



DROUGHT UPDATE

August 21, 2012

Summary

Over the first 19 days of August, Illinois received an average of 2.4 inches of rain, ranging from less than an inch in western Illinois to over 5 inches in portions of Effingham, Fayette, and Shelby counties in south-central Illinois. The release of this update was delayed until the impacts of this rainfall on Illinois drought conditions could be better assessed. The Statewide average precipitation for August so far is only slightly greater than the average amount expected for this time of year. Thus, in regions that experienced around 2 inches of rain there has been no significant change to the precipitation deficit that has been built up over the past 8 to 12 months, thus causing only moderate impacts on hydrologic conditions reflected in stream, lake, and groundwater levels. In regions that received the greatest amounts of rainfall, there was a clear benefit to water levels in streams and lakes. There is also an expected but as yet unreported benefit to soil moisture levels, which will probably improve some agricultural conditions but not likely the corn crop. For the western part of the State, there was not much relief in drought conditions except for cooler air temperatures.

Precipitation and Temperature

After record heat and lack of rain in July, the first 19 days of August have been more moderate. Precipitation has been more widespread (Figure 1) with 2 to 5 inches falling in much of southern and eastern Illinois. Amounts were less than an inch in western Illinois. As a result areas to the south of Interstate 55 have received above normal rainfall while areas to the north have received below normal rainfall (Figure 2) for the month so far. Meanwhile, the statewide average temperature for the first three weeks has been 0.4 degrees below normal. In general, the increased rainfall and less heat may be beneficial to the soybean crop but arrives too late for much of the corn crop.

The impact of the August rains on the long-term deficits is moderate. Using January 1, 2012, as the starting point, the long-term deficits increased by 0.4 to 1.4 inches in crop reporting districts in the north and west. They decreased by 0.2 to 1.25 inches in eastern and southern Illinois (see Table 1). The map of precipitation departures (Figure 3) since January 1, 2012, shows that the deficits are still sizable across the state.

Since the last drought update in late July, the preliminary numbers for the entire month of July have been calculated. This July was the second warmest and fourth driest on record in Illinois,

based on preliminary numbers for the month. The statewide average temperature was 81.8 degrees, 6.4 degrees above normal (1981-2010 average). The warmest July on record was 1936 with 83.1 degrees. The statewide average precipitation for July was 1.47 inches, 2.58 inches below normal or 36 percent of normal. This puts it in fourth place just behind 1930, 1916, and 1936.

Through the end of July, this year so far is the warmest and third driest on record. The statewide average temperature for January-July 2012 was 56.9 degrees, 5.5 degrees above normal. The statewide average precipitation for January-July was 14.05 inches, 9.82 inches below normal or 59 percent of normal. Only 1936 and 1934 were drier at this time of the year.

Agricultural Conditions

On August 13 the U.S. Department of Agriculture reported that 75 percent of the corn crop, 55 percent of the soybean crop, and 94 percent of pasture was rated poor to very poor. Topsoil was rated at 95 percent poor to very poor and subsoil was rated 97 percent poor to very poor. More details can be found in the weekly Illinois Weather and Crops report published by the USDA.

Streamflows

The response of streamflows to rainfalls during the first three weeks of August was highly varied. In south-central Illinois, which experienced the greatest total amounts of rain and where runoff often is comparatively flashy, many streams and rivers displayed a considerable increase in stream levels to flow rates that are actually above-normal for August – but this tended to be short-lived, typically lasting only 2-5 days before water levels subsided. Streams that displayed the greatest amount of flow increase were located in the Little Wabash and Kaskaskia River watersheds. During the first week of August, similar behavior was also displayed in the South Fork Sangamon River and Macoupin Creek watersheds but to a lesser extent. In contrast, streamflows in central Illinois and north-central Illinois rose only slightly for brief periods. On August 16, much of the upper Sangamon River watershed – one of the driest regions in the State – received 1.5 to 2 inches of rain which barely caused a reaction in the river levels. Although there is variation between all streams, it is generally safe to say that following these heavy rainfall events the flow rates in most Illinois streams returned to levels that were neither markedly better nor worse than conditions two weeks previously.

Community Water Supplies

The levels in most community water supply reservoirs in Illinois continued to fall through early August. But in a number of cases the rate of decline has slowed in recent weeks as a result of a combination of factors, including some restrictions in water use, lower temperatures and evaporation rates, and local rainfall. Increases in water levels were generally observed in early- to mid-August in the south-central region of Illinois where rainfall was greatest, including several community reservoirs in Macoupin, Montgomery, Christian and Effingham Counties. In some cases the rise in water level was sufficient to fill the reservoirs, but in most cases the increases merely offset reservoir losses from the previous 1 or 2 weeks – thus having only a

slight impact on the progress of drought conditions. For many reservoirs, it may take many weeks to several months of normal- to above-normal rainfall for the lake drawdowns to ease up and begin reversing course. On the other hand, even for the most vulnerable reservoirs it will also take many months of continued below normal rainfall before we potentially see any threats of shortages.

Federal Reservoirs and Lake Michigan.

Recent rains also caused a noticeable improvement in the level of Carlyle Lake, which rose over a half of foot during August 17-20 to its current level of 444.1 feet (0.9 feet below its target pool level). The corresponding increase in Lake Shelbyville was much more modest, with only a 0.1 foot rise to its current level of 598.4 feet (1.3 below its target level). The Rend Lake region received a small rainfall amount and the lake continues to drop and is now 0.3 feet below its target pool. The level of Lake Michigan has fallen roughly 3 inches since early July. Although Lake Michigan is nearly 2 feet below its long-term average for August, most of this decline has occurred in past years and is not directly related to the current drought conditions.

Shallow Groundwater and Soil Moisture

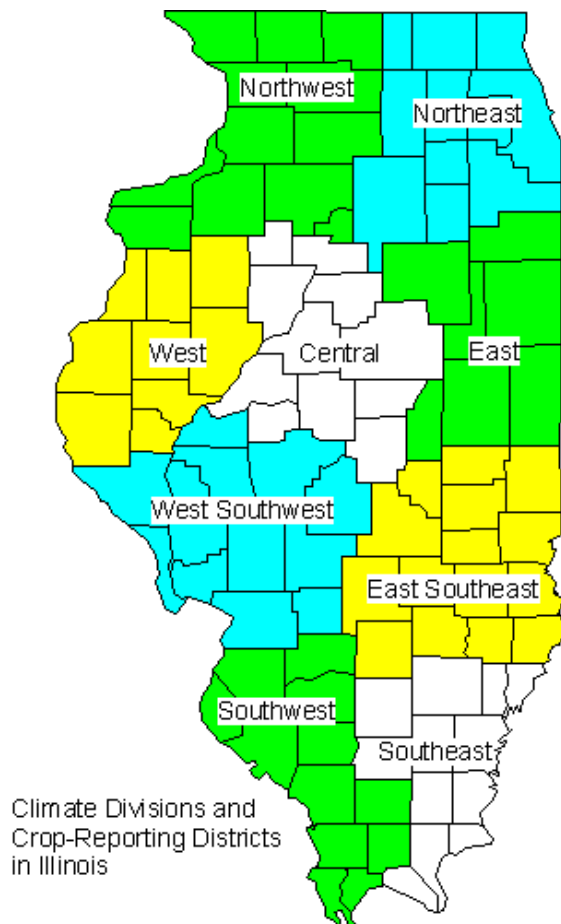
Water levels continued to fall throughout July at all 15 wells in the Water Survey's network of shallow observation wells located in all regions of the State. With the exception of some wells in northernmost and southernmost parts of the State, the rate of decline was noticeably greater than the typical seasonal decline that we would see at this time of year. Five of the 15 wells reported their lowest readings ever for July, with records between 24 and 56 years in duration.

Soil moisture is measured hourly at the Illinois Climate Network's 19 stations located across the state. On average, soil moisture at depths of 2" declined 17% across the network during July. Seven stations saw declines of more than 20%. Only two stations, located at Carbondale and Olney, saw increases over the month. Similar declines were also observed at 4 and 8" depths. Moisture levels at greater depths (39 and 59") showed slighter declines, averaging less than 10% across the network.

The rain of the past week have resulted in increases in soil moisture several stations. Eight stations saw increases in 2" moisture levels of more than 20% during the first six days of August. Significant increases at the 4" and 8" were also observed. There were no significant changes at the 39 and 59" depths. However, despite the increases of the last week, soil moisture levels remained low. The August 6th network average at 2" was 19% lower than normal. Other depths saw similar deviations.

Table 1. Comparison of precipitation deficits since January 1, 2012, for July 31 and August 19. The map below the table indicates where the crop reporting districts are in Illinois.

Crop Reporting District	End of July Deficit	August 19 Deficit	Difference
Northwest	-7.03	-7.92	-0.89
Northeast	-5.86	-6.64	-0.78
West	-8.95	-10.34	-1.39
Central	-9.92	-10.31	-0.39
East	-7.98	-7.43	0.55
West-southwest	-6.68	-6.46	0.22
East-southeast	-9.77	-8.52	0.38
Southwest	-8.85	-8.47	0.38
Southeast	-11.18	-9.99	1.19



Accumulated Precipitation (in)
August 1, 2012 to August 19, 2012

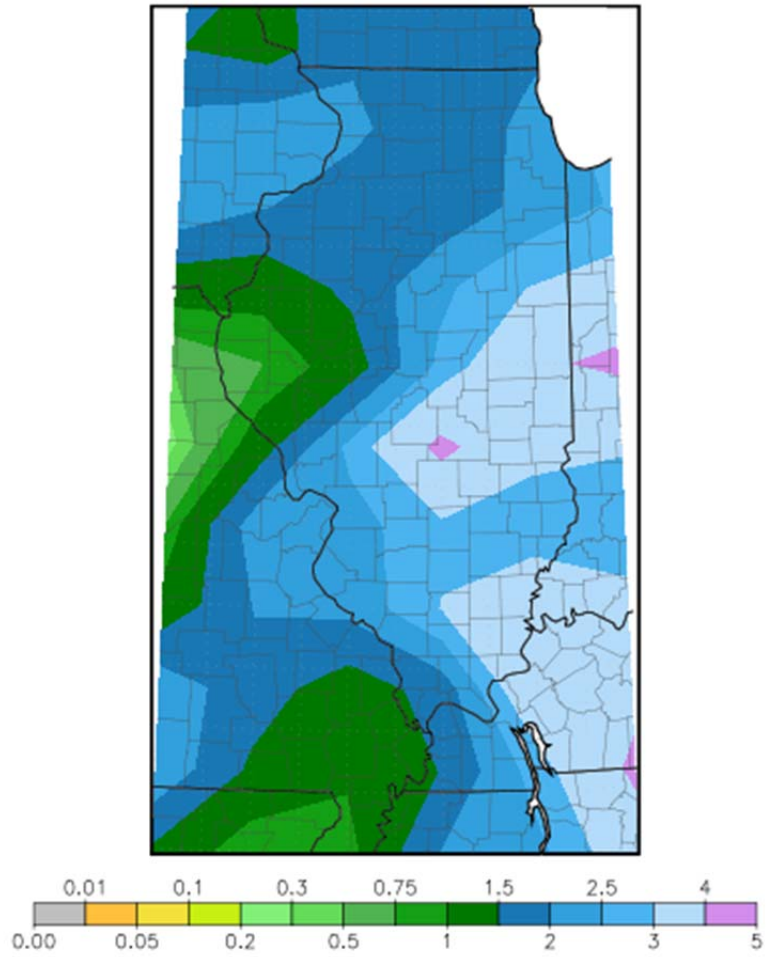


Figure 1 shows precipitation totals (inches) in Illinois for August 1-19, 2012.

Accumulated Precipitation (in): Departure from Mean
August 1, 2012 to August 19, 2012

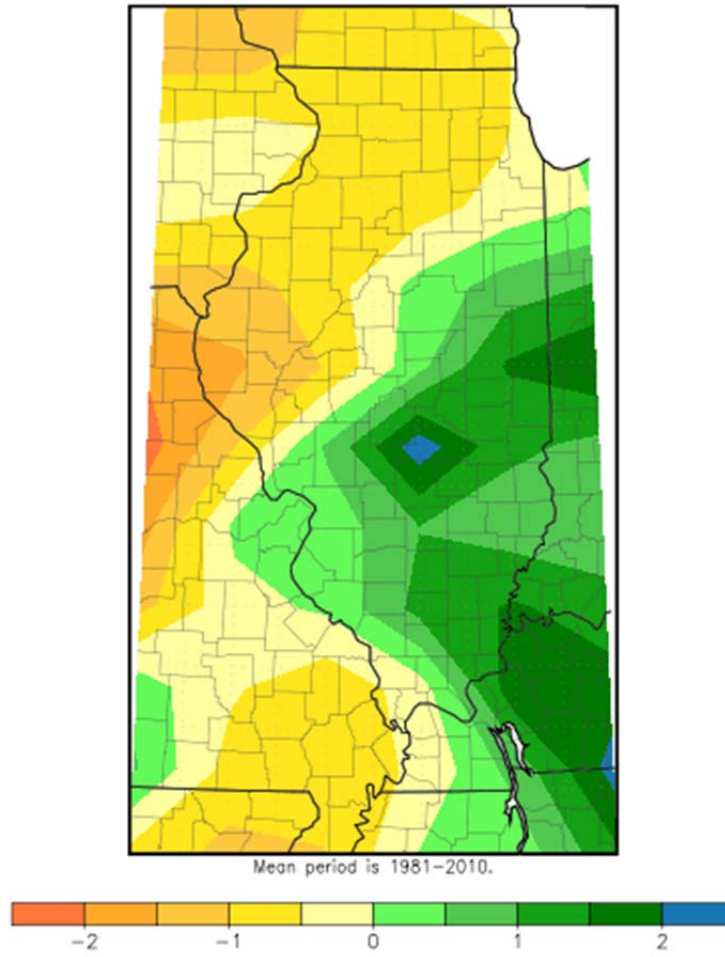


Figure 2 shows precipitation departures (inches) from normal in Illinois for August 1-19, 2012.

Accumulated Precipitation (in): Departure from Mean
January 1, 2012 to August 19, 2012

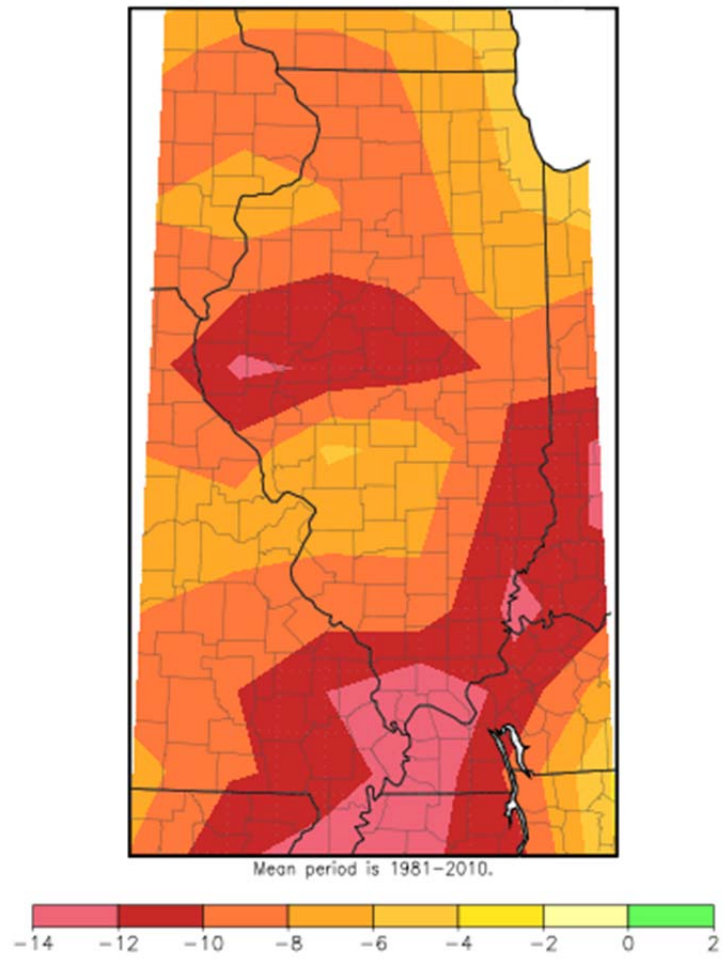


Figure 3 shows the accumulated precipitation departures (inches) from normal across Illinois since January 1, 2012.