



2007 Drought:

Lessons Learned & Issues

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NC STATE UNIVERSITY

About the State Climate Office

- Public Service Center at NCSU
- Statewide public resource for weather and climate information and services
 - Extension of research to community applications
 - Research on NC weather and climate
 - Outreach, Education
- Focus on service to the state



Challenging Climate

- NC has the most complex climate in the eastern US
 - Latitude
 - Topography
 - Warm ocean to south, cold ocean to east
 - Gulf stream
- Normal Climate in NC = Average of extremes



Challenging Climate

- Highly variable climate
 - Daily, Seasonal, Multi-year, Decadal variations
 - Only winter seasonal has any predictability
- Experience every kind of extreme
 - You name the weather, NC experiences it
- Few other locations face these challenges
- Our society, economy is very sensitive
 - At least **1/3** of economic activity directly sensitive to weather and climate
 - \$100B annual in NC



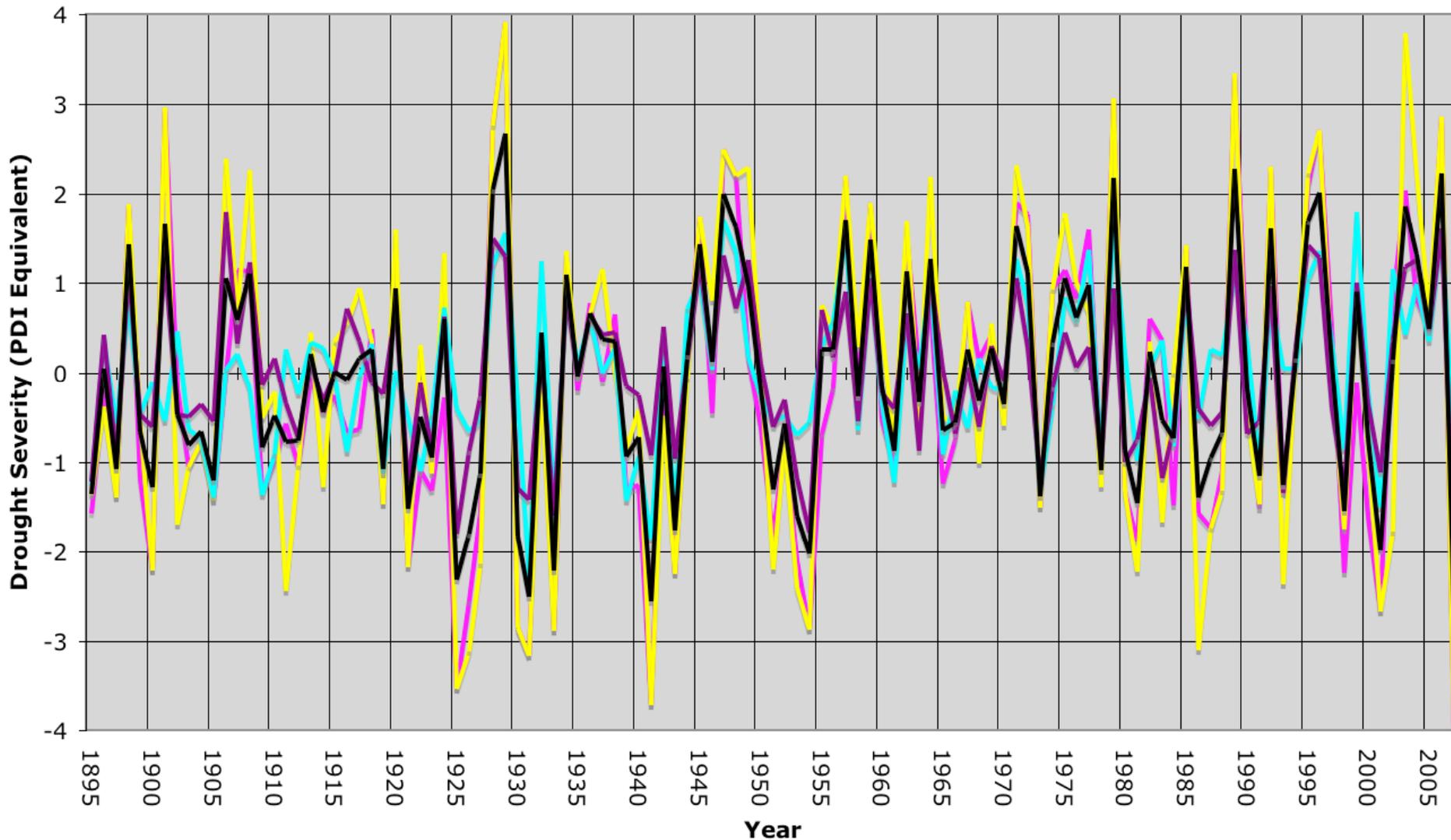
2007 Drought

- Began in western NC in 2006
 - Focused in N. Georgia, N. Alabama
- Peaked in 2007
 - Statewide, the worst drought in 112 years of modern record
- Continued through 2008, into 2009
 - Improvements in central, eastern NC closely linked to tropical storms



NC Statewide Average Drought Indicators

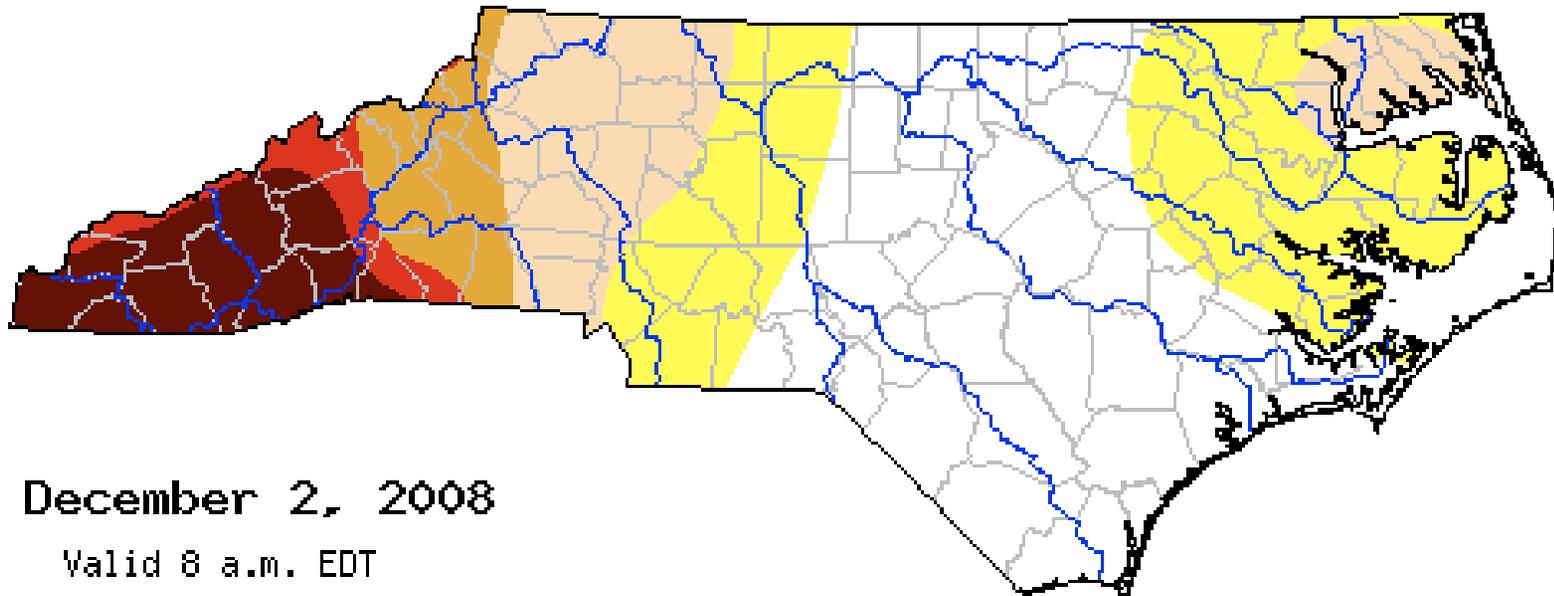
PDSI PHDI SPI3 SPI6 AVG of Indicators





STATE CLIMATE OFFICE OF NORTH CAROLINA

US Drought Monitor of NORTH CAROLINA



December 2, 2008

Valid 8 a.m. EDT

Drought Classifications

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

County Boundaries Major River Basins ([View Map](#))

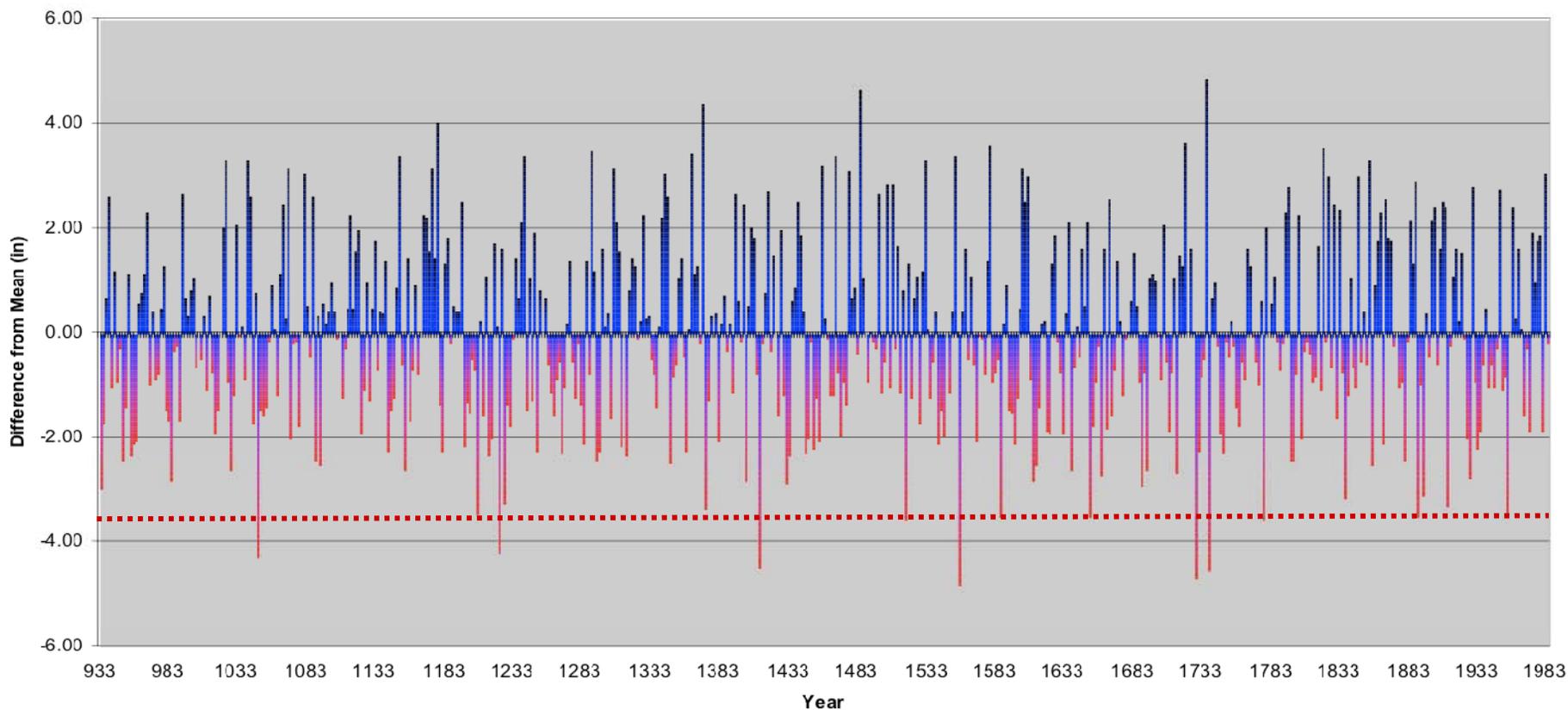
[Hi-Resolution Image](#) | [Print Version](#)

The U.S. Drought Monitor focuses on broad scale conditions. Information provided for North Carolina is relative to the information provided from all other states and the North Carolina Drought Management Advisory Council. Local conditions may vary.

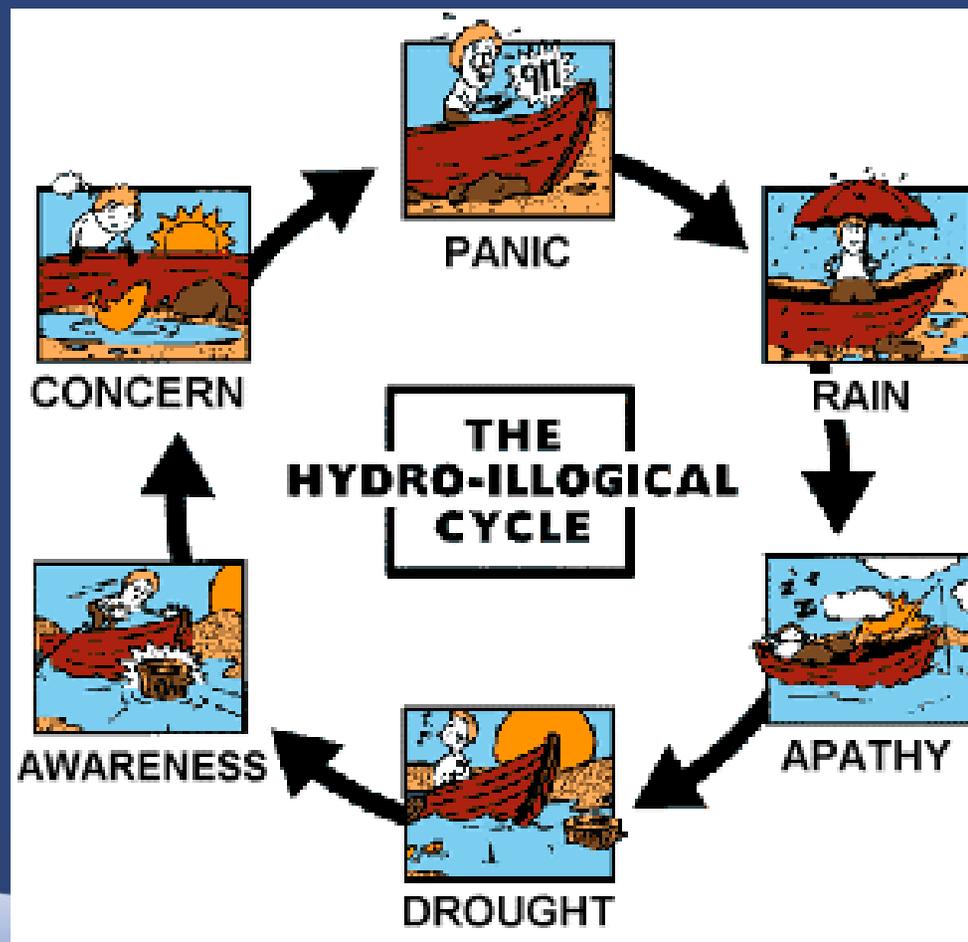


NC Rainfall Variability

NC Apr-Jun Rainfall Anomaly (estimated from Tree Rings)



How we treat drought...



What We Learned

- Tremendous desire for information
 - For agriculture, water supply, water quality concerns
 - Local data needed
- Data not easily accessible
- Over-reliance on tropical storms



What We Learned

- NC is better prepared than many
 - Communication among agencies better than in other states
 - NC Drought Management Advisory Council proved an effective mechanism
 - Other states, agencies learning from NC



Needs: Data

- All science develops with good data collection
 - Need for better environmental, climate monitoring
- Data quality is critical
 - MUST be useful for decision makers
- Data timeliness is critical
 - MUST be real-time
 - MUST be maintained over long-term



Need: Applications

- Climate science, data must get used
 - Not just by scientists
- Need extension of science, data
 - To state, local agencies
 - To businesses
 - To all sectors sensitive to weather
- Decision support tools
 - Driven by data, designed for end users



Need: Education

- Lots of climate awareness
- Very little climate education
- Climate education program needed
 - Both adult, K-12 education
 - No state agency leading
 - *Can University system do this?*



Need: Collaboration

- Scientists, users need to work more closely
 - Among various user sectors
 - Among various scientific arenas
- Service connections
 - Climate scientists
 - Extension specialists
 - Field specialists





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