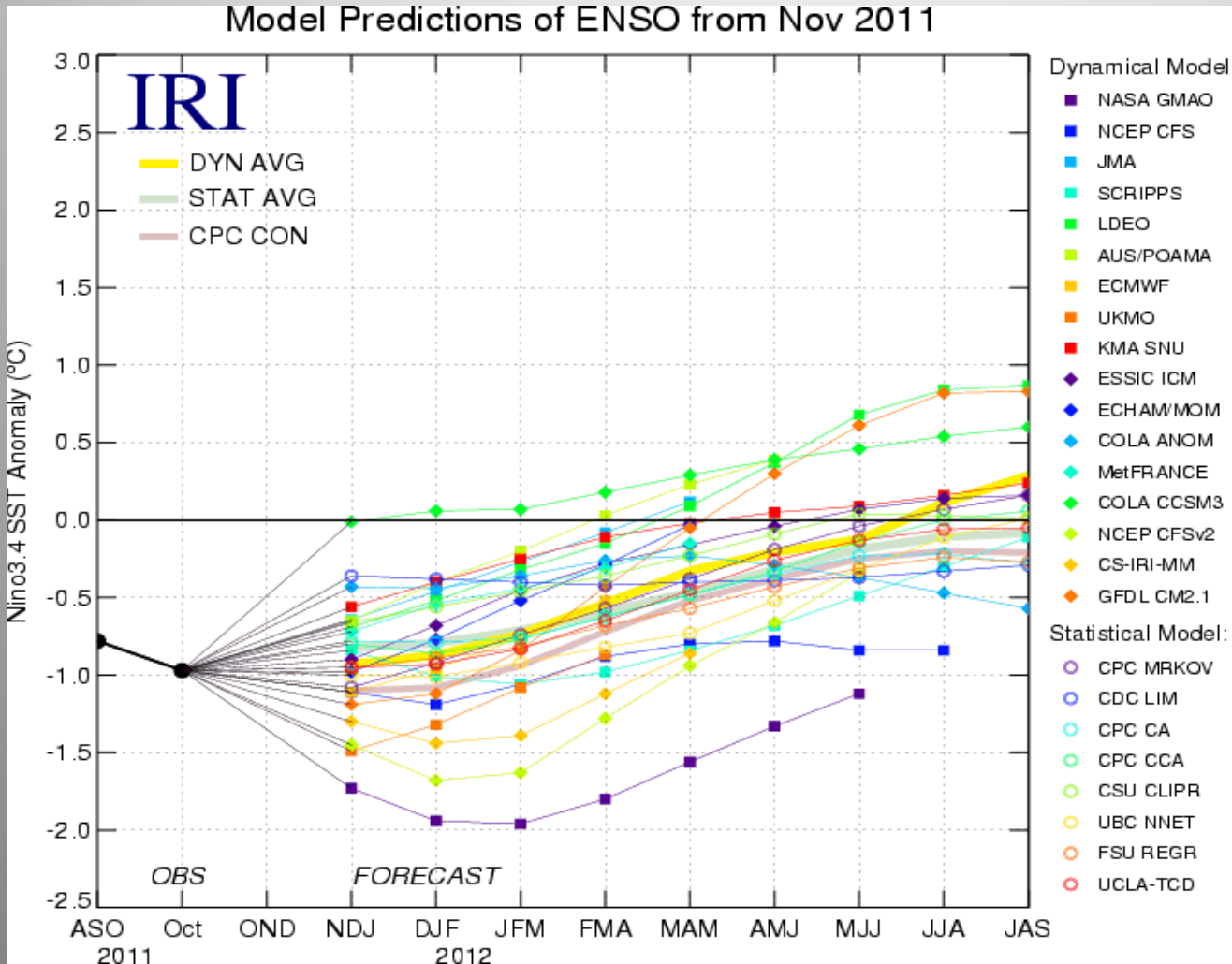
Current State of ENSO (cont.)





ENSO Forecast

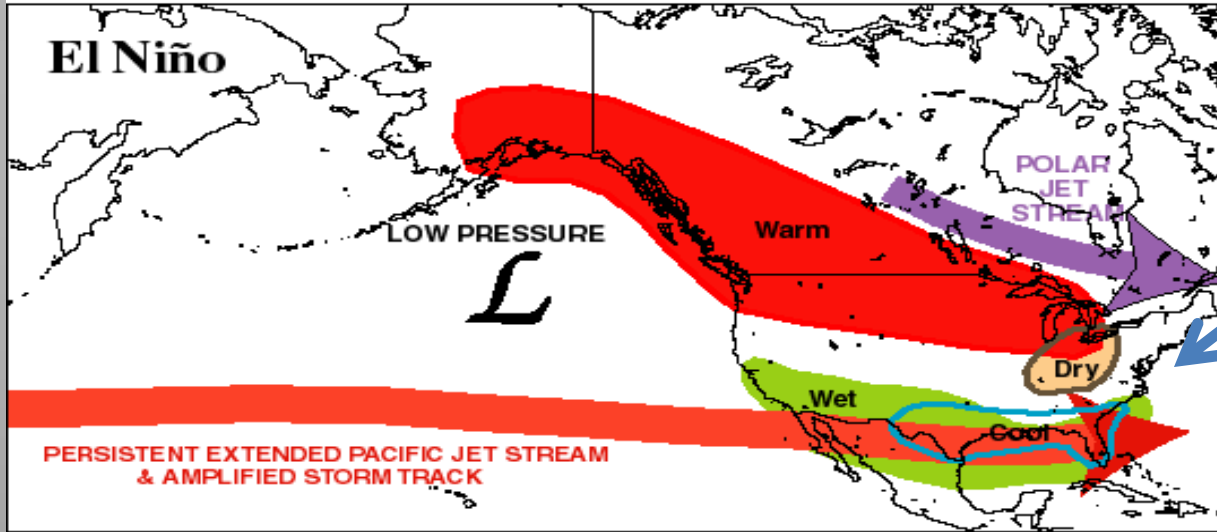
The majority of ENSO models predict the continuation of a weak to moderate La Niña at least through the Northern Hemisphere winter.



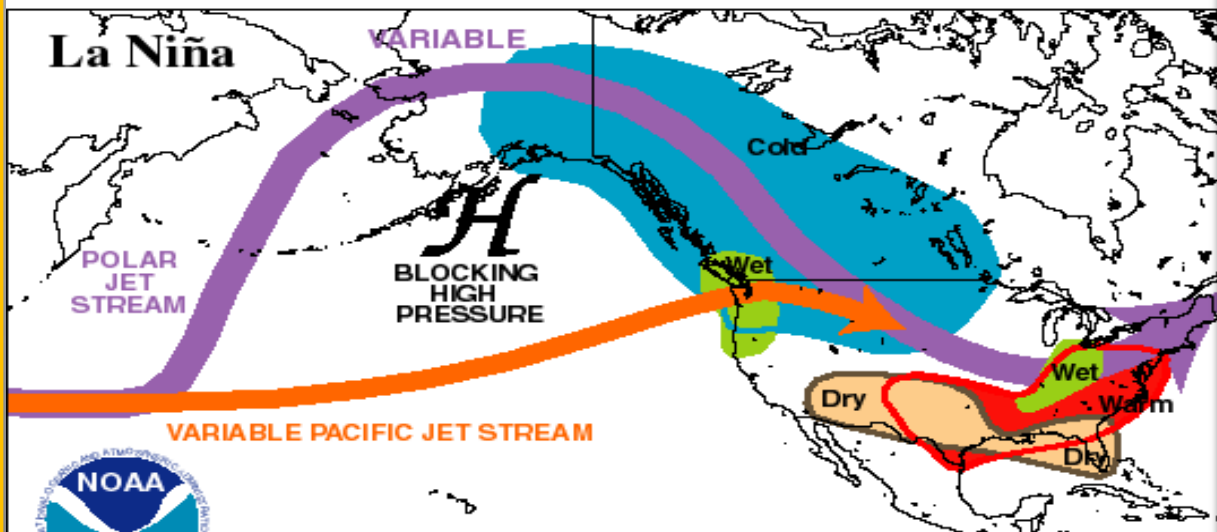
International Research
Institute (IRI) for Climate
and Society



TYPICAL JANUARY-MARCH WEATHER ANOMALIES AND ATMOSPHERIC CIRCULATION DURING MODERATE TO STRONG EL NIÑO & LA NIÑA



El Niño pattern that dominated the 2009-10 winter



La Niña pattern that dominated last winter and so far this fall



Climate Prediction Center/NCEP/NWS

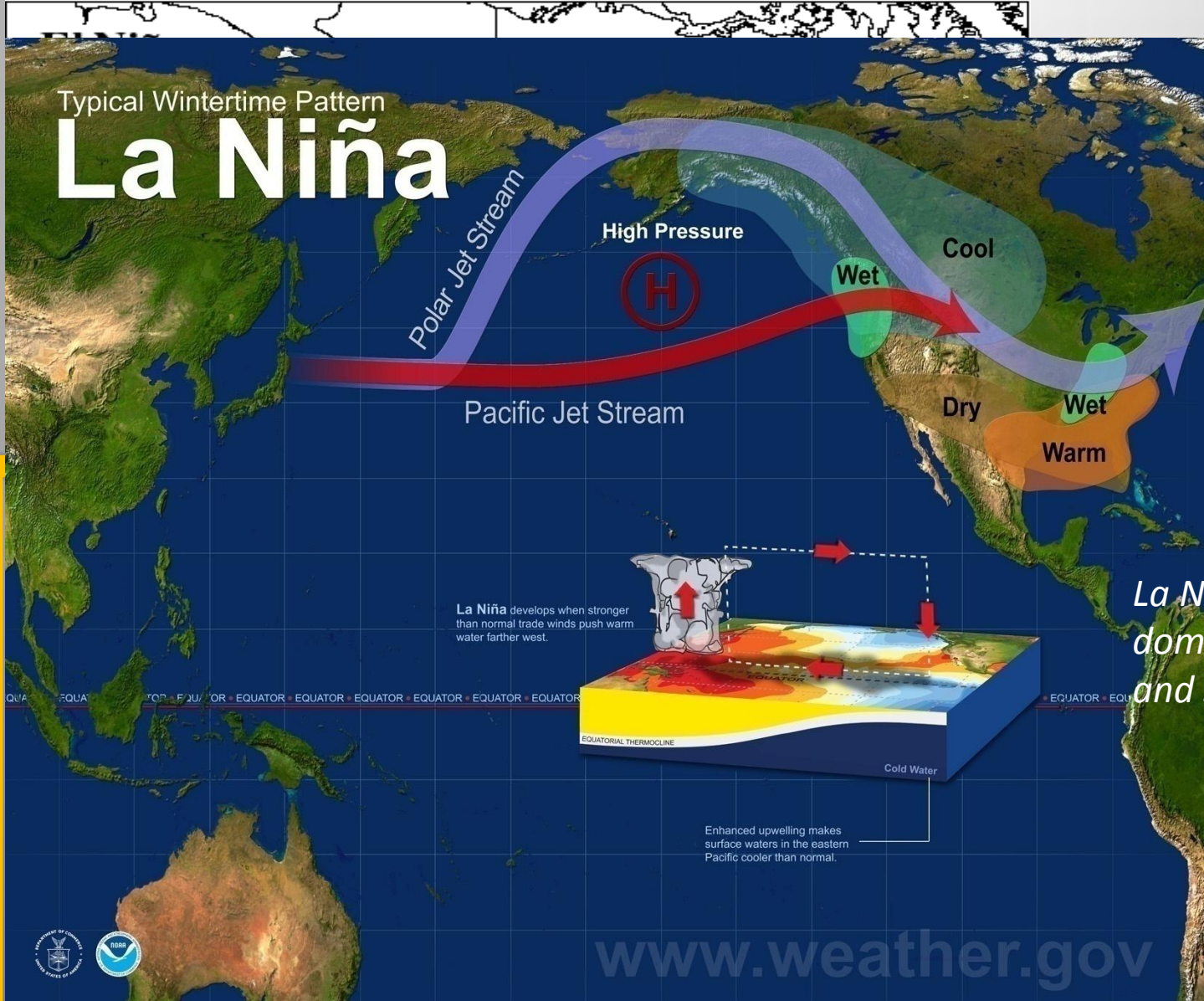
http://www.cpc.noaa.gov/products/analysis_monitoring/ensocycle/nawinter.shtml

**TYPICAL JANUARY-MARCH WEATHER ANOMALIES
AND ATMOSPHERIC CIRCULATION
DURING MODERATE TO STRONG
EL NIÑO & LA NIÑA**



Typical Wintertime Pattern

La Niña



o pattern that
nated the 2009-10
r

*La Niña pattern that
dominated last winter
and so far this fall*

[www.cpc.noaa.gov/
analysis_monitoring/ensoc
ler.shtml](http://www.cpc.noaa.gov/analysis_monitoring/ensocler.shtml)

www.weather.gov





La Niña Winters and Temperature

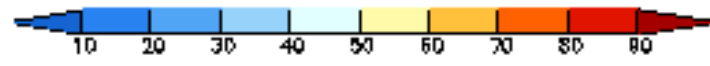
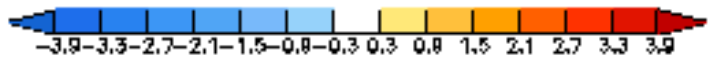
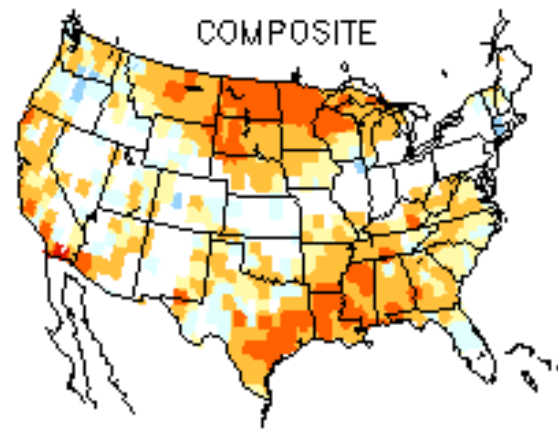
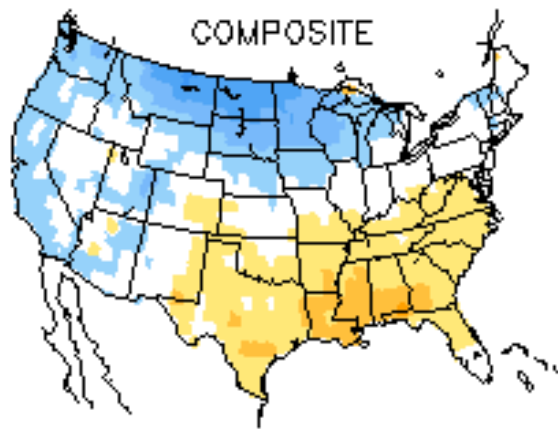
DJF LA NINA TEMPERATURE ANOMALIES (C)
AND FREQUENCY OF OCCURRENCE (%)

ANOMALIES

FREQUENCY

COMPOSITE

COMPOSITE



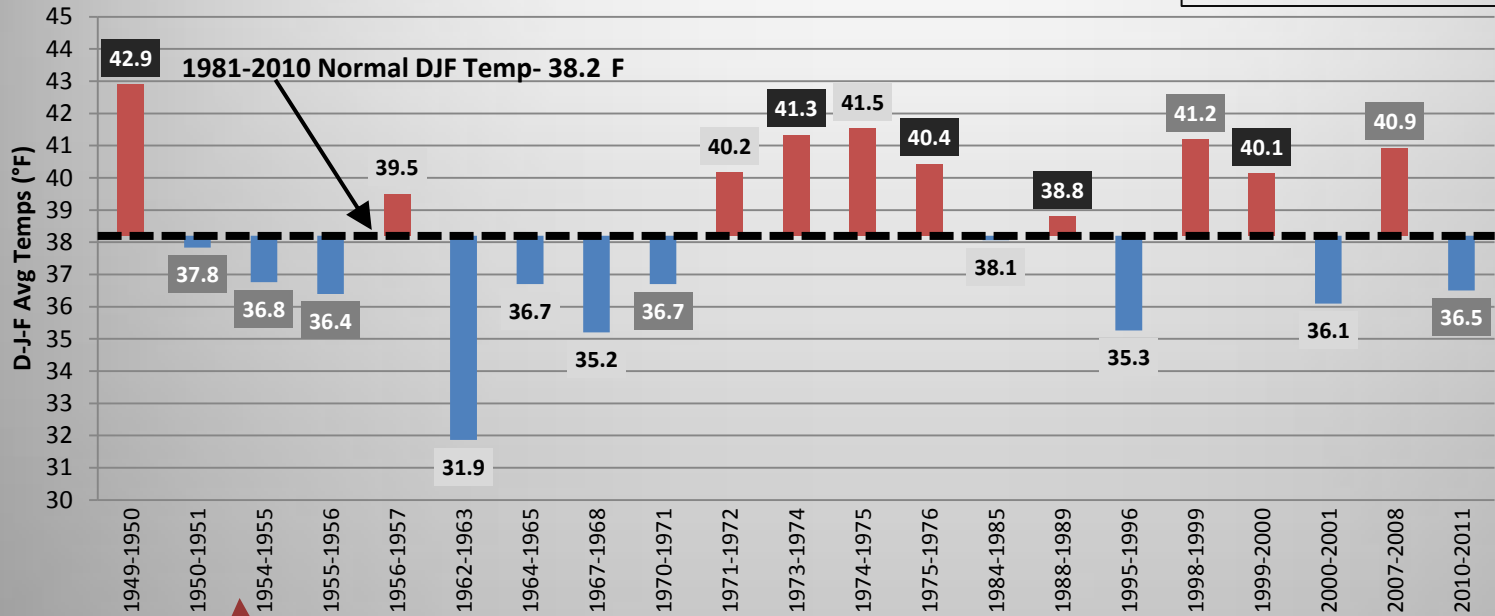
(20 CASES: 1950 1951 1955 1956 1957 1963 1965 1968 1971 1972 1974 1975 1976 1985 1989
1996 1999 2000 2001 2006)



Temperatures during La Niña Winters Washington D.C. (1950-2011)

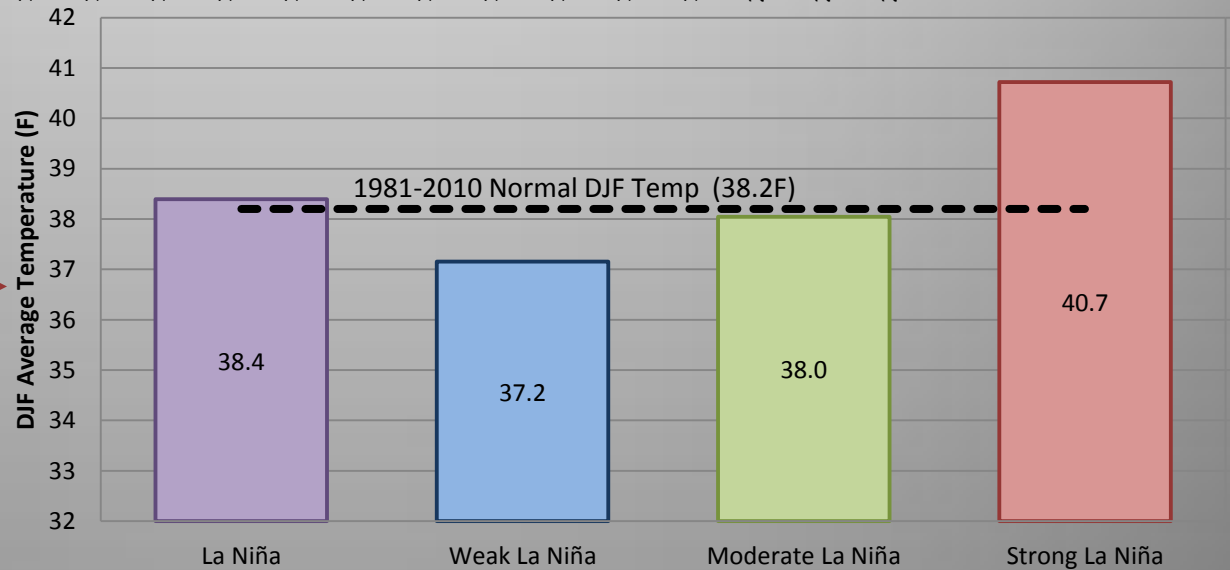
Strength of La Niña Episode:

- Weak
- Moderate
- Strong



La Niña Time Series

La Niña Averages





La Niña Winters and Precipitation

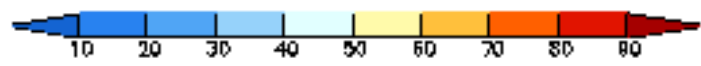
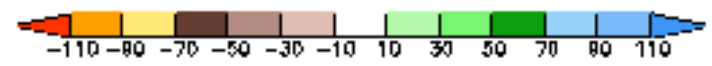
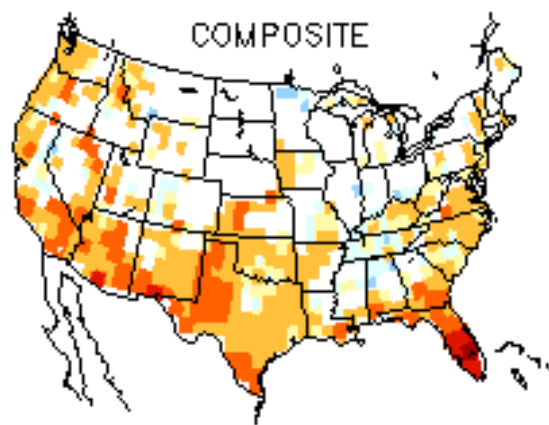
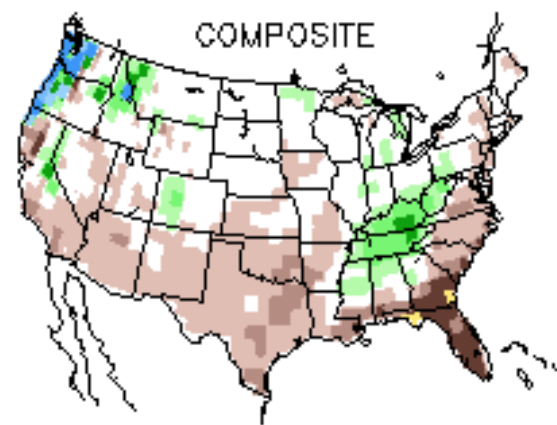
DJF LA NINA PRECIPITATION ANOMALIES (MM)
AND FREQUENCY OF OCCURRENCE (%)

ANOMALIES

FREQUENCY

COMPOSITE

COMPOSITE



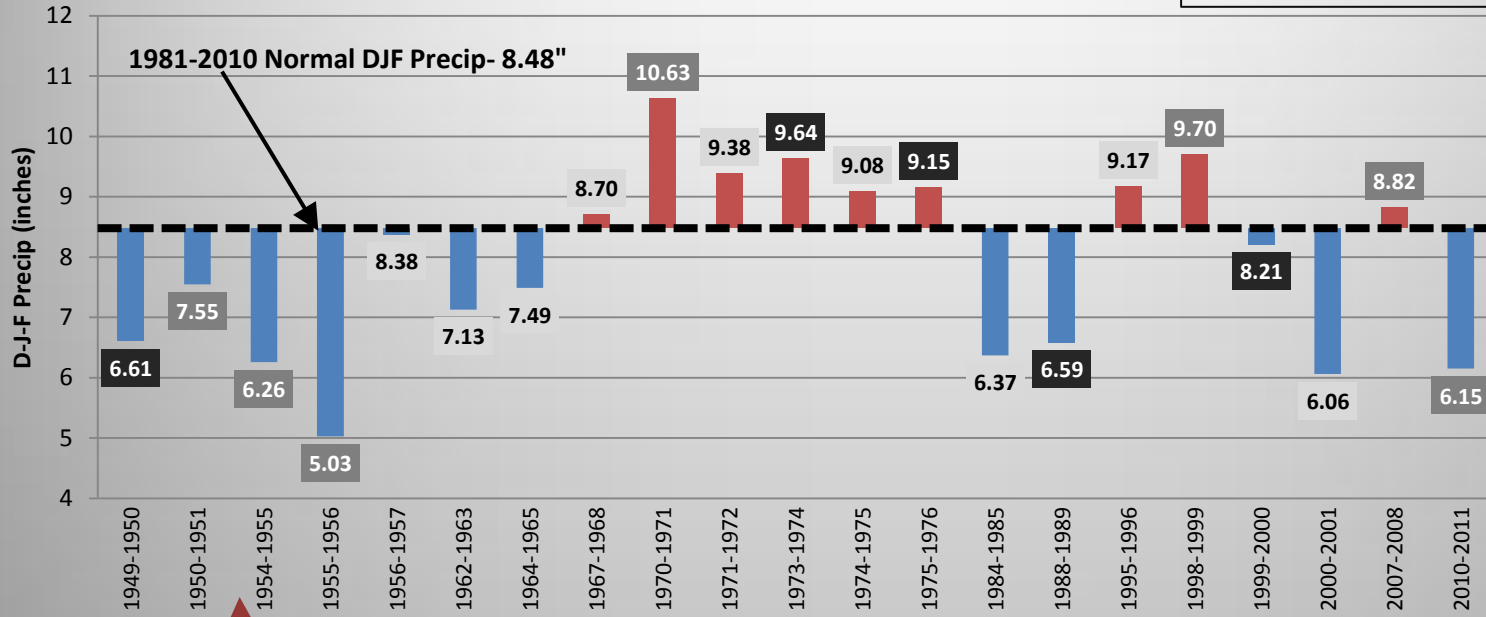
(20 CASES: 1950 1951 1955 1956 1957 1963 1965 1968 1971 1972 1974 1975 1976 1985 1989
1996 1999 2000 2001 2006)



Precipitation during La Niña Winters Washington D.C. (1950-2011)

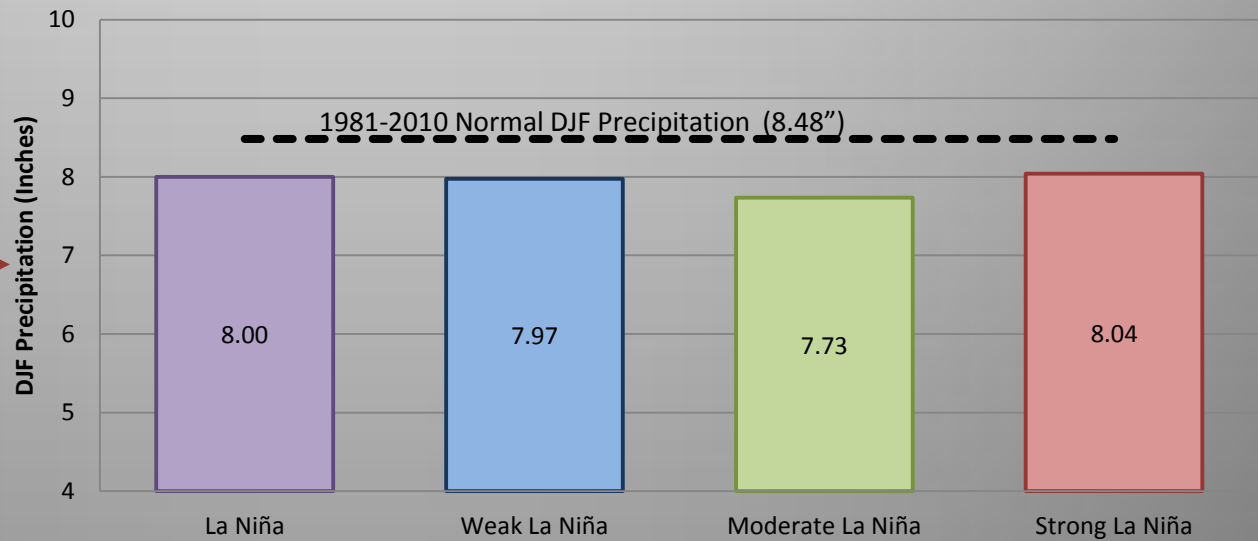
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La Niña Time Series

La Niña Averages





La Niña Winters and Snowfall

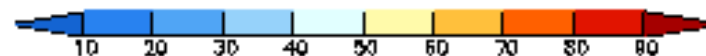
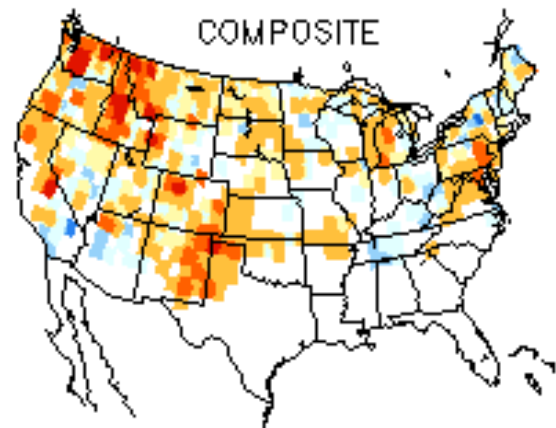
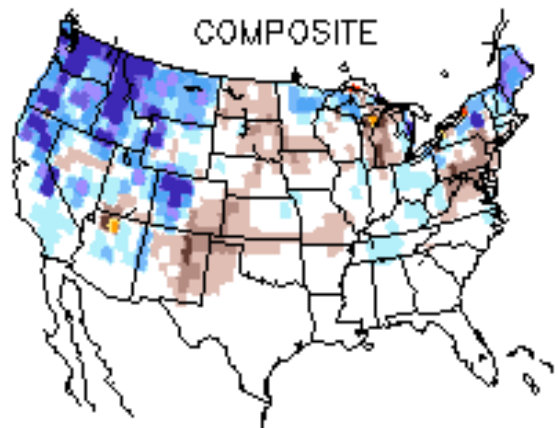
DJF LA NINA SNOW ANOMALIES (IN)
AND FREQUENCY OF OCCURRENCE (%)

ANOMALIES

FREQUENCY

COMPOSITE

COMPOSITE



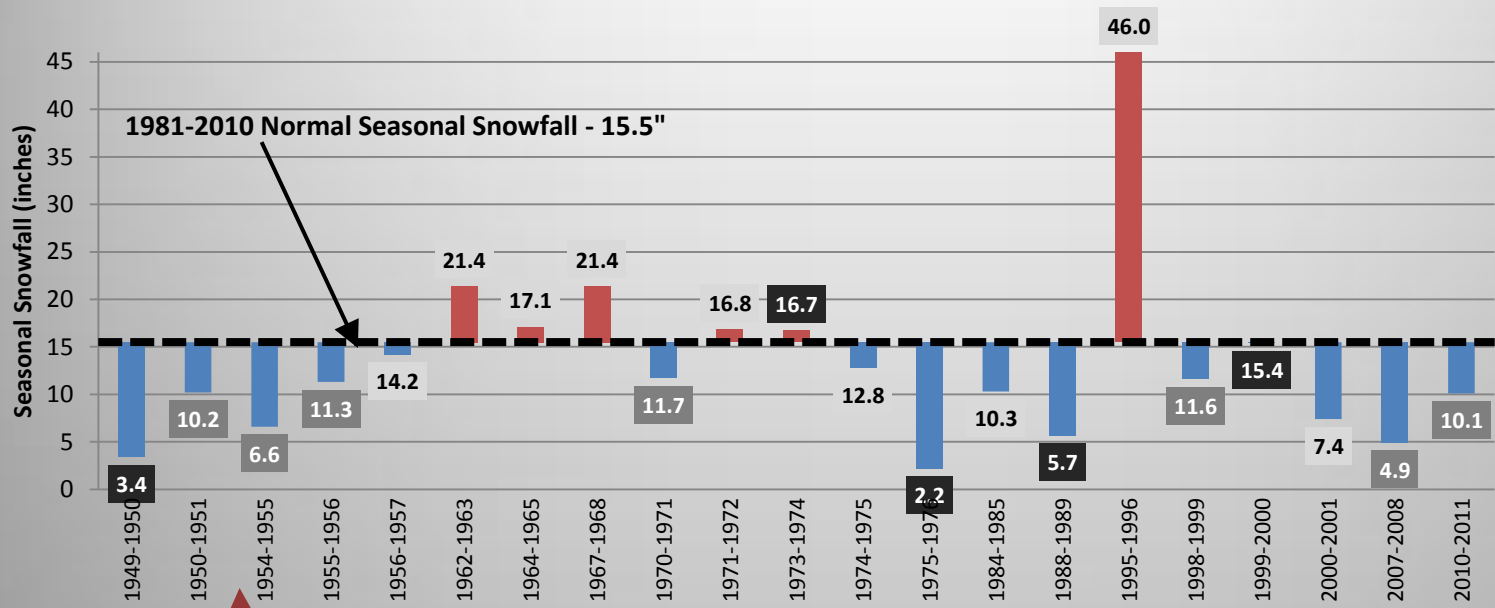
(20 CASES: 1950 1951 1955 1956 1957 1963 1965 1968 1971 1972 1974 1975 1976 1985 1989
1996 1999 2000 2001 2008)



Seasonal Snowfall during La Niña Years Washington D.C. (1950-2011)

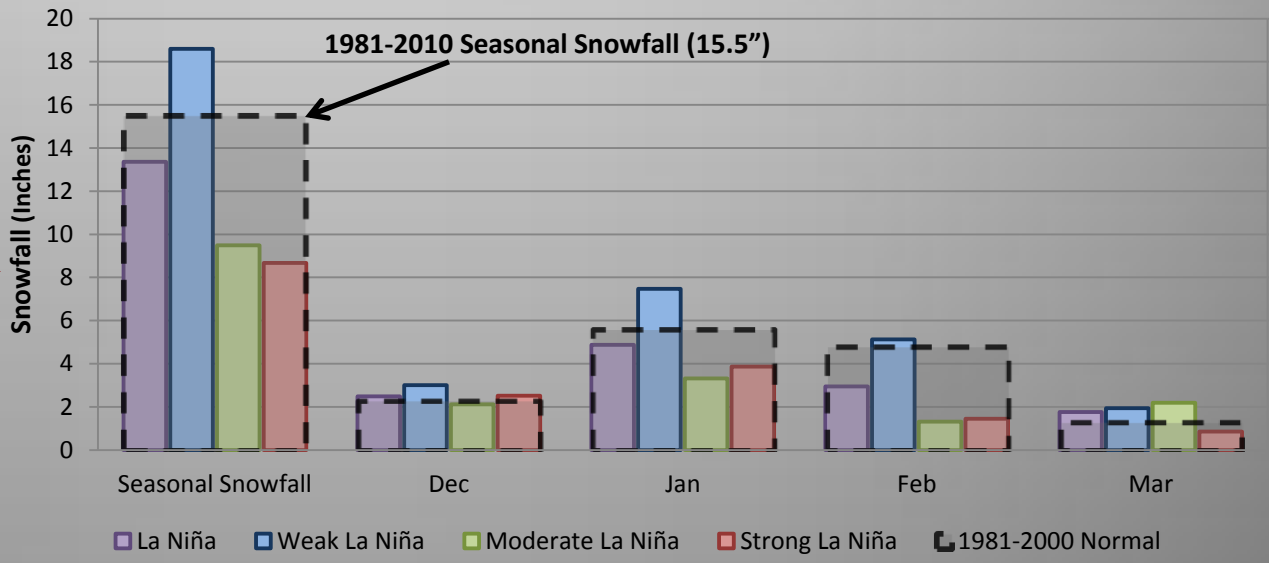
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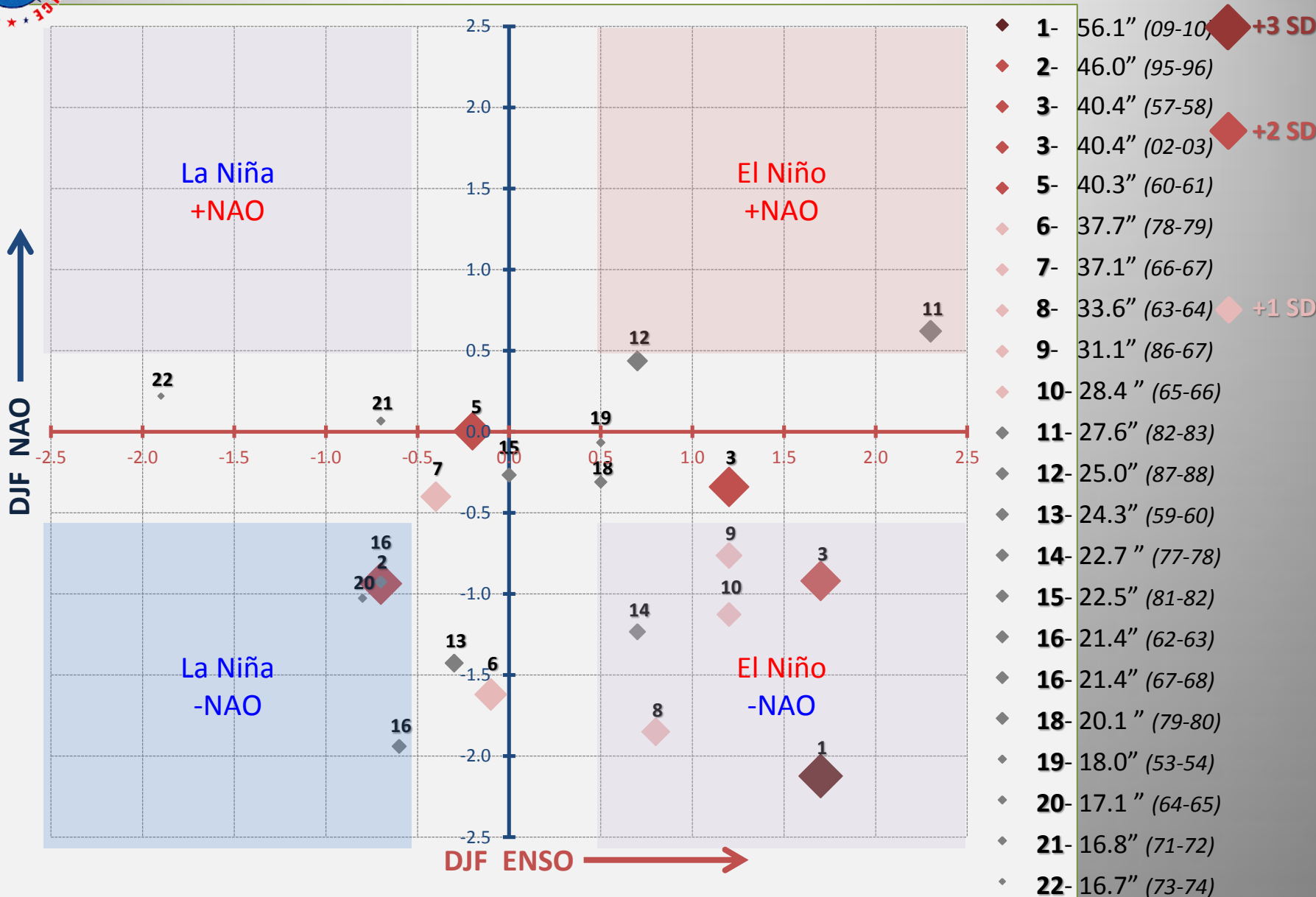
La Niña Time Series

La Niña Averages

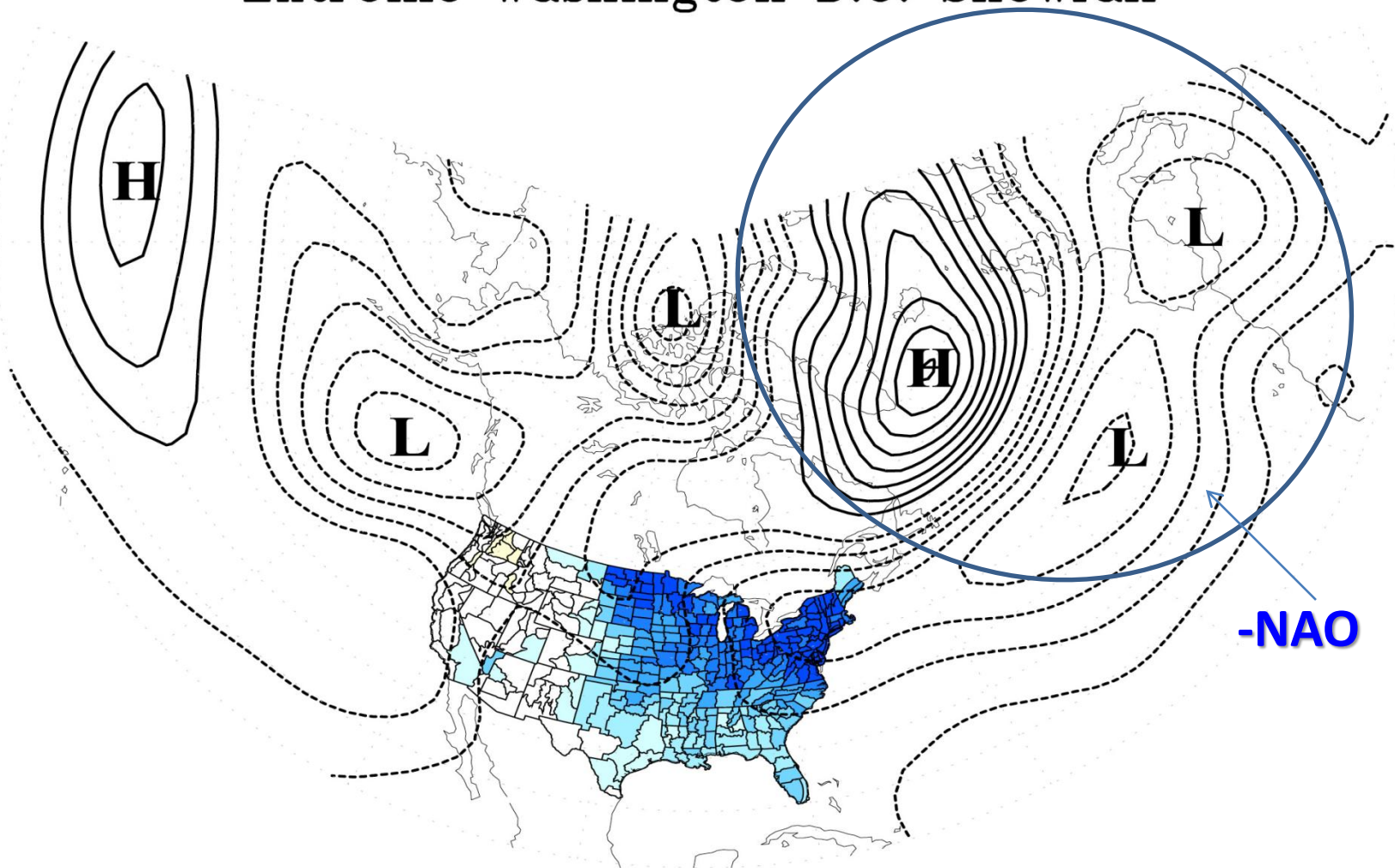




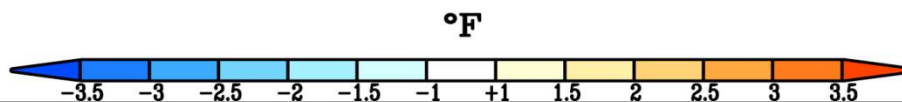
Years with Above Normal Snowfall at DCA (>15.5") since 1950



Climate Conditions Associated with Extreme Washington D.C. Snowfall



500 mb height anomalies from the 30 snowiest months at Washington DC





Questions/Comments?

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