



Southeast U.S. Water Resources – A Georgia Drought Perspective

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Summary: With below-normal rainfall and drought conditions continuing into the third consecutive summer across many parts of Georgia, a common question by many is when the drought will improve or end. This study will provide a perspective into past droughts in relationship to the on-going 2006 to 2008 drought.

Past Droughts

The past can often provide an insight into the future. Looking at how past Georgia droughts ended may give us a clue on how this drought may improve or end. Below is a graph of four past drought periods since 1948 as depicted by the Palmer Drought Severity Index (PDSI). The PDSI, also called the Palmer Drought Index, is a commonly used indicator for long-term meteorological drought and wet conditions in an area.

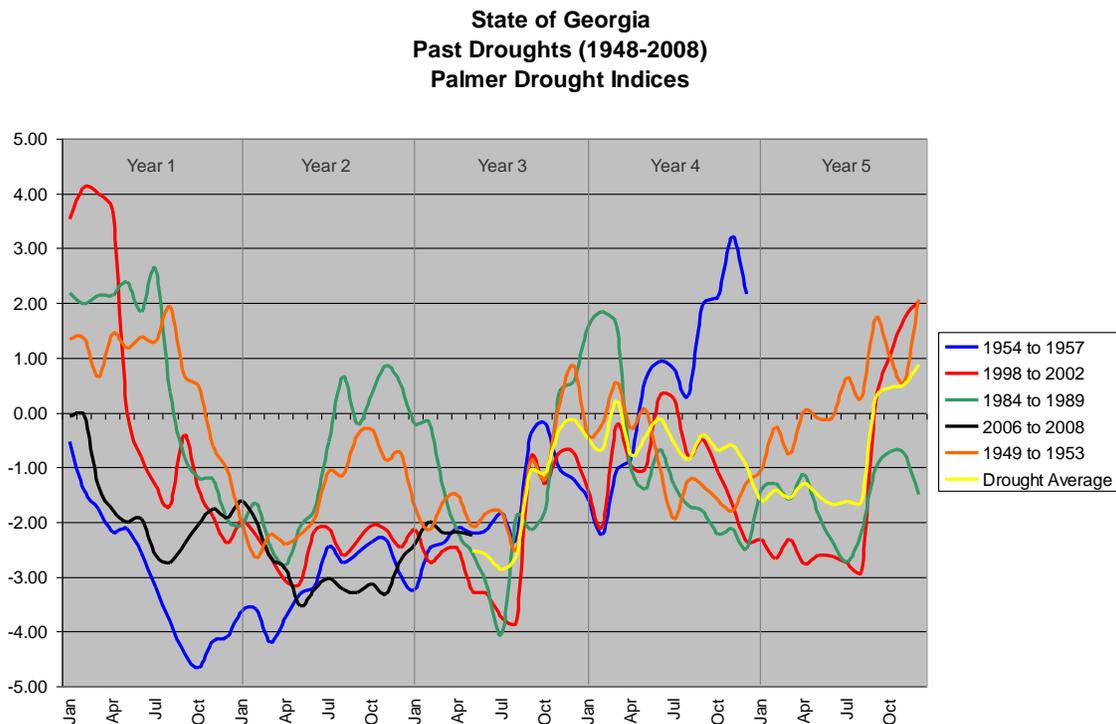


Figure 1. PDSI Plot for Past Georgia Droughts

It is interesting to note that for all four of these past droughts, large increases, or improvement, in the PDSI occurred in the autumn period of the third year (Figure 1). Note that the yellow line indicates the average PDSI starting June 2008.

Figure 2 shows PDSI changes from prior months for the 1954 to 1957 and 1998 to 2002 droughts. Interestingly, the greatest increase (improvement) in the PDSI for both of these droughts was in September of the third autumn.

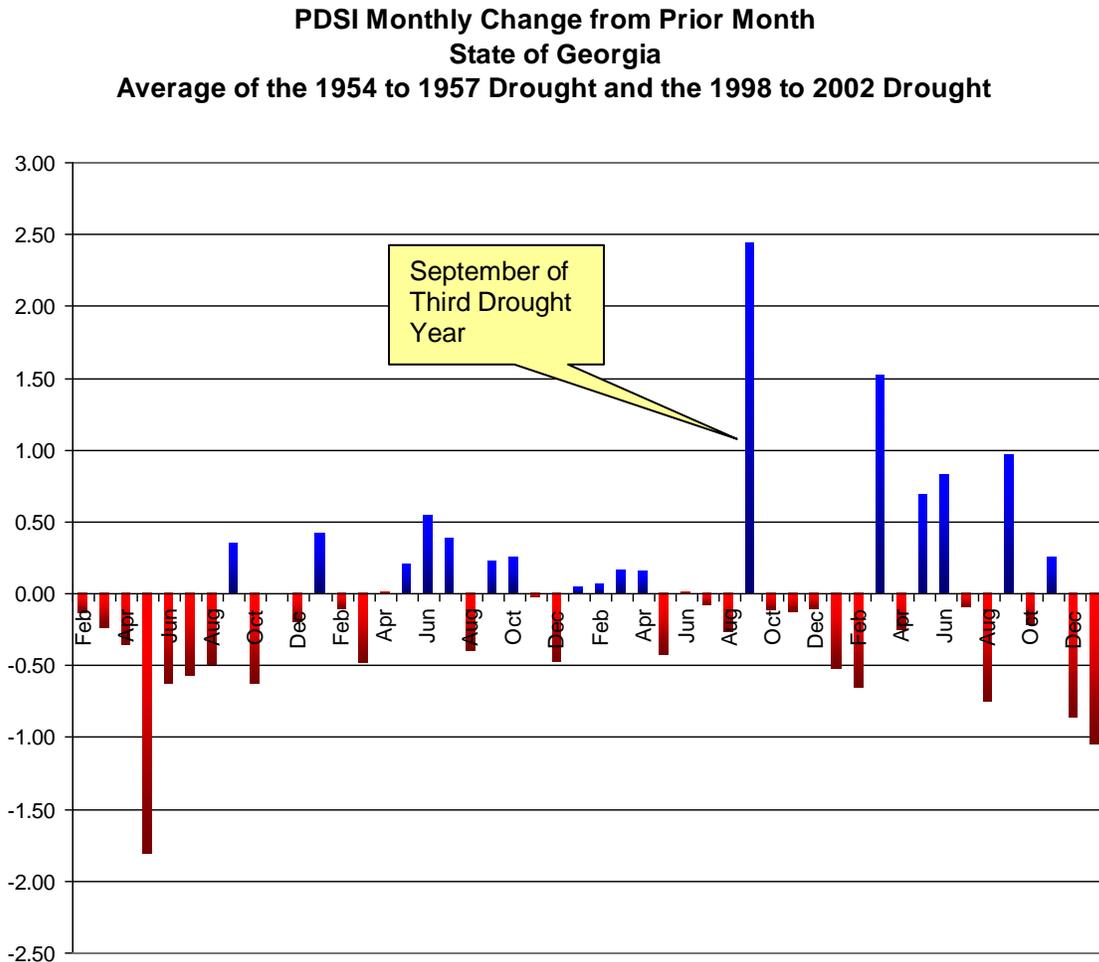


Figure 2. Upward or Downward Change in the PDSI from the Previous Month.

The jump in the PDSI in 1956 may likely be related to Hurricane Flossy in late September. Hurricane Flossy came ashore on the Florida Panhandle and interacted with a stationary front across north Georgia. Based on various sources, rainfall estimates across the state ranged from 5 to 10 inches, with higher amounts locally. The jump in 2000 could also be attributed to tropical storms as Hurricane Gordon and moreover Tropical Storm Helene swept across the state. Tropical Storm Helene brought fairly widespread 2- to 4-inch rainfall amounts to most of Georgia while Gordon kept most of its rainfall confined to southern and eastern Georgia. See Figures 3, 4, 5, and 6 for precipitation anomalies for these periods.

Precipitation Anomalies (inches)
Jan to Aug 1956
Versus 1950–1995 Longterm Average

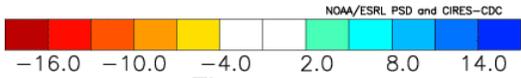
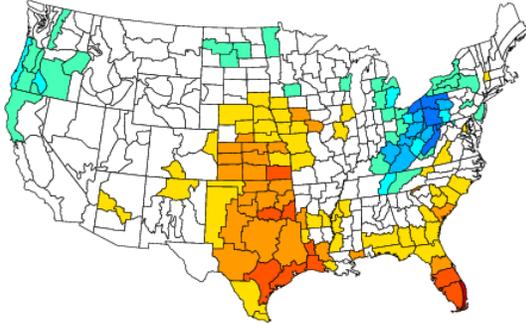


Figure 3.

Precipitation Anomalies (inches)
Sep 1956
Versus 1950–1995 Longterm Average

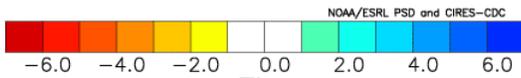
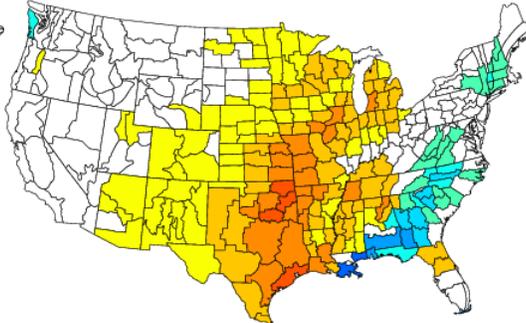


Figure 4.

Precipitation Anomalies (inches)
Jan to Aug 2000
Versus 1950–1995 Longterm Average

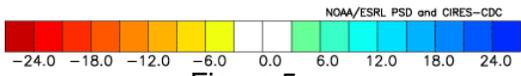
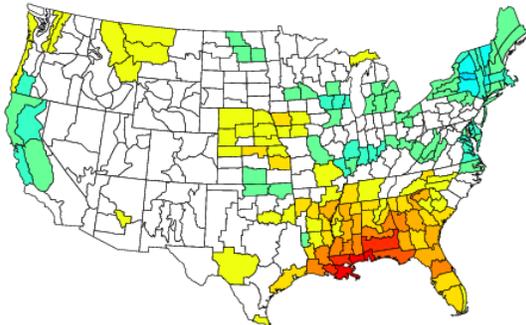


Figure 5.

Precipitation Anomalies (inches)
Sep 2000
Versus 1950–1995 Longterm Average

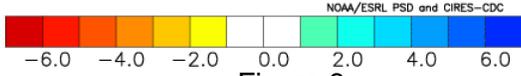
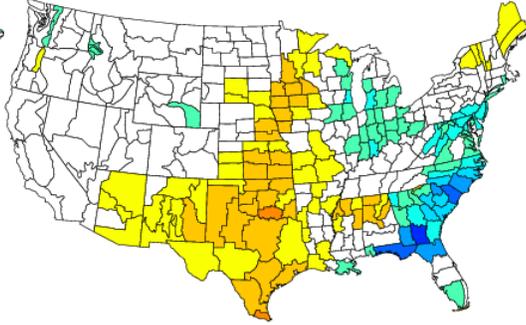


Figure 6.

This information should not be interpreted in indicating that there is a high probability that the drought will end anytime soon. However, it does show that the late summer / early fall seasons of the third year into past droughts did seem to bring an improvement of the PDSI.