

Drought Monitoring in Florida



David F. Zierden (and many others)

Florida State Climatologist

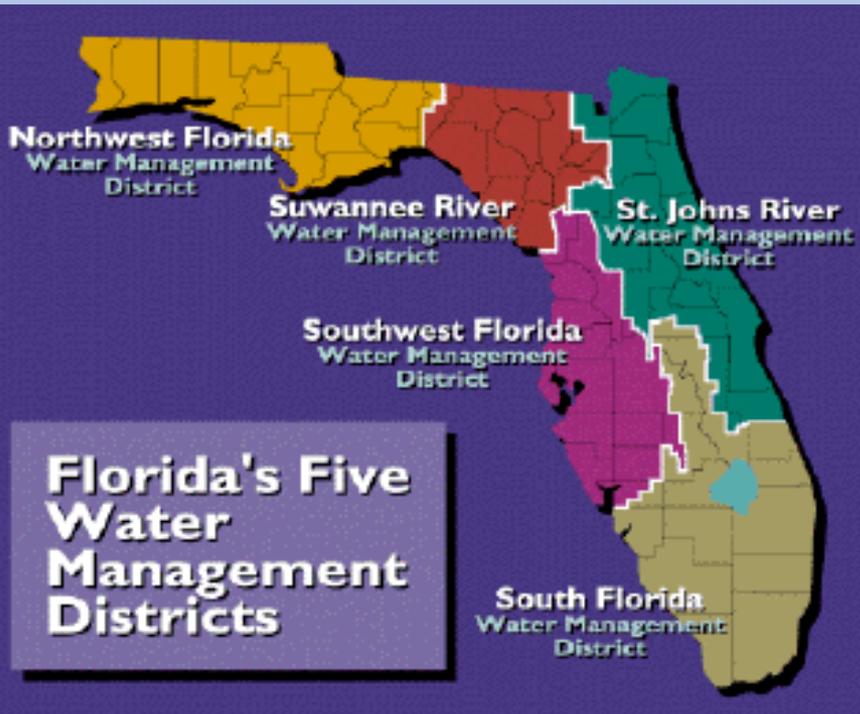
Center for Ocean
Atmospheric Prediction
Studies

The Florida State
University

Drought Response in Florida

2007 – Florida Drought Action Plan

- Florida Department of Environmental Protection
- Florida Division of Emergency Management
- Florida Department of Agriculture and Consumer Services
- South Florida Water Management District



Florida Drought Group

State Climate Office (FSU)

David Zierden

National Weather Service Southern Region Headquarters

Victor Murphy

NWSFO Tallahassee - Joel Lanier?

NWSFO Jacksonville – Al Sandrik

NWSFO Melbourne - Derrick Weitlich

NWSFO Tampa - Eric Oglesby

NWSFO Miami - Barry Baxter, Robert Molleda

NWSFO Mobile - ?

NWSFO Key West –

South Florida Water Management District – Geoff Shaughnessy

Southeast Climate Consortium (UF) – Keith Ingram

Alabama Drought Monitoring Group – John Christy

Georgia DEP – Bill Murphy

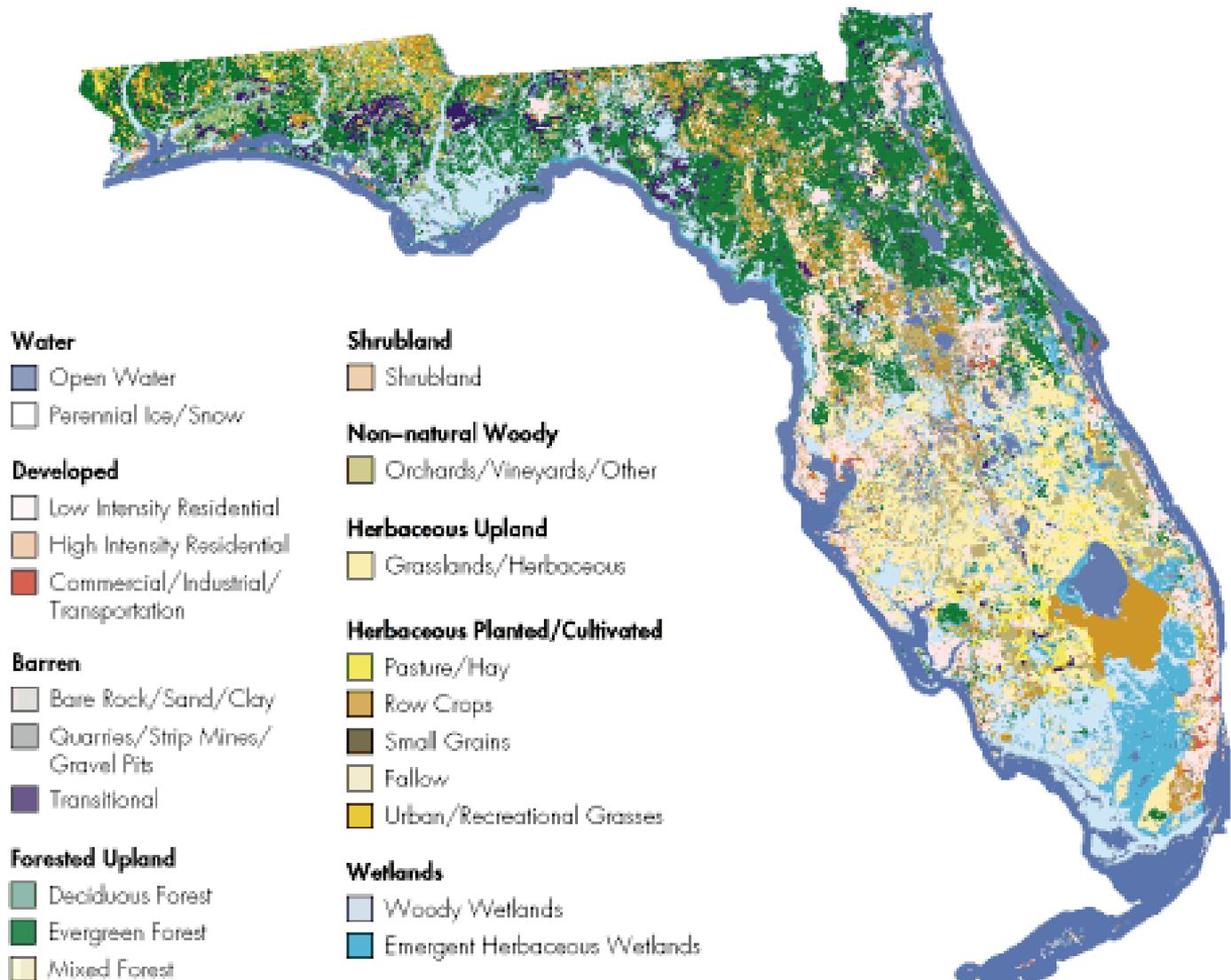
Understanding Drought

More than just monitoring rainfall...

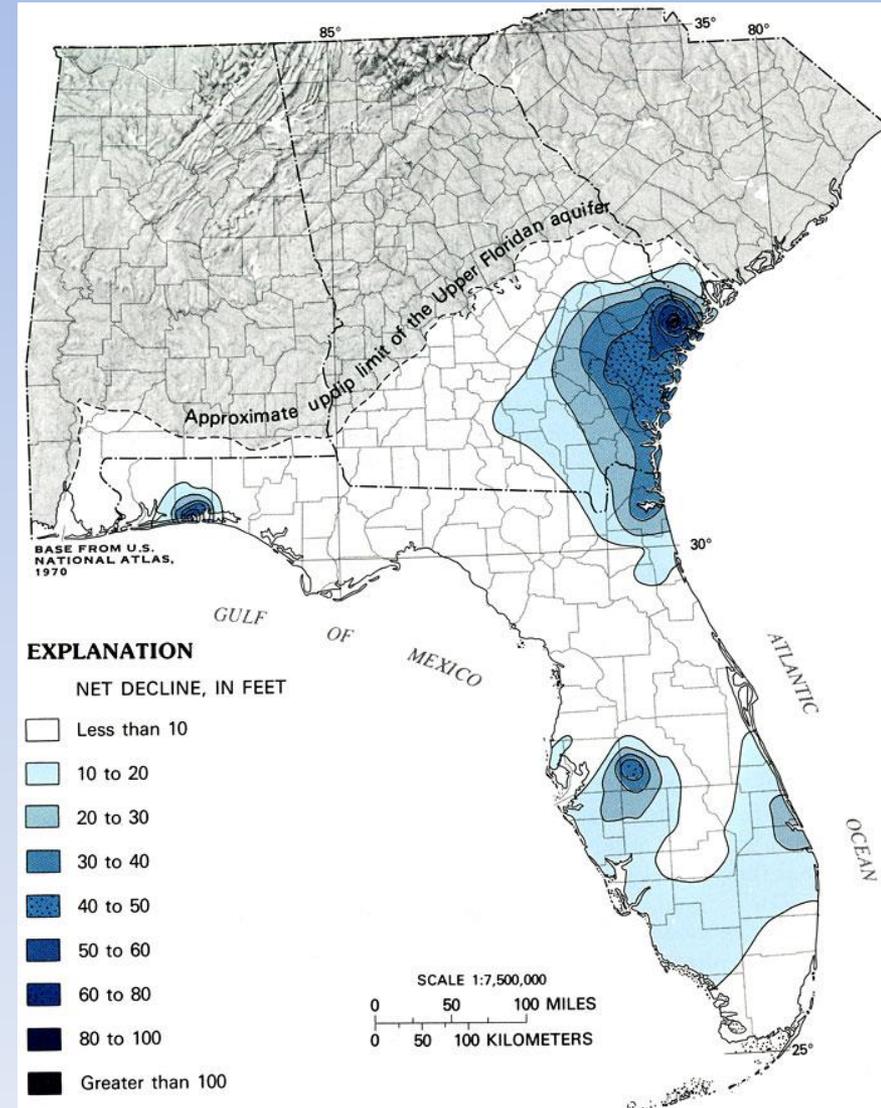
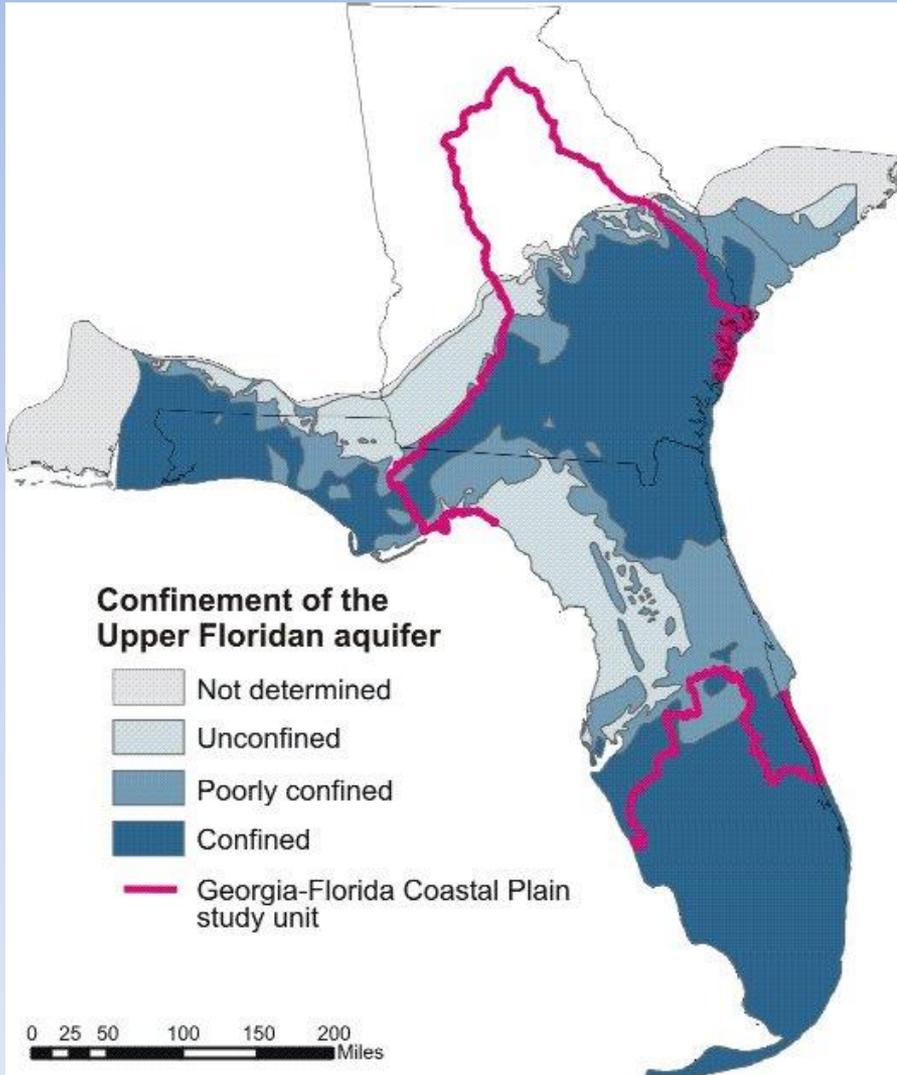
Drought involves understanding the impacts on and interactions of

- Prevailing climate and weather patterns, including variability
- Landscape – natural ecosystems, agriculture, urbanized areas
- Hydrologic systems (unmanaged and managed) and water supply
- Society

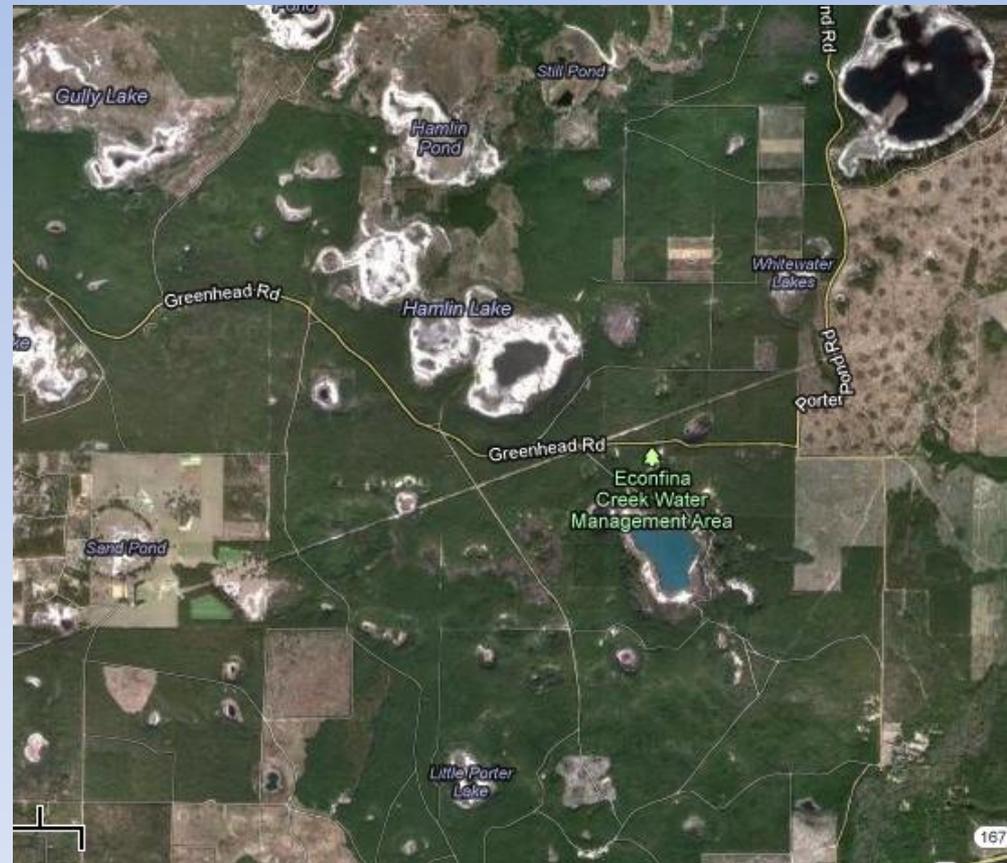
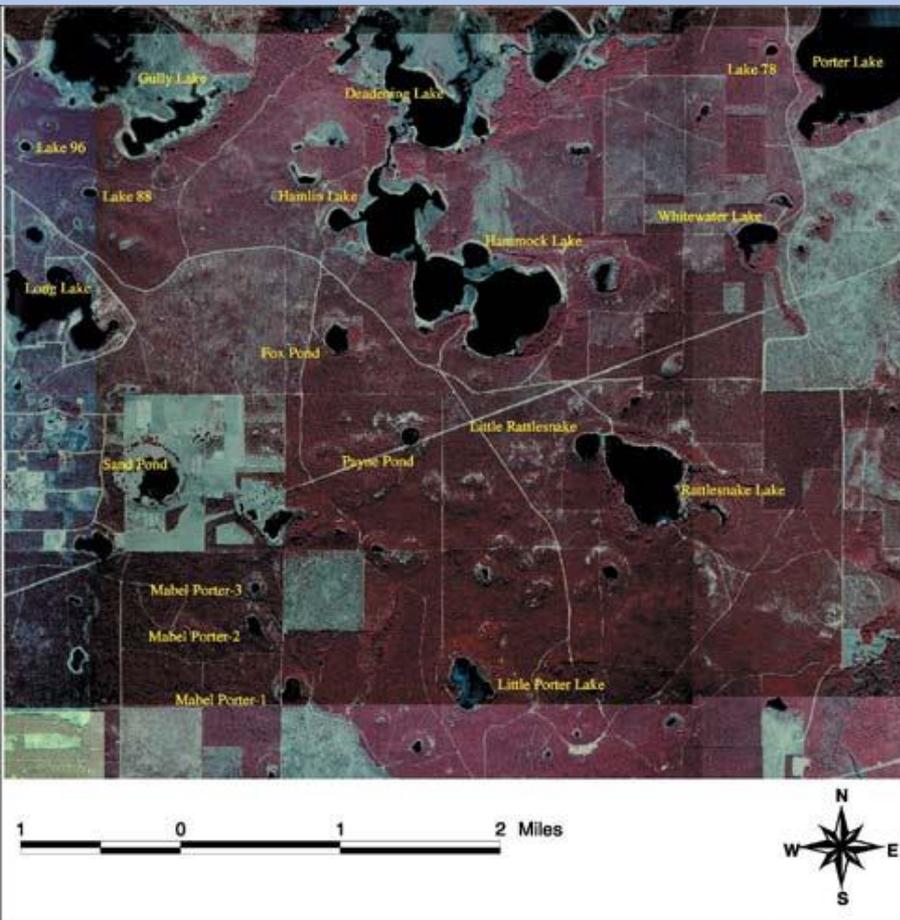
Florida Land Cover



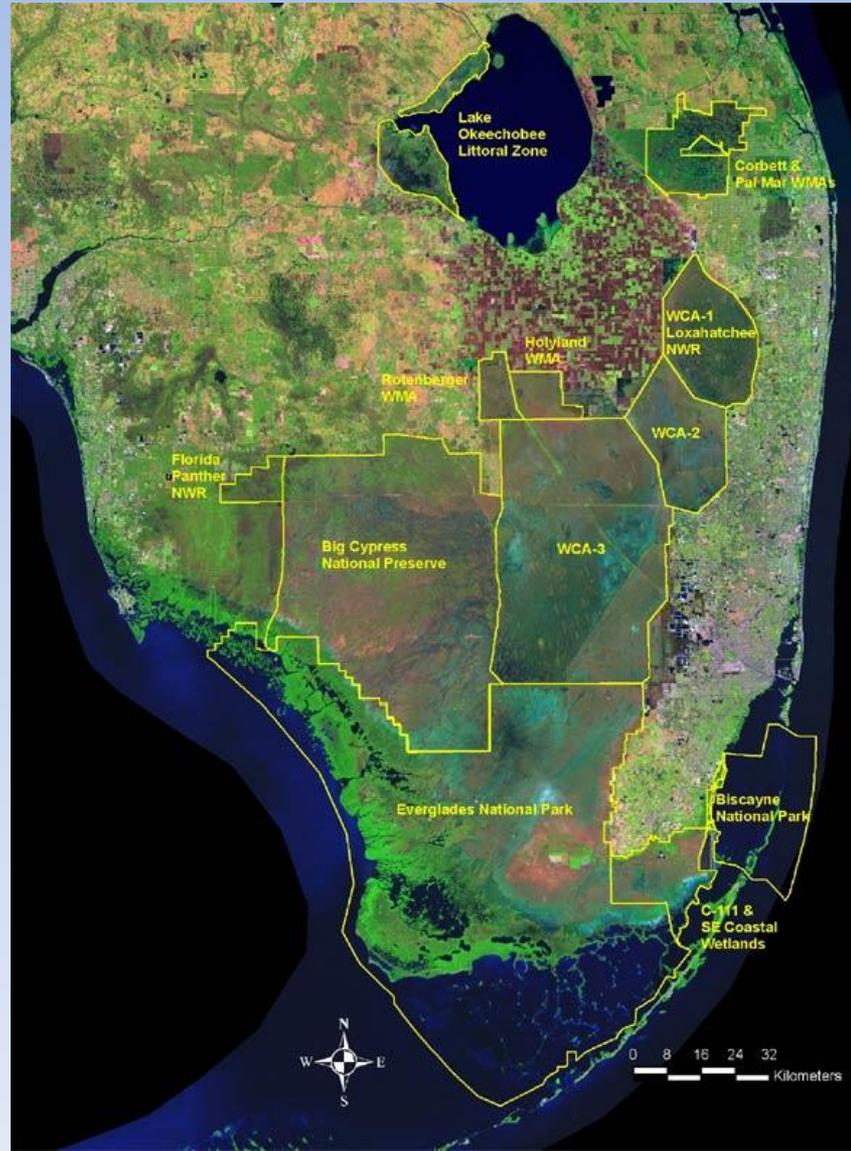
Floridian Aquifer



Sand Hill Lakes – N. Florida



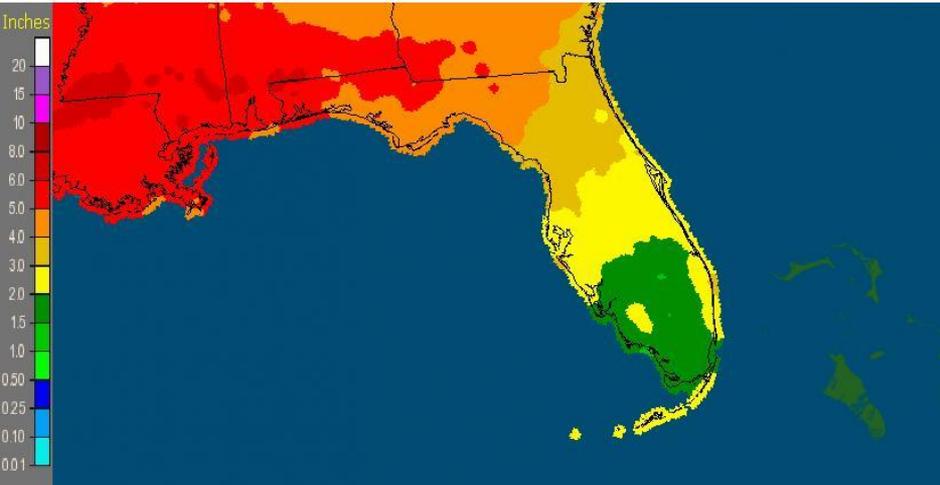
Hydrologic Features of S. Florida



Rainfall Climatology

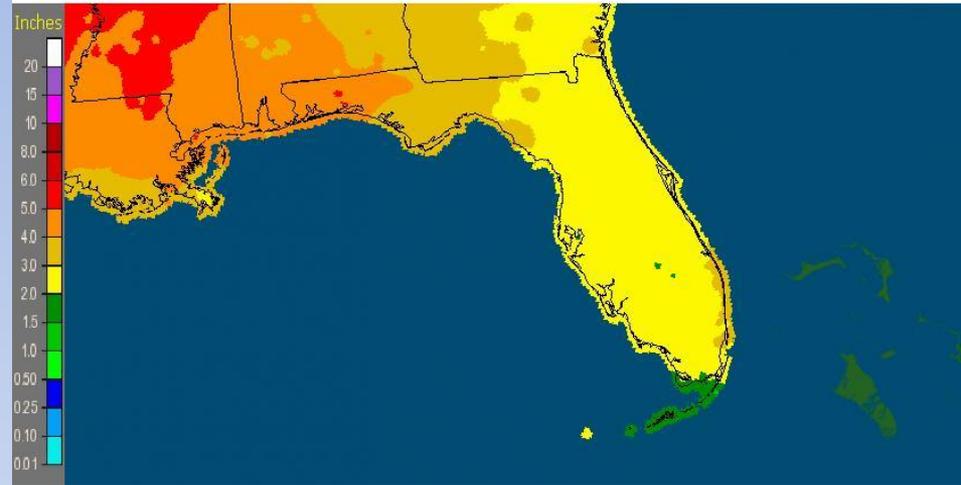
January

Florida: January, 2012 Monthly Normal Precipitation
Valid at 2/1/2012 1200 UTC- Created 10/16/12 2:47 UTC



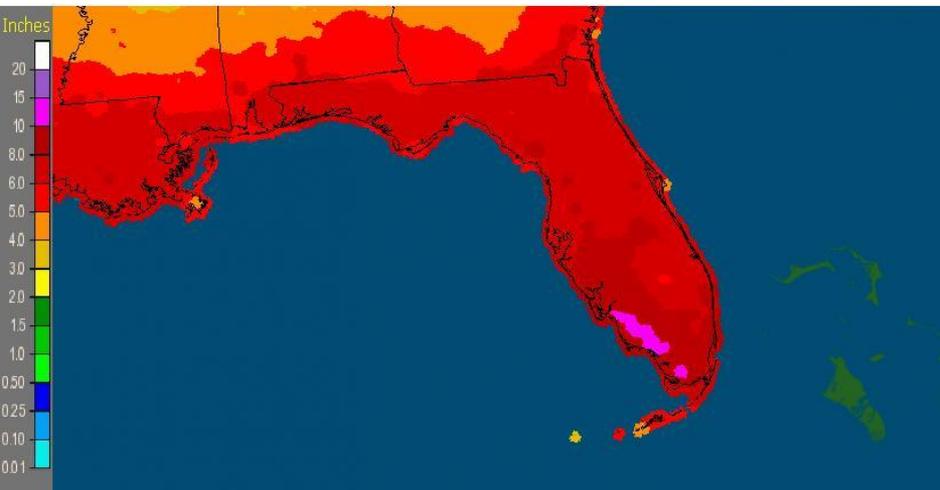
April

Florida: April, 2012 Monthly Normal Precipitation
Valid at 5/1/2012 1200 UTC- Created 10/16/12 9:53 UTC



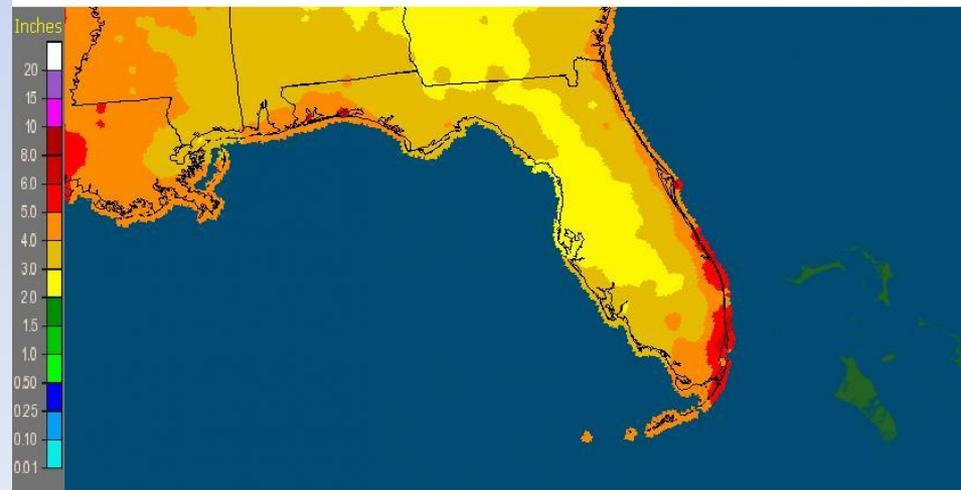
June

Florida: June, 2012 Monthly Normal Precipitation
Valid at 7/1/2012 1200 UTC- Created 10/16/12 14:40 UTC

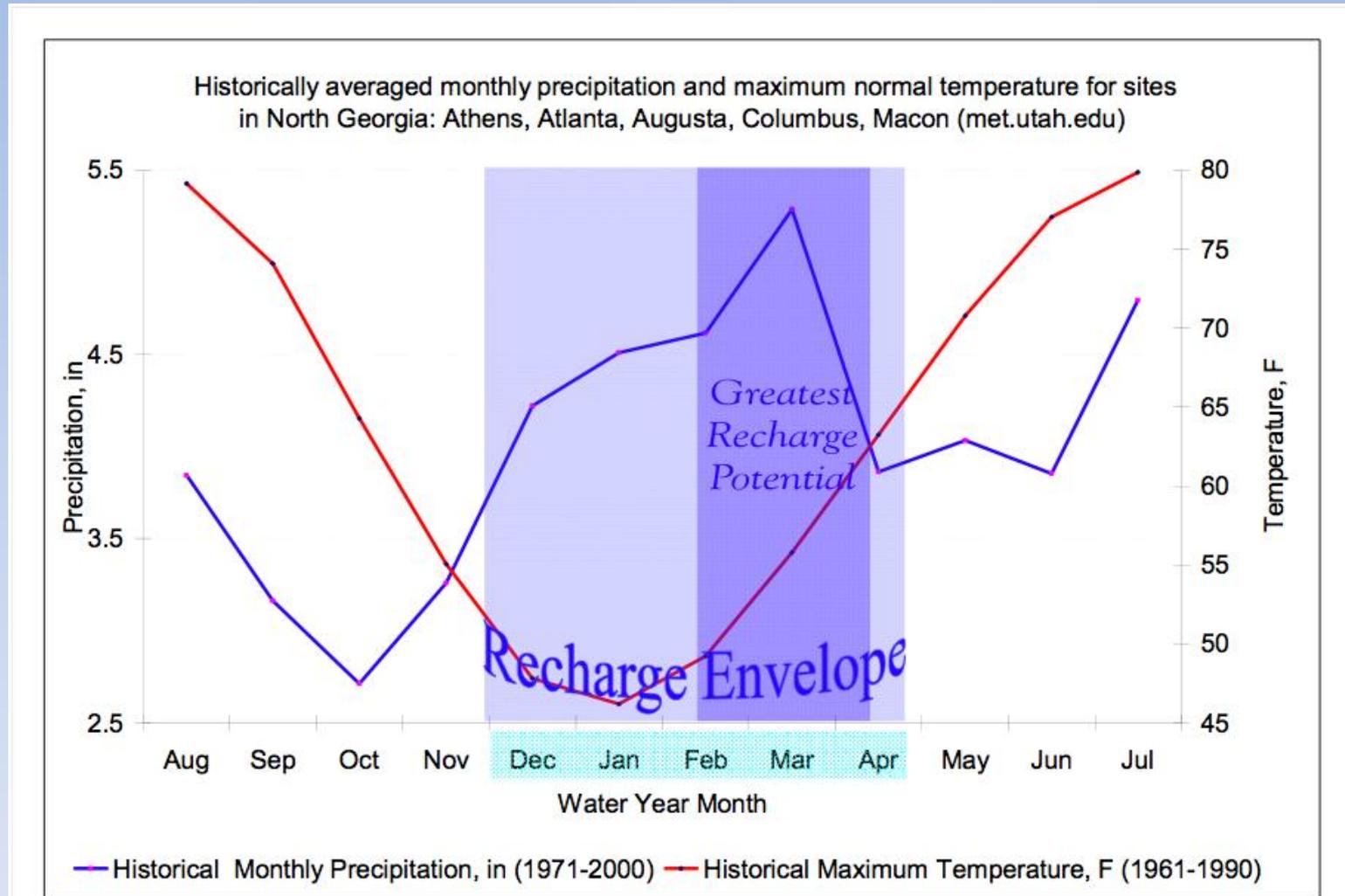


October

Florida: October, 2012 Monthly Normal Precipitation
Valid at 11/1/2012 1200 UTC- Created 11/3/12 21:38 UTC



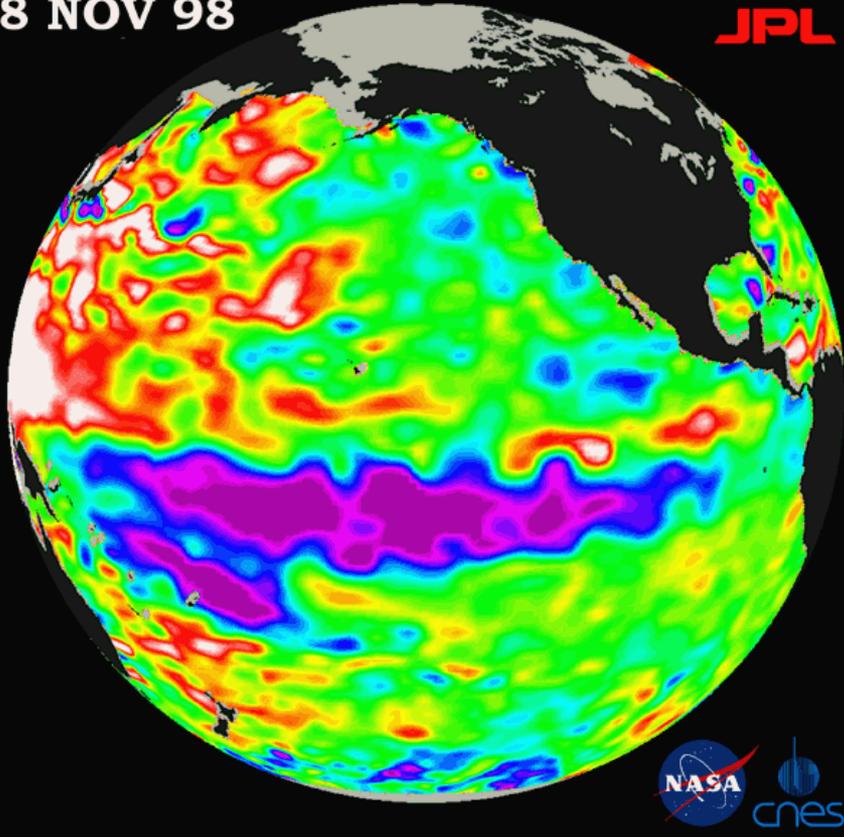
Winter/Spring Recharge – North Georgia



The El Niño /La Niña Cycle

8 NOV 98

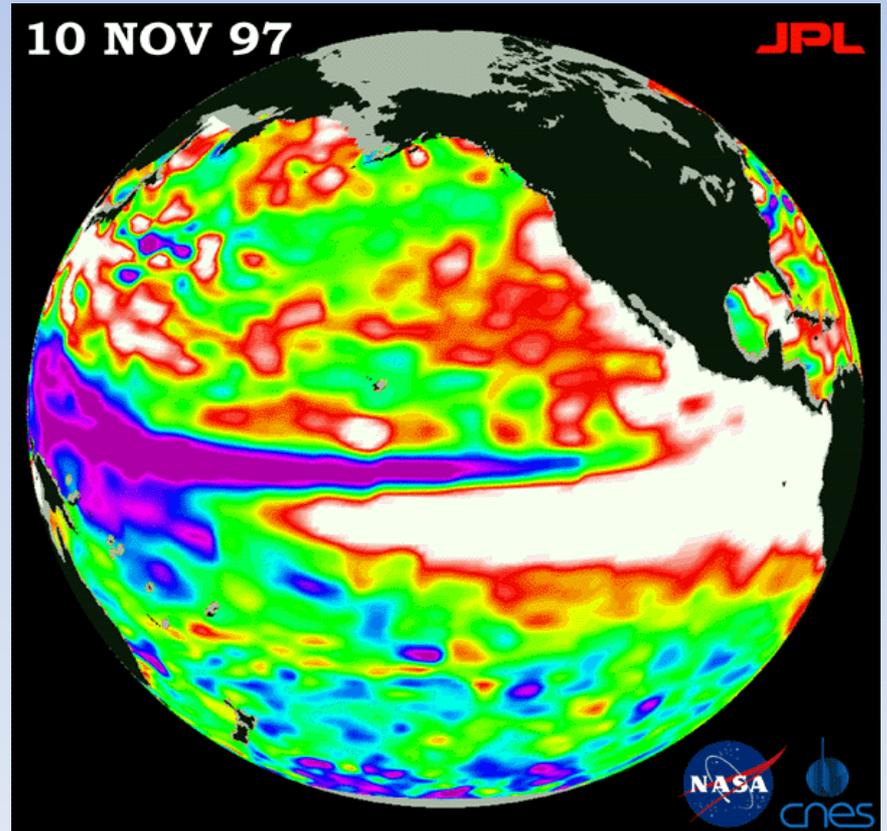
JPL



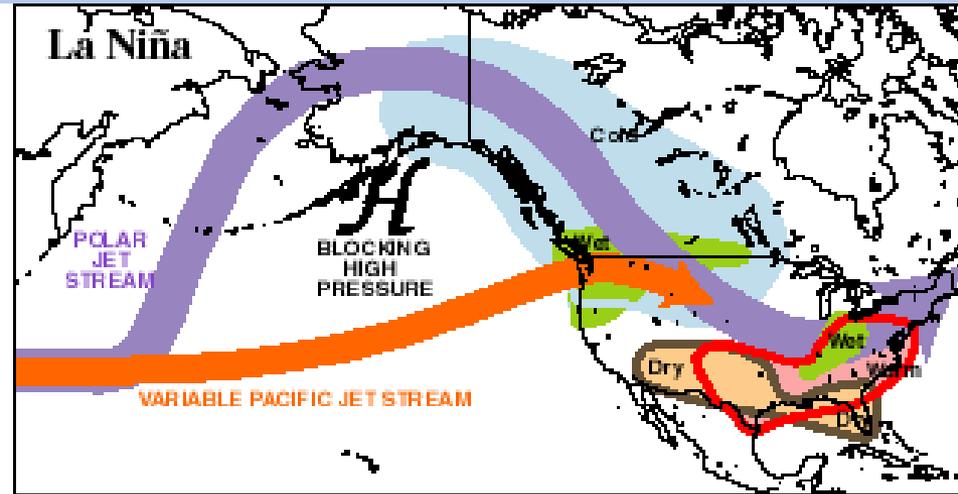
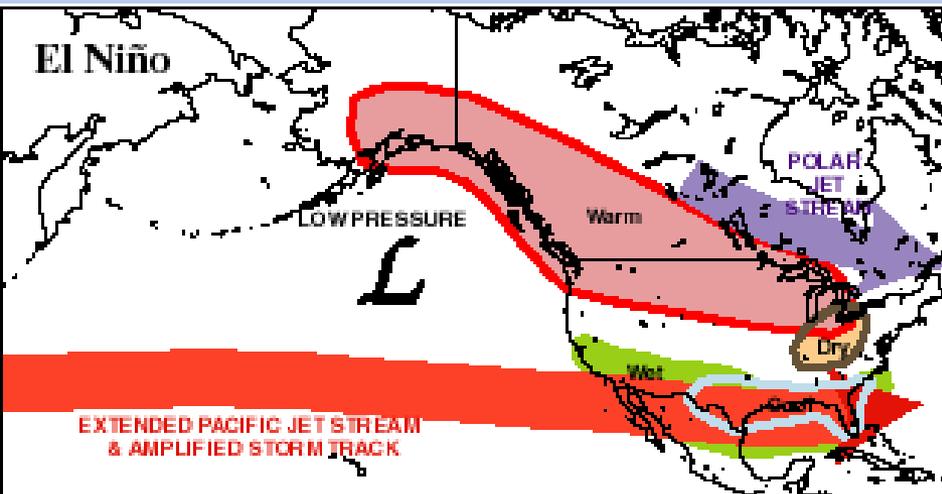
The El Niño /La Niña cycle is the predominant mode of year to year climate variability in the Southeast.

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JPL

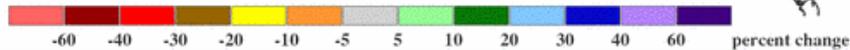
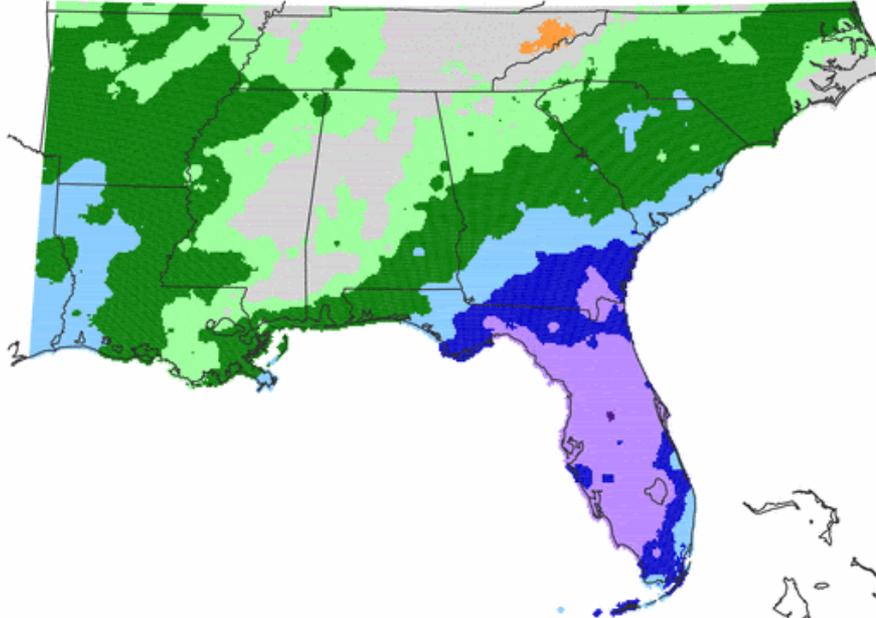


Winter Jet Stream Patterns during El Niño and La Niña

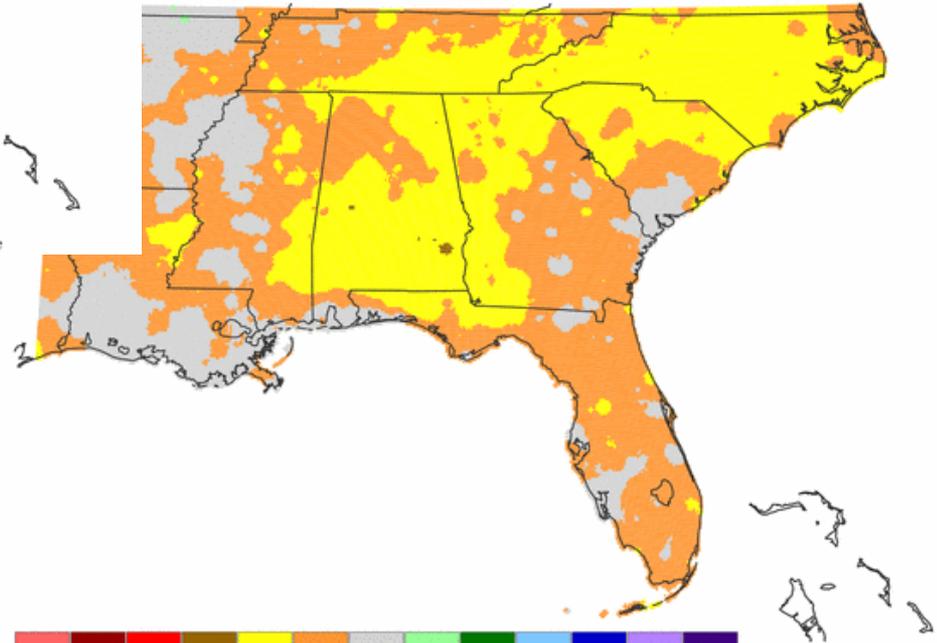


El Niño Effects on Precipitation

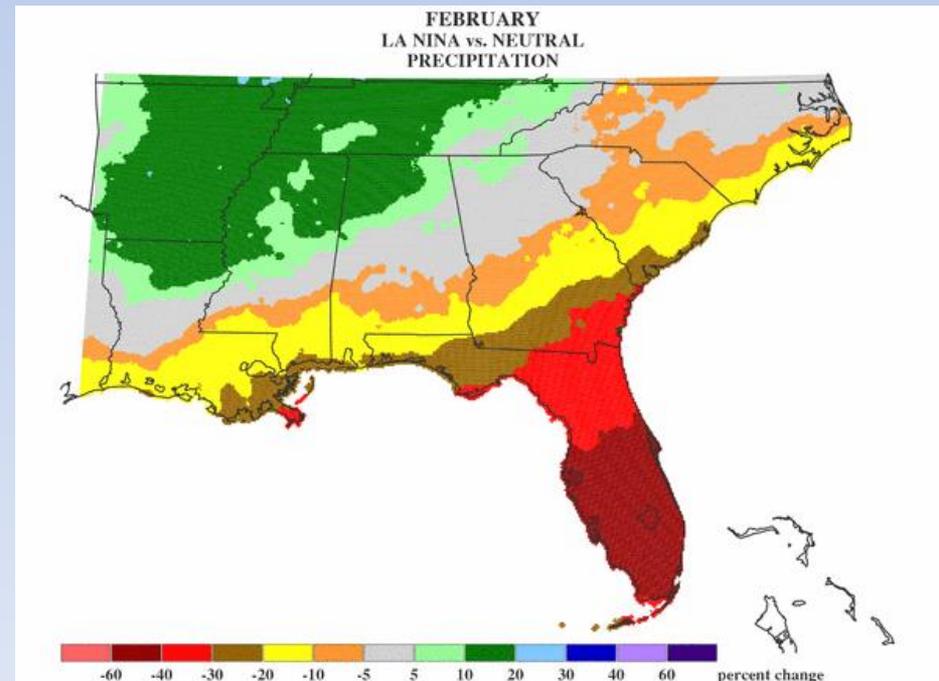
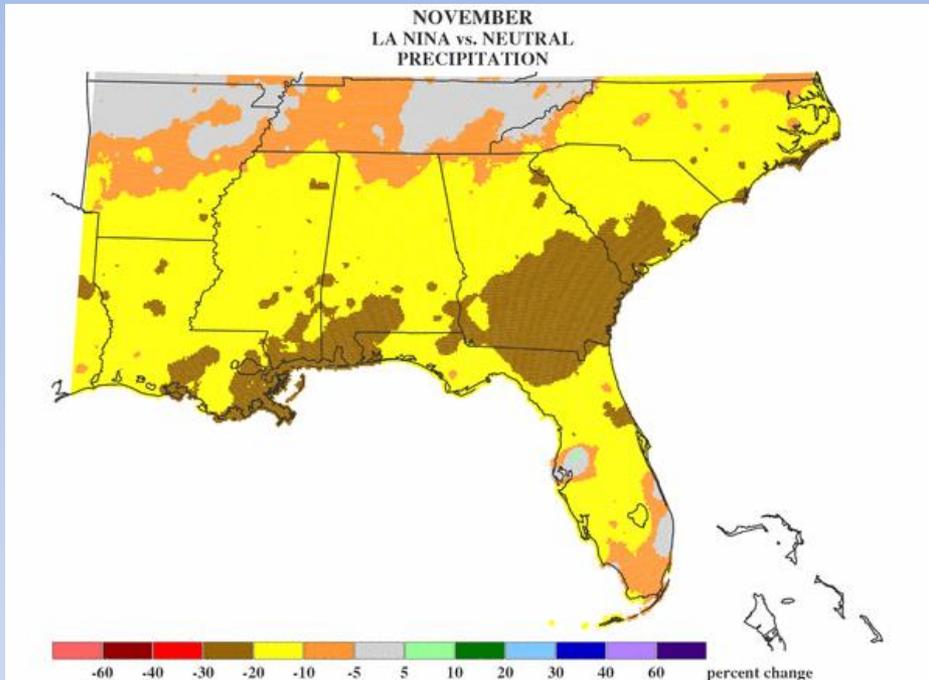
JANUARY
EL NIÑO vs. NEUTRAL
PRECIPITATION



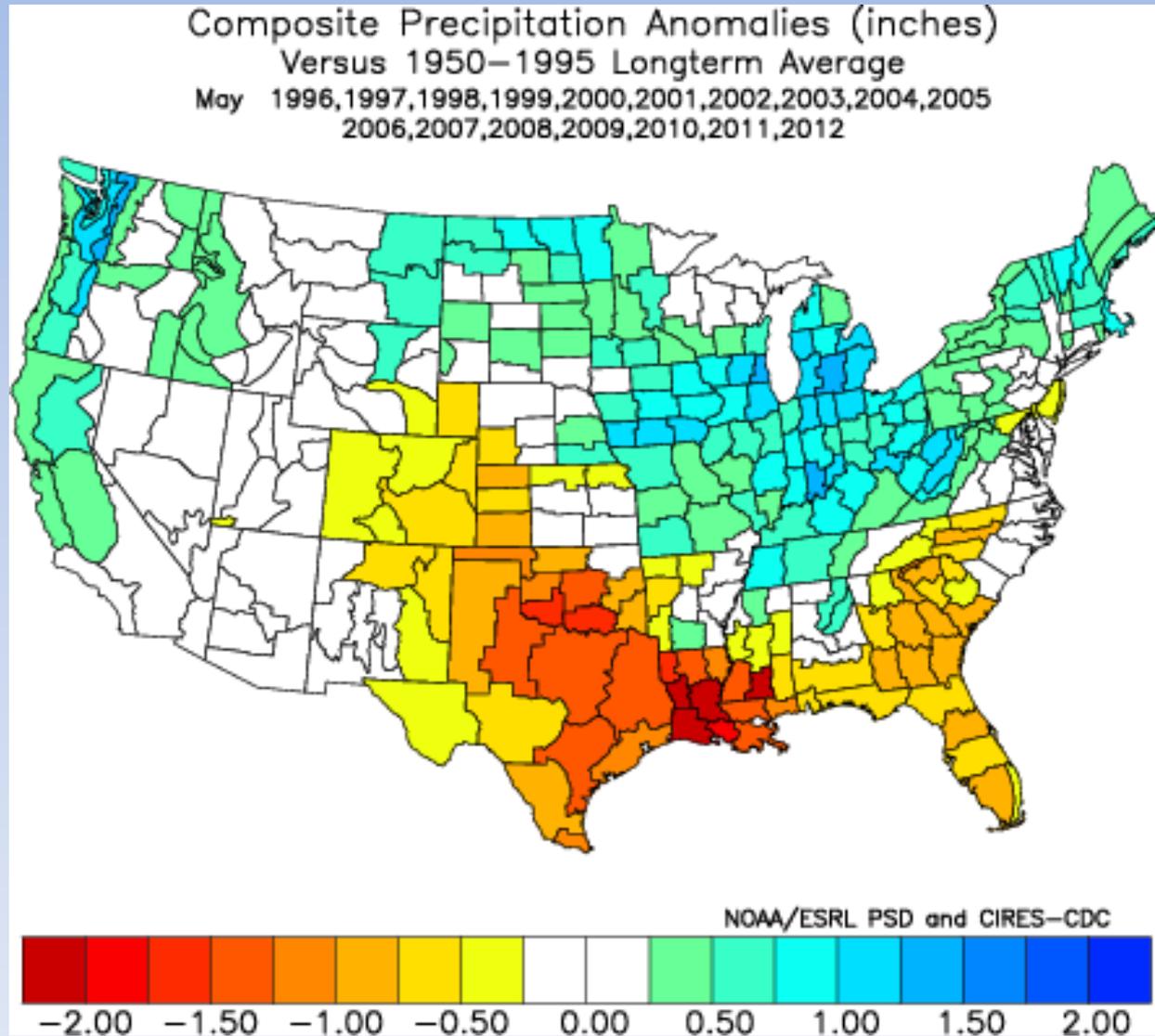
JULY
EL NIÑO vs. NEUTRAL
PRECIPITATION



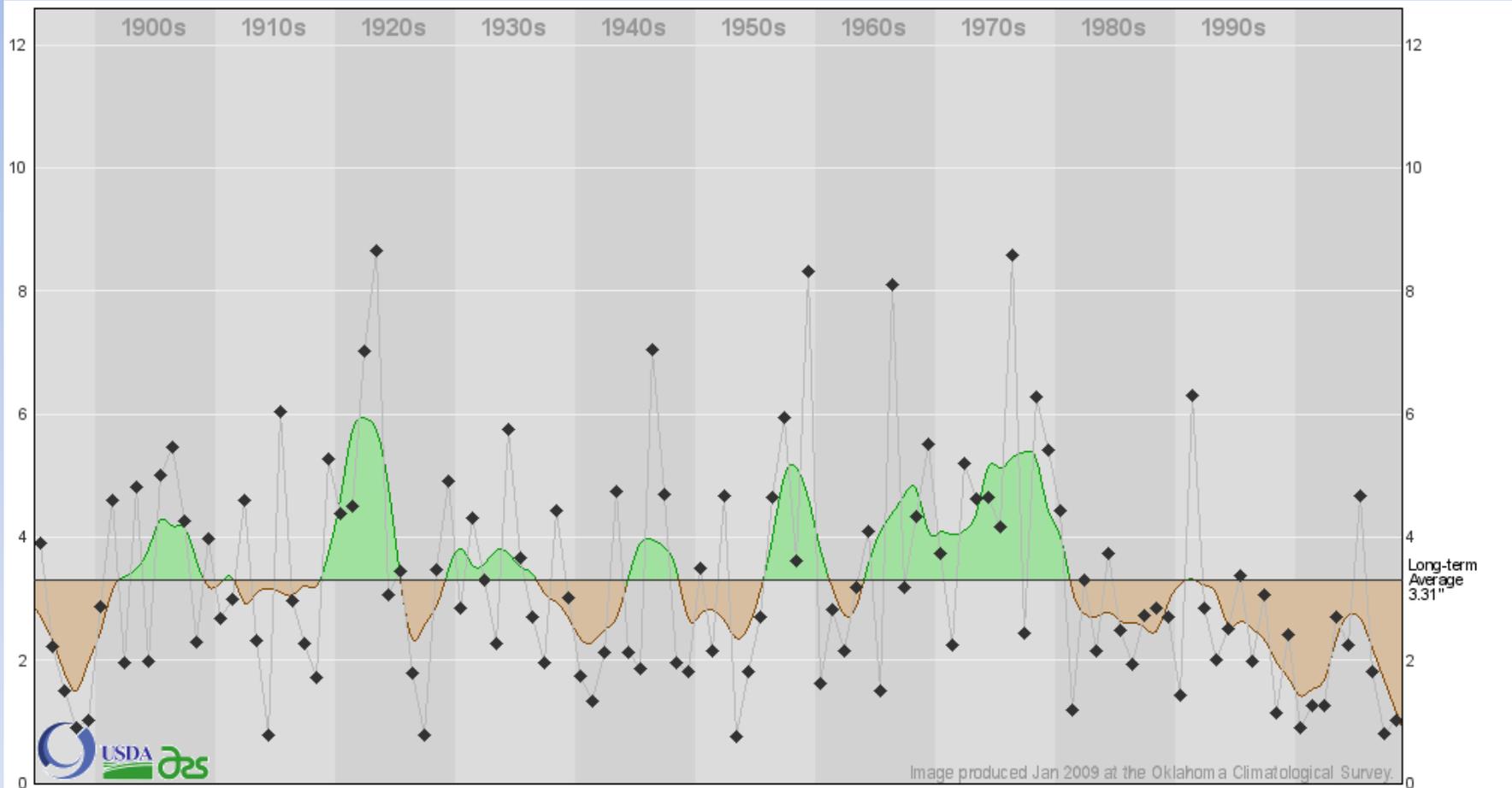
La Niña Effects on Precipitation



Changing Spring Rainfall



May Rainfall – N. Florida



May Precipitation History with 5-year Tendencies
FL-CD2 (North): 1895-2008

- Wetter historical periods
- Drier historical periods
- ◆ Individual May precipitation value

Mallory Swamp Fire during the last La Niña

This Mallory Swamp fire covers two counties and has burned over 60,000 acres in what some people say was the largest fire Florida has ever seen. The smoke plume extends several hundred miles into the eastern Gulf of Mexico.

clouds

clouds



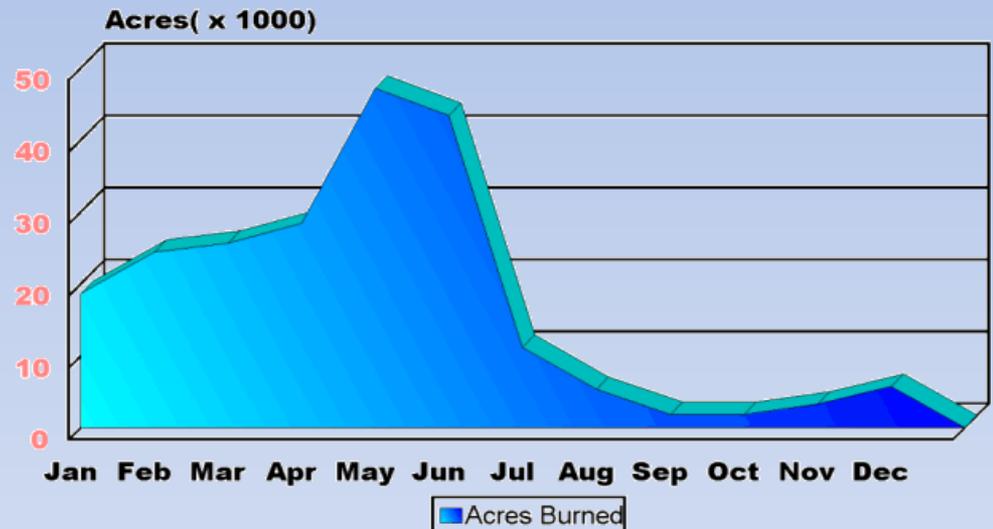
Major Florida Wildfire

NOAA-15 AVHRR HRPT (1km)
Multi-spectral False Color Image
May 24, 2001 @ 1259 UTC

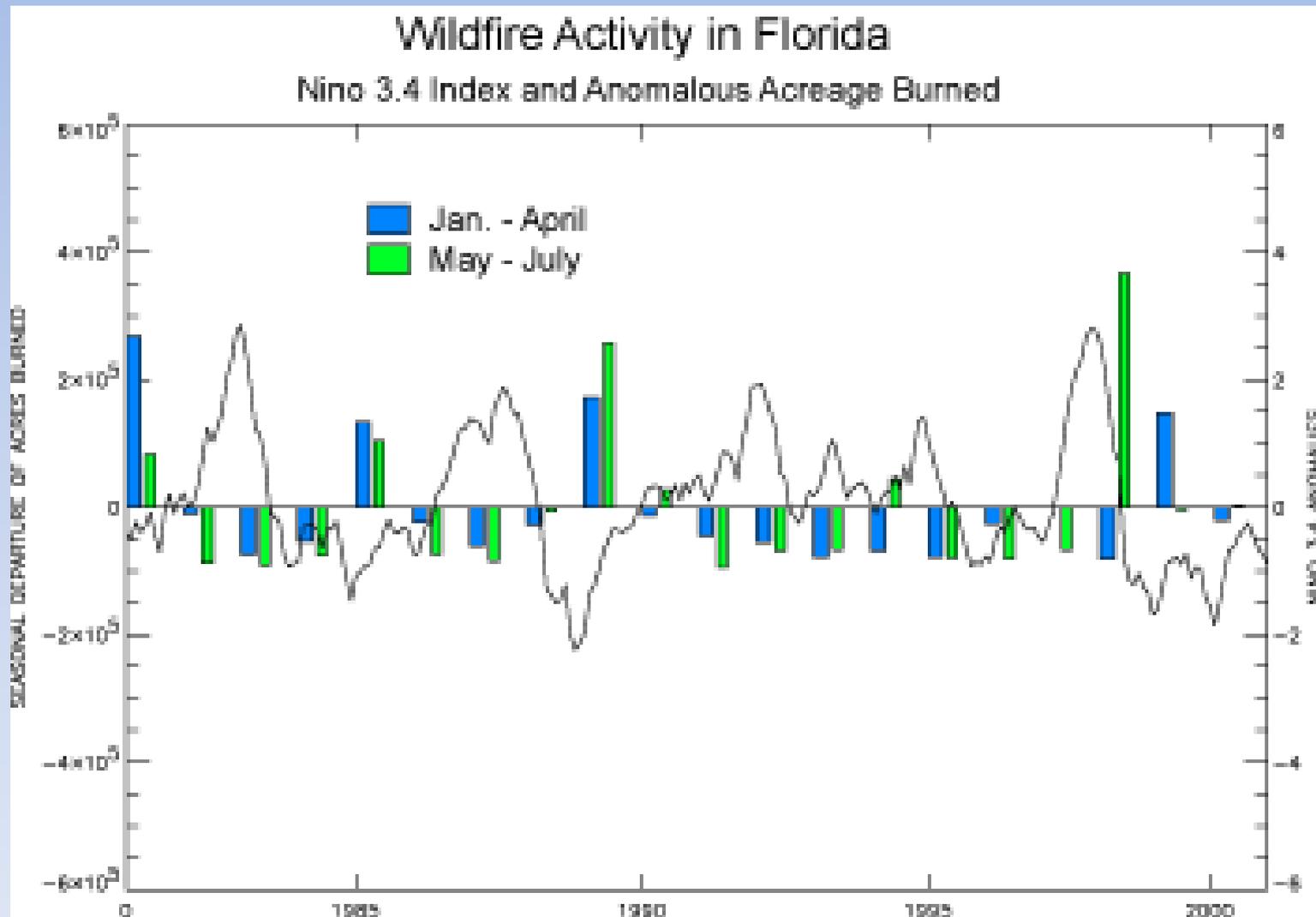
Typical Wildfire Season in Florida and the Southeast

- The peninsula experiences an extended dry season from Oct. through April.
- Unlike the Western U.S., Florida's wildfire season peaks in the spring/early summer.
- Winter wildfires are usually caused by human activities.
- Late spring and early summer fires are predominantly caused by lightning and can occur in remote/inaccessible locations.

Avg. # of Acres By Month 1981 -2000



Wildfire Activity



Drought and Agriculture

Agriculture is Florida's second leading industry.

Commodities are widely varied and mostly specialty crops.

Over 90% of Florida's agriculture is irrigated. Water used extensively for cold protection.

Crops most vulnerable to drought

- Cattle and pasture (north and central Florida)
- Row crops (north Florida)
- Timber and pulp wood

Moving Forward

Strengthening the Florida Drought Group...

- Involvement from other Water Management Districts
- Involvement from other federal and state agencies (USGS, USACOE, Extension, Emergency Management, Dept. of Ag., etc.)
- Moving beyond the Drought Monitor...Comprehensive state drought plan?