

APPENDIX A

STAFF METEOROLOGIST MEMO

The 2007 Southeastern U.S. Drought – How rare an event is it?

The unusually severe and prolonged Southeastern drought of 2007 is among the most devastating in recent history, contributing to water shortages, wildfires and ecological damage.

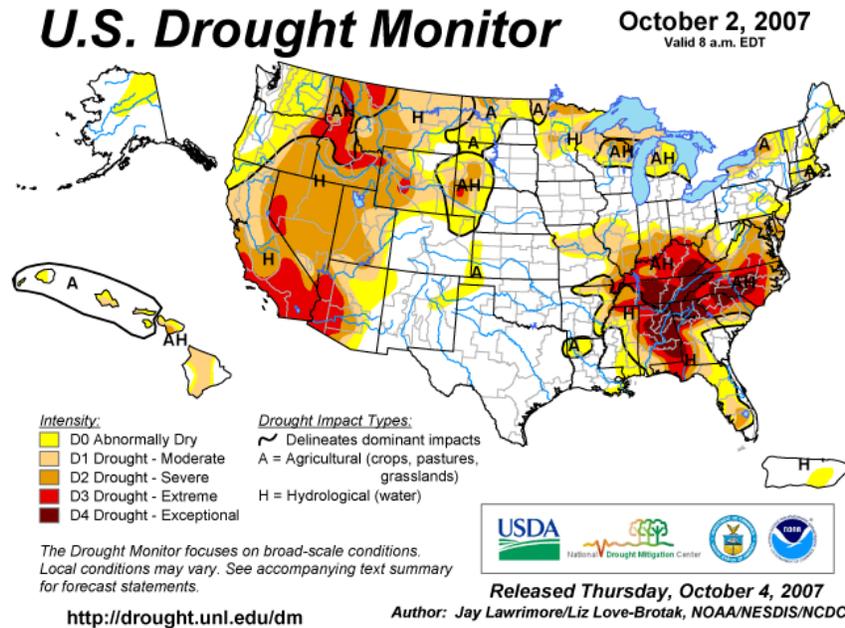


Figure 1

Fig.1 above delineates the geographical extent and intensity of the present drought status.

For eastern Alabama, northern and western Georgia and Tennessee...this drought is the direct result of the most extreme rainfall deficiencies in modern (1892-present) weather records.

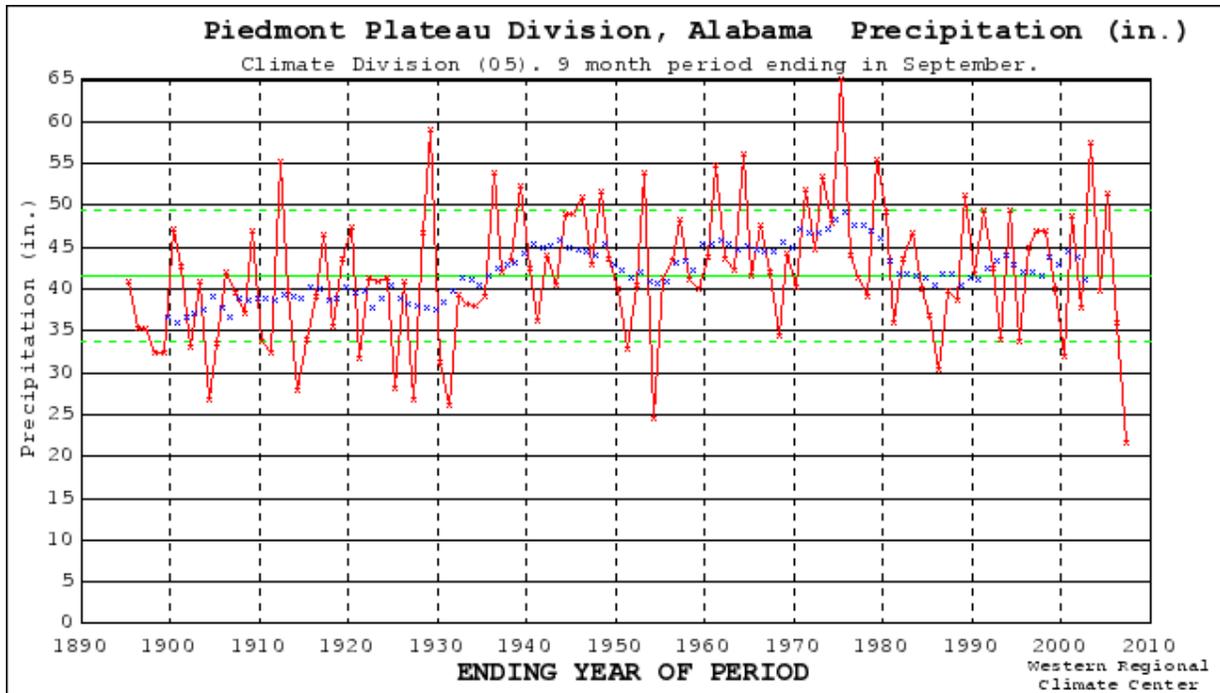


Figure 2

Fig.2 illustrates this graphically for the Eastern Valley Climate Division of Alabama, which borders Georgia and the middle Chattahoochee River Basin. This graph shows the January 1-September 30(9-month) rainfall for every year since 1895.

The limitation of rainfall records is that they encompass a relatively short period of time. Climatologist have recently overcome this through the use of various proxy data, tree rings being among the foremost.

The pioneering work of Stahle et.al.(1988) and Stahle and Cleaveland(1992) utilizing 1700-year old baldcypress tree rings in the Carolina`s and Georgia successfully reconstructed the Palmer Drought Severity Index with yearly resolution.

Recently, the construction of a gridded network(2.5 latitude by 2.5 longitude) of summer PDSI values from 835 exactly dated tree rings for the contiguous United States has been completed(Cook et. al. 1999; Cook and Krusie., 2004). This provides access to 286 annual drought reconstructions extending as far back as 1,992 years into the past.

TREE-RING RECONSTRUCTED DROUGHT
GRID POINT: 230 85.0W 32.5N

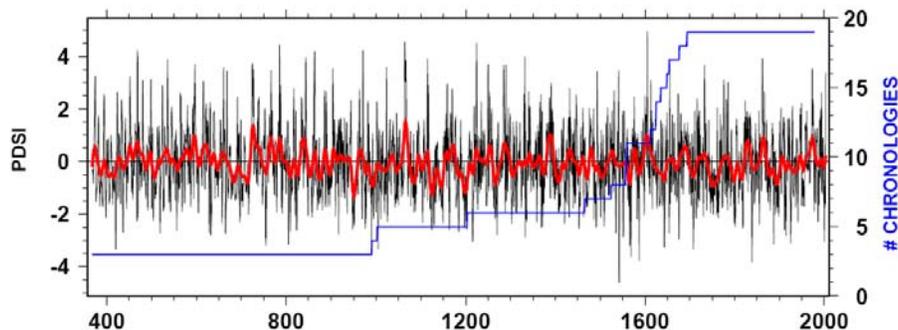


Figure 3

Fig. 3 is grid point number 230... showing the summer (June-August) PDSI for the Alabama/Georgia central Chattahoochee Valley from circa 400 A.D. to 2003.

Plainly evident is the recent severe drought of 2000. But, the 2007 estimated PDSI of approximately -4 exceeds all years back to 1839. This drought is well documented in early Alabama history. Settlers reported that the Warrior River at Tuscaloosa was very nearly dried up, resulting in the death of a great many fishes. The Alabama River was too low for navigation. The total rainfall for the year at Huntsville was only 29.08 inches, and at Savannah, Georgia 25.93 inches(Owens, 1890).

Also shown are the so called Megadroughts which affected much of North America in the 16th Century with unprecedented duration and severity(Stahle, et. al. 2000).

Recently, climate models forced by the observed history of tropical Pacific Sea Surface temperatures have been able to successfully simulate all of the major North American droughts of the last 150 years. In each case, cool “La Nina-like” conditions are consistent with North American drought (Herweijer et. al. 2007).

If so...the Southeastern United States drought will become a multi-year event. Recently, the Southeastern Climate Consortium(composed of the State Climatologist for Florida, Georgia and Alabama) issued a first ever “La Nina Watch” for the coming winter and next spring.

For south and central Alabama and Georgia...there is an 80 percent probability of below normal rainfall from Oct. 2007-Mar. 2008. This includes a 30 percent probability of MUCH BELOW normal rainfall...a 50 percent probability of BELOW normal rain...and a mere 20 percent probability of ABOVE normal rainfall.

Nature bats last!

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