

National Integrated Drought Information System (NIDIS) Chesapeake Bay Workshop

Scientific and Technical Advisory Committee,
Annapolis, MD, December 13-14, 2011

Chad McNutt and Lisa Darby
NOAA, Earth System Research Laboratory/Climate Program Office

NIDIS Chesapeake Bay Workshop

- ◉ NIDIS Background
- ◉ Example of our work: NIDIS Southeast Pilot
- ◉ Chesapeake Bay Workshop Proposal

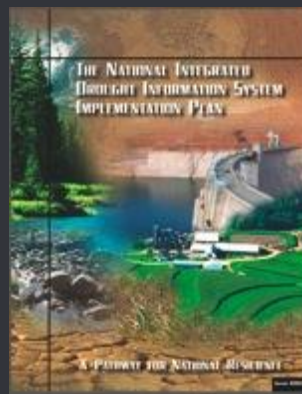
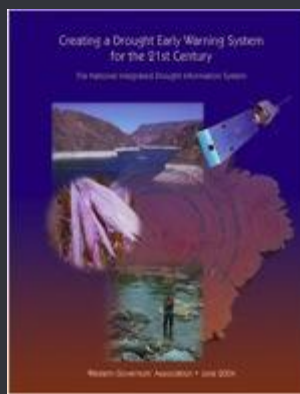
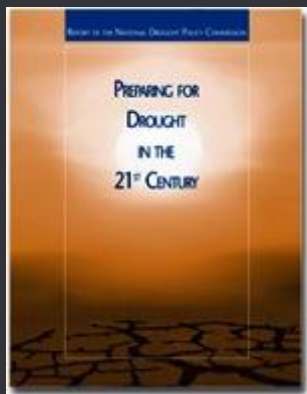
NIDIS: Creating a drought early warning information system

- Public Law 109-430 (The NIDIS Act 2006)

- “Enable the Nation to move from a reactive to a more proactive approach to managing drought risks and impacts”
- “better informed and more timely drought-related decisions leading to reduced impacts and costs”

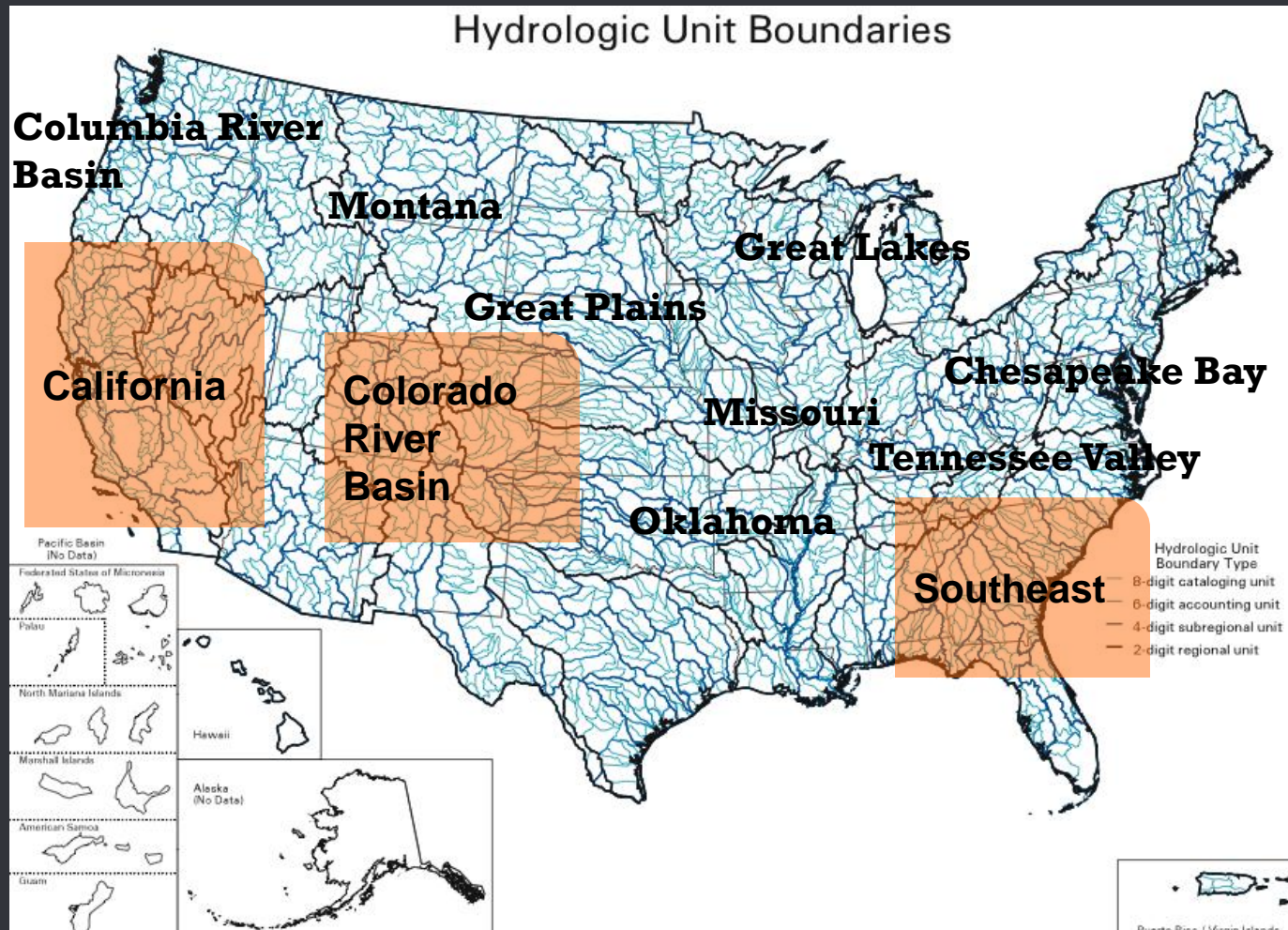
- NIDIS Objectives

- Coordinating** national drought monitoring and forecasting systems
- Providing an **interactive drought information clearinghouse** and delivery system for products and services—including an internet portal and standardized products (databases, forecasts, Geographic Information Systems (GIS), maps, etc)
- Designing mechanisms for improving and incorporating information to **support coordinated preparedness and planning**



NIDIS Early Warning Systems Pilots

Highlighted-first round prototypes;
Others-Regional DEWS & transferability



ACF River Basin Basics



- 5 Corps-operated dams
- 11 Dams owned and operated by power companies
- Buford Dam constructed for
 - Flood control, hydropower, navigation
- At least 20 years of litigation regarding allocation of water in the basin

Full-basin Scoping Workshop: Lake Blackshear (Dec. 2009)

KEY ISSUES:

Gaps in understanding

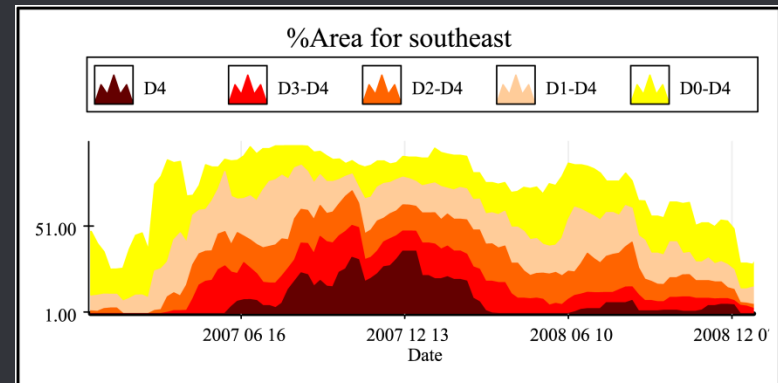
Gaps in measurements

*Presentation of
information*

Education

Drought Indicators

Forecasting





Upper Chattahoochee
(Aug 2010)



Middle Chattahoochee
& Flint (May 2010)



Apalachicola River & Bay
(April 2010)



GOOD NEWS: There were common concerns among the stakeholders in all parts of the basin that could be addressed by a regional drought early warning information system

ACF Basin Stakeholders

ACF Stakeholders, Inc.
Alabama Department of Environmental Management
Alabama Office of Water Resources
Apalachicola National Estuarine Research Reserve
Apalachicola Riverkeeper
Auburn University
Centers for Disease Control and Prevention/National Center
for Environmental Health
City of Apalachicola, FL
City of Clarkesville, GA
Environmental Protection Agency
Flint River Water Policy Center
Florida Department of Agriculture and Consumer Services
Florida Department of Environmental Protection
Florida Fish and Wildlife Conservation Commission
Florida Sea Grant Extension/Franklin County
Florida State University
Georgia Environmental Protection Division
Georgia Tribe of Eastern Cherokee
Golder Associates
Gwinnett County, GA
Habersham County (GA) Water Authority
Joseph W. Jones Ecological Research Center
LaGrange, GA
MeadWestvaco Corporation
Middle Chattahoochee Water Coalition
Muscogee Nation of Florida
National Drought Mitigation Center, University of Nebraska
NOAA/Climate Prediction Center
NOAA/Climate Program Office
NOAA/Coastal Service Center
NOAA/Earth System Research Lab
NOAA/National Climatic Data Center
NOAA/NIDIS Program Office
NOAA/NWS Southern Region Climate Services
NOAA/NWS/Birmingham WFO
NOAA/NWS/Service Hydrologist
NOAA/NWS/Southeast River Forecast Center

NOAA/NWS/Southern Region Climate Services
NOAA/NWS/WFO Peachtree City, GA
NOAA/NWS/WFO Tallahassee
NOAA/Restoration Center
Northwest Florida Water Management District
Southeast Indigenous Peoples' Center
Southern Nuclear
University of Florida
University of Georgia, Athens, GA
University of North Carolina
Upper Chattahoochee Riverkeeper
US Army Corps of Engineers - Mobile District
US Fish and Wildlife Service
USGS/Georgia Water Science Center
USGS/Florida Water Science Center
West Point Lake Coalition



Photo courtesy of Joel Lanier (NWS)

Full-basin Climate Outlook Forum and Drought Early Warning System Priorities – Albany, GA (Nov 2010)



Lake Blackshear



Albany, GA



Callaway Gardens, GA



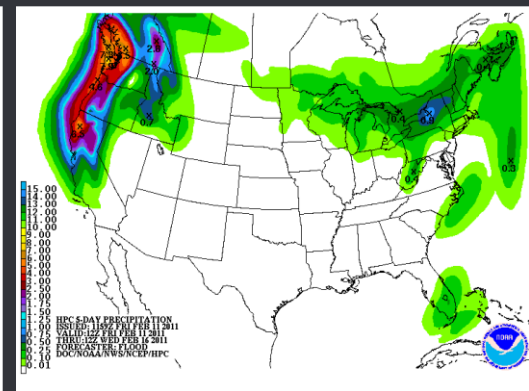
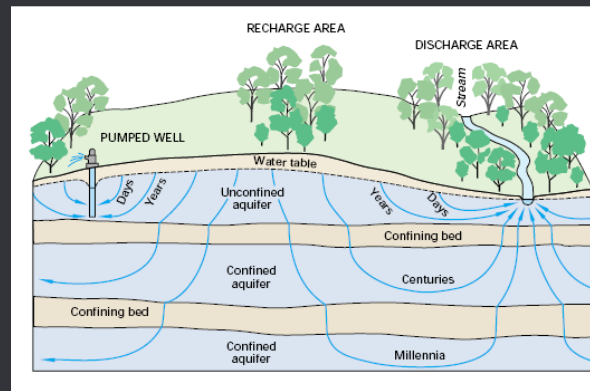
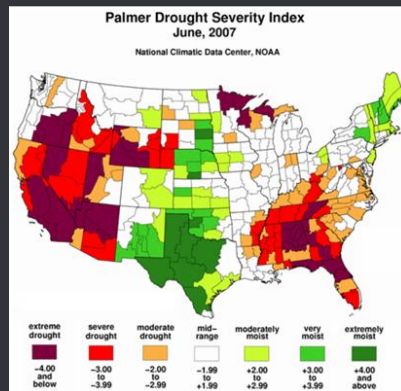
Apalachicola, FL



Stone Mountain, GA

Commonalities among the three sub-basins

- 1) *Education and Communication*
- 2) *ACF Basin webinars and Climate Outlooks*
- 3) *Access to Basin Data Sets*
- 4) *Presentation of Information*
- 5) *Forecasting improvements*
- 6) *Drought Index*
- 7) *Improved interactions with the Corps*
- 8) *Consistency in drought planning among the three states*
- 9) *Resolve discrepancies in our understanding of groundwater*



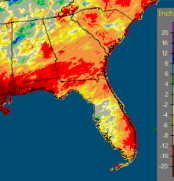
DEWS Priorities and Committees

Top Priorities/Committee Leaders

- Education and Communication
- ACF Basin webinars and Climate Outlooks
- Data & Presentation of Information


ACF Water News
 A product of the National Integrated Drought Information System (NIDIS) and the Southeast Climate Consortium (SECC) May 2011

Rain Below Normal for Much of the SE



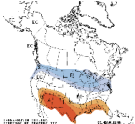
While recent rains have fallen over much of the ACF basin, much of the area is below normal for the year. [Learn more...](#)

Above Average 2011 Hurricane Season



The Tropical Meteorology Project at Colorado State University is forecasting above-average hurricane activity for 2011. The team predicts 16 named storms, 9 of which will become hurricanes with 5 of these expected to be major hurricanes. [Find out more](#)

Seasonal Outlook



The outlook for May to July from the Climate Prediction Center shows an increased probability for warmer than normal conditions for much of the ACF basin. [See more Outlooks](#)

NIDIS
 Southeast Climate Consortium
 Quick Links
 U.S. Drought Portal
 ACF Reservoir Levels and Forecasts
 Seasonal Climate Outlook
 El Niño-Southern Oscillation (ENSO) Current Conditions
 ENSO Forecast
 Brown & Caldwell Water News

ACF Water News

SOUTHEAST CLIMATE CONSORTIUM

What does the 2010-2011 La Niña mean for the Southeastern USA?

An Apalachicola-Chattahoochee-Flint River Basin Drought Early Warning System Fact Sheet

Prepared by Christopher J. Marland, for the Southeast Climate Consortium (SECC) and the National Integrated Drought Information Service (NIDIS), January 2011.
 Department of Agricultural and Biological Engineering, University of Florida, P. O. Box 110570, Gainesville, FL 32611-0570, 352-392-1844, cjm@ufl.edu

La Niña typically brings warmer and drier conditions to the Southeastern USA during winter, resulting in reduced streamflow, lower reservoir and lake levels, and greater risk of wildfires. La Niña events can last one or more years. In multi-year La Niña events, there is a greater likelihood for successive winters to be warmer and drier than normal. The winter of 2010-2011 has been colder than would be expected during a La Niña, with some locations in the Southeastern USA recording the coldest December on record. This unusually cold weather has been caused by the North Atlantic Oscillation (NAO), which has effectively overpowered La Niña for much of this winter. However, the condition of the NAO can change in a manner of a week or two, while La Niña conditions are expected to continue through the spring.

The purpose of this document is to describe the 2010-2011 La Niña, the impact the NAO has had this winter, and the potential impacts of La Niña for the remainder of the winter and through the spring.

What is La Niña?

La Niña is a cooling of the surface of the eastern and central Pacific Ocean along the equator and is part of the climate phenomenon known as the El Niño-Southern Oscillation (ENSO). Periods of warming of the eastern and central tropical Pacific are known as El Niño. The change in heating and cooling of the ocean caused by El Niño or La Niña cause changes in the atmosphere in the tropical Pacific, which in turn impacts atmospheric circulation in many regions of the world.

El Niño and La Niña events tend to occur every 3-7 years. Periods where the tropical Pacific Ocean is neither warmer nor cooler than usual are called Neutral. El Niño events may last for a period of a few months up to one year (though multi-year events have occurred in the past), while La Niña events have a greater tendency to continue for multiple years (Figure 1). The La Niña events in 1964-1967, 1973-1976, and 1998-2000 are examples of past multi-year events.



Figure 1. The Multivariate ENSO Index (MEI). La Niña events are indicated by large, negative values of the index and El Niño events as large, positive values. The MEI is essentially a weighted average of the significant features related to ENSO over the tropical Pacific and includes the following six variables: sea-level pressure, the east-west and north-south components of the surface wind, sea surface temperature, surface air temperature, and total amount of cloudiness. Details of the MEI can be found at: http://www.cgd.noaa.gov/psopl/keas_anofes/MEI.html/

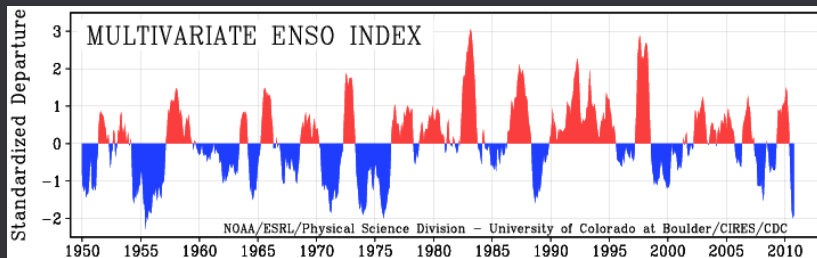
SECC
 Southeast Climate Consortium
 SEClimate.org

NIDIS

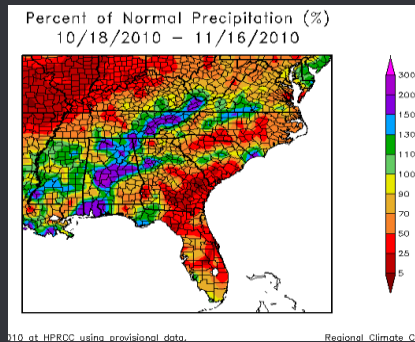
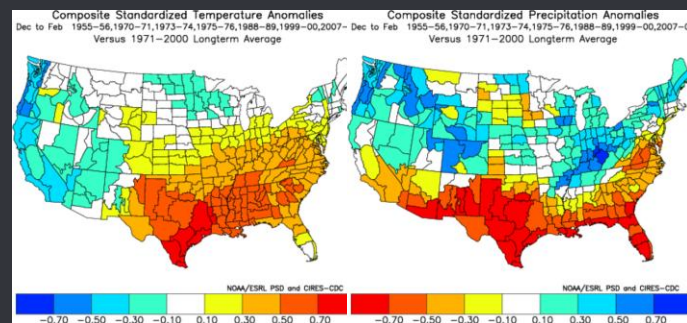
ENSO Fact Sheet

Southeast Climate Outlook Forum

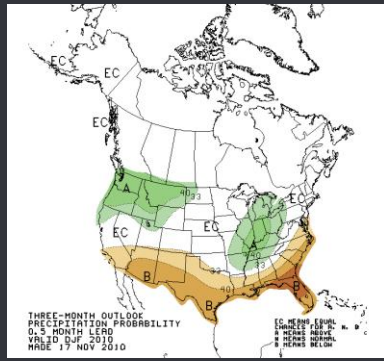
ENSO Status



Effects of ENSO



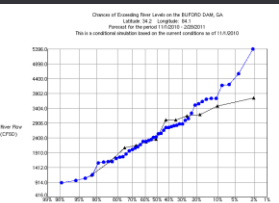
Current Conditions



3-Month Seasonal Forecast



Impacts & Vulnerability



Flint River Basin in Georgia
Area of Map Extent



NIDIS Pilot Next Steps

- ◉ Continue ACF Basin webinars and Climate Outlooks
 - Collaborate with Army Corps
- ◉ Focus on early warning (e.g. how NIDIS could work closer with state emergency managers)
- ◉ Continue communication mechanisms



2011 Drought Outlook
Forum-Lake Lanier, GA

Chesapeake Bay Workshop

Chesapeake Bay Workshop

- Objective: Assess existing planning and response procedures from federal, state and local agencies, and interstate groups and whether these existing processes could be improved through better coordination and information delivery
- Specific workshop topics:
 - drought monitoring gaps
 - how forecast are being used
 - what indicators and triggers are used management decisions
 - Relate impacts to the timing and severity of drought

Chesapeake Bay Workshop

- ◉ Logistics:

- 40-60 participants
- Late spring or early summer

- ◉ Request from STAC:

- No financial support is requested
- STAC participation in planning and participating in workshop

Thank you
