

Illinois Climate Update, July 6, 2006

Illinois State Water Survey, Illinois Department of Natural Resources

For more information, please go to <http://www.sws.uiuc.edu/hilites/drought/>

1. DROUGHT STATUS. According to the U.S. Drought Monitor (Figure 1), most of Illinois is free of drought. Only portions of west-central Illinois remain “abnormally dry”, with a very small area south of Moline in “moderate drought” (category 1 in their 4-category drought classification). Large portions of Missouri and southern Iowa are in either the “abnormally dry” or “moderate drought” category. Much of the Great Plains is in drought. The U.S. Drought Monitor is updated each Thursday morning at 8am EDT and can be accessed via the Internet at <http://www.drought.unl.edu/dm/monitor.html>.

Soil moisture, streamflow, and shallow groundwater levels are much below normal in west-central Illinois. If relatively dry conditions continue into mid-July, it is expected that most of Illinois (with the exception of the most northerly portion of the state) will have i) below normal soil moisture, ii) below-normal streamflows, and that the well-below normal region (lowest 10th percentile) will expand to cover more of the area around St. Louis, Quincy, and Springfield; and iii) below-normal shallow groundwater levels. Any further drop in the flow level of the Mississippi River at St. Louis will bring the river stage into the range where there have been navigation concerns in the past and possible needs for river dredging.

2. PRECIPITATION. Statewide precipitation in 2006 through July 5 has been 20.64 inches (0.74 inches above normal). Precipitation amounts and departures for 2006 are shown in Figure 2. After a wet March and April (a combined total of 8.53 inches and 1.51 inches above normal), statewide precipitation was 3.72 inches in May (0.54 inches below normal) and 3.49 inches in June (0.59 inches below normal). Going back to the beginning of drought last March, statewide precipitation (Figure 3) has been 44.78 inches (10.06 inches below normal and 82 percent of normal). Long-term precipitation deficits are most severe in an area from St. Louis to Moline to Chicago.

3. LAST 112 YEARS. Below average precipitation totals have been observed across Illinois during May and June, especially in western and central parts of the state. Average amounts within the West and Central Climate Divisions during these two months in 2006 rank near the driest 10 percentile of long-term May-June precipitation records in Illinois (Figure 4).

4. SOIL MOISTURE. Soil conditions on July 1 (Figure 5) show near normal moisture levels in southeastern and northern Illinois but much drier soils from St. Louis to Peoria. There has been a general drying trend in soil moisture during recent weeks. Most of this regional dryness is between 6 to 40 inches deep and is located within a region of the state that did not fully recover from the dry soil conditions observed in 2005.

5. GROUNDWATER. Shallow groundwater levels continued to be below normal by an average of 2.1 feet and ranged from 8.0 feet below to 1.6 feet above. Two wells, Greenfield (Greene County) and Bondville (Champaign County) have reported their lowest June levels on record. Dry conditions have continued to negatively affect groundwater levels for the fifteenth consecutive month and are currently below those of June 2005 by 0.5 feet. The ISWS ICN

Observation Well Network, a series of shallow wells stationed at seventeen ICN sites collecting hourly groundwater level measurements, reported decreases in all sixteen of the wells from June 5 through July 5, 2006. We have no indications over the last month of low groundwater conditions reflected in public requests for water information.

6. ILLINOIS STREAMFLOWS. The average June flows for over half of the streams in Illinois were in their normal range (30th to 70th percentiles). Streams in about one-third of the state, in western and central Illinois, were below normal, with most stations having flows in the 20th to 30th percentiles. Within this area, a small region near St. Louis have flows in the lowest 10th percentile. During the last two weeks of June and the early part of July, streamflows in central and western Illinois have continued to fall faster than their seasonal norm, creating an even larger region of below-normal streamflows (Figure 6). If relatively dry conditions continue into mid-July, it is expected that most of Illinois (with the exception of the northern portion of the state) will have below-normal flows and that the well-below normal region (lowest 10th percentile) will expand to cover more of the area around St. Louis, Quincy, and Springfield.

7. WATER LEVELS AT PUBLIC WATER SUPPLY (PWS) RESERVOIRS. Water levels for most reservoirs in Illinois are near full pool, as would be expected for this time of year. Levels in water supply reservoirs typically begin to drop below their normal pool in early July. Lake Springfield started to drop in mid-June, earlier than normal, and is now 0.2 feet below full pool. The City of Springfield has already begun pumping water from the South Fork Sangamon River to supplement storage in the lake. The two public supply reservoirs that are of greatest concern are at Altamont and Greenfield, neither of which recovered to full pool in the spring. Altamont Lake is 3.5 feet below normal and Greenfield Lake is 4.5 feet below normal. Although there are concerns with the low water levels, both reservoirs are around 30 feet deep and may likely still be storing roughly 70% percent of their full capacity. However, neither reservoir has ever had a volumetric survey, thus they have an uncertain amount of remaining water. We know of no other abnormally low lake levels.

8. FEDERAL RESERVOIRS. Lake Shelbyville and Carlyle Lake are currently 0.4 feet below and 0.6 feet above their seasonal target levels, respectively, and pose no water supply concerns. Rend Lake, at 2.8 feet above its primary spillway elevation, is at a level that is slightly above normal for this time of year.

9. MISSISSIPPI AND OHIO RIVERS. The flow level of the Mississippi River at St. Louis has fallen 3.0 feet over the past week, and now has a flow slightly less than 100,000 cfs. Any further drops at St. Louis will bring the river stage into the range where there have been navigation concerns in the past and possible needs for river dredging. The portion of the river north of the Missouri River is also below normal for this time of year, but we are not aware of any potential navigation issues at this time. The water levels in the Ohio River are at a normal condition for this time of year.

10. ILLINOIS RIVER. The Illinois River is below normal for this time of year, generally ranging in the 10-20th percentiles compared to the long-term average.

11. LAKE MICHIGAN. The water level for Lake Michigan has been at 577.9 feet for all of June and early July, and appears to have reached its peak for this year. The lake is 0.2 foot lower than it was this time one year ago, 1.4 feet lower than its long-term May average, and 1.3 foot higher than the record May low that occurred in 1964.

12. OUTLOOK. The National Weather Service (NWS) forecast indicates that little rain will reach Illinois between July 6 and 10. Long range forecast models show favorable conditions for rain in southern and eastern Illinois during July 12-16, but the northwestern portion of the state is more likely to receive normal or less than normal amounts of precipitation. Temperatures should be near normal during July 6-10, but there is a better than normal chance of above normal temperatures forecast by the Climate Prediction Center (CPC) for July 11-20 as a high pressure ridge builds into the area from the west. The NWS Hazards Assessment released on July 6 indicates there may be dangerously high heat index values for all of Illinois during the July 12-16 period. The timing of this potential high heat could be problematic relative to the corn crop fertilization schedule in much of Illinois. Crop conditions could begin to deteriorate if this forecast proves to be correct.

In the longer term, the CPC seasonal forecast indicates normal probabilities for both temperature and precipitation through the end of the growing season. The El Niño / Southern Oscillation (ENSO) status is currently neutral and is expected to remain that way through the summer. Neutral ENSO conditions tend to favor a slightly greater than normal chance of above normal precipitation in much of the Corn Belt. Regional feedbacks relating to the existing drought in the Southwest and western Great Plains could override this tendency if high pressure expands eastward and steers weather disturbances and moisture around Illinois. Heat storage is building in the western Pacific, and it is predicted that weak El Niño conditions could begin later in the fall.

13. SUMMARY OF STATES WATER RESOURCES. The impacts of precipitation deficits in Illinois during 2005 have continued into 2006. Even though average rainfall across the state in recent months has been much closer to average than was during the same months in 2005, full recovery from the deficits as measured by other state water resources has been incomplete (Figure 7). Current statewide soil moisture levels have been declining for 4 months and are at their lowest values since last July. Streamflow totals are also the lowest in 4 months and are on par with December 2005 observations. Groundwater, perhaps the slowest water resource to react to long-term precipitation departures, appears also to be the slowest to exhibit substantial recovery. Virtually no improvement in statewide average groundwater levels has been noted since February.

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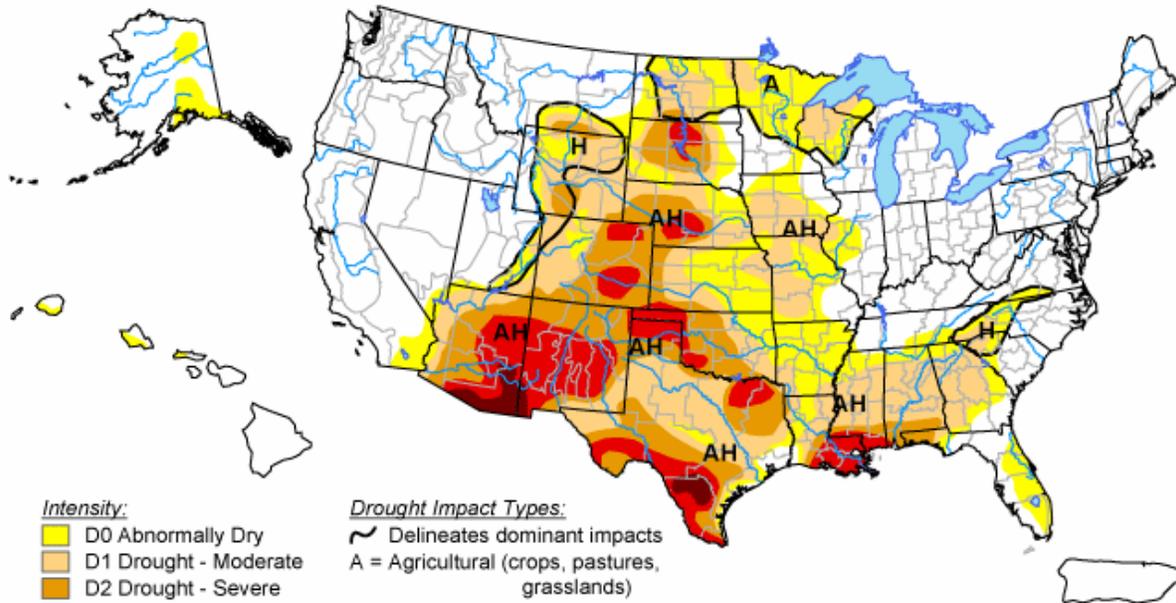
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Water Survey Web Site: <http://www.sws.uiuc.edu/hilites/drought/>

U.S. Drought Monitor

July 4, 2006
Valid 8 a.m. EDT



Intensity:

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

Drought Impact Types:

- Delineates dominant impacts
- A = Agricultural (crops, pastures, grasslands)
- H = Hydrological (water)

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.



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<http://drought.unl.edu/dm>

Figure 1. U.S. Drought Monitor for July 4, 2006.

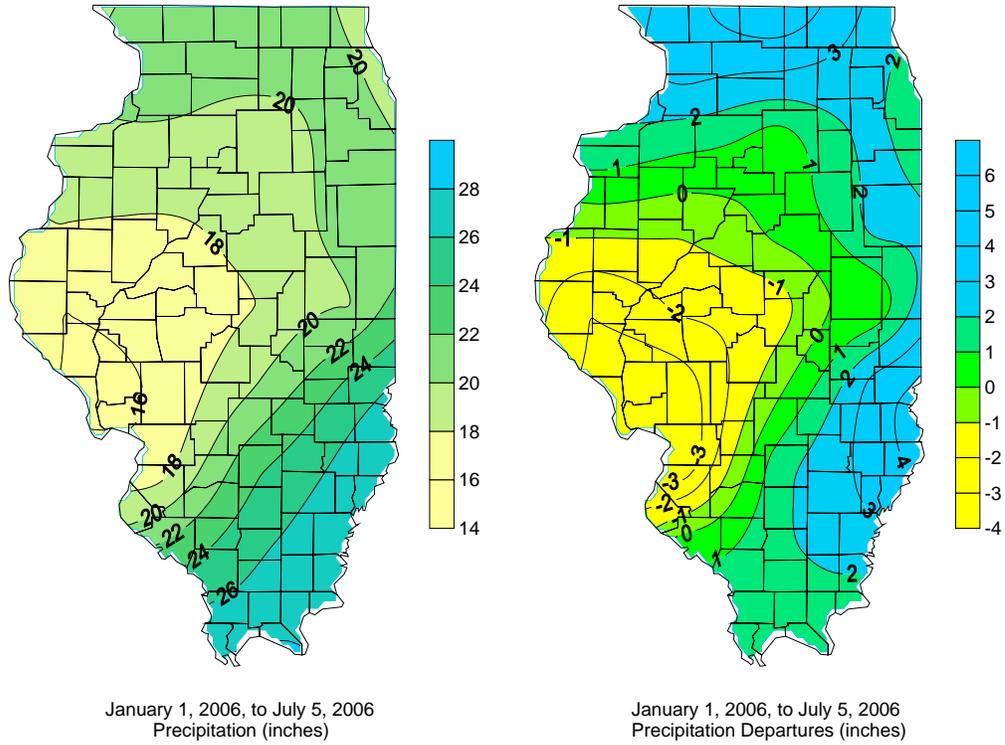
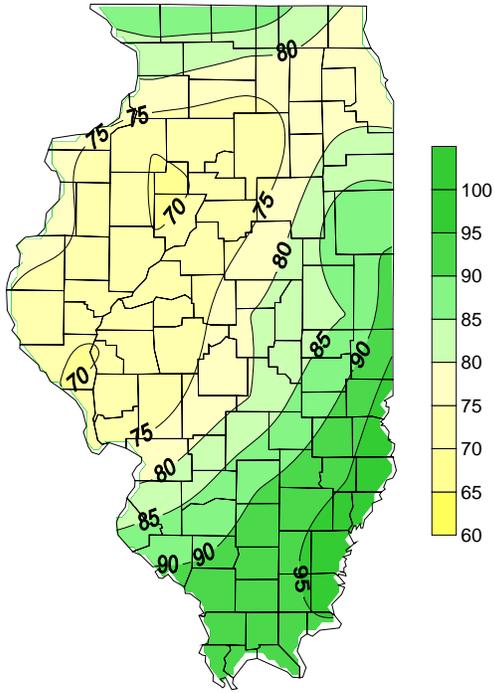
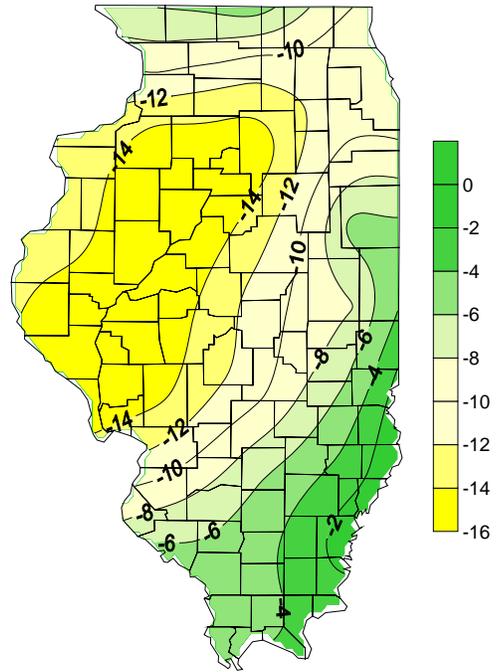


Figure 2. Precipitation for the period of January 1, 2006 to July 5, 2006, in terms of actual precipitation (left) and departure from normal (right).

Source: Illinois State Water Survey



March 1, 2005, to July 5, 2006
Precipitation Percent of Normal



March 1, 2005, to July 5, 2006
Precipitation Departures (inches)

Figure 3. Precipitation for the period of March 1, 2005 to July 5, 2006, in terms of percent of normal (left) and departure from normal (right).

Source: Illinois State Water Survey

**Figure 4. Rankings of May-June precipitation (inches) totals in selected Illinois Climatological Divisions (CD) since 1895.
(Note: May-June statewide totals rank as 21st driest.)**

<i>Rank</i>	<i>West CD</i>		<i>Central CD</i>	
	<i>Year</i>	<i>Amount</i>	<i>Year</i>	<i>Amount</i>
1	1992	2.18	1988	2.21
2	2005	3.66	1992	2.52
3	1934	3.90	2005	2.54
4	1963	3.94	1963	3.01
5	1936	4.00	1934	3.19
6	1988	4.11	1895	3.44
7	1987	4.21	1979	3.53
8	1911	4.22	1936	3.56
9	1979	4.55	1922	4.28
10	1964	4.90	2006	4.56
11	2006	4.92	1911	4.63
median		8.56		7.63

Source: Illinois State Water Survey

0 - 72 inch Soil Layer

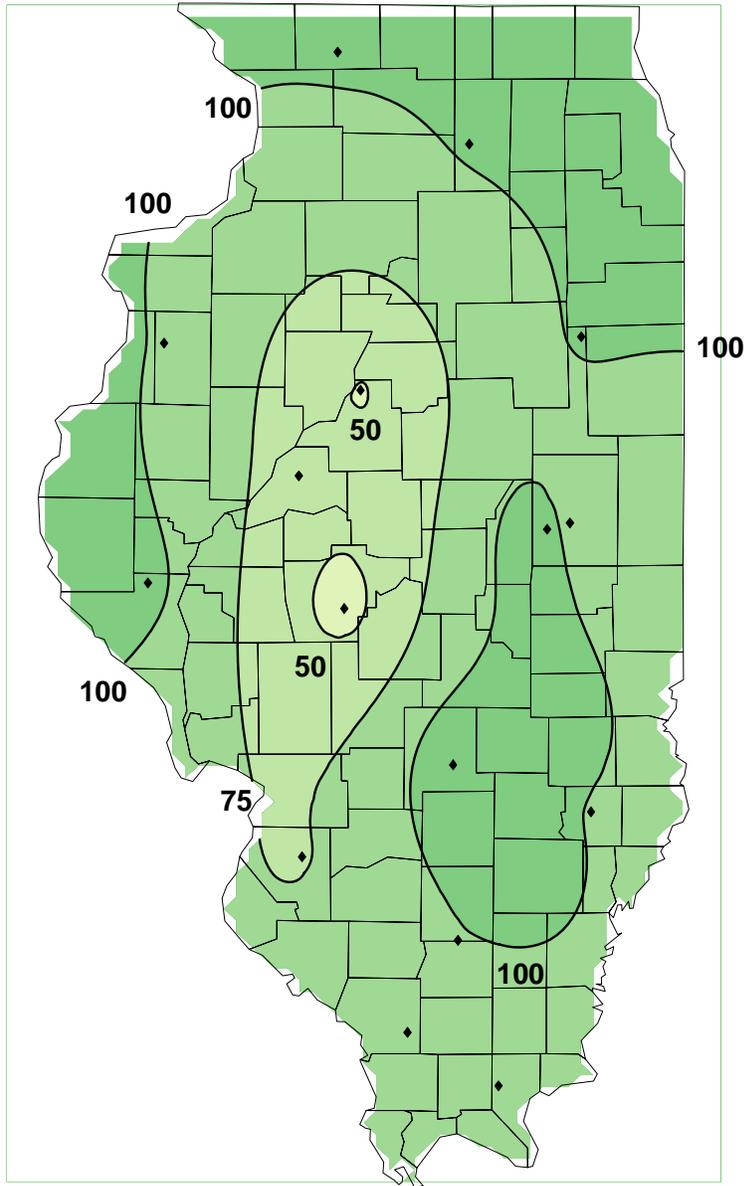


Figure 5. July 1, 2006 observed percent of normal soil moisture based on 1985-1995 mean.

Source: Illinois State Water Survey.

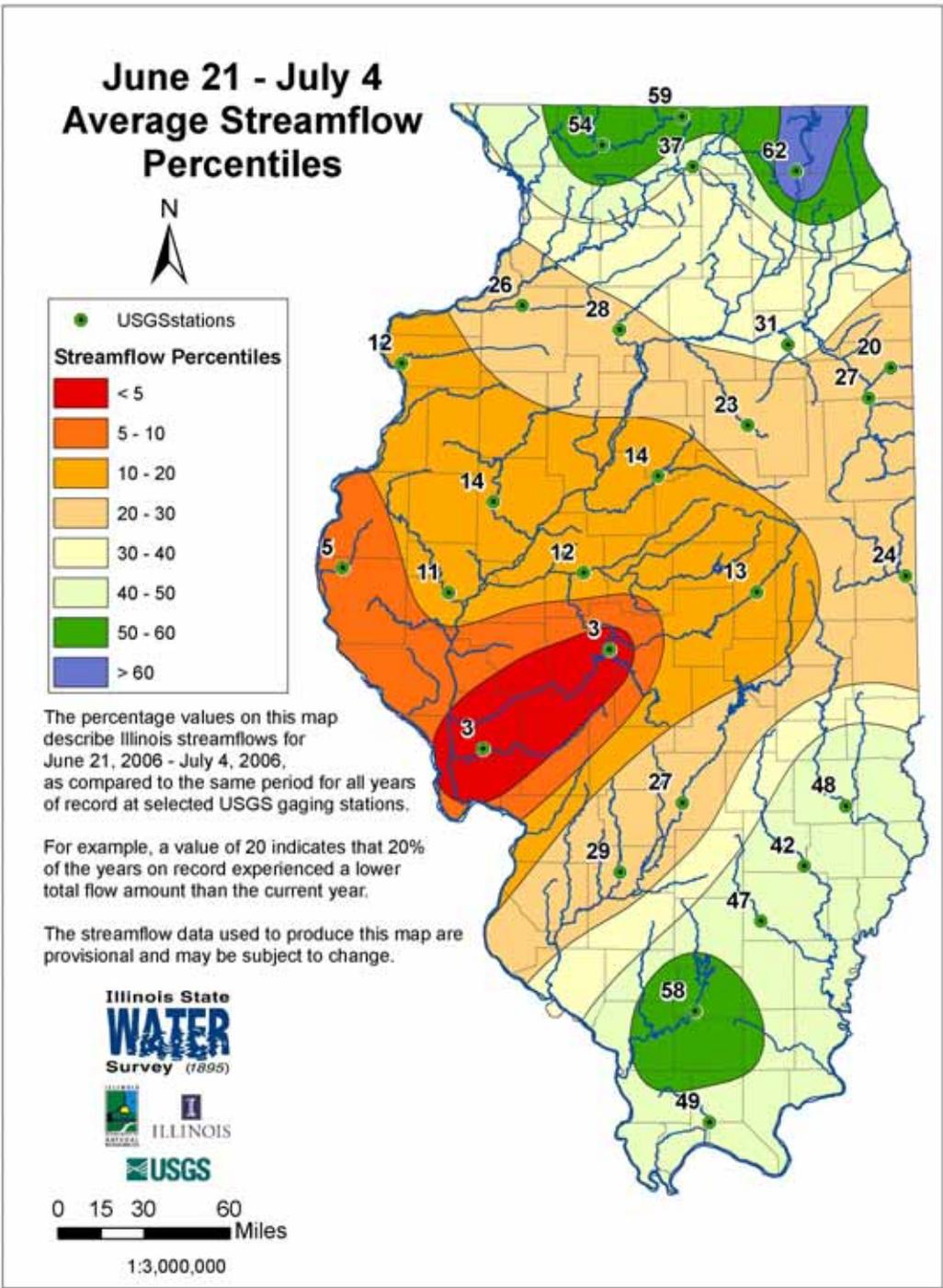


Figure 6. Streamflow percentiles for June 21- July 4, 2006.

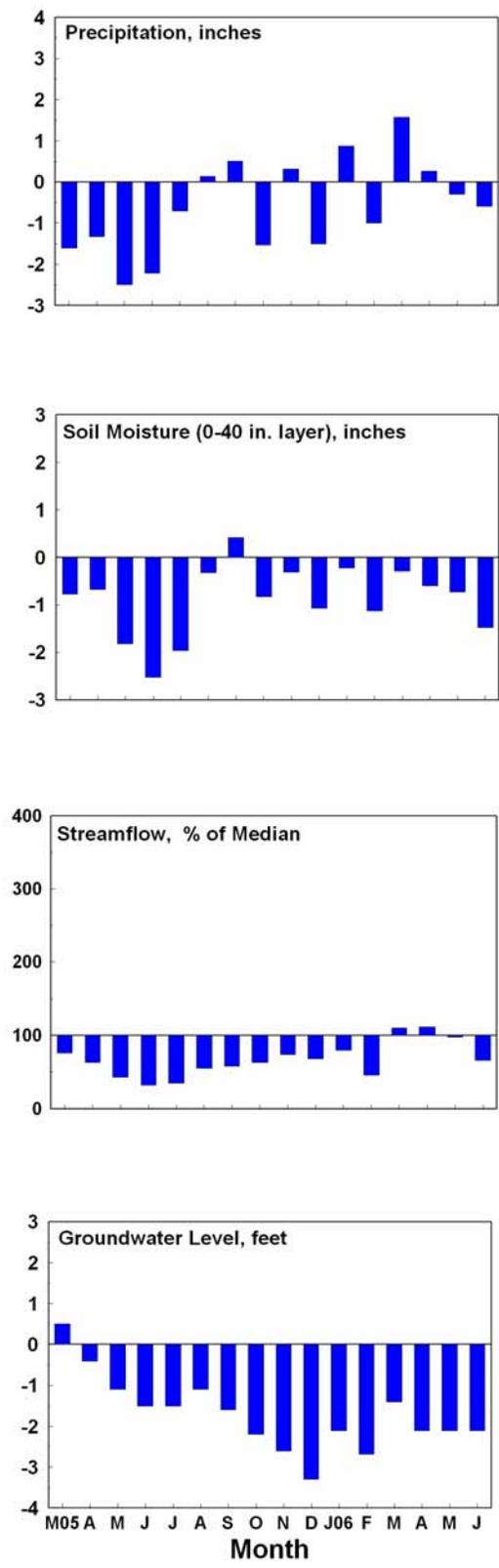


Figure 7. Statewide departures from monthly normal.

Source: Illinois State Water Survey