

**Illinois Drought Update, August 30, 2007**  
**Illinois State Water Survey, Department of Natural Resources**

**SUMMARY.** Precipitation deficits have increased across southern Illinois during August. The area has also been subject to very warm daytime temperatures, with maximum temperatures averaging above 95°F, or 8°F above normal. The combination of lack of precipitation and high temperatures has led to the intensification of drought to severe status as determined by the U.S. Drought Monitor. The impacts of the drought are agricultural currently, although continued dryness in the fall may lead to water resource impacts. The severe drought area in southern Illinois is on the northwestern edge of a much larger and more severe drought encompassing an area from the southern Ohio Valley to the Gulf of Mexico. Substantial temperature relief and scattered heavy precipitation occurred over the evening of August 29-30. The next five days are expected to be dry throughout and gradually warming, but there may be a return to a more active weather pattern with better chances of rain during the first week of September.

**1. DROUGHT STATUS.** All of northern Illinois is free of drought status as of August 28 according to the U.S. Drought Monitor (Figure 1). Moving southward, the southern half of the Illinois transitions rapidly from abnormal dryness to moderate drought (Category D1 – light brown), reaching severe drought status (Category D2 - brown) in most of the state south of St. Louis. Severe drought occurs only 6-10% of the time, and is quite unusual. The Drought monitor is updated each Thursday morning by 7 AM local time. The national map can be accessed at: <http://drought.unl.edu/dm/monitor.html>, while the Illinois map can be accessed at: [http://drought.unl.edu/dm/DM\\_state.htm?IL,MW](http://drought.unl.edu/dm/DM_state.htm?IL,MW).

**2. PRECIPITATION.** August precipitation ranged from more than 14 inches in northern Illinois to less than 1 inch in southern Illinois (Figure 2). Totals were greatly above average in northern Illinois, but several inches below average in southern Illinois (Figure 3). The dryness in southern Illinois was part of a longer term pattern existing since the beginning of spring, leading to the March to August precipitation deficits exceeding 9 inches in far southern Illinois (Figure 4). Over the evening of August 29-30, some relief occurred in the form of heavy precipitation in a few counties in southeastern Illinois (Figure 5), but the precipitation was not widespread.

**3. TEMPERATURE.** Rapid drying of soils and agricultural impacts have been compounded by August being extremely hot during the day, with maximum temperatures averaging more than 95°F in the southern section of the state (Figure 6). The August maximum temperatures are more than 8°F above normal in this area (Figure 7). The mean temperatures, while only about 7°F above normal, currently rank third and second warmest on record since 1895 for the two climate divisions in southern Illinois. Only August 1936 was warmer in that area.

**4. SOIL MOISTURE AND AGRICULTURAL IMPACTS.** Soil moisture measurements taken by the Water Survey on August 17 show the beginnings of the intensification of soil dryness, with the 0-6 and 6-20 inch soil layer moisture levels being below 50% of average in most places and as low as 10% of average in places. New measurements will be available during the first week of September. Modeled soil moisture percents of normal for the top 72 inches (Figure 8) shows soil dryness is substantial even when subsoil layers are included. The National

Agricultural Statistics Service indicates that 100% of croplands in the southwestern and southeastern crop districts in southern Illinois are rated as very short of top soil moisture. Almost all corn there has reached dent stage, with about 50% of the corn in the southern two districts now mature. Soybeans also seem to be ending early, with more than 25% with leaf yellowing and more than 10% with leaves dropped. The performance of individual farms is varying greatly, depending on whether isolated thunderstorm rains have hit or missed during August, but yields will be substantially impacted on many farms in southern Illinois.

**5. GROUNDWATER.** Shallow groundwater levels in southeastern Illinois appear to reflect streamflows. The ISWS observation well at Rend Lake is ~1.5 feet below normal levels for this time of year. Observation wells at Olney and Fairfield show low groundwater levels typical for this time of year while farther west and north, shallow groundwater levels are well above levels typically seen for the end of August. While we have no direct reports of water hauling, it is expected shallow farm wells in extreme southeastern Illinois must be experiencing difficulties.

**6. STREAMFLOWS.** Streamflows throughout southwestern Illinois in late August have been well below normal, in the lowest 10 percent when compared to historical flows for this time of year. Streamflows in southeastern Illinois and portions of central Illinois (near Springfield and farther west) are also low, between the 10th and 15th percentiles for this time of year. These flow conditions are not yet acute, and for major streams are still noticeably higher than the 10-year low flow amount. However, 10-year low flows could occur with continued dry weather through September. The remainder of the state is experiencing normal to very high flow levels for this time of year.

Although stream levels are not acutely low, they have been below normal in southern Illinois for much of the summer. This has resulted in a cumulative reduction of inflows into reservoirs of the region. Rend Lake, in particular, is at the lowest August level since 1973, the year that the lake was initially filled. A continued reduction in the lake level over the next month could result in low water levels indicative of drought conditions. Available levels from other water supply reservoirs in southern Illinois are below-normal, but not excessively so. There are no known water supply concerns at this point. A more complete report of lake levels will be available during the first week of September after end-of-month observations have been reported.

Lake Michigan is reporting its lowest August levels since 1964, despite recent heavy rains in the vicinity. Much of the inflow into Lake Michigan comes from Lake Superior, which experienced its lowest August levels on record – slightly below the previous 1926 historical low. Based on water level records, the current Lake Michigan level (577.4 feet) is 1 to 2 inches below the normal water level in the Chicago River.

**7. OUTLOOK.** The five-day forecast from the National Weather Service predicts little or no rain across Illinois as high pressure drifts across the region. A slow warming trend is expected through the period. Chances for rain may increase the latter half of the first week of September as a frontal system moves through the Midwest.

The NWS Climate Prediction Center's outlook for September calls for equal chances of above, normal, or below normal precipitation in Illinois.

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Water Survey Web site: <http://www.sws.uiuc.edu/hilites.asp>

Figure 1.

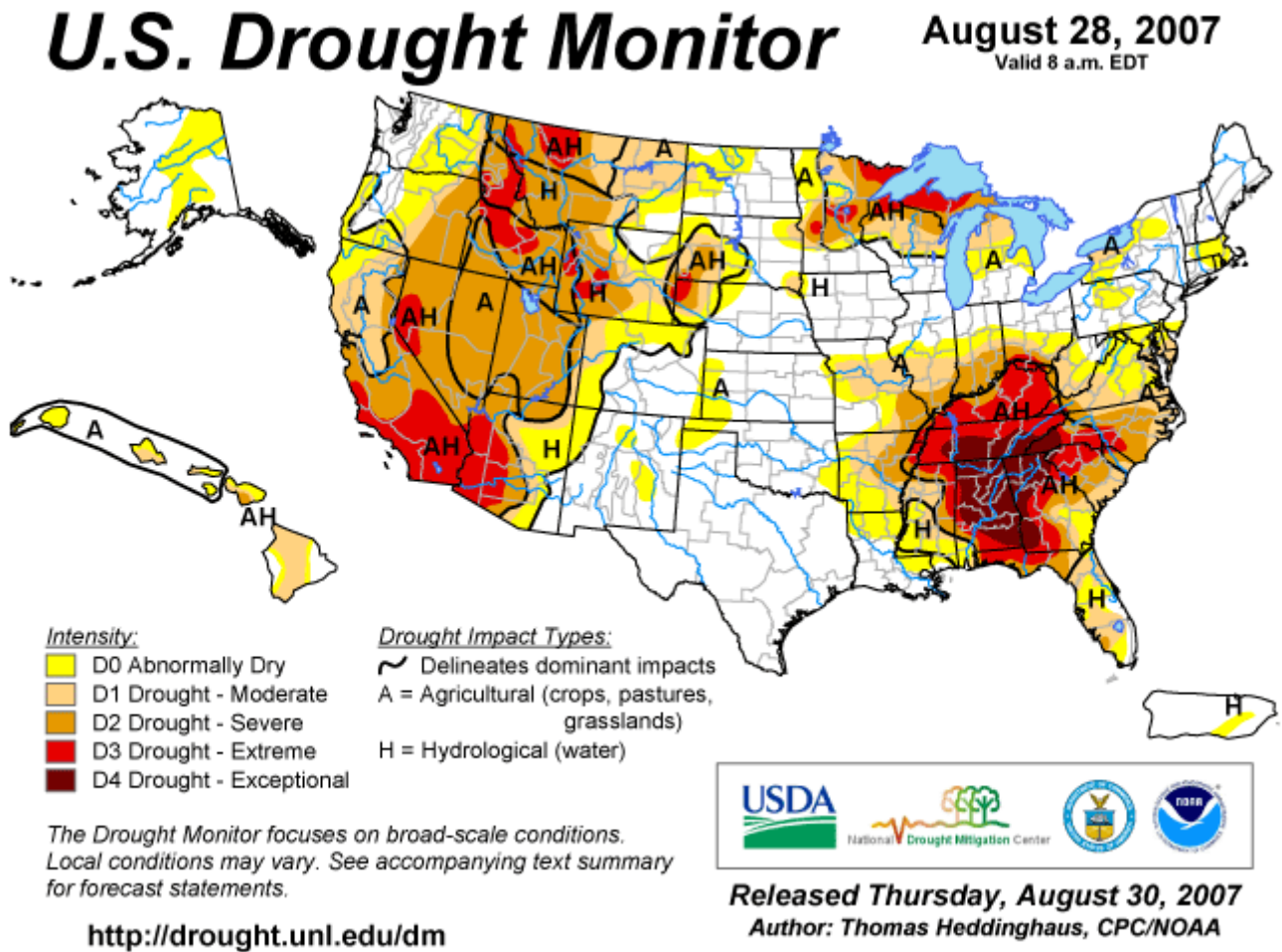


Figure 2.

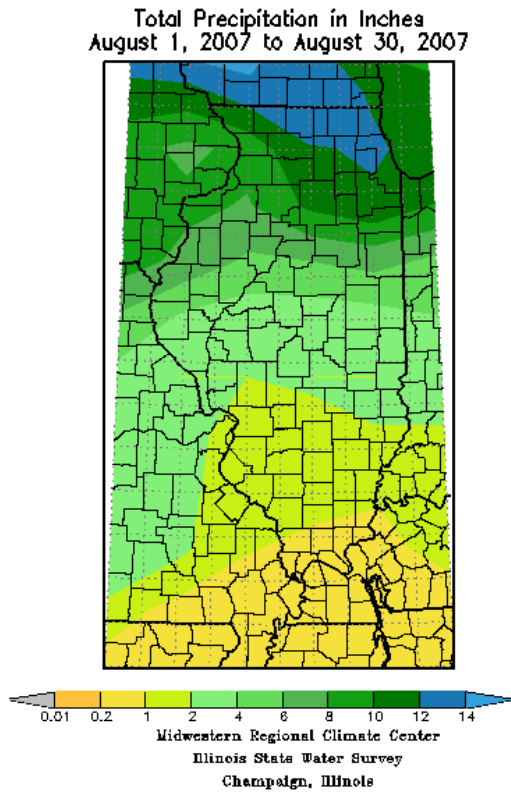


Figure 3.

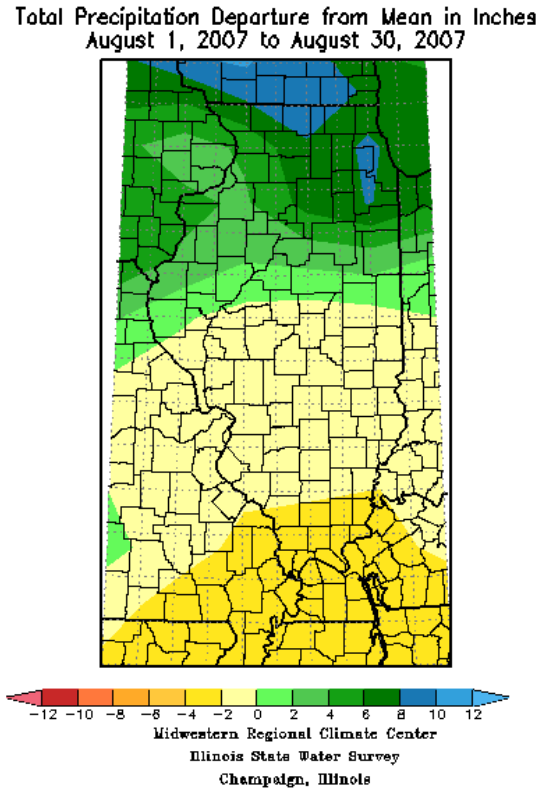


Figure 4.

**Total Precipitation Departure from Mean in Inches  
March 1, 2007 to August 30, 2007**

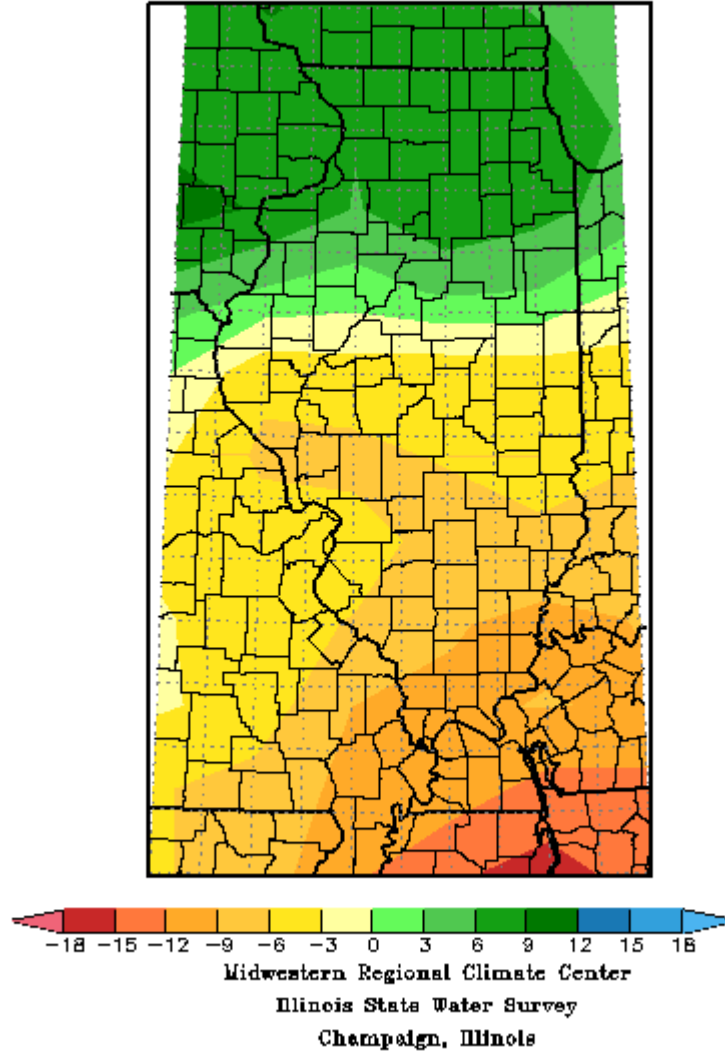


Figure 5.

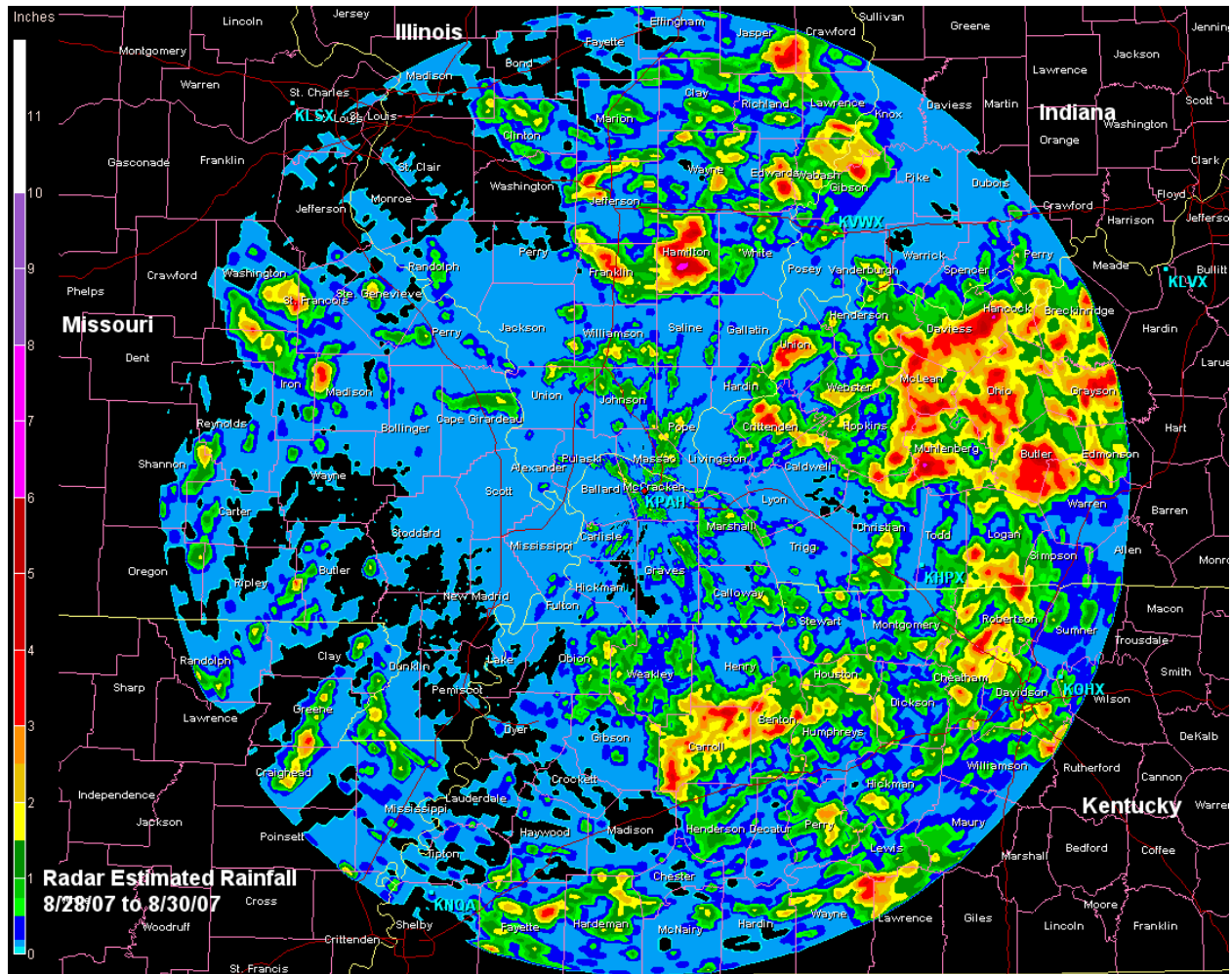


Figure 6.

Average High Temperature in Degrees F  
August 1, 2007 to August 29, 2007

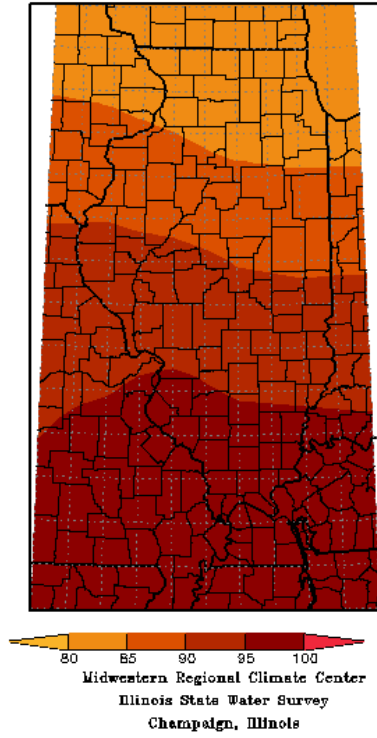


Figure 7.

Average High Temp Departure from Mean in Degrees F  
August 1, 2007 to August 29, 2007

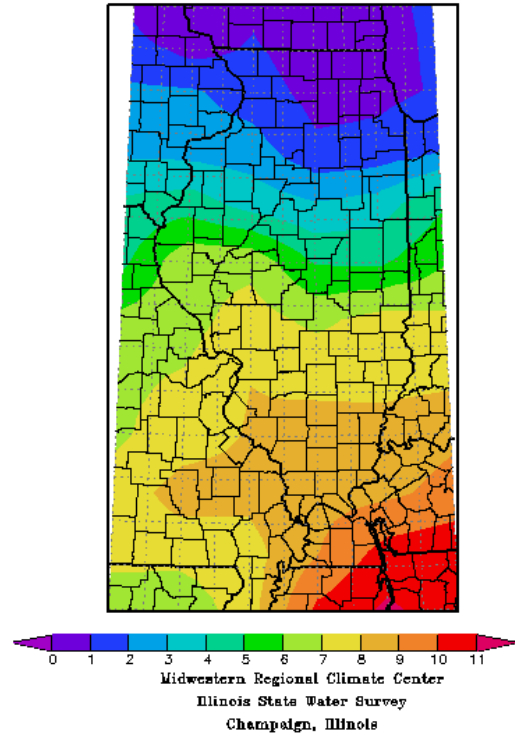
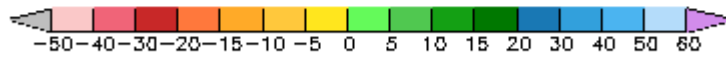
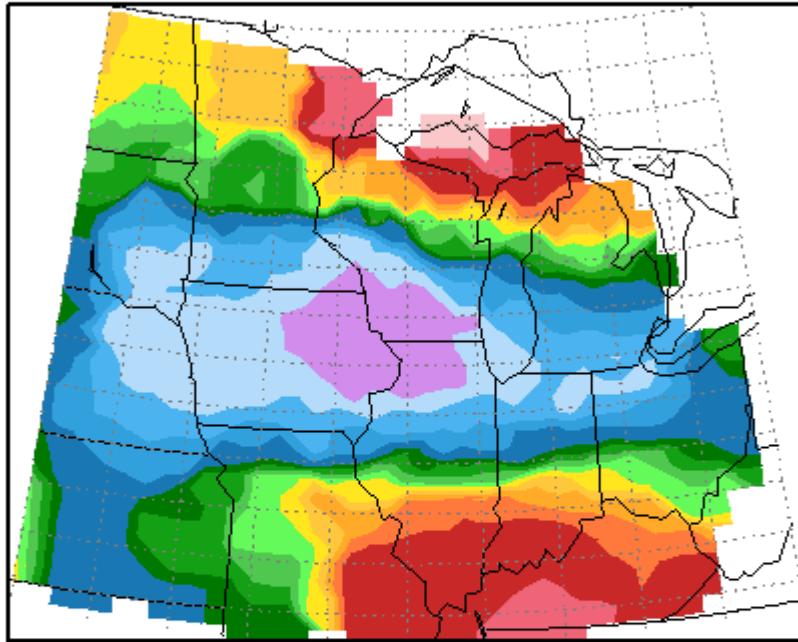




Figure 8.

Current Soil Moisture Deviation (%), Depth = 0-72  
8-30-2007



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