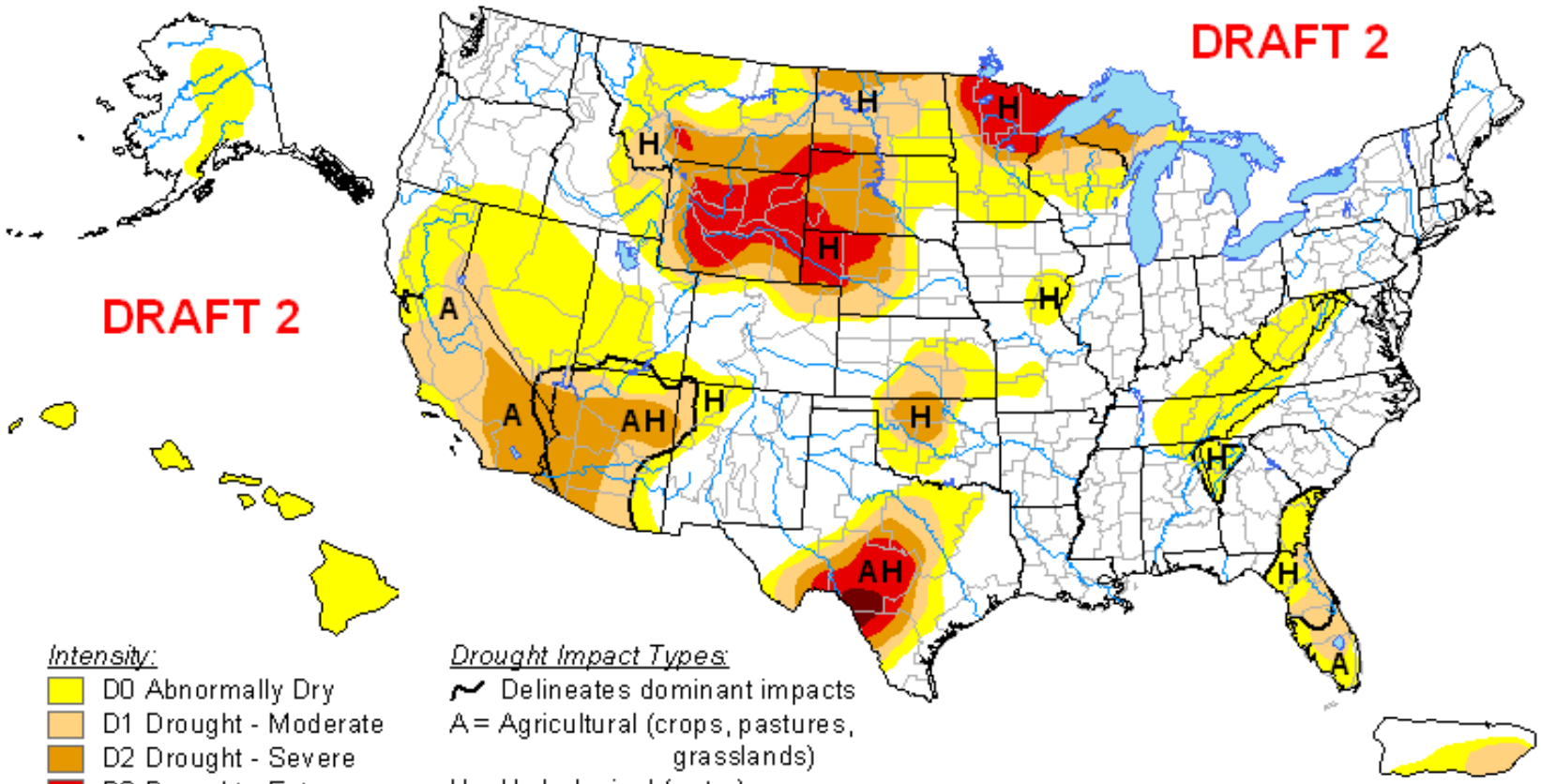
U.S. Drought Monitor

February 6, 2007
Valid 8 a.m. EDT



Intensity:
- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

Drought Impact Types:
- ~ Delineates dominant impacts
- A = Agricultural (crops, pastures, grasslands)
- H = Hydrological (water)

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

USDA National Drought Mitigation Center

Released Thursday, February 8, 2007

Author: Mark Svoboda, National Drought Mitigation Center

http://drought.unl.edu/dm

LAIS – *Louisiana Agriclimatic Information System*

Sponsored/Supported by the LSU AgCenter thru BAE

www.lsuagcenter.com/weather

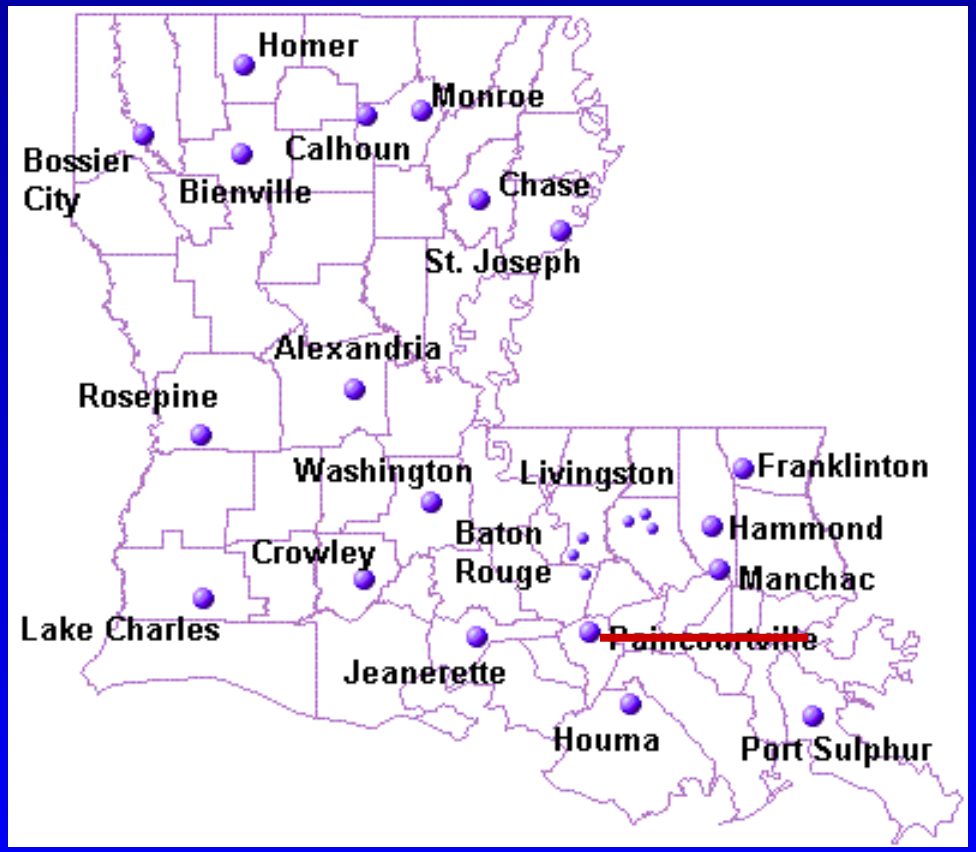
LSU AgCenter Research & Extension

LAIS – *Louisiana Agriclimatic Information System*

Sponsored/Supported by the LSUAgCenter thru BAE

Current Network Distribution: 23 sites

** mainly, but not exclusively located at LSU AgCenter facilities



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Elements Observed: ***1-minute observation***

- ***-- temperature***
- ***-- rainfall***
- ***-- wind speed and direction***
- ***-- dewpoint / relative humidity***
- ***-- solar radiation & PAR***
- ***-- station pressure***
- ***-- soil temperatures***

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LAIS – *Louisiana Agriclimatic Information System*

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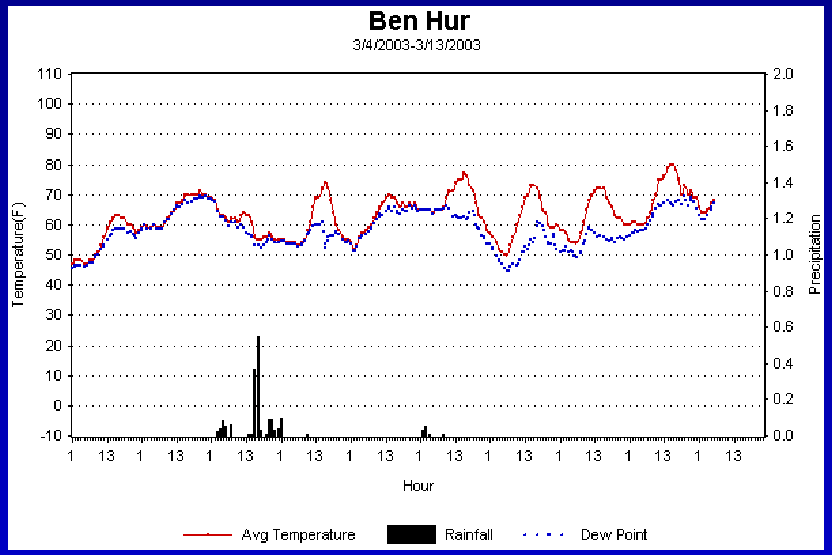
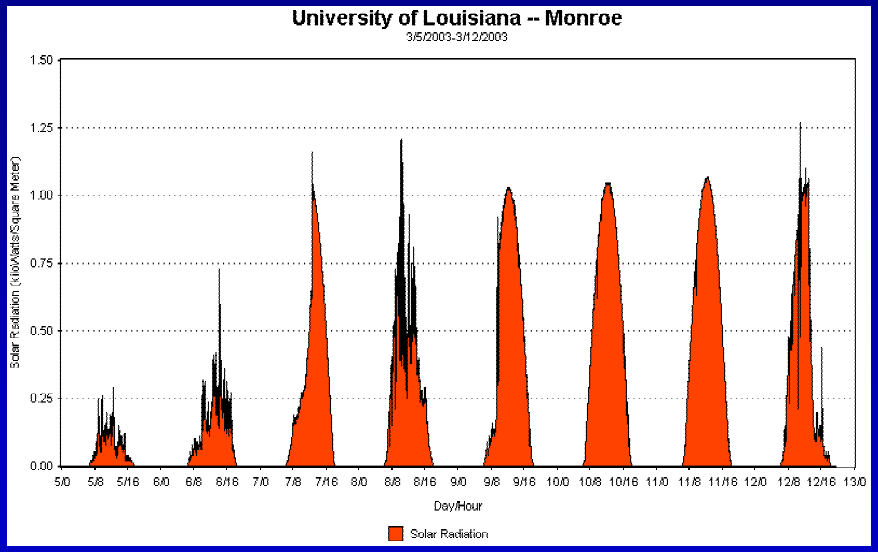
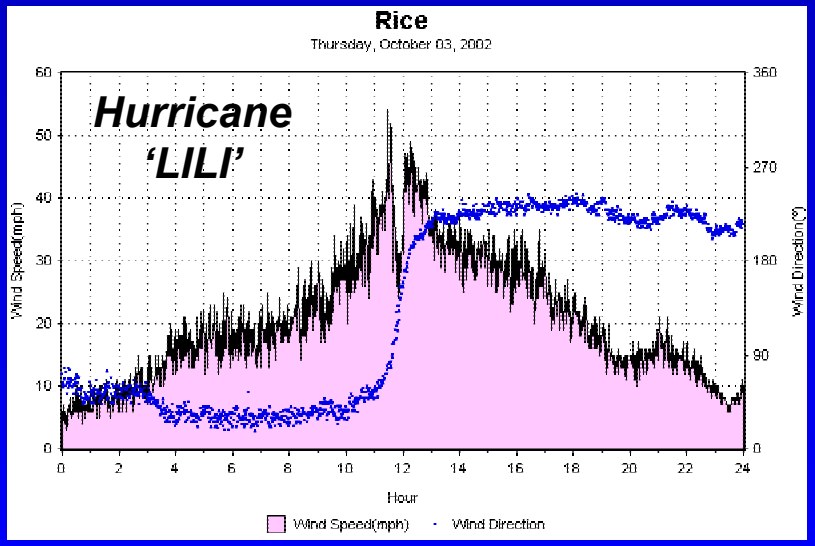
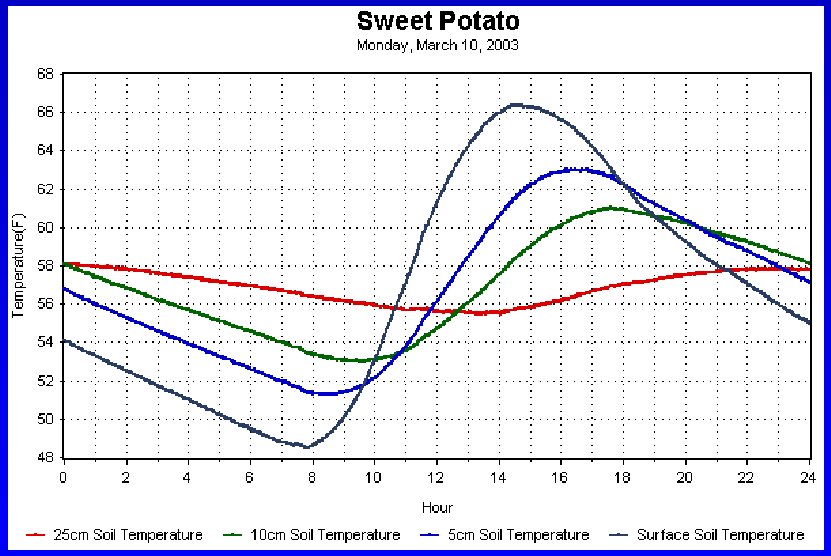


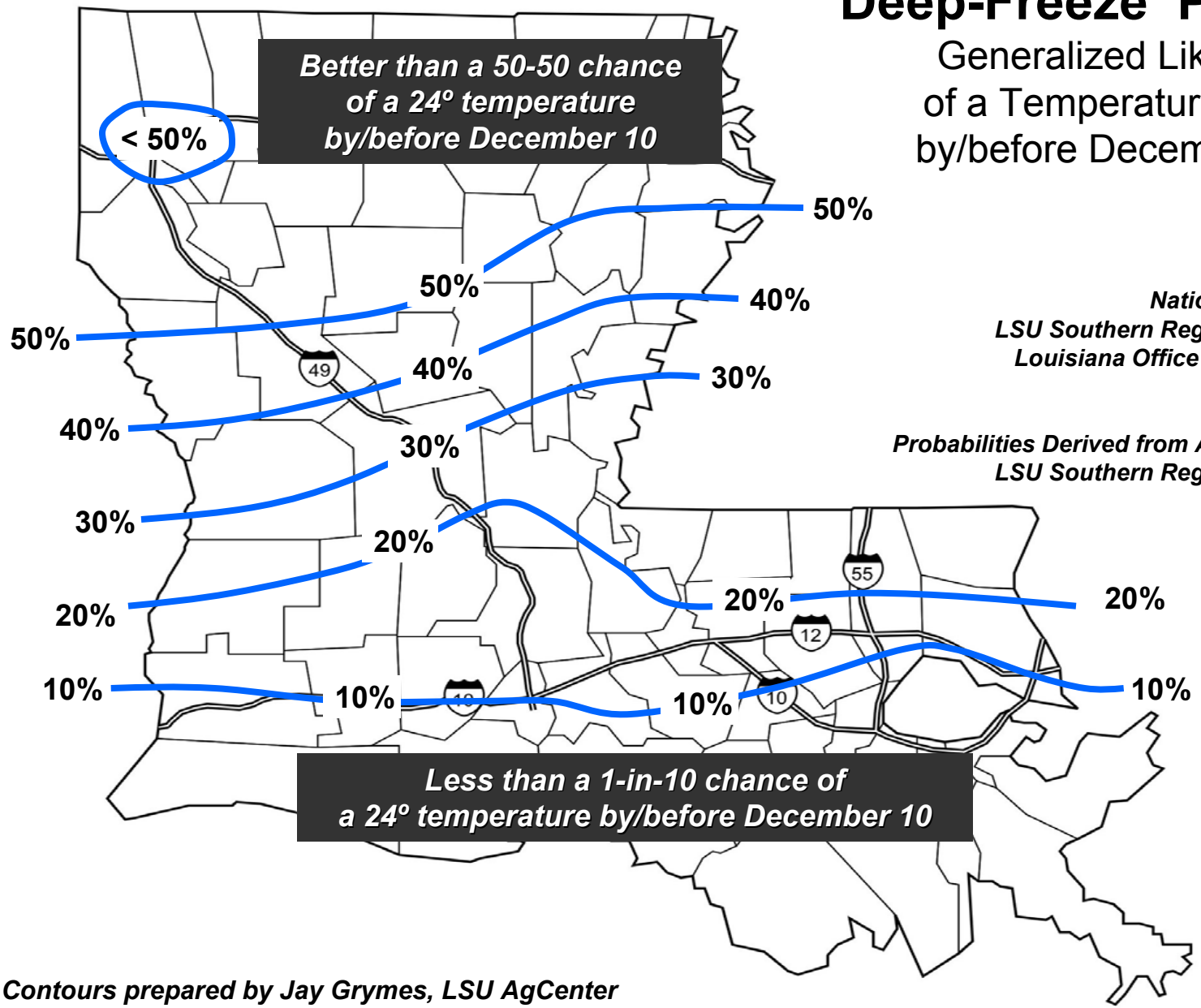






‘Deep-Freeze’ Probability

Generalized Likelihood of a Temperature ≤ 24ºF by/before December 10th



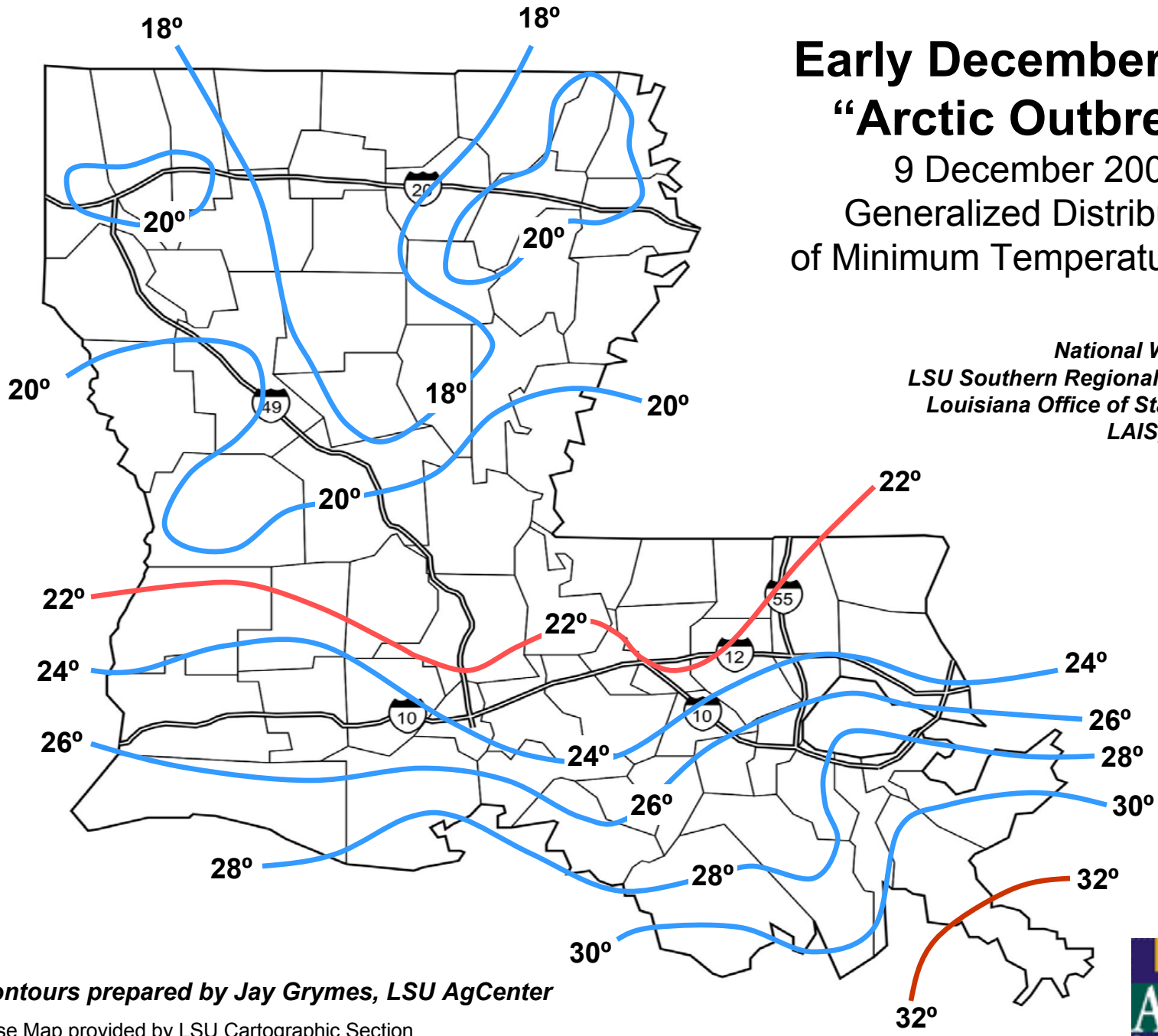
Data Sources:
National Weather Service
LSU Southern Regional Climate Center
Louisiana Office of State Climatology
LAIS, LSU AgCenter

Probabilities Derived from ACIS / CLIMOD tools, LSU Southern Regional Climate Center

Contours prepared by Jay Grymes, LSU AgCenter

Base Map provided by LSU Cartographic Section
Dept. of Geography & Anthropology

LSU AgCenter Research & Extension



Early December 2006 "Arctic Outbreak"

9 December 2006
Generalized Distribution
of Minimum Temperatures (ºF)

Data Sources:
National Weather Service
LSU Southern Regional Climate Center
Louisiana Office of State Climatology
LAIS, LSU AgCenter

Contours prepared by Jay Grymes, LSU AgCenter

Base Map provided by LSU Cartographic Section
Dept. of Geography & Anthropology

LSU AgCenter Research & Extension

Louisiana Climate:
'Where do we stand now?'

Jay Grymes

LSU AgCenter Climatologist

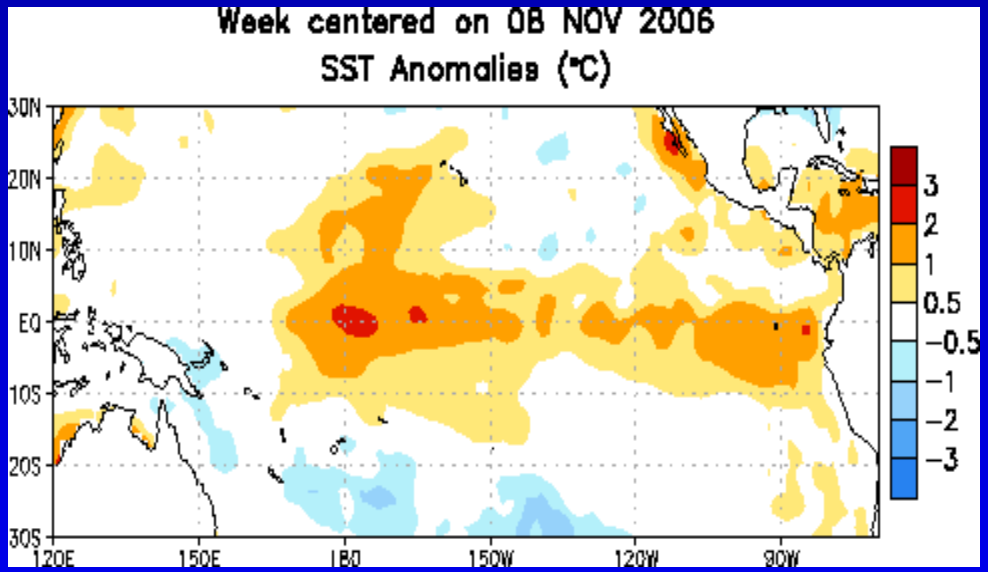
WAFB-TV Chief Meteorologist

WAFB 9 Baton Rouge, LA
LOUISIANA'S NEWS CHANNEL

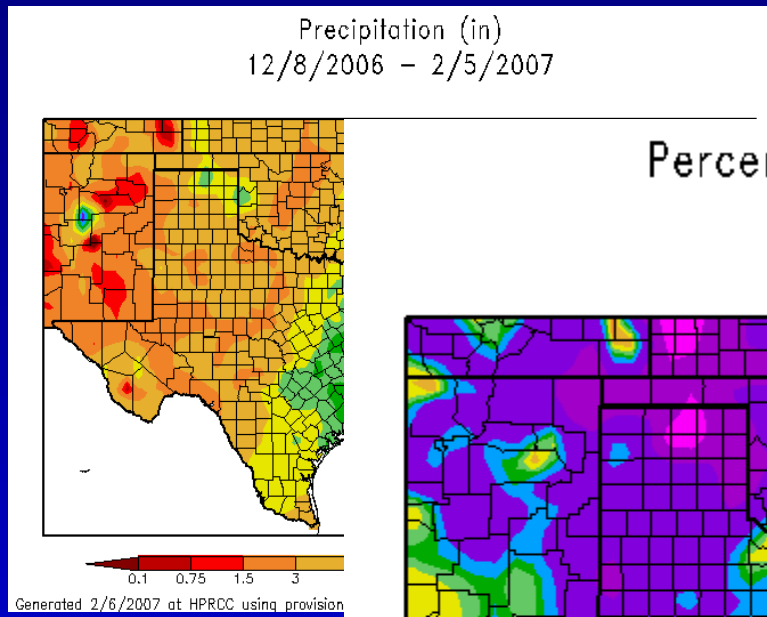
SRCC LOSC
DATA - SERVICE - RESEARCH

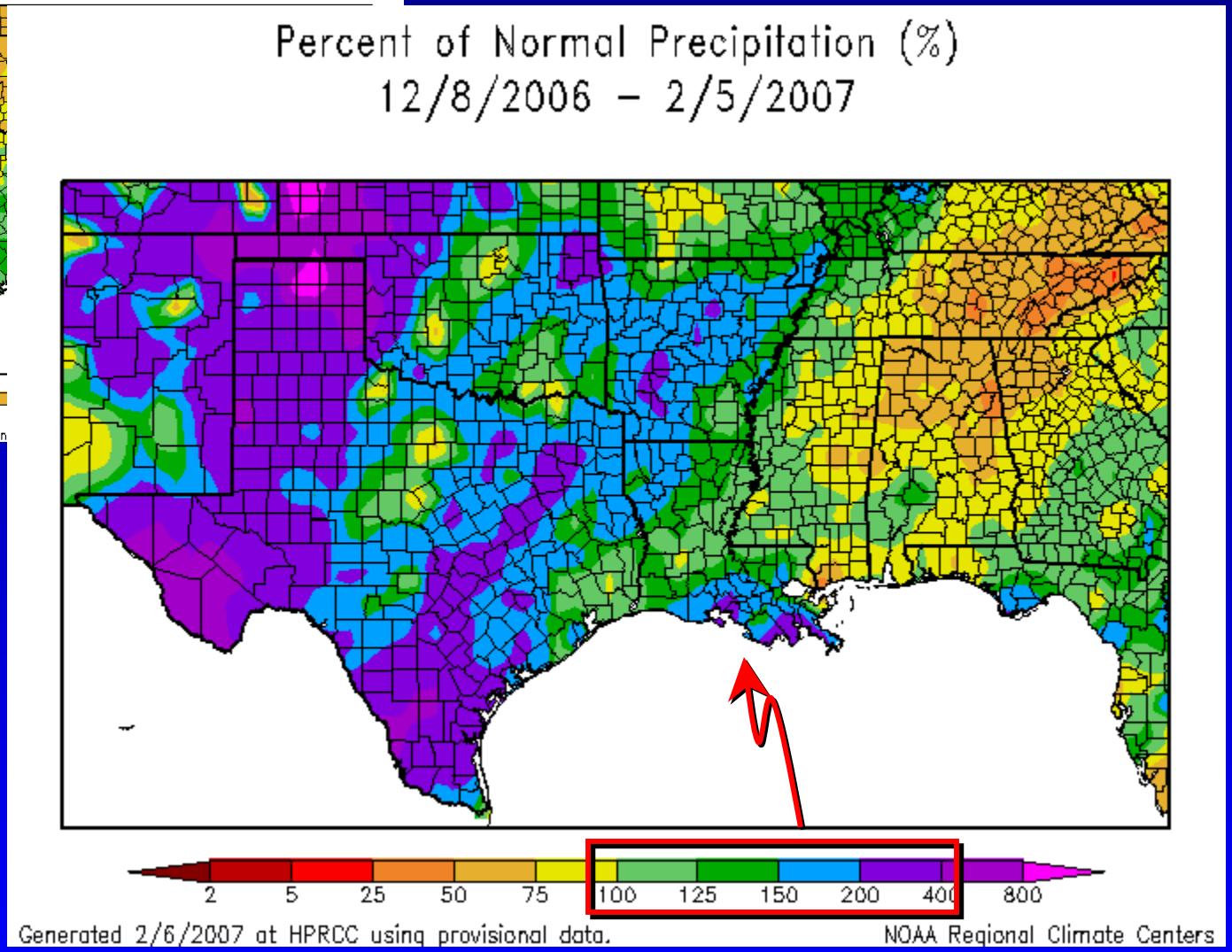
LSU AgCenter Research & Extension

LSU HURRICANE CENTER
Addressing Hurricanes and Other Hazards and Their Impacts on the Natural, Built, and Human Environments



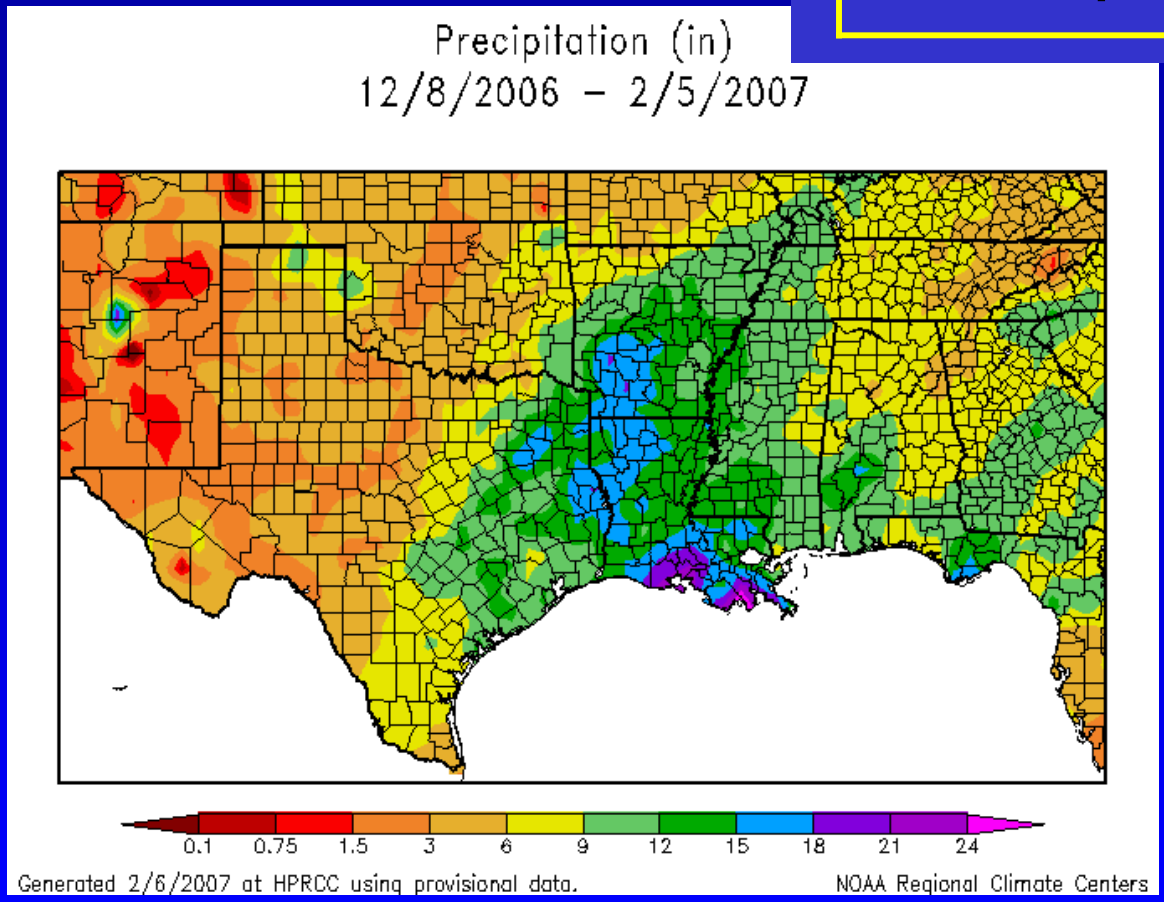
60-Day Rainfall

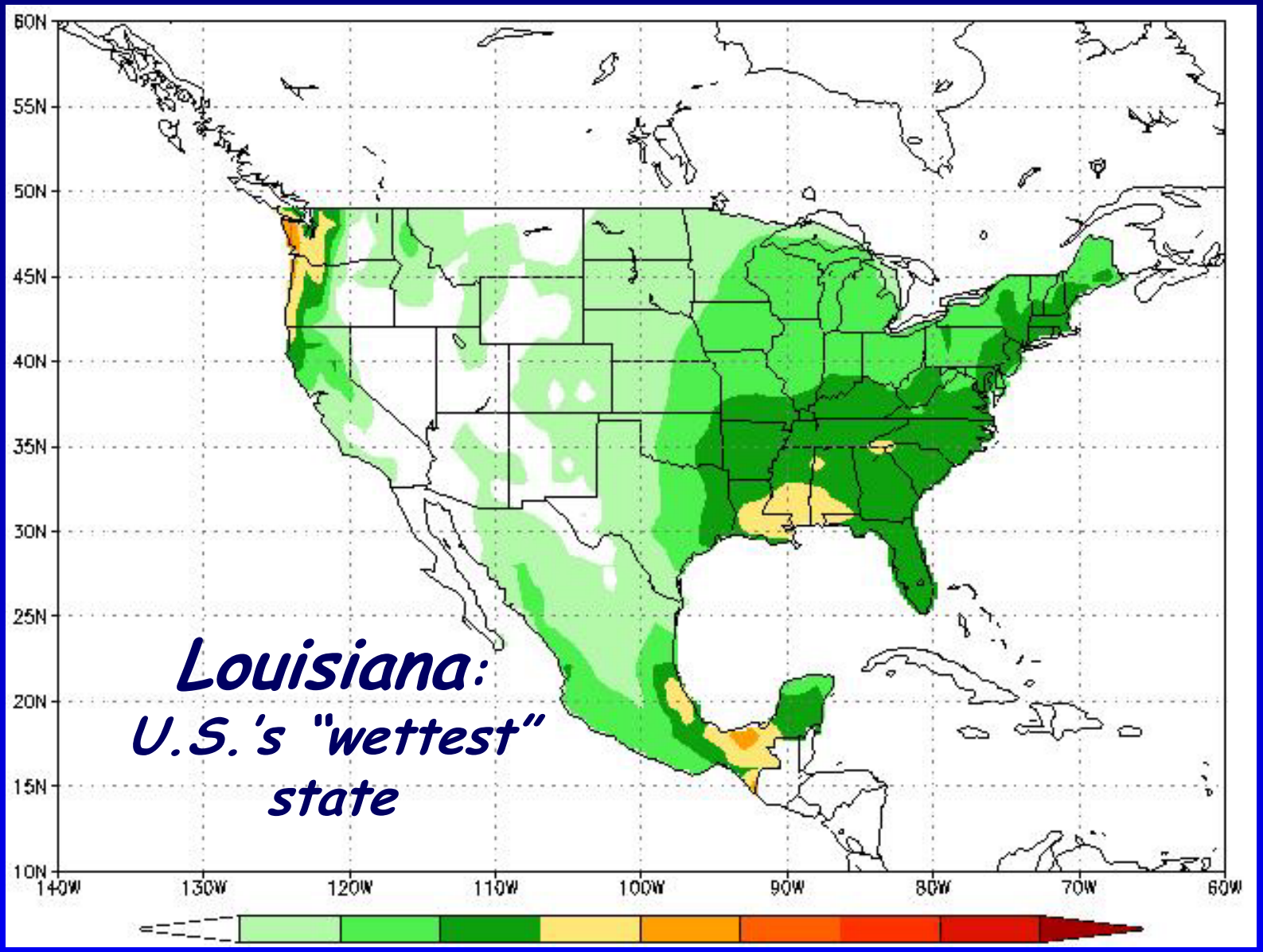


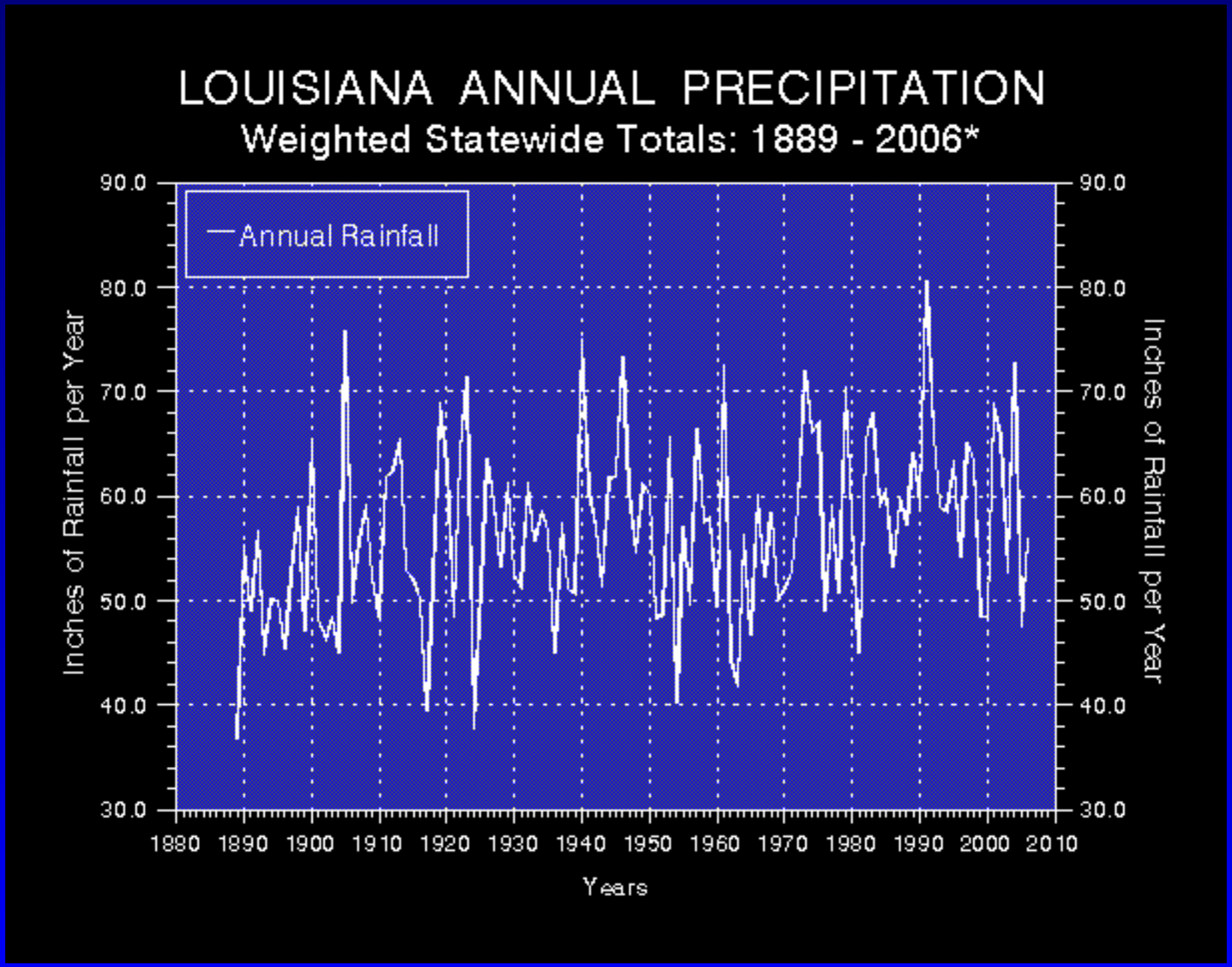


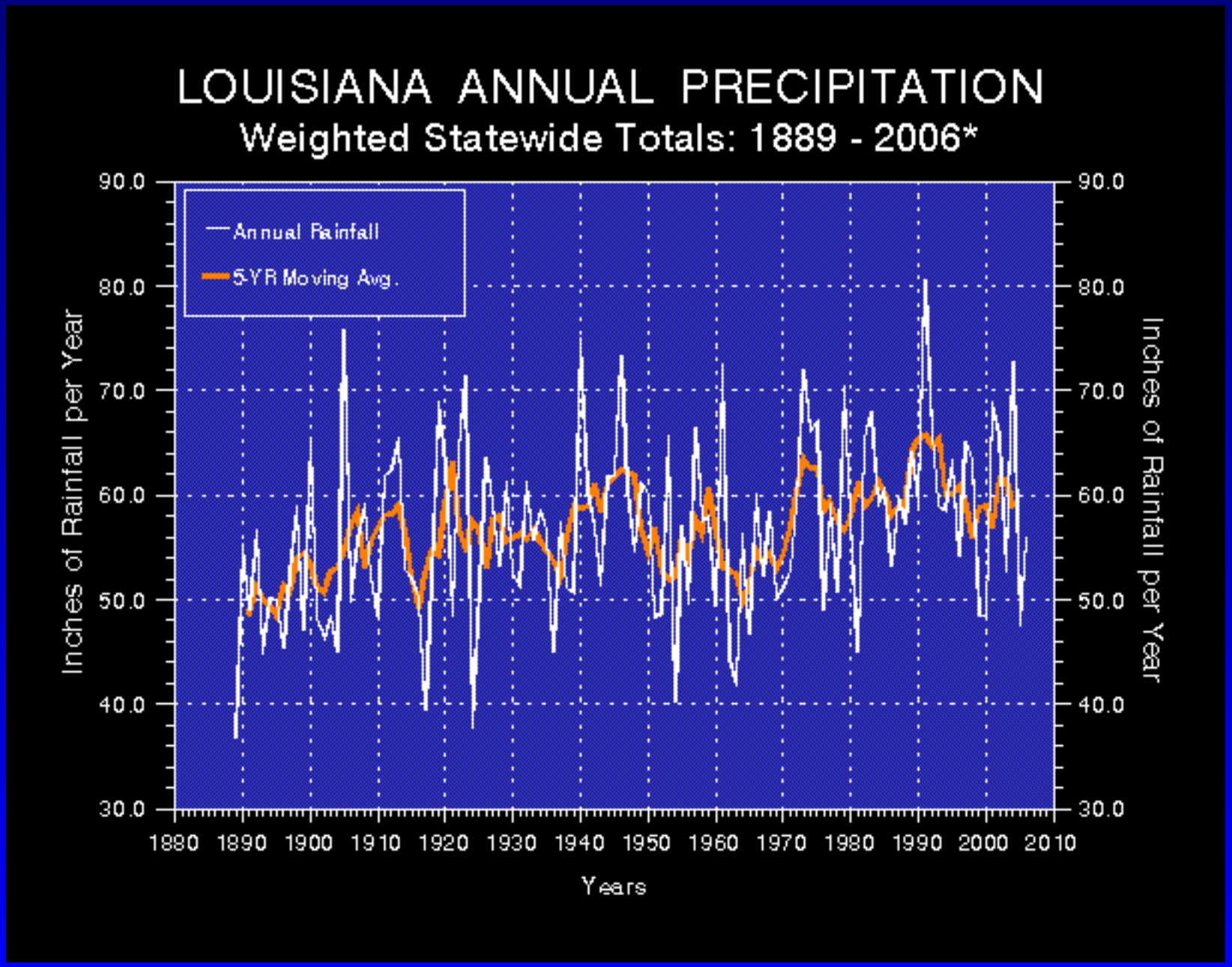
60-Day Rainfall

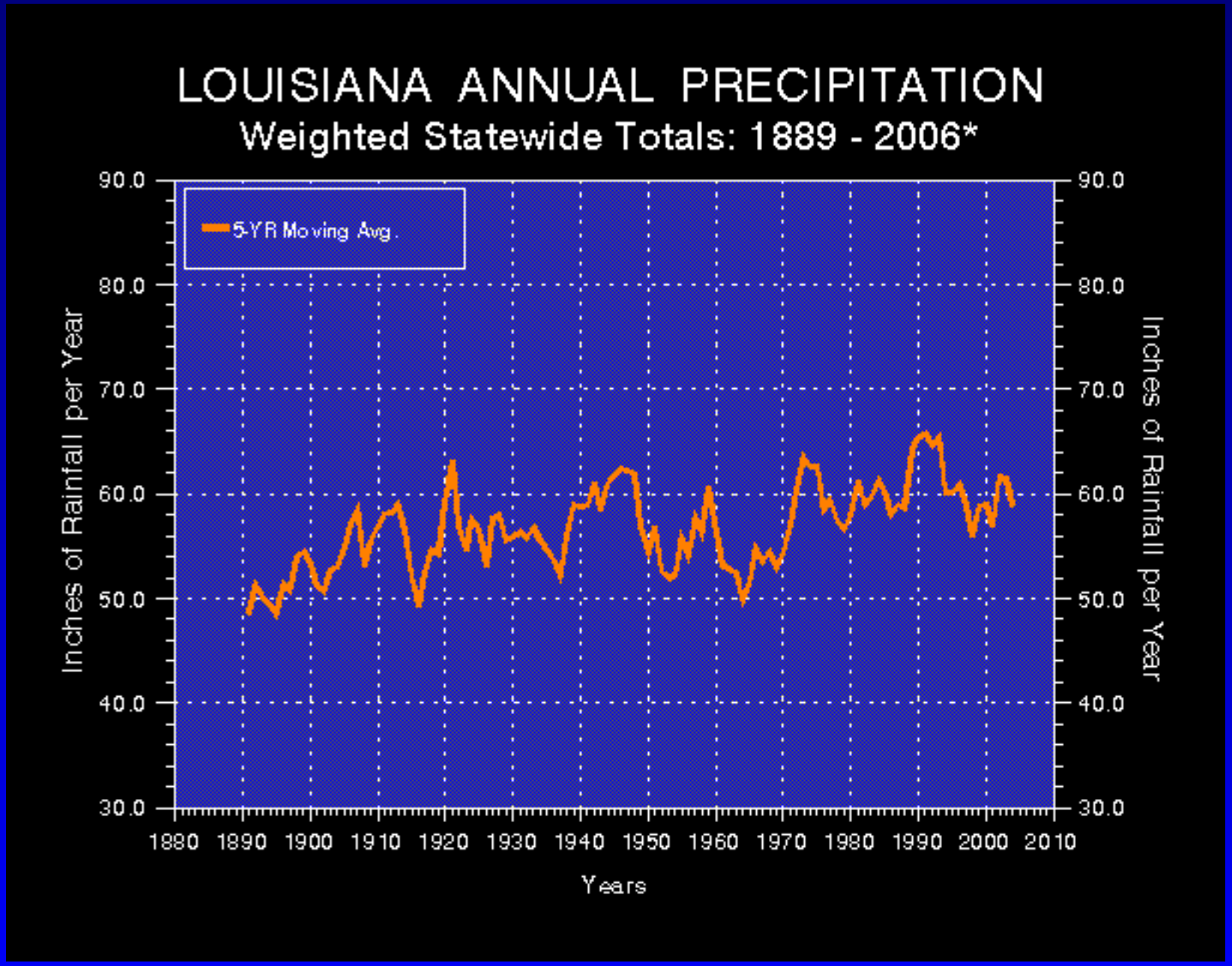
Location	60-Day Precip	DFN
Lafayette	18.64”	+ 7.27”
Alexandria	15.05”	+ 3.03”
Shreveport	13.21”	+ 4.36”

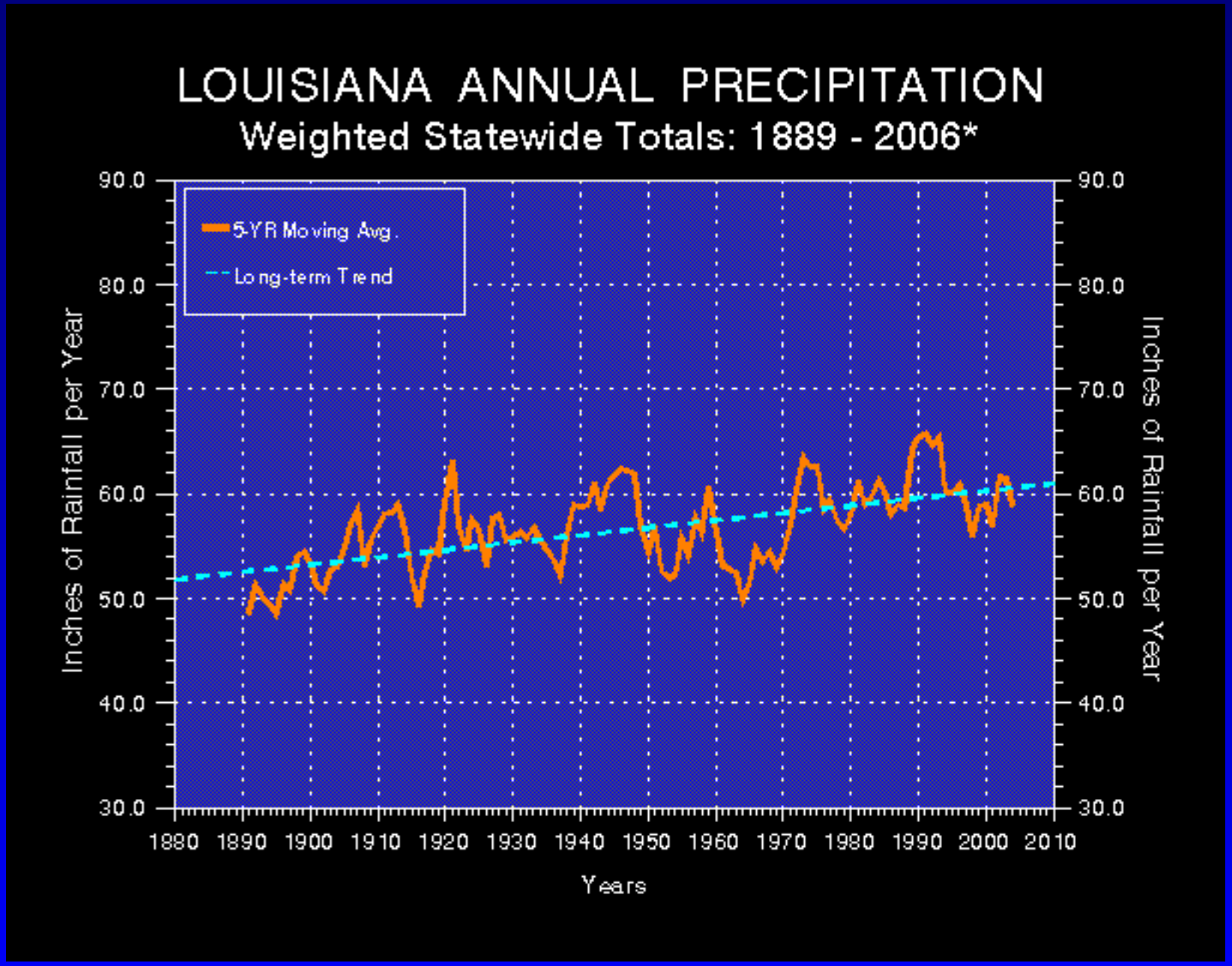



60N
55N
50N
45N
40N
35N
30N
25N
20N
15N
10N
140W
130W
120W
110W
100W
90W
80W
70W
60W
Louisiana:
U.S.'s "wettest"
state
55"-70"


LOUISIANA ANNUAL PRECIPITATION
Weighted Statewide Totals: 1889 - 2006*
Annual Rainfall
Inches of Rainfall per Year
Inches of Rainfall per Year
90.0
80.0
70.0
60.0
50.0
40.0
30.0
1880
1890
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
2000
2010
Years


LOUISIANA ANNUAL PRECIPITATION
Weighted Statewide Totals: 1889 - 2006*
Annual Rainfall
5-YR Moving Avg.
Inches of Rainfall per Year
Inches of Rainfall per Year
90.0
80.0
70.0
60.0
50.0
40.0
30.0
1880
1890
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
2000
2010
Years


LOUISIANA ANNUAL PRECIPITATION
Weighted Statewide Totals: 1889 - 2006*
5-YR Moving Avg.
Inches of Rainfall per Year
Inches of Rainfall per Year
90.0
80.0
70.0
60.0
50.0
40.0
30.0
1880 1890 1900 1910 1920 1930 1940 1950 1960 1970 1980 1990 2000 2010
Years


LOUISIANA ANNUAL PRECIPITATION
Weighted Statewide Totals: 1889 - 2006*
5-YR Moving Avg.
Long-term Trend
Inches of Rainfall per Year
Inches of Rainfall per Year
90.0
80.0
70.0
60.0
50.0
40.0
30.0
1880 1890 1900 1910 1920 1930 1940 1950 1960 1970 1980 1990 2000 2010
Years

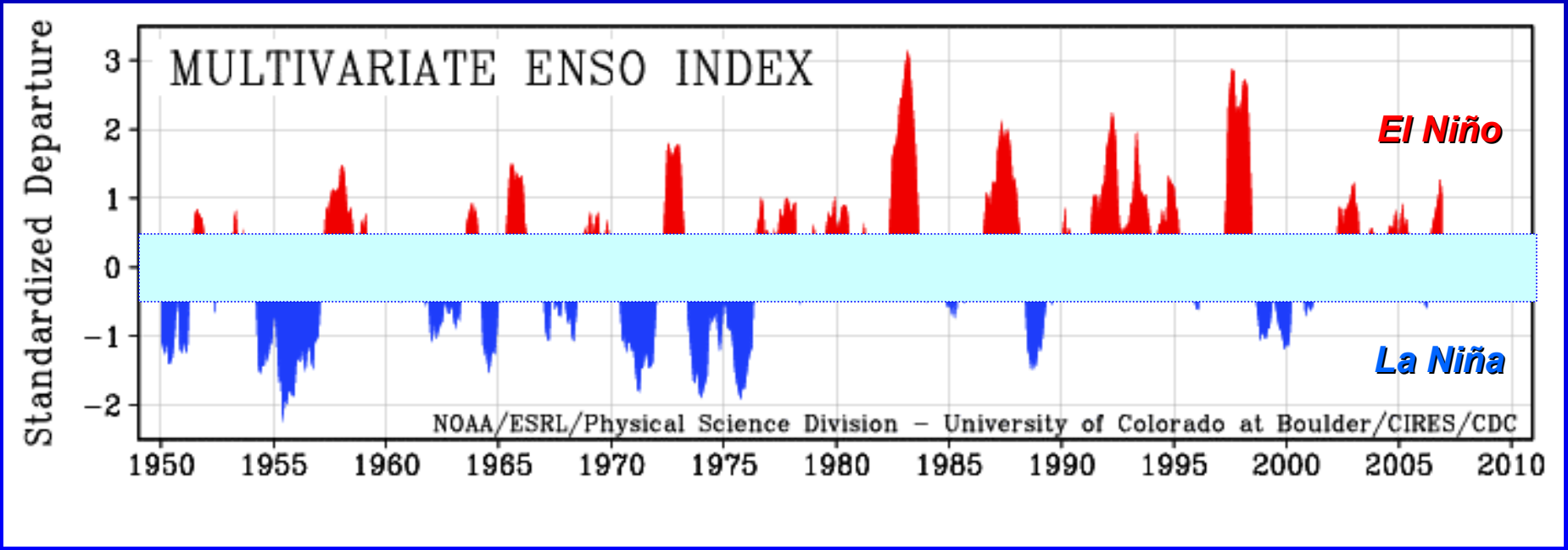
ENSO Pattern: Last 50 Years

ENSO – El Niño/Southern Oscillation

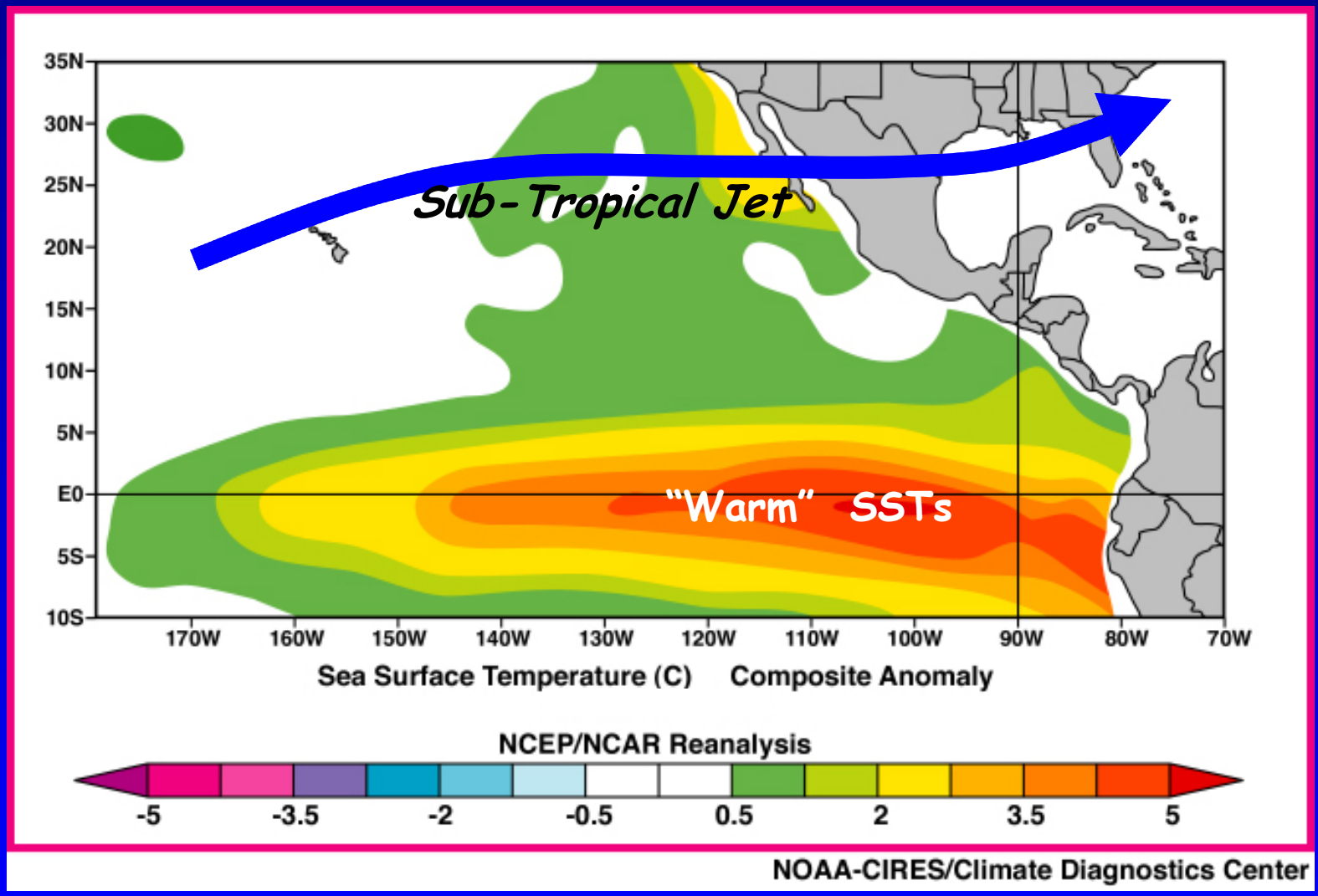
"Warm Phase" – *El Niño*

"Cold Phase" – *La Niña*

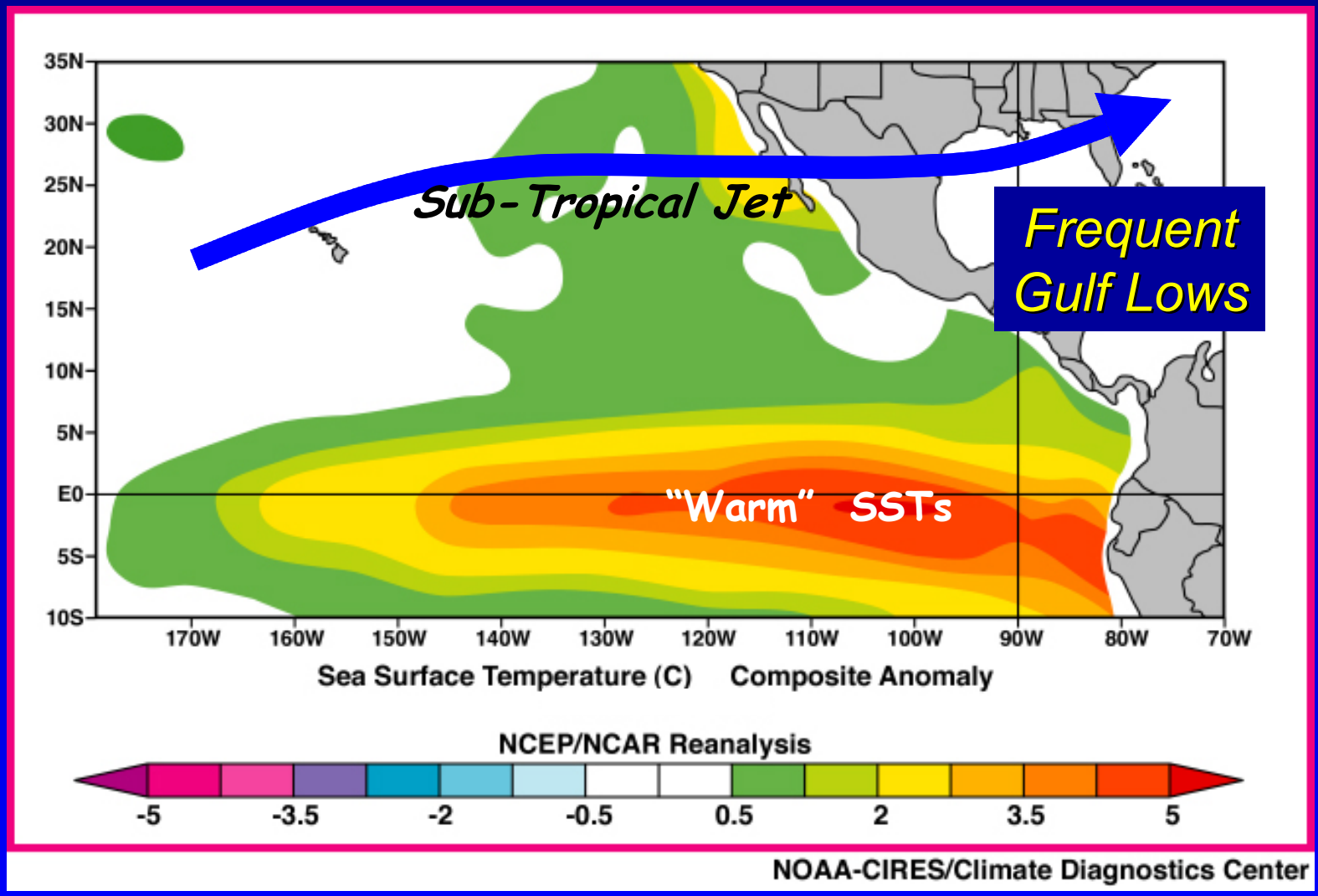
"Neutral Phase" – *La Nada*



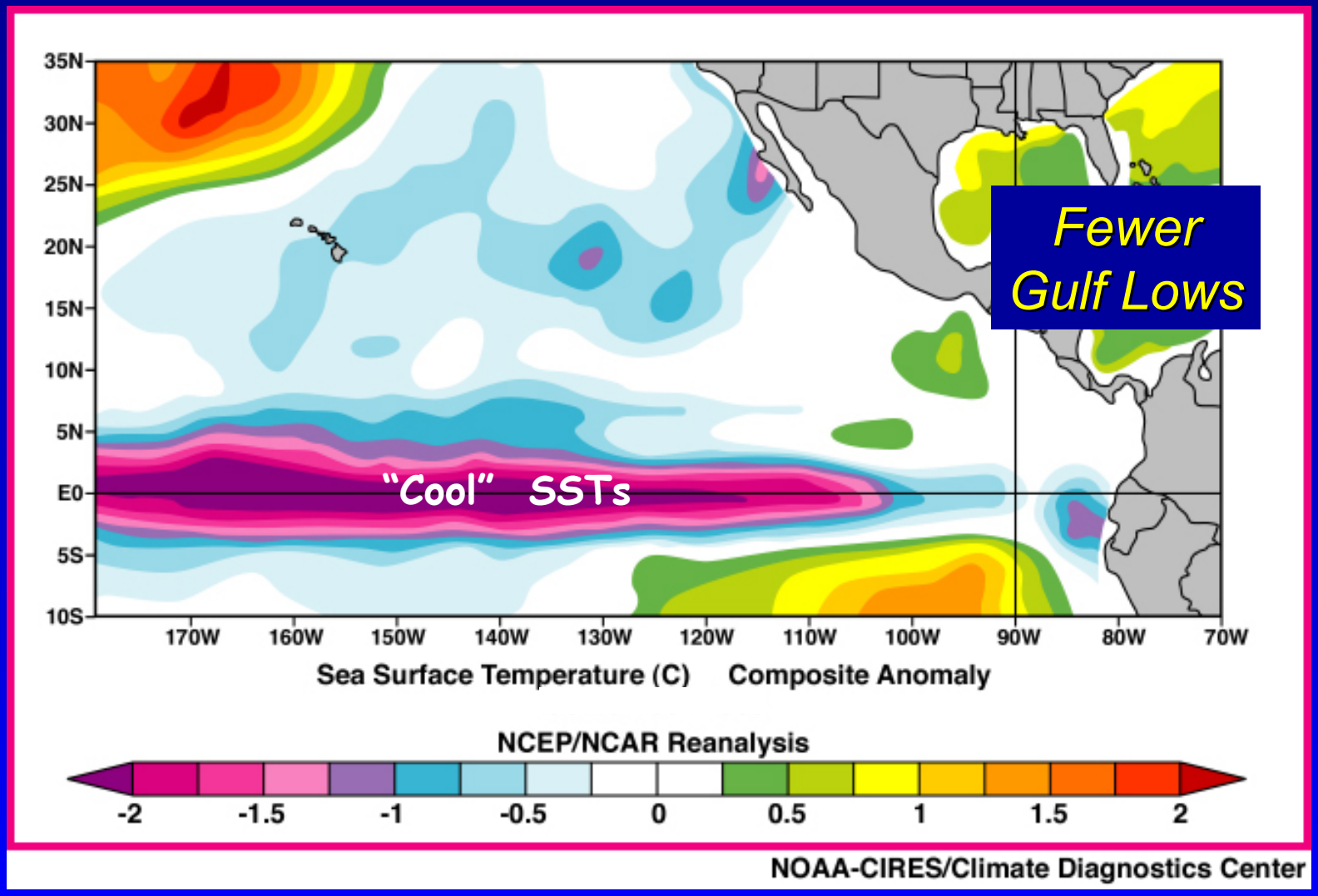
El Niño 'Signature': *'Winter Rainmaker'*

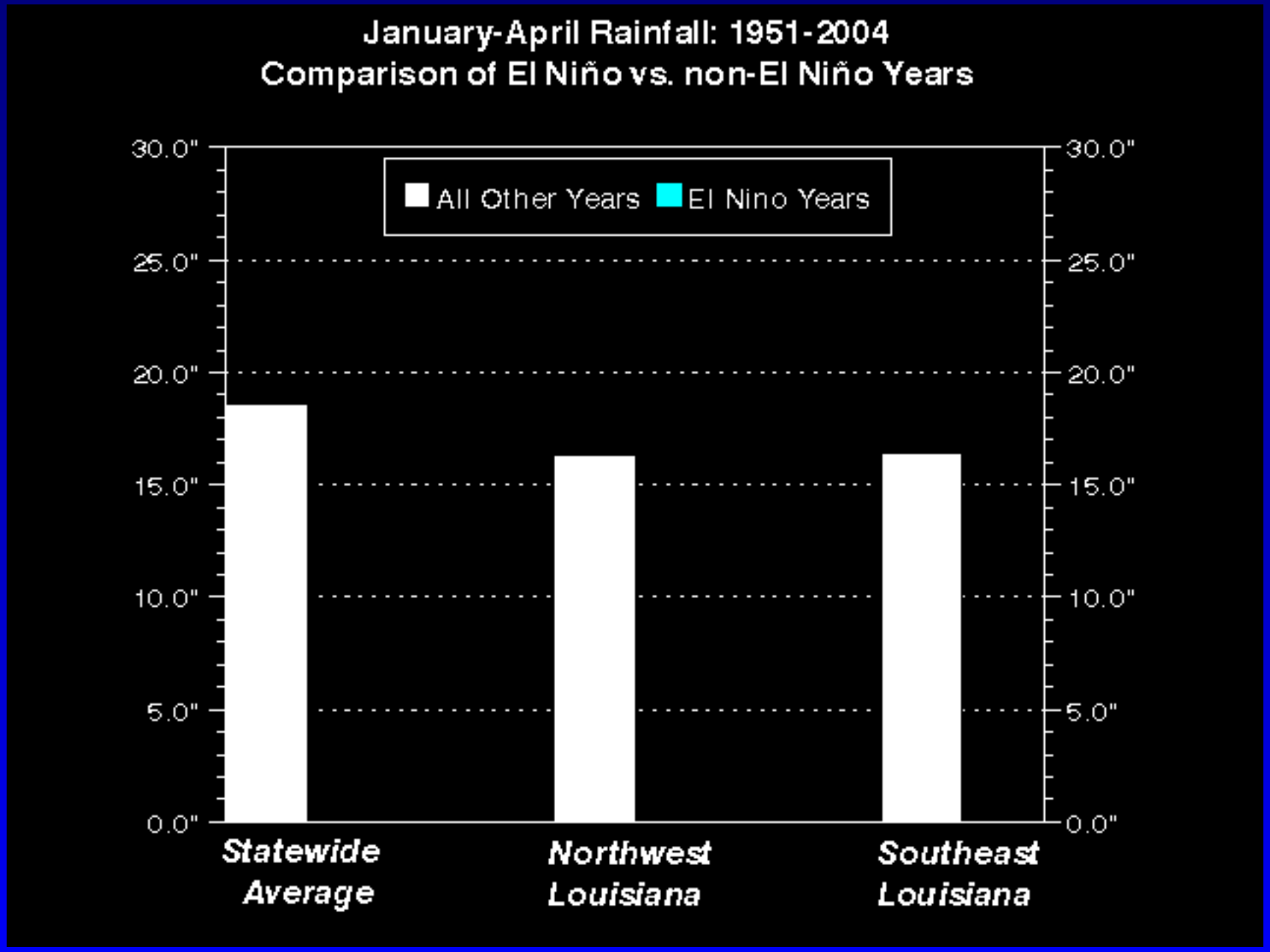


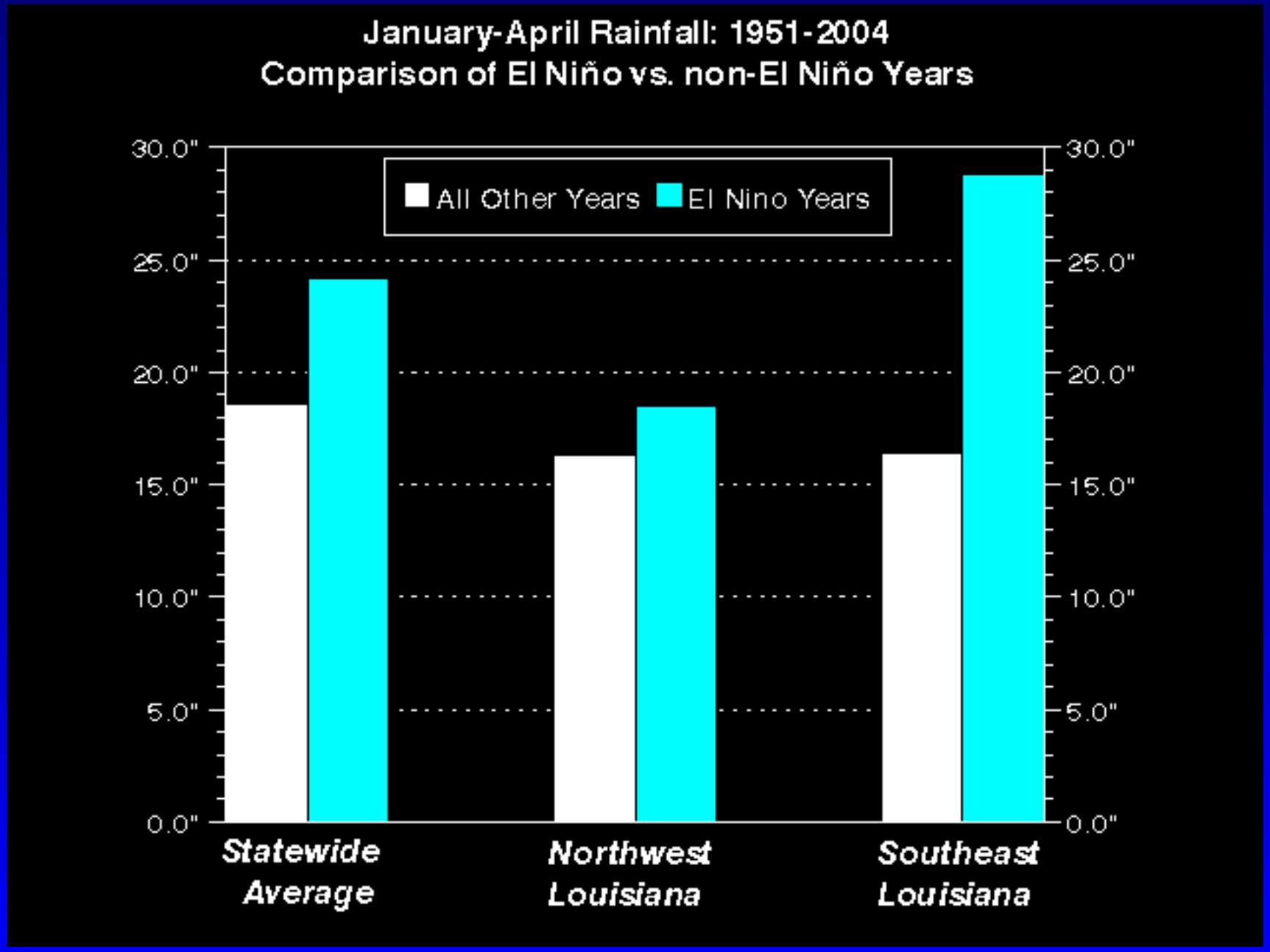
El Niño 'Signature' along the Gulf Coast:
'Active' Winter Sub-Tropical Jet

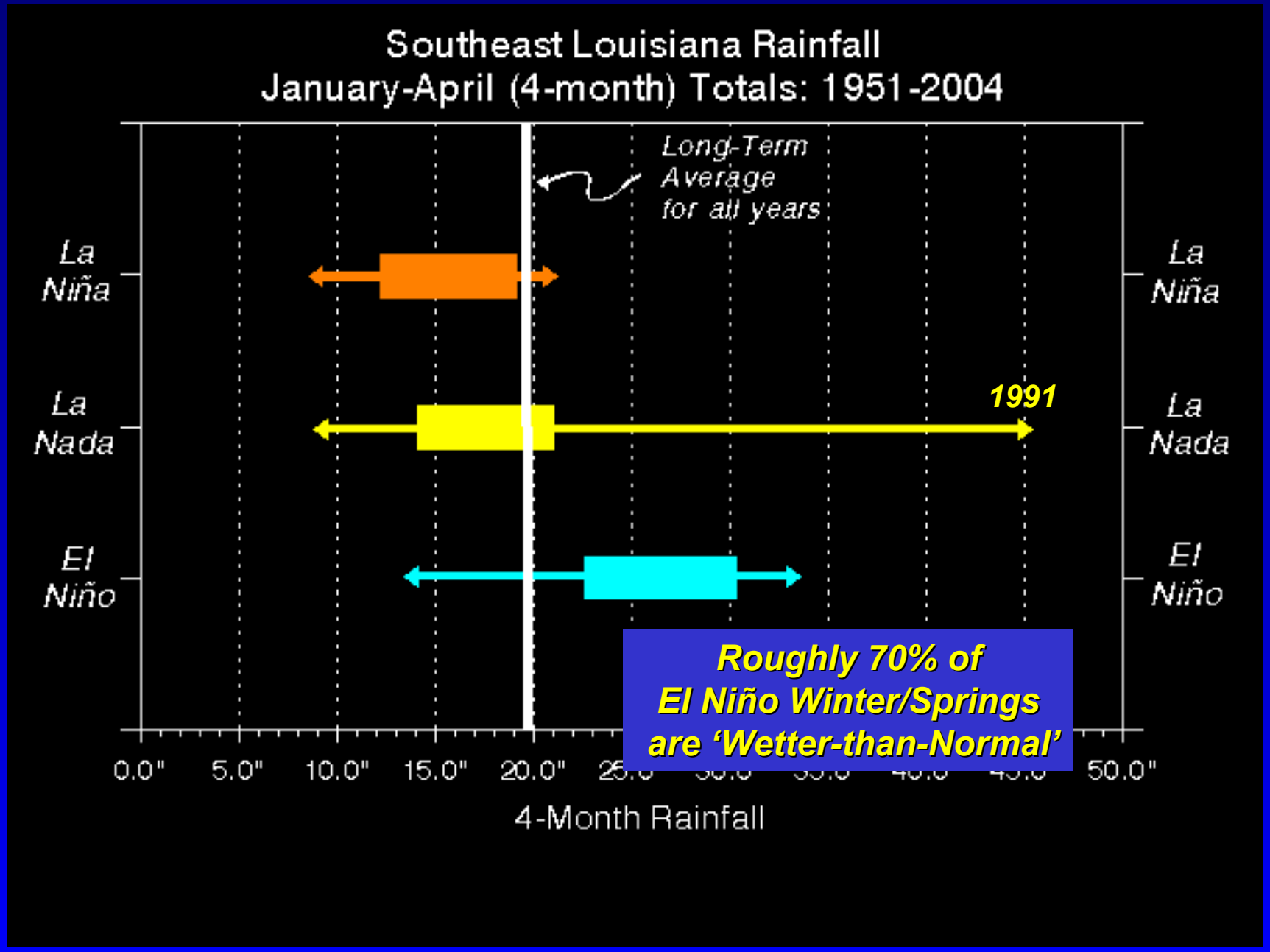


La Niña 'Signature' in Gulf Coast:
'Less Frequent' Winter Sub-Tropical Jet

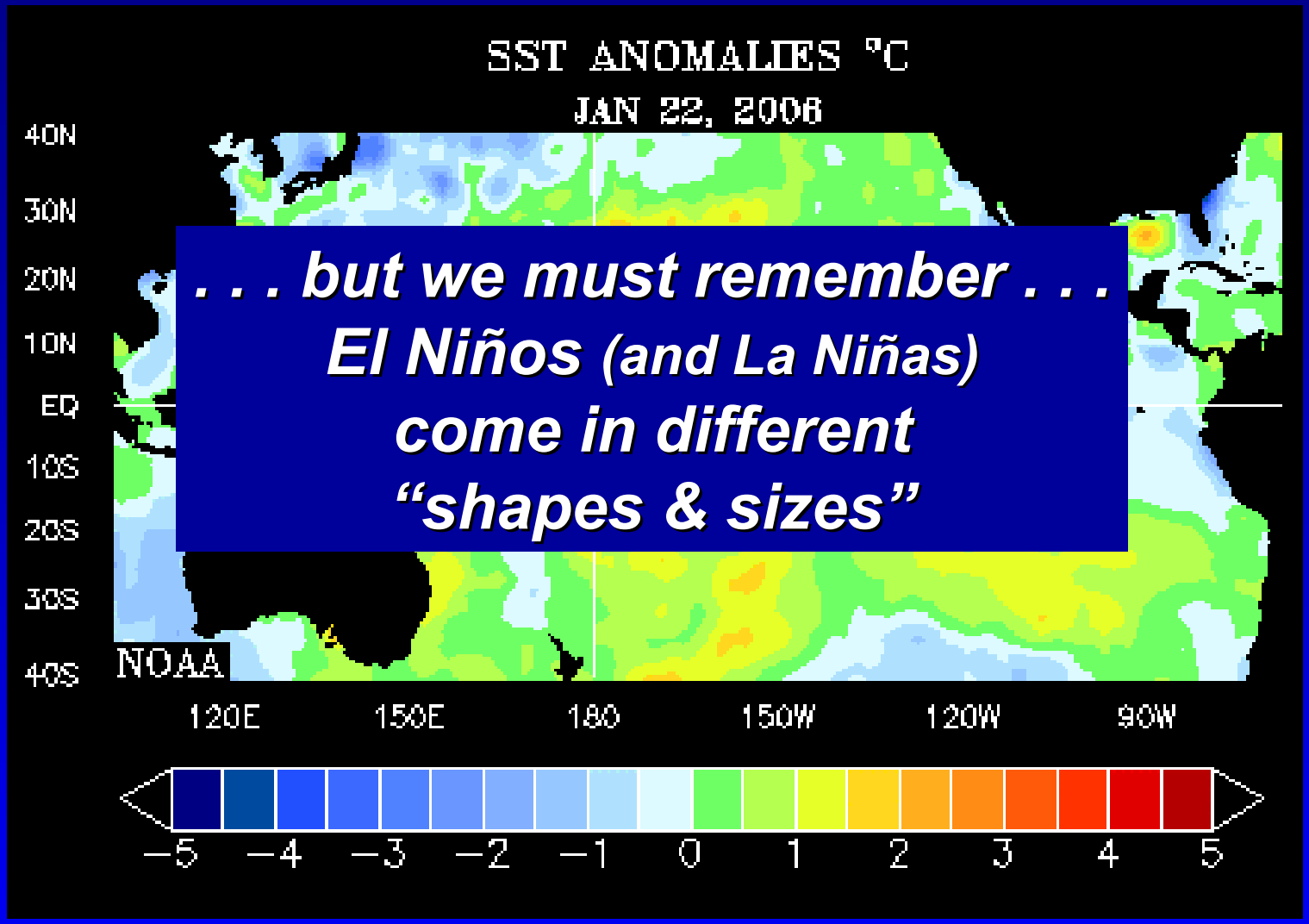



January-April Rainfall: 1951-2004
Comparison of El Niño vs. non-El Niño Years
All Other Years
El Nino Years
30.0"
25.0"
20.0"
15.0"
10.0"
5.0"
0.0"
Statewide Average
Northwest Louisiana
Southeast Louisiana


January-April Rainfall: 1951-2004
Comparison of El Niño vs. non-El Niño Years
All Other Years
El Nino Years
30.0"
25.0"
20.0"
15.0"
10.0"
5.0"
0.0"
Statewide Average
Northwest Louisiana
Southeast Louisiana


Southeast Louisiana Rainfall
January-April (4-month) Totals: 1951-2004
Long-Term Average for all years
La Niña
La Nada
El Niño
1991
0.0"
5.0"
10.0"
15.0"
20.0"
50.0"
4-Month Rainfall
Roughly 70% of El Niño Winter/Springs are 'Wetter-than-Normal'

Weakening El Niño ??

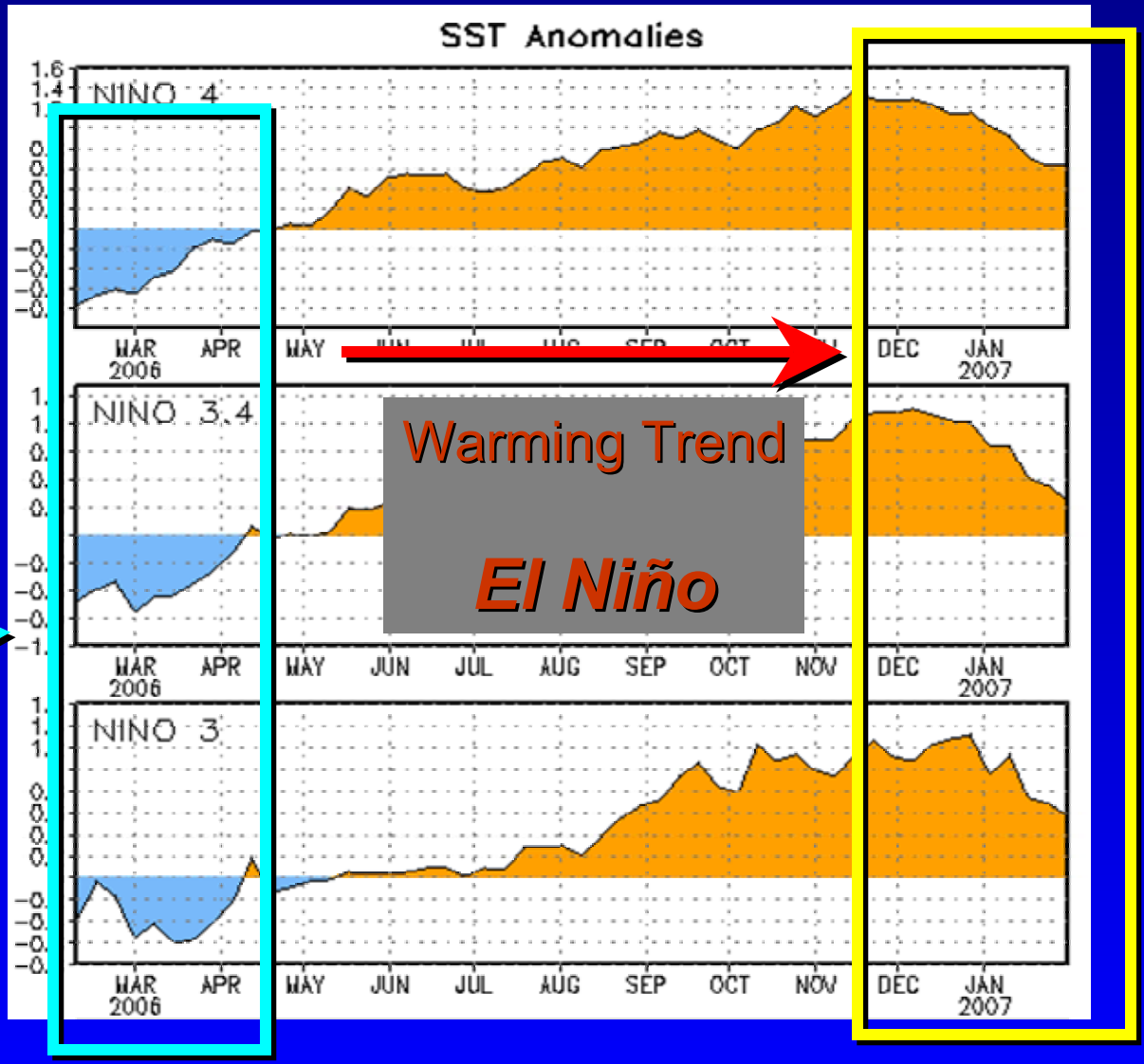


. . . but we must remember . . .
El Niños (and La Niñas)
come in different
"shapes & sizes"

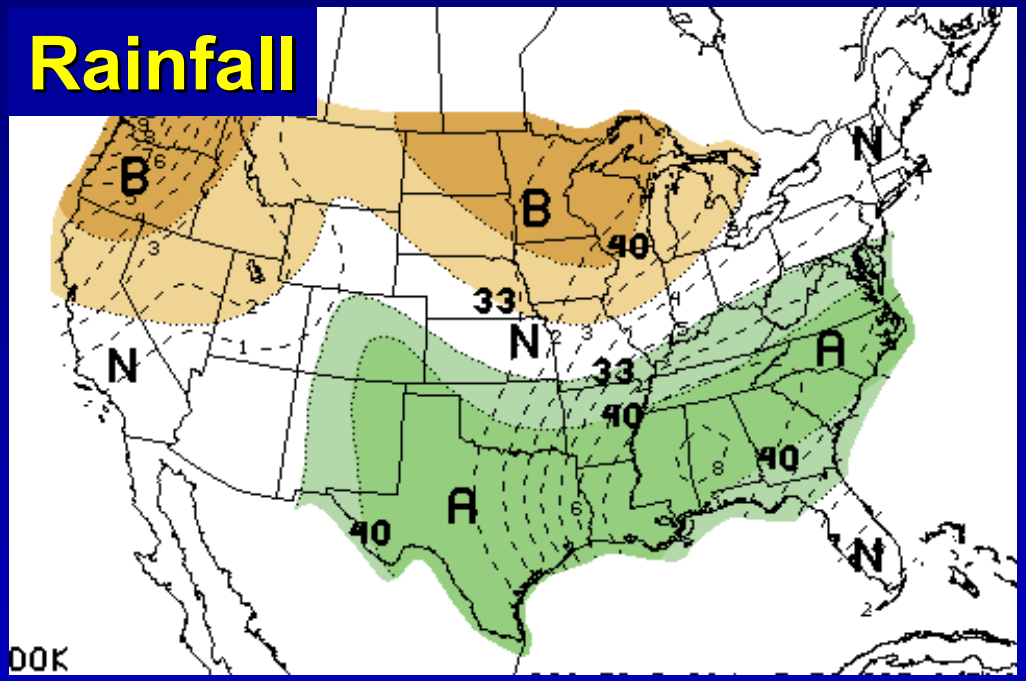
Tracking Central Pacific Ocean Temperatures: Feb 2006 – Feb 2007

Cooler-than-Normal

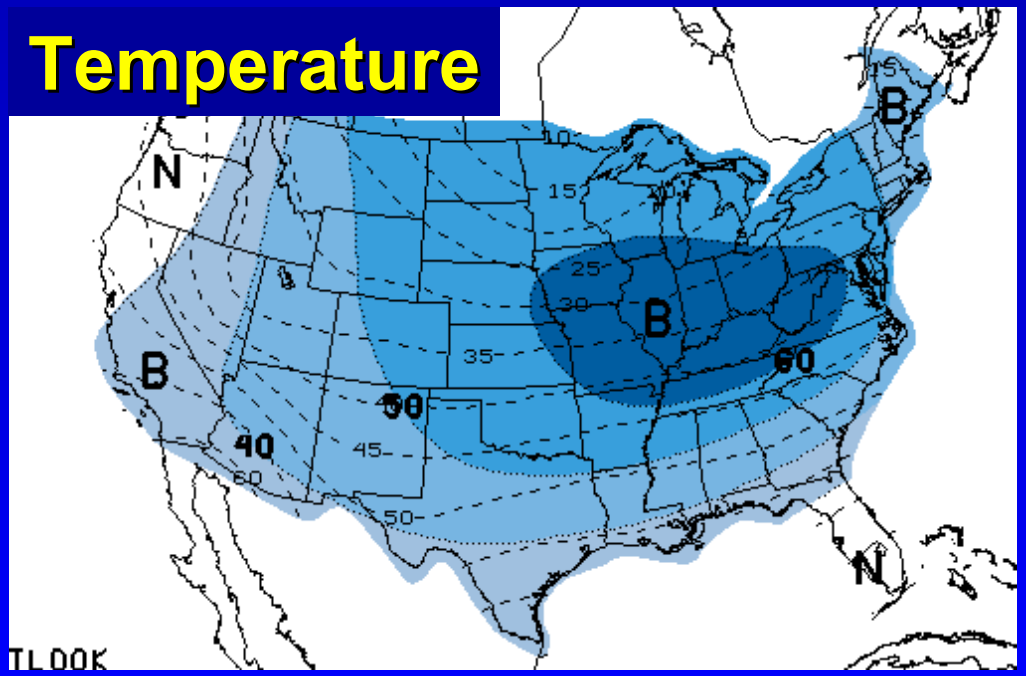
La Niña



Rainfall



Temperature

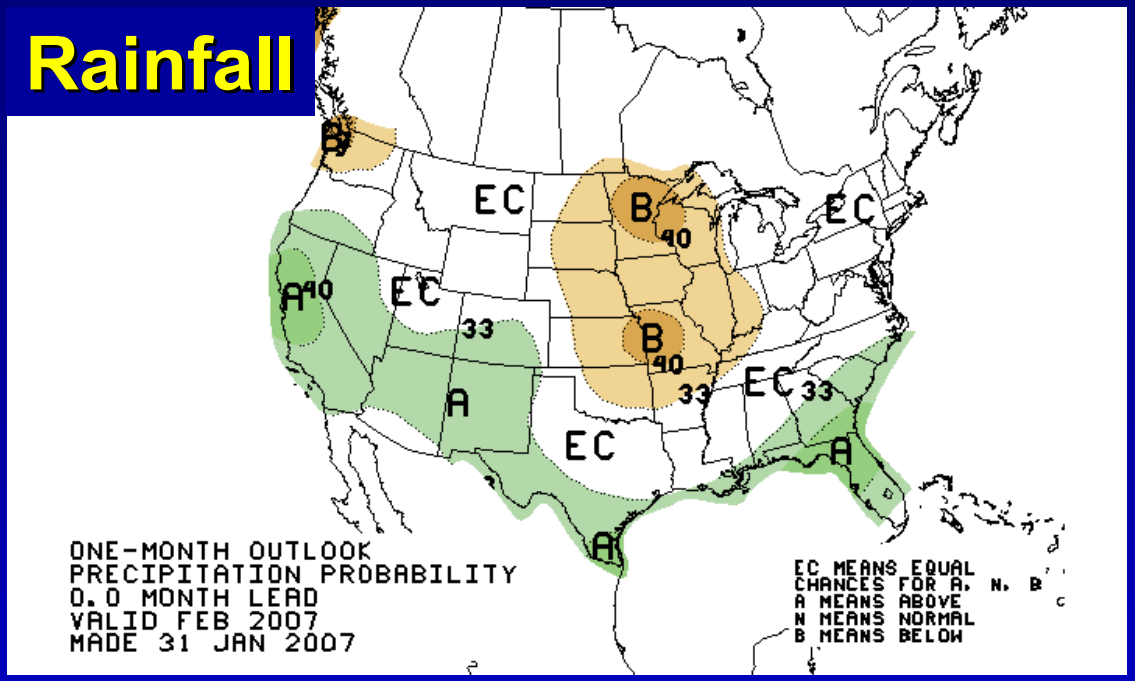


Outlook:

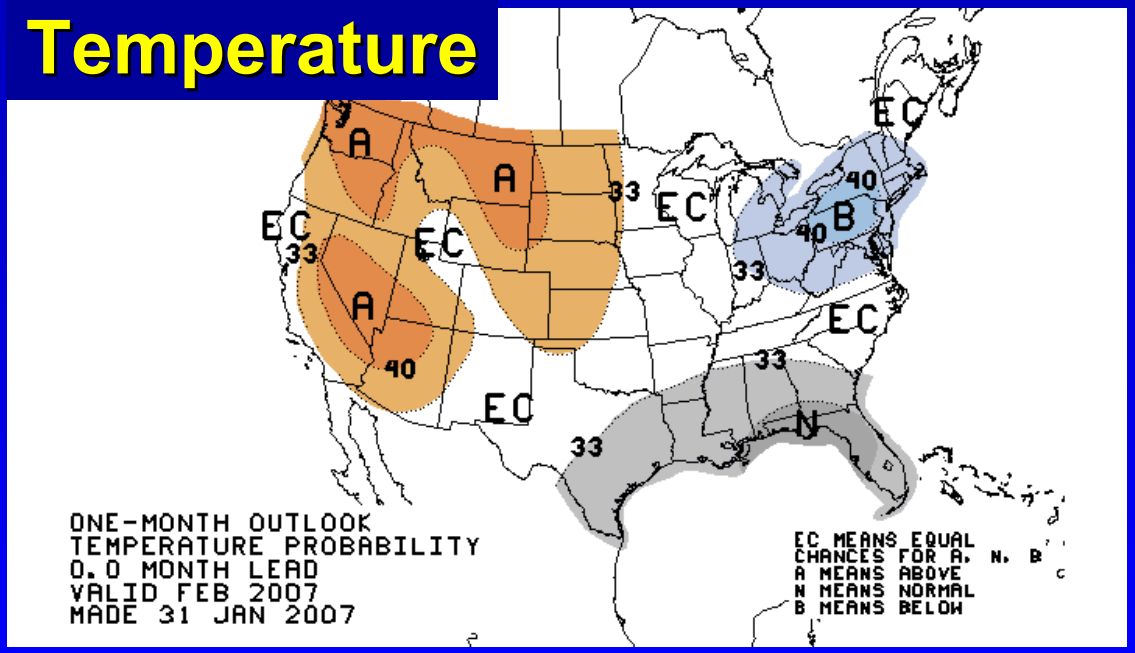
Feb 14 - 20

Don't over-interpret these "outlooks"!

Rainfall



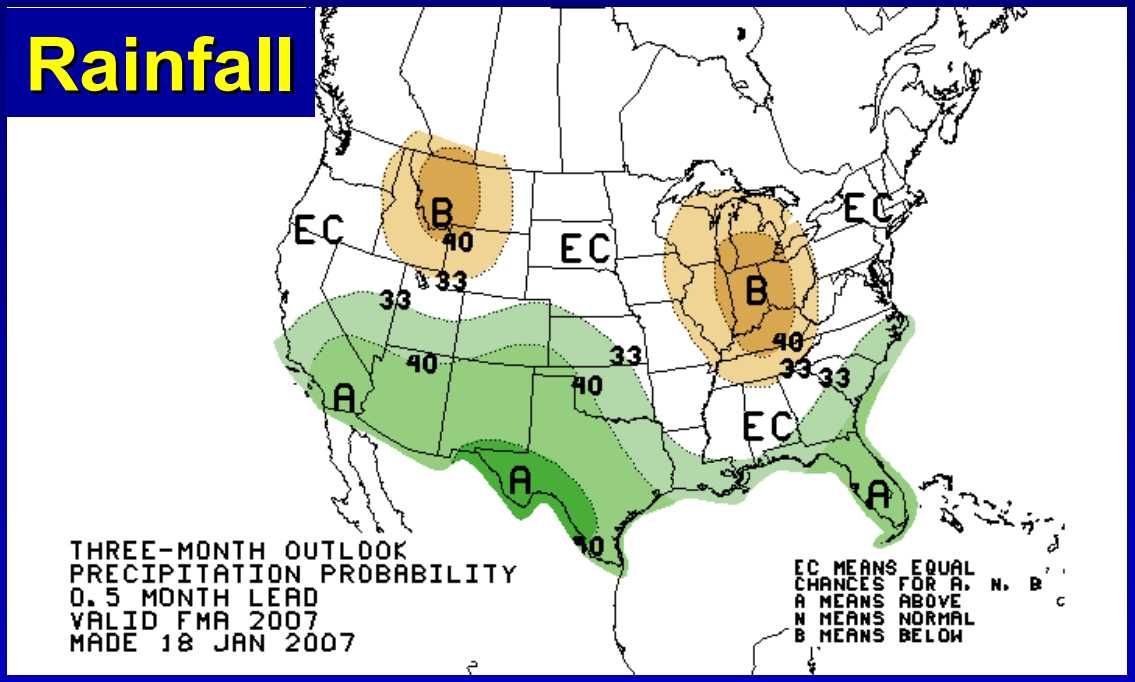
Temperature



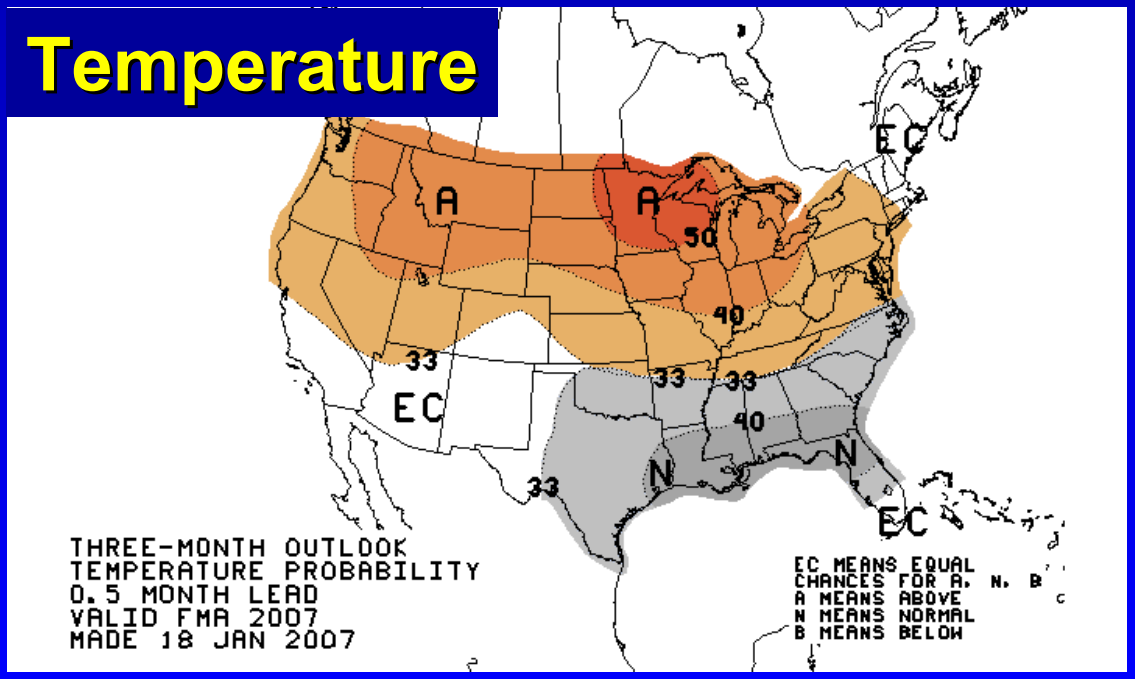
Outlook:
February

Don't over-interpret these "outlooks"!

Rainfall

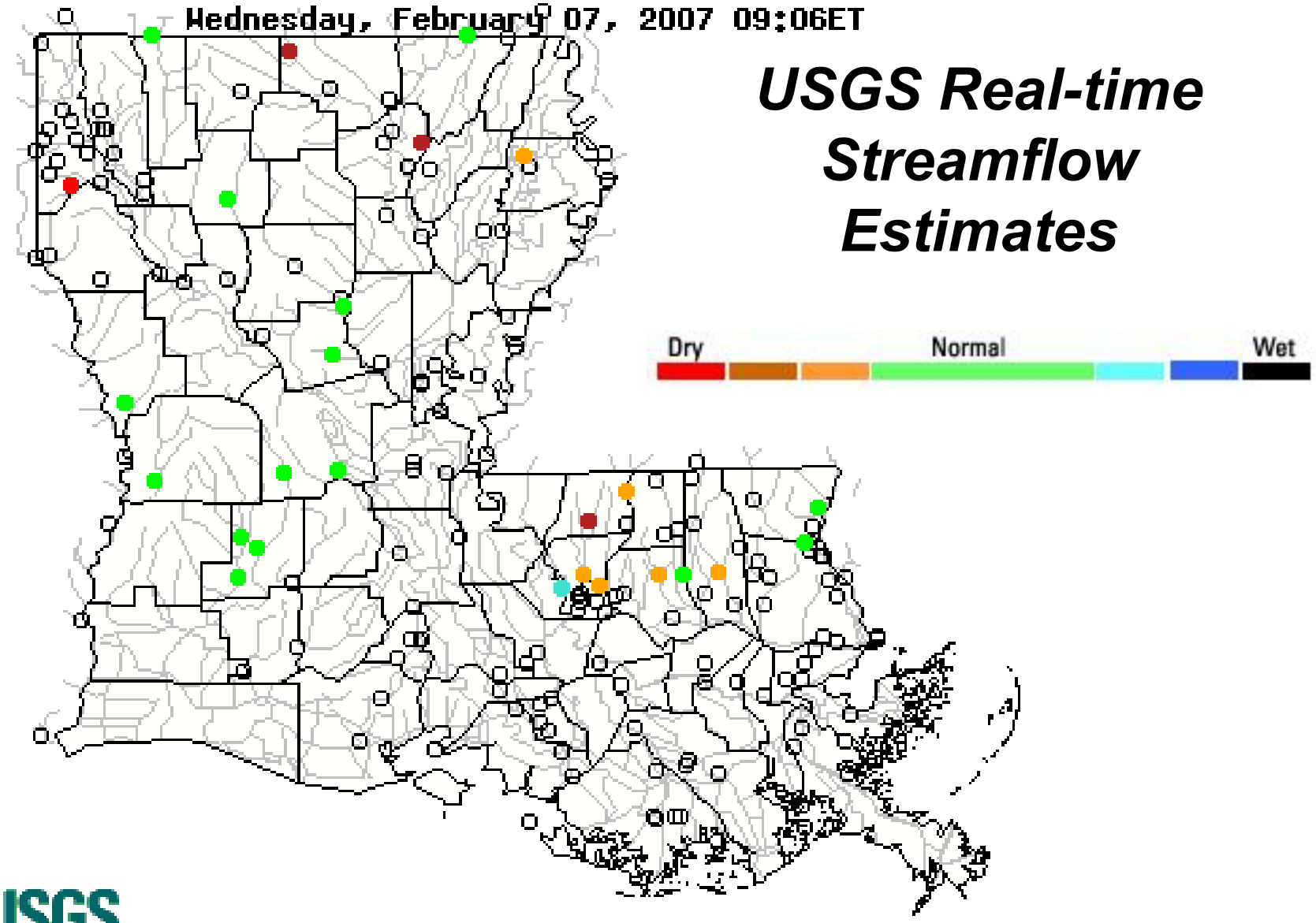


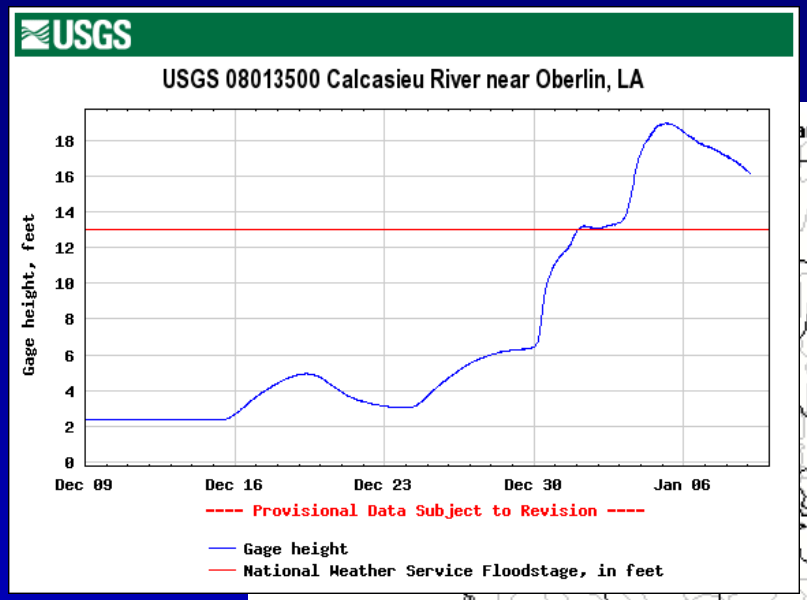
Temperature



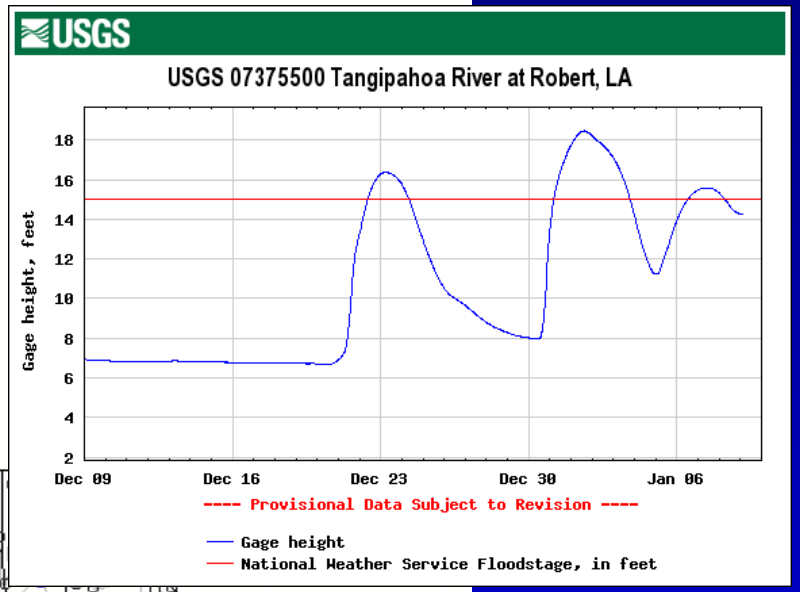
Outlook:
Feb-Mar-Apr

Don't over-interpret these "outlooks"!

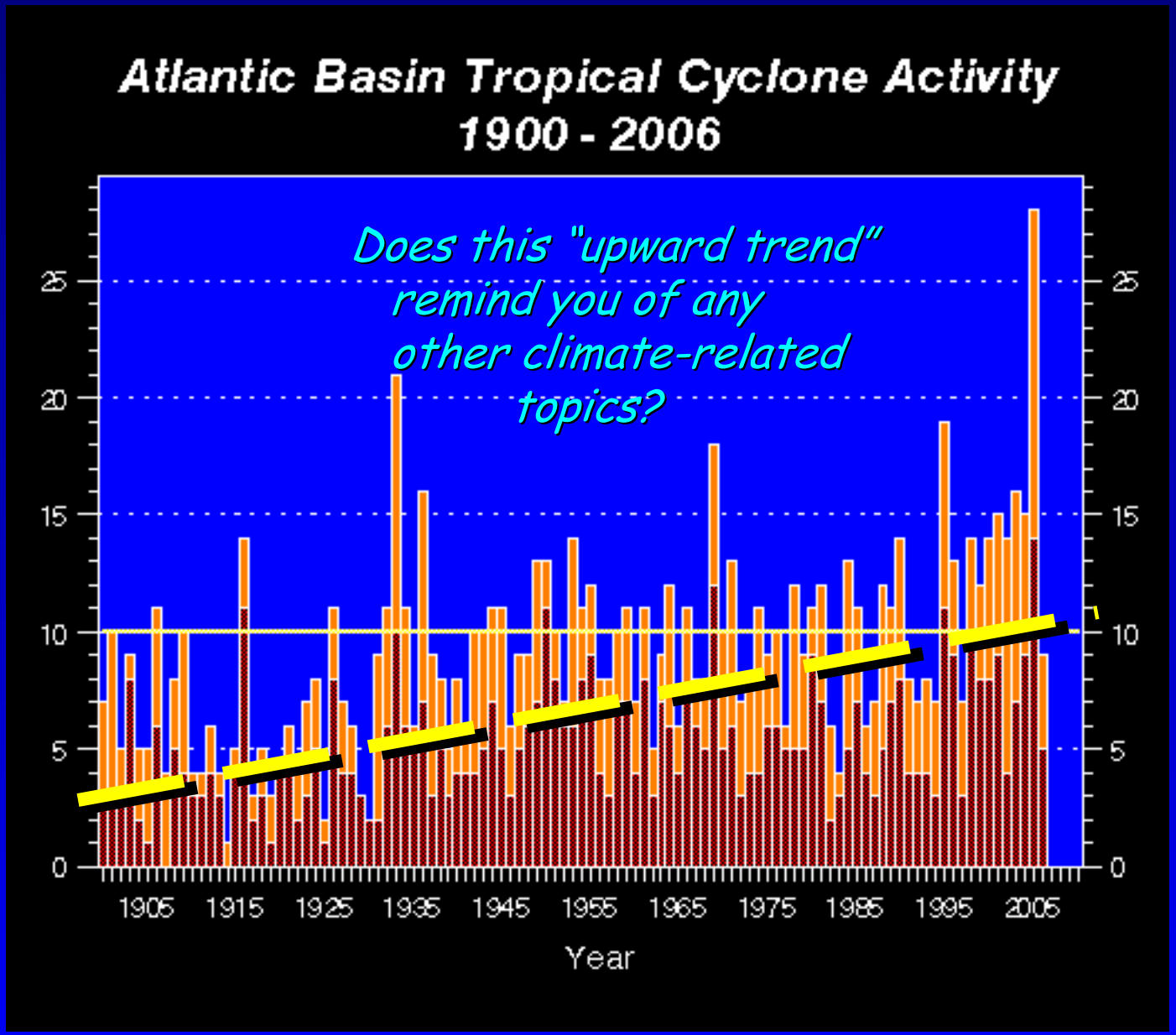

Wednesday, February 07, 2007 09:06ET
USGS Real-time Streamflow Estimates
Dry
Normal
Wet
USGS

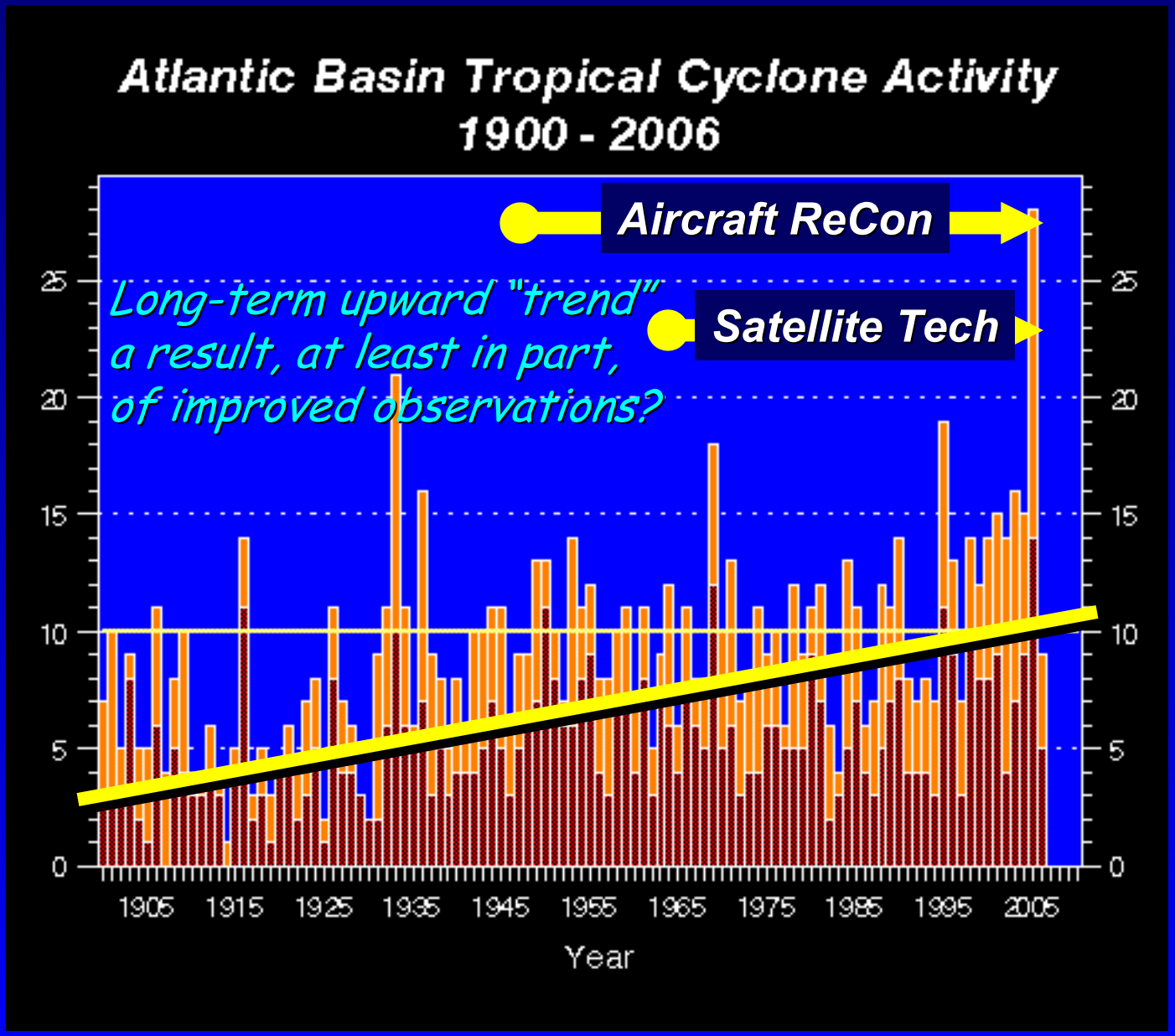

USGS
USGS 08013500 Calcasieu River near Oberlin, LA
Gage height, feet
18
16
14
12
10
8
6
4
2
0
Dec 09
Dec 16
Dec 23
Dec 30
Jan 06
---- Provisional Data Subject to Revision ----
Gage height
National Weather Service Floodstage, in feet

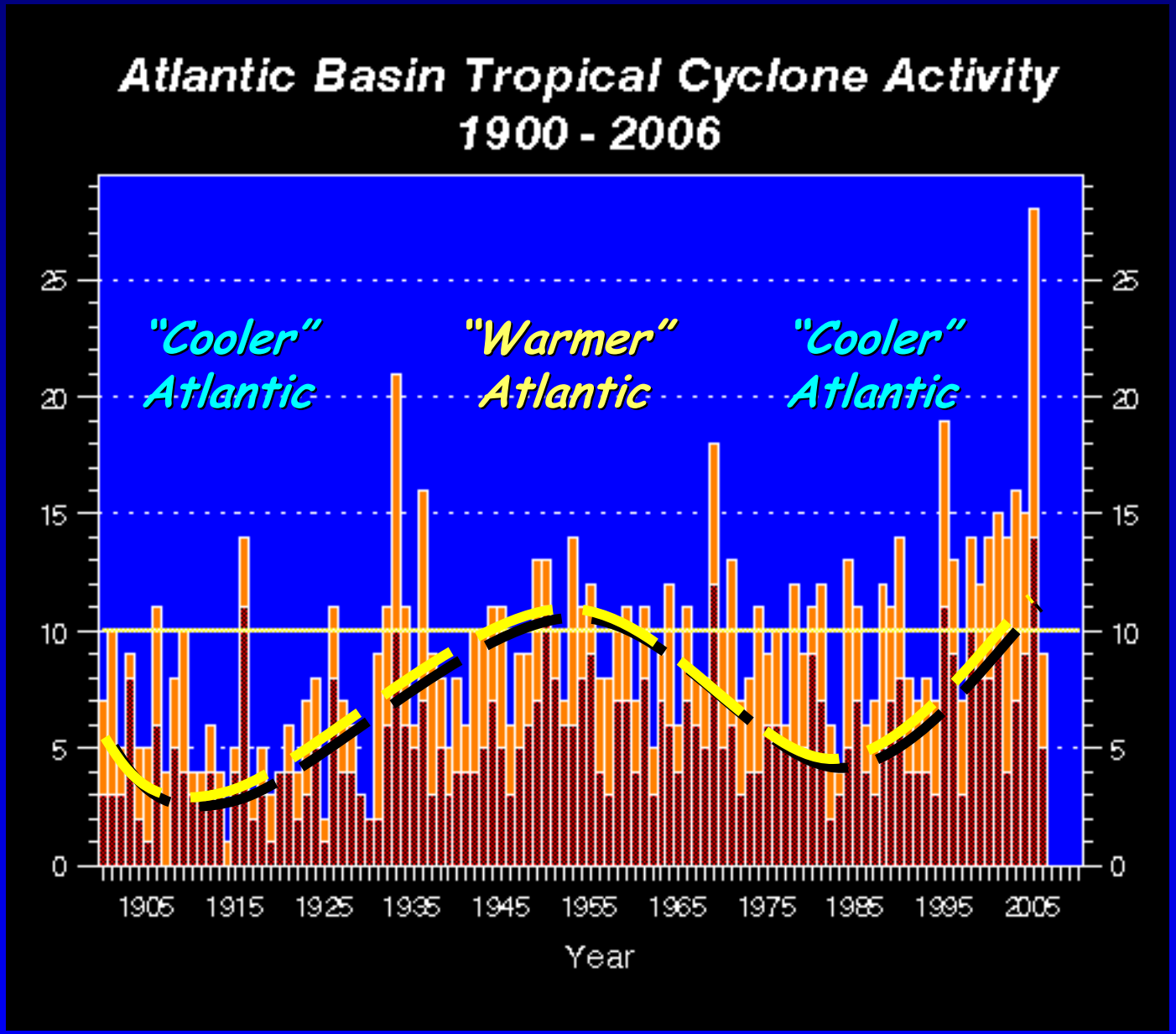
anuary 09, 2007 05:09ET

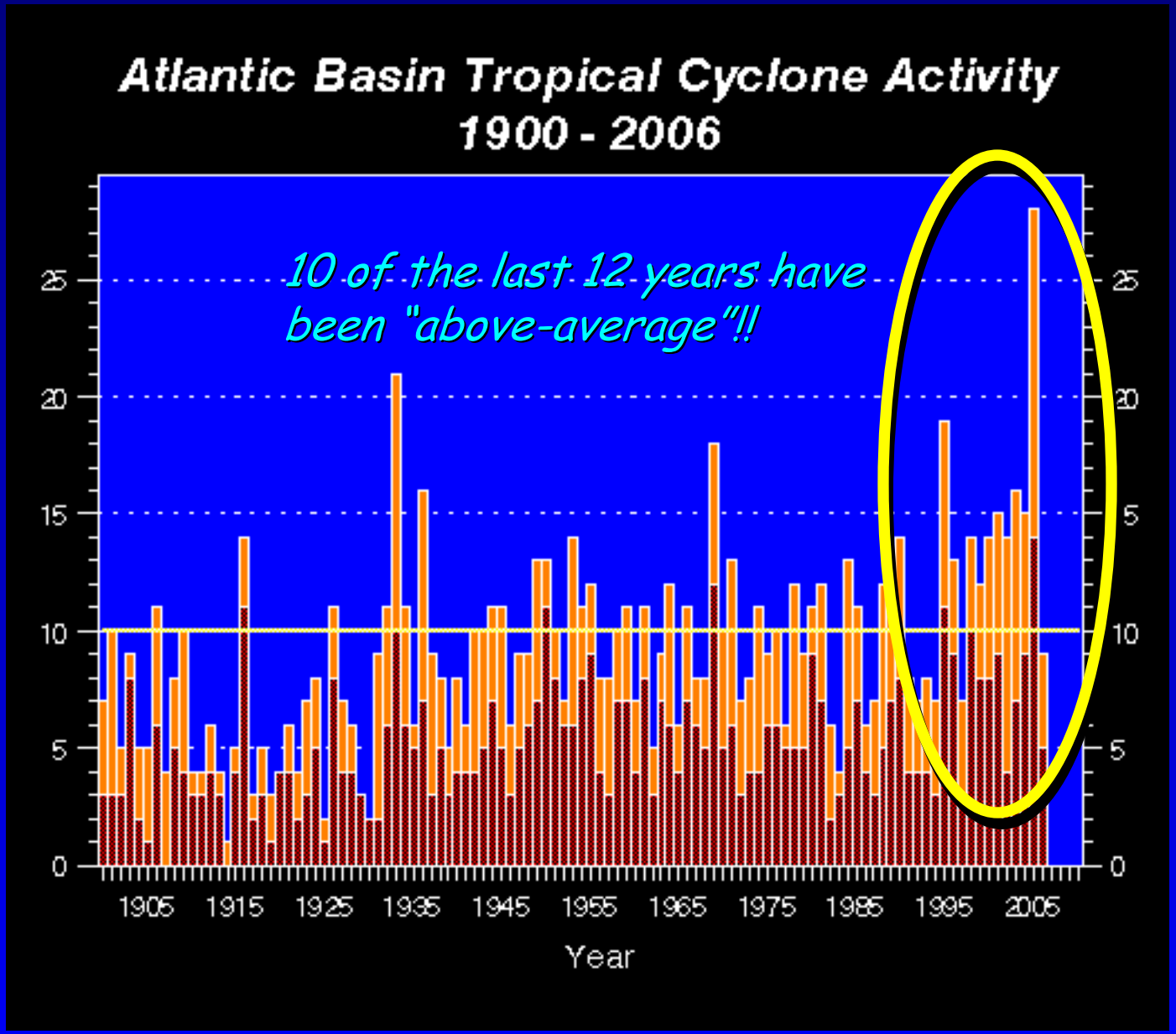

USGS
USGS 07375500 Tangipahoa River at Robert, LA
Gage height, feet
18
16
14
12
10
8
6
4
2
Dec 09
Dec 16
Dec 23
Dec 30
Jan 06
---- Provisional Data Subject to Revision ----
Gage height
National Weather Service Floodstage, in feet

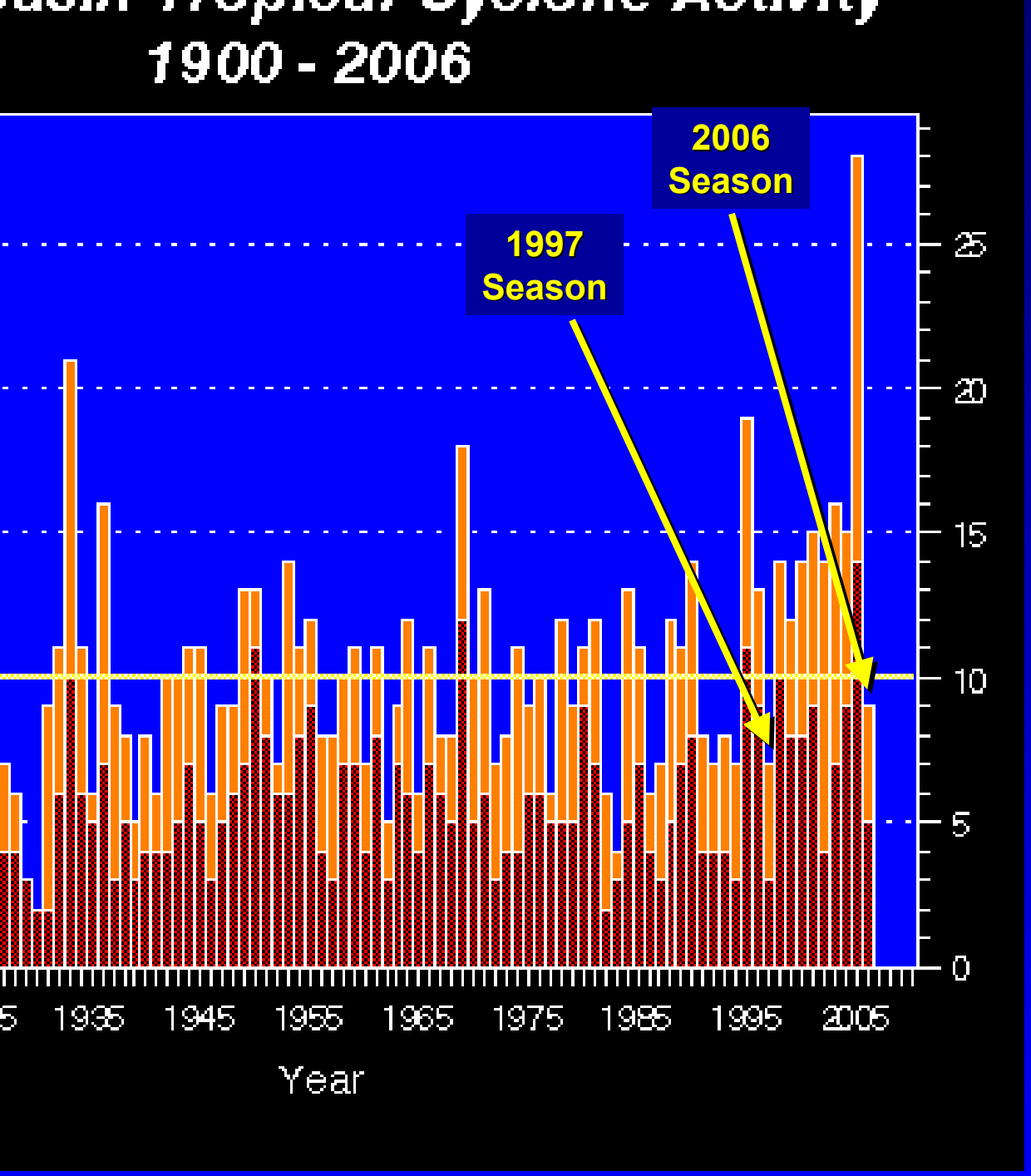
USGS
USGS 07386880 Vermilion River at Surrey St. at Lafayette, LA
Gage height, feet
14
12
10
8
6
4
2
Dec 09
Dec 16
Dec 23
Dec 30
Jan 06
---- Provisional Data Subject to Revision ----
Gage height
National Weather Service Floodstage, in feet


Atlantic Basin Tropical Cyclone Activity
1900 - 2006
Does this "upward trend" remind you of any other climate-related topics?
25
20
15
10
5
0
1905
1915
1925
1935
1945
1955
1965
1975
1985
1995
2005
Year


Atlantic Basin Tropical Cyclone Activity
1900 - 2006
Aircraft ReCon
Satellite Tech
Long-term upward "trend"
a result, at least in part,
of improved observations?
25
20
15
10
5
0
1905
1915
1925
1935
1945
1955
1965
1975
1985
1995
2005
Year


Atlantic Basin Tropical Cyclone Activity
1900 - 2006
"Cooler" Atlantic
"Warmer" Atlantic
"Cooler" Atlantic
25
20
15
10
5
0
1905
1915
1925
1935
1945
1955
1965
1975
1985
1995
2005
Year


Atlantic Basin Tropical Cyclone Activity
1900 - 2006
10 of the last 12 years have been "above-average"!!
25
20
15
10
5
0
1905
1915
1925
1935
1945
1955
1965
1975
1985
1995
2005
Year



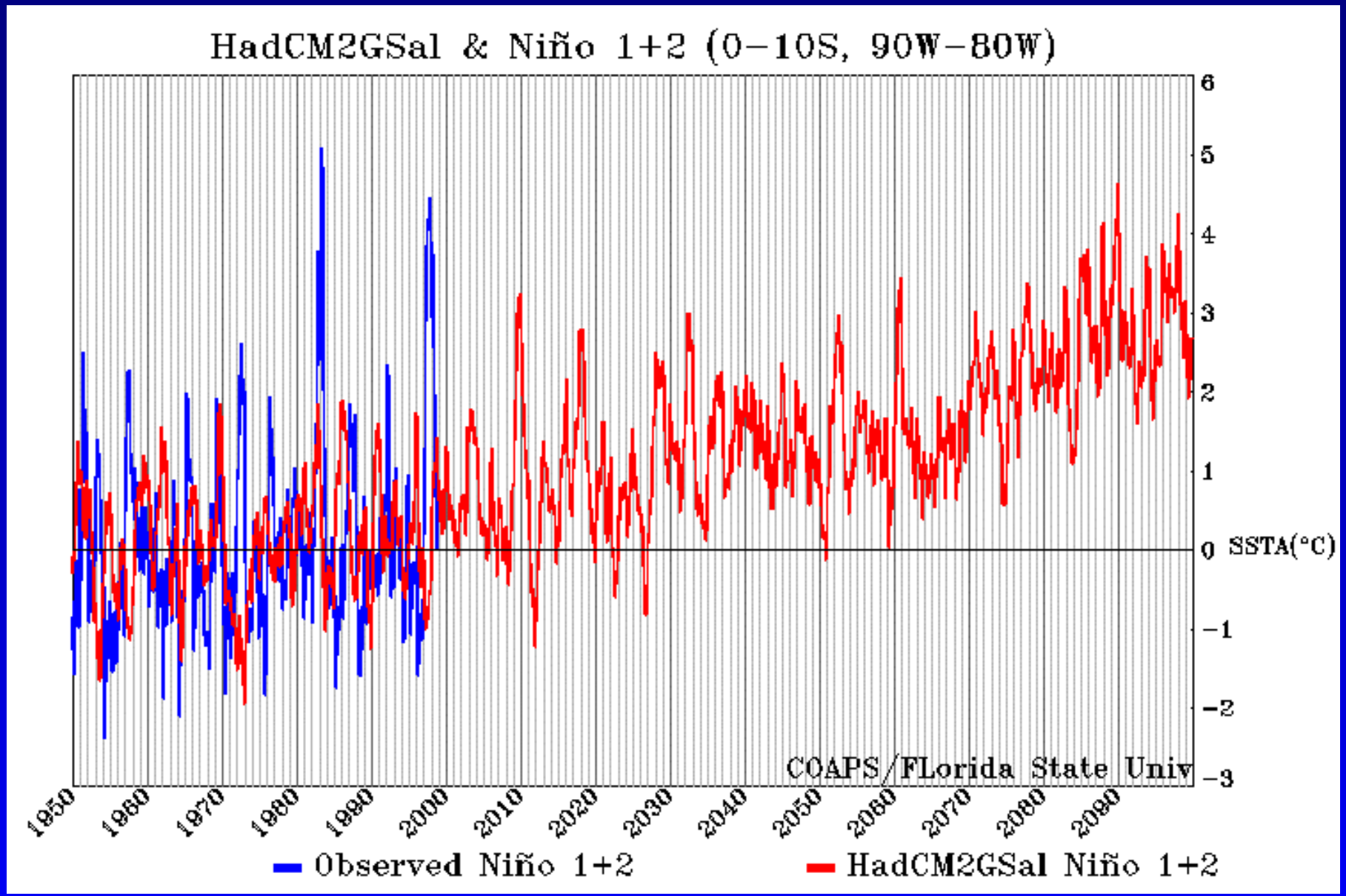
El Niño
in place during both 'sub-average' Hurricane Seasons

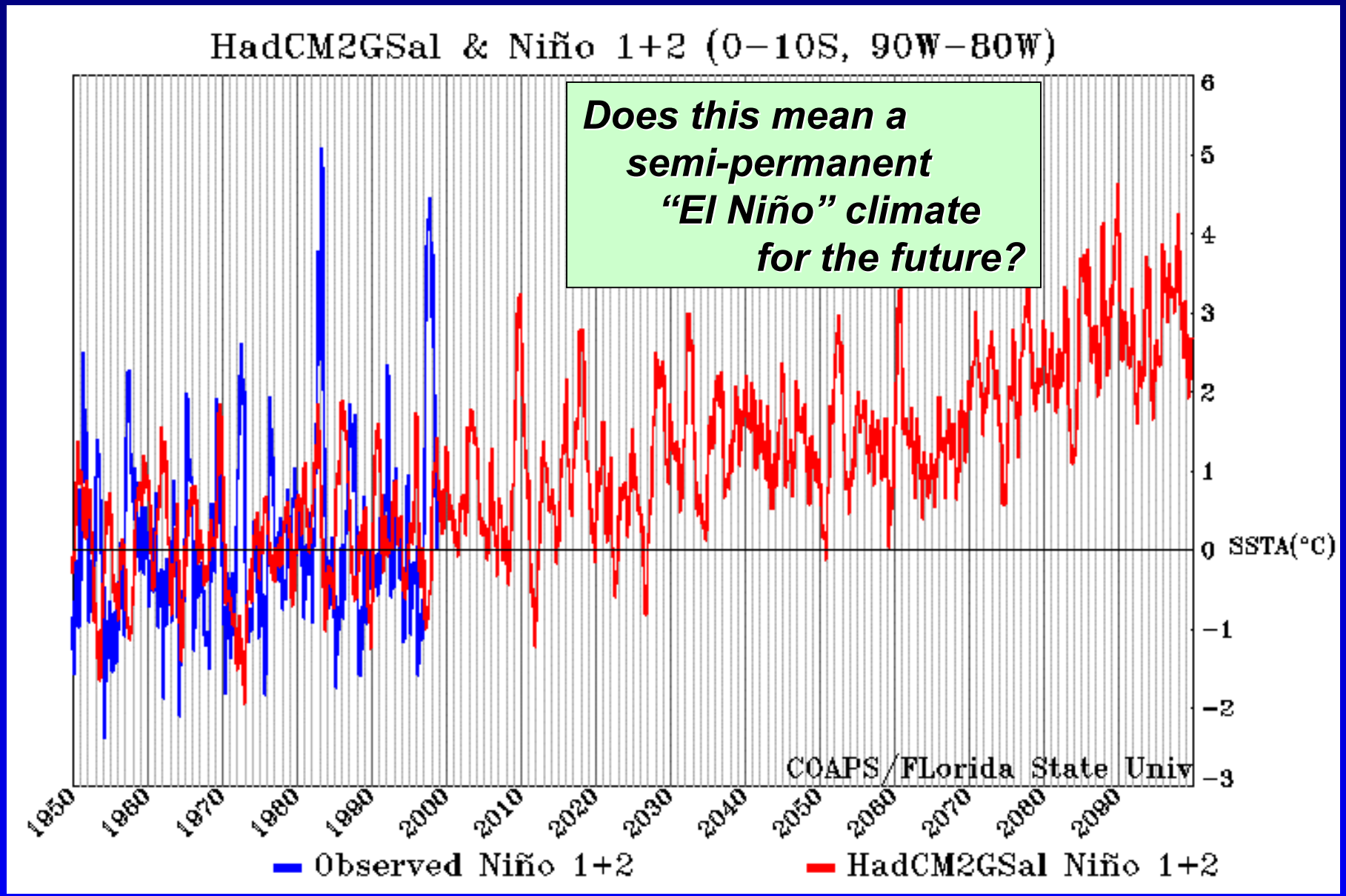
Climate Outlooks:

the next 10 to 100 years . . .

- ***Probable:***
  - -- ‘modest’ warming
  - -- greater year-to-year variability:
    ***more extreme events*?**

- ***Possible:***
  - -- ‘significant’ warming
  - -- substantial drop in rainfall in LA??


HadCM2GSal & Niño 1+2 (0−10S, 90W−80W)
6
5
4
3
2
1
0
−1
−2
−3
SSTA(°C)
COAPS/FLorida State Univ
1950
1960
1970
1980
1990
2000
2010
2020
2030
2040
2050
2060
2070
2080
2090
Observed Niño 1+2
HadCM2GSal Niño 1+2


HadCM2GSal & Niño 1+2 (0–10S, 90W–80W)
Does this mean a semi-permanent "El Niño" climate for the future?
6
5
4
3
2
1
0
−1
−2
−3
SSTA(°C)
COAPS/FLorida State Univ
1950
1960
1970
1980
1990
2000
2010
2020
2030
2040
2050
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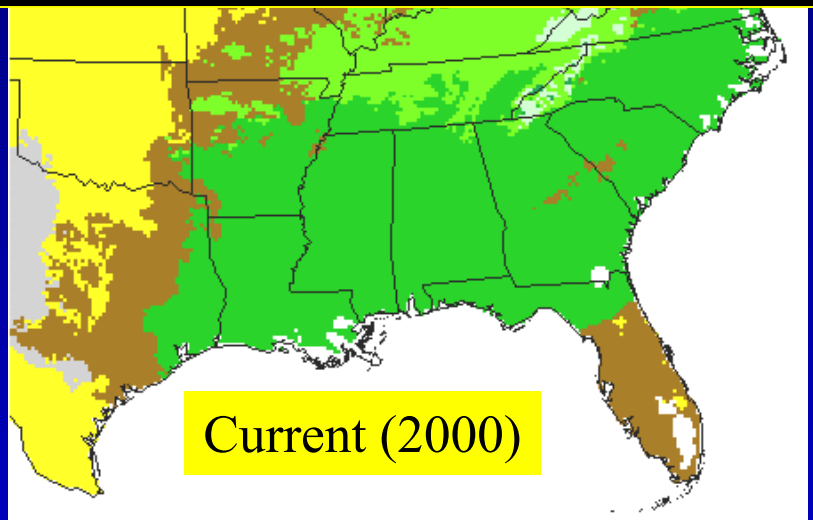
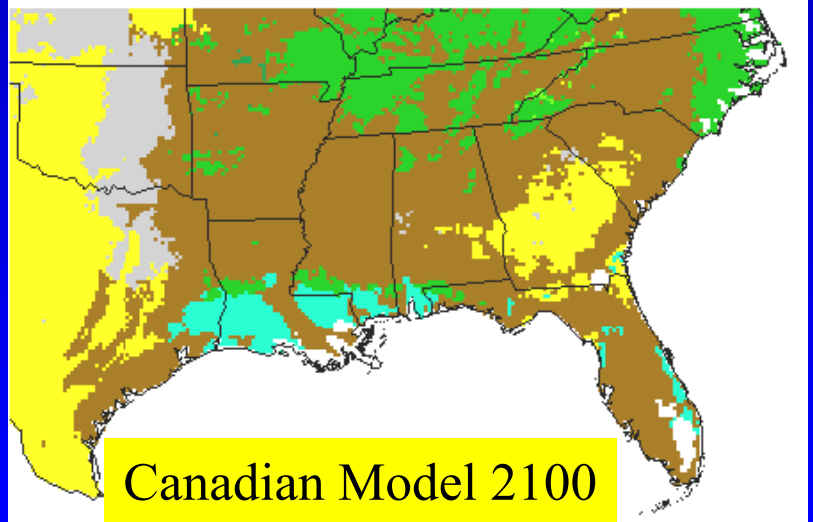
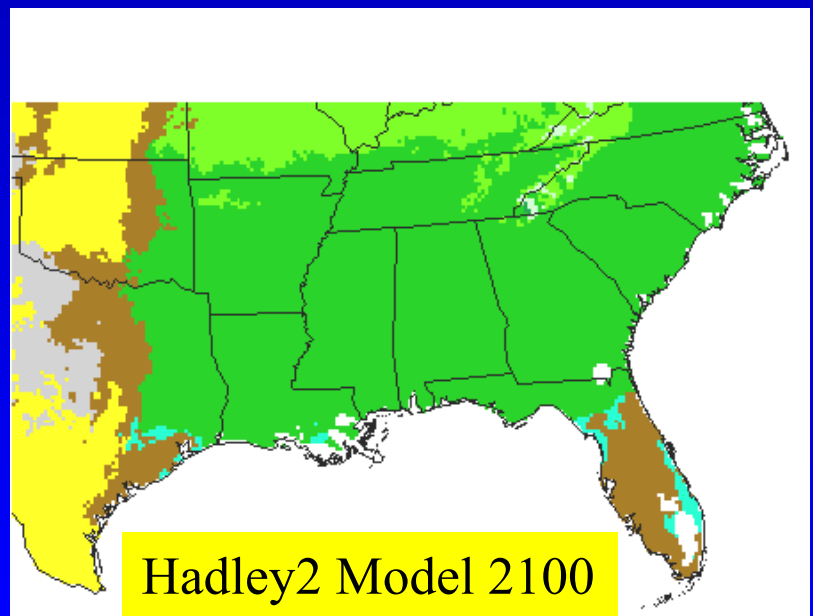
2080
2090
Observed Niño 1+2
HadCM2GSal Niño 1+2

Current and Future Southern Ecosystems
(MAPSS Biogeography Model)

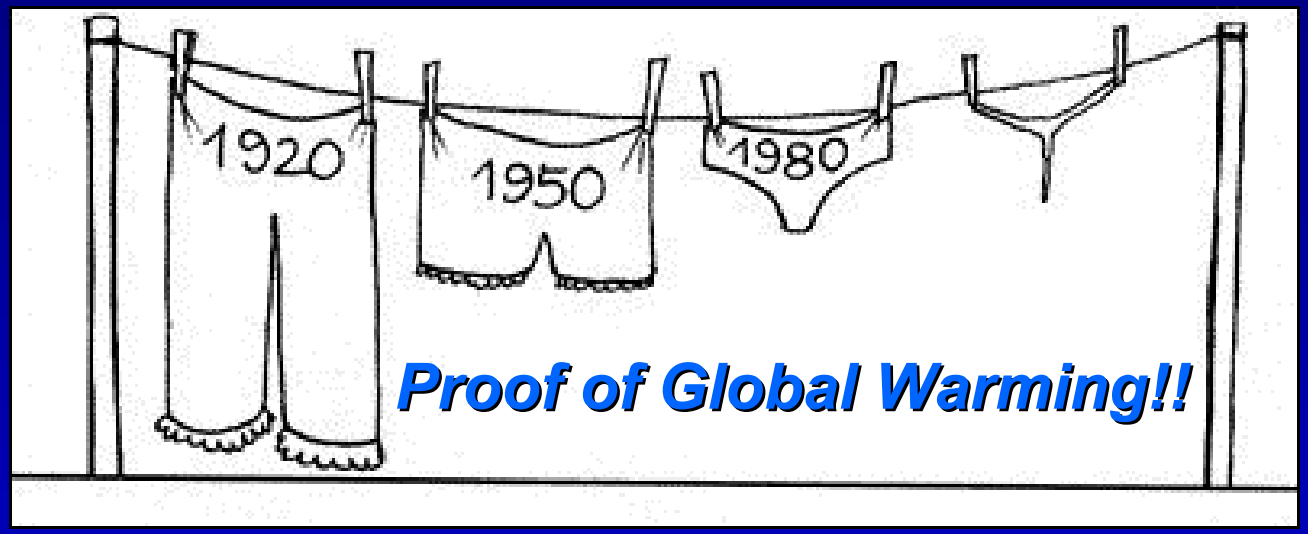






- Temperate Deciduous Forest
- Southeast Mixed Forest
- Tropical Broadleaf Forest
- Savanna/Woodland
- Grassland
- Shrub Woodland

Thank You!!



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Addressing Hurricanes and Other Hazards and Their Impacts on the Natural, Built, and Human Environments

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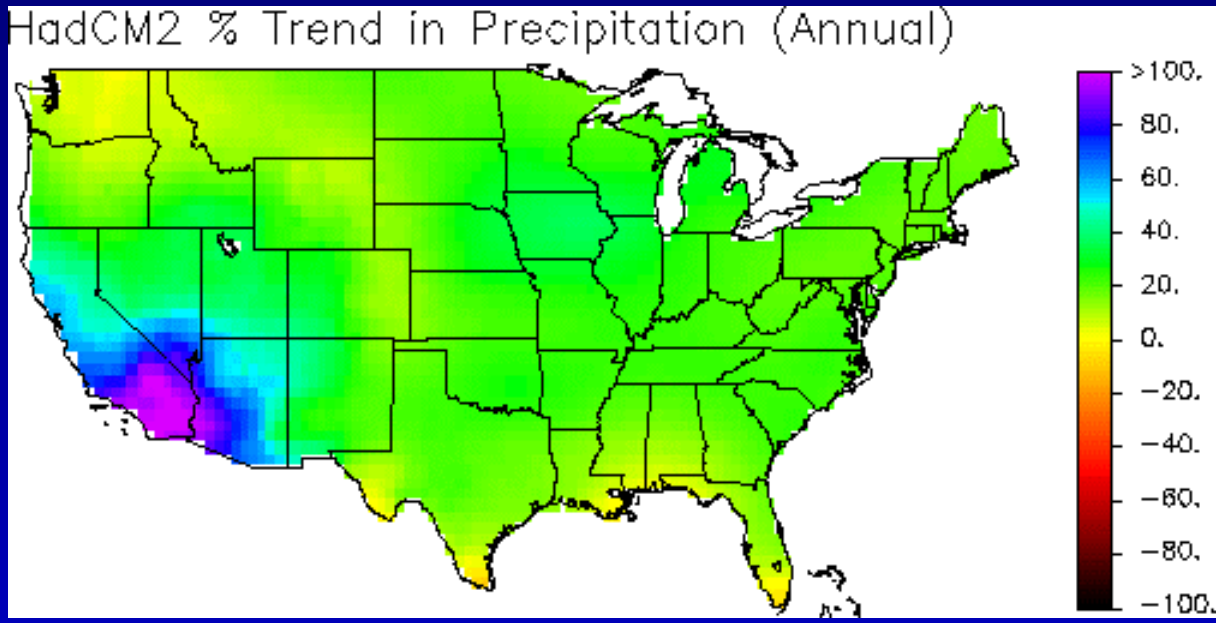
UKMet / Hadley
Annual Precipitation Scenarios



Canadian Climate Center
Annual Precipitation Scenarios