

ILLINOIS WATER AND CLIMATE SUMMARY

July 2003

July 2003 Overview (Bob Scott)

Temperatures in Illinois during July were slightly below average. Precipitation was well above average. Soil moisture within the top 40 inches of soil was below the long-term statewide average. Mean streamflows were above median heights. Shallow groundwater levels were well below long-term average depths.

**Temperatures** across Illinois (Figure 1) for July were uniform and slightly below average (a -1.0-degree departure). Crop Reporting District (CRD) temperatures ranged from 0.5 degrees below average (southeast) to 1.4 degrees below average (northwest and west).

**Precipitation** amounts for the state as a whole were well above average (Figure 1), ranking as the 11th wettest July since 1895. The statewide average of 5.62 inches represents a +1.79-inch departure or 147 percent of average. However, regional rainfall variability was considerable and ranged from 8.94 inches (221 percent of average) in the east CRD to 2.77 inches (75 percent of average) in the southwest CRD.

**Soil moisture** in the 0- to 40-inch (0- to 100-centimeter) layer at the end of July was below normal. Regionally, conditions near the surface were below normal in northwestern and southern Illinois, and were also low across much of central Illinois in deeper layers. Elsewhere, conditions in all layers were normal to well above normal.

**Mean provisional streamflow** statewide was above the median flow, 248 percent of median (Figure 1). Rivers in Illinois recorded mean discharges in the much above normal to normal range during July. Peak stages recorded at stations on the Illinois River exceeded flood stage at three stations. The Mississippi River at stations along the Illinois border recorded peak stages below flood stage, as did the Ohio River at Cairo.

**Water surface levels** at the end of July were below the normal pool/target operating level at 21 of 38 reporting reservoirs. Lake Shelbyville and Carlyle Lake were at target levels. Rend Lake was above the target operating level. Lake Michigan's mean level remained below the long-term average.

Statewide, and for the eleventh consecutive month, **shallow groundwater levels** were well below average. July deviations averaged -2.1 feet. They also were 1.8 feet lower than the June averages and approximately 1.6 feet below July levels one year ago.

*Note: Extended network descriptions appear in the January and July issues. Network maps are available upon request.*

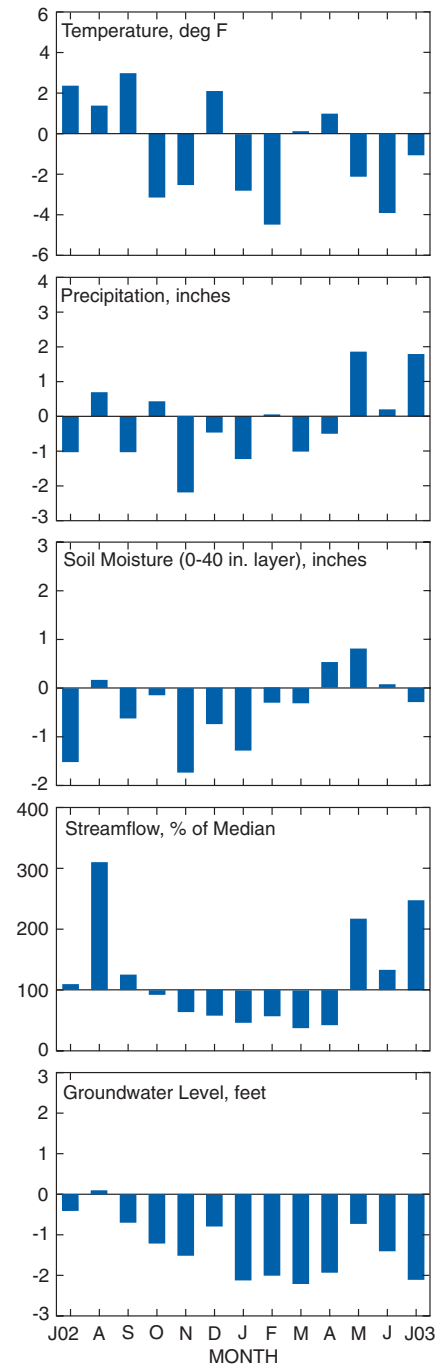


Figure 1. Statewide departures from normal

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## Weather/Climate Information (Jim Angel and Bob Scott)

**Temperatures** across Illinois for July were slightly below average (Figure 2 and Table 1). As a result, this was the 34th coolest July since 1895. The warmest reading for the month, 100°F, was reported on July 5 at Prairie City. The coldest reading, 44°F, was observed on July 17 at Monmouth. This was the 5th coolest June–July, 13th coolest May–July, and 29th coolest February–July since 1895.

**Precipitation** in Illinois during July was well above average statewide (Figure 2 and Table 1). Champaign reported the state’s highest daily precipitation amount, 5.73 inches, on July 9. Romeoville recorded the highest monthly total, 11.94 inches. The 8.94-inch total in the east-central CRD ranked as the second highest July amount for the district since 1895, surpassed only by that district’s 9.55-inch total in July 1992. Rainfall totals in the northeast and central CRDs were the third and fifth wettest, respectively. Nevertheless, some areas of the state were quite dry, especially in southern Illinois. The southwest CRD reported only 2.77 inches, nearly an inch below average. Rend Lake recorded only 0.40 inches. Rainfall for the state as a whole has been plentiful, however. This was the 11th wettest July, 15th wettest June–July, 16th wettest May–July, and 26th wettest February–July since 1895.

**Severe weather** was widely reported in July, including reports of four tornadoes across the state. No damage was reported from a tornado near New Lenox (Will County) on July 6. A tornado near Pekin (Tazewell County) blew the roof off one building on July 8. Another tornado damaged trees and houses in Steger (Cook County) on July 17. A tornado damaged trees and power lines in Chillicothe (Peoria County) on July 20. Reports of wind damage and/or hail were widespread on July 4, 5, 6, 7, 8, 9, 11, 14, 17, 18, 20, 27, and 31, primarily in northern and central Illinois. Hailstones from 1 to 1.5 inches in diameter damaged or destroyed about 19,000 acres of corn and soybeans in Montgomery, Shelby, and Fayette Counties on July 18. Ground accumulations of hail 2 and 3 inches deep were common in that area.

**Illinois Climate Network (ICN) Data.** Average daily wind speeds across Illinois for July (Figure 3) ranged from 3 mph at Dixon Springs to 8 mph at Bondville. The highest wind gust for the month, 59 mph, occurred at DeKalb on July 7. The prevailing wind direction during July was southwesterly in western Illinois and westerly in northeastern and southeastern Illinois. Wind speeds in excess of 8 mph varied from 13 hours at Rend Lake to 297 hours at Bondville. (July has 744 hours.) Average air temperatures for the month were quite uniform, ranging from the lower to upper 70s from north to south across the state.

Between heavy rain events, solar radiation totals in July reached seasonal highs, ranging from 671 Mega-Joules per meter squared (MJ/m<sup>2</sup>) at DeKalb to 816 MJ/m<sup>2</sup> at Belleville. Potential evapotranspiration observations also were at an annual peak from a low of 6.0 inches at DeKalb to 7.5 inches at Belleville. Soil temperatures at the 4-inch level

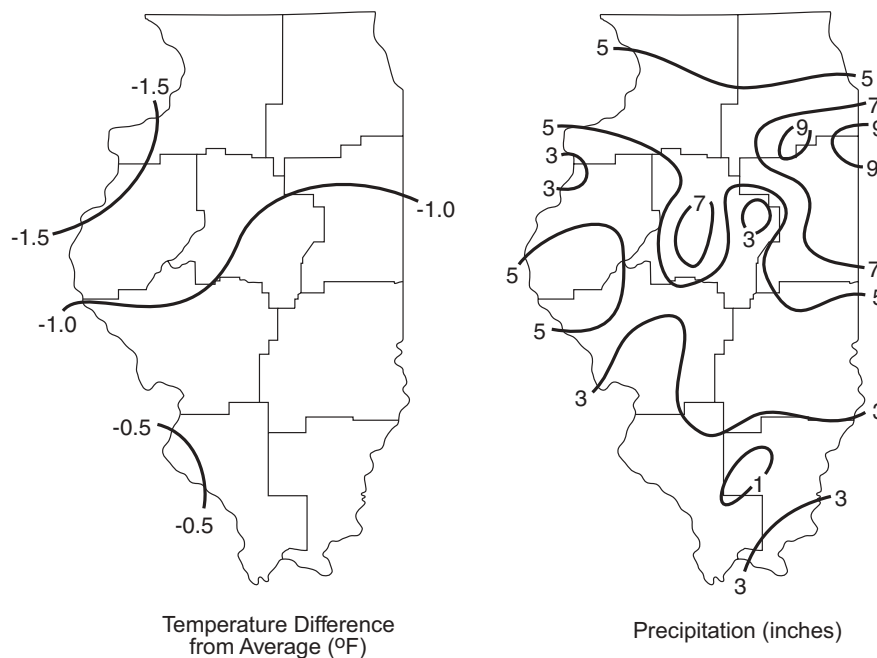


Figure 2. Illinois temperature and precipitation during July 2003

**Table 1. Illinois Precipitation (inches) and Temperature (°F) by Crop Reporting District**

Crop Reporting District	Last Month			Last 3 Months			Last 6 Months			Last 12 months		
	Jul 03 Amount	% Avg	Temp Dev	May 03-Jul 03	% Avg	Temp Dev	Feb 03-Jul 03	% Avg	Temp Dev	Aug 02-Jul 03	% Avg	Temp Dev
Northwest	5.57	152	-1.4	13.75	113	-2.3	18.14	92	-1.8	29.78	82	-0.6
Northeast	6.58	175	-1.3	15.55	131	-2.5	19.81	101	-1.9	32.36	88	-0.9
West	6.55	160	-1.4	15.59	124	-2.3	22.31	107	-1.8	33.91	91	-1.0
Central	6.60	169	-0.9	15.19	125	-2.2	21.07	103	-1.6	32.52	88	-1.0
East	8.94	221	-0.9	17.86	145	-2.2	23.17	113	-1.4	35.93	96	-1.2
West-southwest	5.02	141	-1.0	15.69	135	-2.3	23.90	116	-1.5	37.24	99	-1.1
East-southeast	4.83	119	-0.6	14.93	120	-2.1	22.88	103	-1.3	35.95	88	-0.8
Southwest	2.77	75	-0.6	15.69	129	-2.1	26.18	114	-1.3	42.18	99	-0.9
Southeast	3.46	94	-0.5	15.29	122	-1.9	26.88	111	-1.1	44.96	101	-0.6
<b>State Average</b>	<b>5.62</b>	<b>147</b>	<b>-1.0</b>	<b>15.45</b>	<b>127</b>	<b>-2.2</b>	<b>22.47</b>	<b>106</b>	<b>-1.5</b>	<b>35.68</b>	<b>92</b>	<b>-0.9</b>

**Note:** Data are provisional. Complete, quality controlled data are available about six months after a given month.

ranged from 73°F at St. Charles and Stelle to 87°F at Dixon Springs. Soil temperatures at the 8-inch level were much more uniform, varying from the mid-70s (northern Illinois) to the upper 70s (southern Illinois).

**Extended climate outlooks** issued by the U.S. Department of Commerce (USDOC), National Oceanic and Atmospheric Administration (NOAA), Climate Prediction Center (CPC) for August and for August–October call for equal chances of above, below, and normal temperatures and precipitation across Illinois.

*Additional Information:* Illinois temperature and precipitation data are observed at selected Cooperative Observer Network sites of the National Weather Service (NWS), an agency of the NOAA, USDOC. Near real-time data are received by the Midwestern Regional Climate Center (MRCC) at the Illinois State Water Survey (ISWS) via the NWS Remote Observation Surface Automation system. Data reported are provisional. The MRCC receives complete, quality-controlled data from its parent agency, the National Climatic Data Center (NCDC, NOAA, USDOC) about three months in arrears.

The ICN, a 19-station array of automated weather sites scattered across Illinois, is operated by ISWS staff. The network provides enhanced temporal weather observations on atmospheric pressure, air temperature, relative humidity, wind speed and direction, solar radiation, precipitation, and soil temperatures at several depths. Sites are located primarily at Illinois community colleges and University of Illinois and Southern Illinois University Agricultural Experiment Station farms. Most sensors are polled automatically every 10 seconds, averaged by hour and day, and downloaded to an ISWS computer once a day. Hourly and daily extremes and times of occurrence are recorded as well. Temperature and precipitation data are added to the MRCC records. The ICN data provide valuable information on extreme and usual weather events, as well as short- and long-term trends in climate data, which may have future direct impacts on other water resources in Illinois.

The CPC (NOAA, USDOC) produces monthly and seasonal climate outlooks based on an extensive source of timely climate information. Outlooks for Illinois are extracted and included for our readers.

### Soil Moisture Information (Bob Scott)

Conditions in the 0- to 6-inch soil layer were below normal in northwestern and southern Illinois and above normal in a band from west-central to northeastern Illinois (Figure 4). Rend Lake reported just under 35 percent of normal soil moisture in this layer, while levels at Perry and Stelle exceeded 170 percent of normal. Soil moisture in the 6- to 20-inch layer was below normal in central and southeastern Illinois (less than 25 percent of normal at Springfield and Dixon Springs) and well above normal at several sites across the state, including nearly 200 percent of normal at Perry. Conditions in deeper layers were generally below normal over parts of central Illinois and near to above normal elsewhere. Soil moisture 20 to 40 inches deep ranged from 67 percent of normal at Springfield to 173 percent of normal at nearby Topeka. Brownstown reported relatively low moisture levels (just over 50 percent of normal) in the 40- to 72-inch layer, while Perry and Freeport reported values near 140 percent of normal. Overall, soil moisture in Illinois at the end of July was below normal (Figure 1).

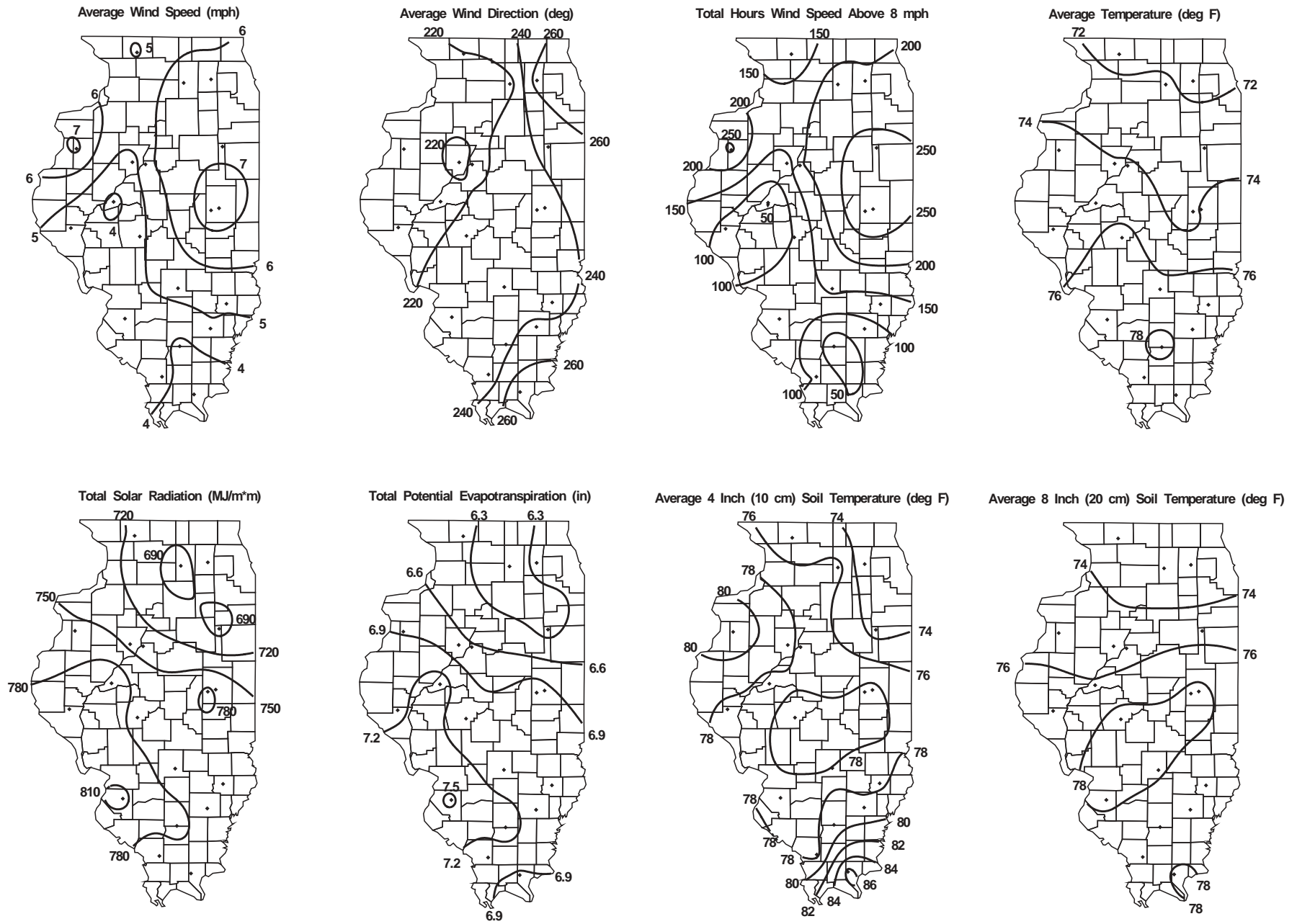


Figure 3. July monthly averages and totals as collected by the Illinois Climate Network

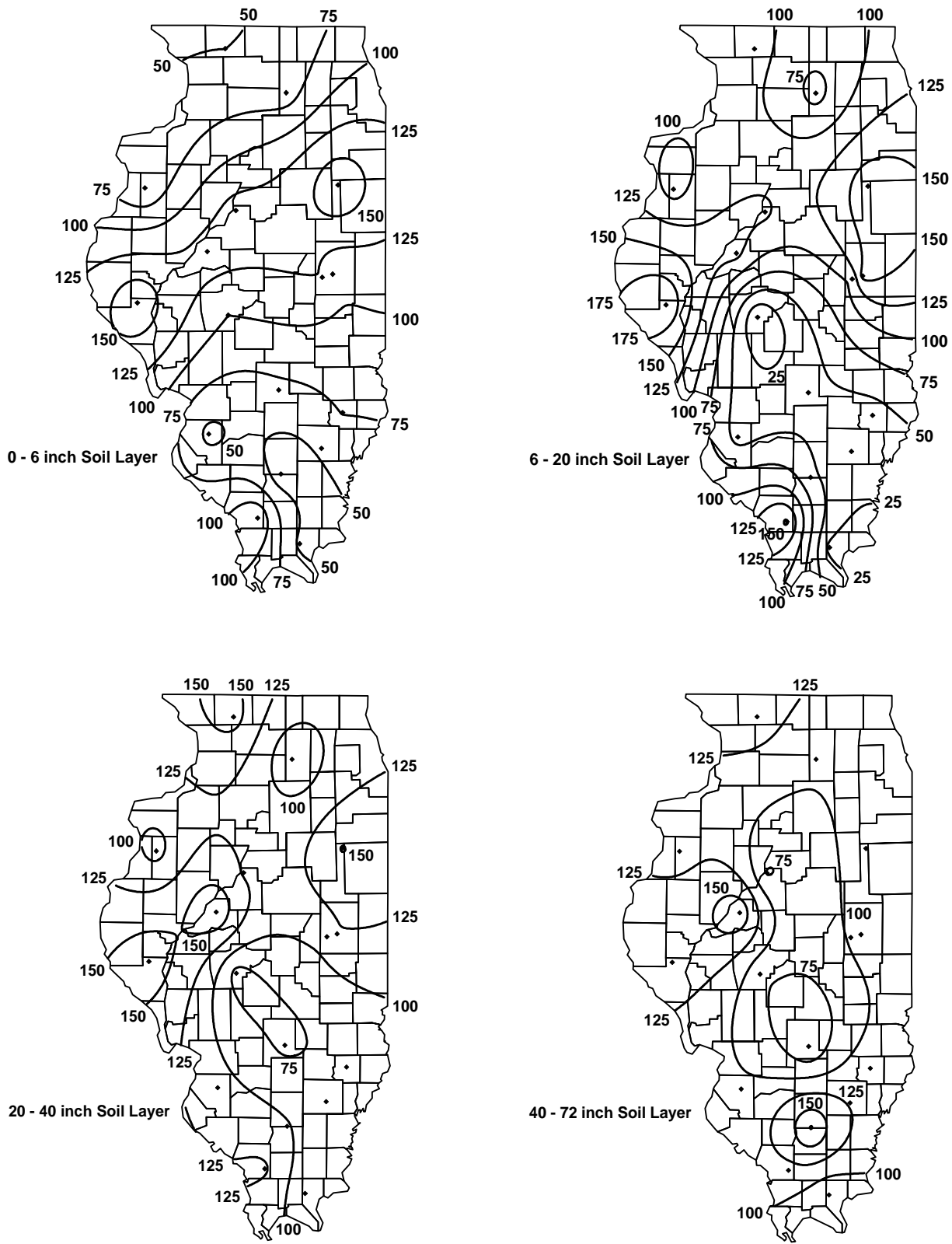


Figure 4. August 1 observed percent-of-normal soil moisture based on 1985-1995 mean

**Table 2. Soil Moisture in Various Layers on August 1, 2003**

<i>Location</i>	<i>Aug 1 0 - 6 (inches)</i>	<i>Change from Jul 1 (%)</i>	<i>Aug 1 6 - 20 (inches)</i>	<i>Change from Jul 1 (%)</i>	<i>Aug 1 20 - 40 (inches)</i>	<i>Change from Jul 1 (%)</i>
Freeport (NW)	0.9	-29	3.3	57	6.7	13
DeKalb (NE)	1.3	-17	3.3	-5	6.1	-4
Monmouth (W)	1.2	0	3.2	-14	5.6	-10
East Peoria (C)	1.5	30	4.6	19	7.7	7
Topeka (C)	0.8	38	2.0	-3	2.9	4
Stelle (E)	1.8	19	5.1	38	7.0	11
Champaign (E)	1.6	8	5.0	10	6.0	7
Bondville (E)	1.9	25	3.9	5	7.1	-4
Perry (WSW)	2.0	41	5.7	11	8.3	4
Springfield (WSW)	1.6	6	3.6	-24	7.0	-8
Brownstown (ESE)	1.0	-48	2.1	-46	6.8	-16
Olney (ESE)	1.1	-29	3.6	-11	6.7	-3
Belleville (SW)	0.7	-60	1.6	-62	7.4	-10
Carbondale (SW)	1.1	-50	3.0	-34	7.1	-7
Ina (SE)	1.0	-42	4.2	-16	7.6	-3
Fairfield (SE)	1.0	-42	3.8	-22	7.2	-4
Dixon Springs (SE)	0.8	-61	2.2	-53	6.8	-14

Compared to last month, actual soil moisture amounts decreased greatly in southern Illinois and generally increased in most of central and northern Illinois (Table 2). Soil moisture in the 0- to 6-inch layer was 30–60 percent lower across southern Illinois and 15–30 percent lower in far northern Illinois. Central Illinois had increases in the 20–40 percent range. Several sites in southern Illinois observed 30–60 percent decreases in the 6- to 20-inch layer, with similar increases at Stelle and Freeport. Moisture changes in the 20- to 40-inch layer were generally small. Moisture amounts decreased in the south, but were a mixture of increasing and decreasing values in central and northern Illinois.

*Additional Information:* Soil moisture is monitored at 17 sites across the state, mostly co-located with the ICN sites. Data are collected manually from site visits twice a month during the growing season (March–October) and monthly during the remainder of the year. The information aids in pinpointing areas and extents of unusual soil moisture levels, their impacts on Illinois agriculture, and potential impacts on other water resources in Illinois. These data become especially important during prolonged periods of precipitation extremes.

### **Surface Water Information (Sally McConkey)**

River and stream discharge and stage data are obtained from gaging stations operated by the U.S. Geological Survey (USGS) or the U.S. Army Corps of Engineers (USACE). The USGS gaging station network is supported in part by the Illinois Department of Natural Resources Office of Water Resources and the ISWS and the USACE. Provisional discharge data are obtained from direct computer access to the USGS.

Table 3 lists selected streamgaging stations located on the Illinois, Mississippi, and Ohio Rivers, flood stage, and the provisional peak stage for the current month. The peak stage is determined from the daily morning readings posted by the NWS and/or the USACE. Stations on the Illinois River recorded peak stage above flood stage this month at Morris, La Salle, and Havana while stations on the Mississippi River along the Illinois border recorded peak stages below flood stage. The Ohio River at Cairo peaked below flood stage on July 16.

**Table 3. Peak Stages for Major Rivers, July 2003**

<i>River</i>	<i>Station</i>	<i>River mile*</i>	<i>Flood stage (feet)*</i>	<i>Peak stage (feet)**</i>	<i>Date</i>
Illinois	Morris	263.1	13	13.6	19
	La Salle	224.7	20	20.7	20
	Peoria	164.6	18	16.2	23
	Havana	119.6	14	14.6	24
	Beardstown	88.6	14	13.9	19
	Hardin	21.5	25	22.2	19
Mississippi	Dubuque	579.9	17	11.7	10
	Keokuk	364.2	16	9.6	09
	Quincy	327.9	17	12.9	10
	Grafton	218.0	18	16.0	19
	St. Louis	180.0	30	15.0	19
	Chester	109.9	27	16.9	20
	Thebes	43.7	33	21.1	16
Ohio	Cairo	2.0	40	32.2	16

**Notes:**

\*River mile and flood stage from *River Stages in Illinois: Flood and Damage Data*, Illinois Department of Natural Resources, Office of Water Resources, July 1998.

\*\*Peak stage based on daily a.m. readings, not instantaneous peak.

Table 4 lists 26 streamgaging stations located throughout Illinois. Provisional monthly mean flows posted by the USGS are listed if available; otherwise, USGS daily mean discharge data were used to estimate the mean flow for the month. The USGS publishes long-term mean flows for each month. The month's median flow for each station listed in Table 4 was determined by ranking the July mean flow for each year of record, and selecting the middle value, 50 percent exceedence probability.

Mean provisional flow statewide is above the median this month (248 percent of median) and above the mean (142 percent of mean). Flows in northern Illinois were in the normal range this month. Central and southern Illinois experienced flows in the normal to much above normal range and minor flooding.

**Water-Supply Lakes and Major Reservoirs.** Table 5 lists reservoirs in Illinois, their normal pool or target water surface elevation, and other data related to observed variations in water surface elevations. Reservoir levels are reported in terms of their difference from normal pool (or target level). Reservoir levels are obtained from a network of cooperating reservoir operators who are contacted each month by ISWS staff for current water levels. The average of the month-end readings for the period of record is reported in terms of the difference from normal pool or target level (column 6 of Table 5), and the number of years of record for each reservoir also is given (column 7). Most reservoirs serve as public water supplies, with the exceptions noted in the last column.

Compared to levels at 37 reservoirs at the end of June, water surface elevations by the end of July had risen at 9 reservoirs, were the same as last month at 7 reservoirs, and had decreased at 21 reservoirs. For the 38 reservoirs reporting at the end of July, 6 reservoirs had water surface levels above the normal pool (or target operating level), 11 reservoirs were at normal pool, and 21 reservoirs were below normal pool. Altamont and Sparta reservoirs were more than 2 feet below normal pool, while the water level at Canton Lake had recovered to less than a foot below spillway elevation.

**Table 4. Provisional Mean Flows, July 2003**

<i>Station</i>	<i>Drainage area (sq mi)</i>	<i>Years of record</i>	<i>2003 mean flow (cfs)</i>	<i>Long-term flows</i>		<i>Flow condition</i>	<i>Percent chance of exceedence</i>	<i>Days of data this month</i>
				<i>Mean* (cfs)</i>	<i>Median (cfs)</i>			
Rock River at Rockton	6363	67	2,634	3716	2844	normal	52	31
Rock River near Joslin	9,549	59	3,692	5877	4393	normal	59	31
Pecatonica River at Freeport	1,326	83	567	910	676	normal	65	31
Green River near Geneseo	1,003	63	331	565	414	normal	41	31
Edwards River near New Boston	445	64	132	304	168	normal	64	31
Kankakee River at Momence	2,294	84	4,321	1496	1320	much above normal	3	31
Iroquois River near Chebanse	2,091	78	8,349	1251	715	much above normal	1	31
Fox River at Dayton	2,642	82	1,114	1273	854	normal	38	31
Vermilion River at Pontiac	579	58	769	323	72	above normal	10	31
Spoon River at Seville	1,636	85	1,115	1047	615	normal	31	31
LaMoine River at Ripley	1,293	78	738	787	381	above normal	27	31
Bear Creek near Marceline	349	57	203	275	98	normal	35	31
Mackinaw River near Congerville	767	53	1,045	365	225	much above normal	6	31
Salt Creek near Greenview	1,804	60	2,573	1197	764	above normal	15	31
Sangamon River at Monticello	550	89	668	282	165	above normal	11	31
South Fork Sangamon near Rochester	867	52	256	381	200	normal	42	31
Illinois River at Valley City	26,743	63	26,760	21,600	18,861	above normal	29	31
Macoupin Creek near Kane	868	73	53	327	135	normal	60	31
Vermilion River near Danville	1,290	58	2,729	760	474	much above normal	8	31
Kaskaskia River at Vandalia	1,940	32	838	1294	1150	normal	59	30
Shoal Creek near Breese	735	58	113	316	117	normal	52	31
Embarras River at Ste. Marie	1,516	88	896	752	427	above normal	29	31
Skillet Fork at Wayne City	464	82	27	161	65	normal	62	31
Little Wabash below Clay City	1,131	87	539	480	201	above normal	24	31
Big Muddy at Plumfield	794	87	518	404	143	above normal	21	31
Cache River at Forman	244	78	43	88	36	normal	46	31

**Notes:**

Much below normal flow = 90-100% chance of exceedence.

Below normal flow = 70-90% chance of exceedence.

Normal flow = 30-70% chance of exceedence.

Above normal flow = 10-30% chance of exceedence.

Much above normal flow = 0-10% chance of exceedence.

\*As reported in U.S. Geological Survey (USGS) Water Resources Data, Illinois, Water Year 2001.

**Table 5. Reservoir Levels in Illinois, July 2003**

**For security considerations, statewide tabular reservoir data are not available on the Internet. Specific data requests may be made to Sally McConkey at: [sally@sws.uiuc.edu](mailto:sally@sws.uiuc.edu).**

*Major Reservoirs.* Water levels at Lake Shelbyville and Carlyle Lake were at their seasonal target levels. Rend Lake was 2 feet above its target level.

**Great Lakes.** Current month mean and end-of-month values are provisional and are relative to International Great Lakes Datum 1985. The July mean level for Lake Michigan was 577.6 feet, compared to a mean level of 578.5 feet in 2002. The long-term average lake level for July is 579.5 feet, based on 1918–1999 data. Historically, the lowest mean level for Lake Michigan in July occurred in 1964 at 576.7 feet, and the highest level occurred in 1986 at 582.0 feet. The July month-end level for Lake Michigan was 577.6 feet.

*Additional Information:* River stage observations are reported in Table 3 at 14 locations along the Illinois, Mississippi, and Ohio Rivers in terms of the water surface height, registered in feet above gage datum. The stage of a river is not the same as the depth of its flow. Stage may be converted to a commonly used vertical datum [e.g., National Geodetic Vertical Datum (NGVD) 1929 or mean sea level] by adding the stage in feet to the gage datum elevation (reported in feet, NGVD 1929). The elevation of the gage datum varies from station to station. Flood stage is typically defined as the level at which a river goes out of its banks.

The USGS publishes long-term mean streamflows for each month. The month's median flow for 26 stations, listed in Table 4, is determined by ranking the current month's mean flow for each year of record, and selecting the middle value, 50 percent exceedence probability. The current month's flow condition (above normal to below normal) is determined on the basis of its rank relative to the historical record for the month. The terms, much above normal to much below normal, are a relative stratification of current conditions and are defined in the notes following Table 4. Figure 1 presents the statewide average of the computed percentages of median stream flow for the stations. With very few exceptions, the median flow for a particular month will be less than the mean flow at the 26 stations reported herein. The current month's flow as a percent of the median in nearly every case will be higher than the percent of the mean.

Reservoir levels are obtained from a network of cooperating reservoir operators who are contacted each month by ISWS staff for current water levels. The ISWS started collecting month-end water surface elevations at reservoirs in 1983. The number of reporting stations has increased over time. The current month's average month-end water surface elevation for each reservoir is the arithmetic average of the month-end levels for the period of record. The number of years of data is also tabulated.

## **Groundwater Information (Ken Hlinka)**

**Comparison to Average Levels.** Shallow groundwater levels in 15 observation wells, which are remote from pumping centers, were below average levels for July by 2.1 feet and ranged from 15.8 feet below to 2.2 feet above average (Table 6). The northern quarter of the state reported the largest deviations. This is the fifth consecutive month for a record monthly low reported by the Mt. Morris (Ogle County) well and the all-time lowest July level at the Cambridge (Henry County) well.

**Comparison to Previous Month.** All shallow groundwater wells reported levels below those of June 2003. Levels averaged 1.8 feet below those of last month and ranged from 7.2 to 0.1 feet lower.

**Comparison to Same Month, Previous Year.** Shallow groundwater levels in July averaged below the levels of July 2002. Levels averaged 1.6 feet lower and ranged from 16.0 feet lower to 2.8 feet above levels of last year.

*Additional Information.* The ISWS operates a network of 17 shallow groundwater monitoring wells sited in rural locations. Wells are remote from pumping stations to assess both short- and long-term trends in water-table levels under natural conditions. These data assist in our understanding of the effects and extent of phenomena such as droughts and floods in Illinois and, in particular, their lingering impacts on the shallow groundwater resources of the state.

**Table 6. Month-End Shallow Groundwater Level Data Sites, July 2003**

Number	Well name	County	Well depth (feet)	This month's reading (depth to water, feet)	Deviation from			
					15-year avg. level (feet)	Period of record avg. (feet)	Previous month (feet)	Previous year (feet)
1	Galena	JoDaviess	25.00	N/A	N/A	N/A	N/A	N/A
2	Mt. Morris	Ogle	55.00	*32.01	-15.54	-14.50	-0.06	N/A
3	Crystal Lake	McHenry	18.00	6.00	-0.88	-0.90	-0.07	N/A
4	Cambridge	Henry	42.00	*24.99	-15.07	-15.78	-7.17	-15.95
5	Fermi Lab	DuPage	17.00	8.00	-0.46	-0.45	-0.12	+0.10
6	Good Hope	McDonough	30.00	6.30	+1.10	+1.09	-0.84	N/A
7	Snicarte	Mason	42.00	38.09	-1.88	-1.60	-0.86	-1.65
8	Coffman	Pike	28.00	10.34	+1.15	+2.19	-2.21	+2.77
9	Greenfield	Greene	20.70	12.89	-0.89	-1.11	-2.33	-1.55
10	Janesville	Cumberland	11.00	6.20	-0.55	-0.30	-0.20	+0.23
11	St. Peter	Fayette	15.00	3.56	+0.42	+0.59	-1.38	-0.18
12	SWS #2	St. Clair	80.00	N/A	N/A	N/A	N/A	N/A
13	Boyleston	Wayne	23.00	4.90	+0.40	+0.79	-1.99	+1.44
14	Sparta	Randolph	27.00	5.84	+0.87	+1.82	-2.57	-2.11
15	SE College	Saline	10.19	7.13	-0.54	-0.57	-3.26	+1.71
16	Dixon Springs	Pope	8.63	7.10	-0.82	-2.47	-3.37	-3.49
17	Bondville	Champaign	21.00	5.07	-0.65	-0.55	-0.89	-0.26
Averages					-2.22	-2.12	-1.82	-1.58

**Notes:**

N/A = Data not available.

\* Lowest level on record for July.

**Addendum**

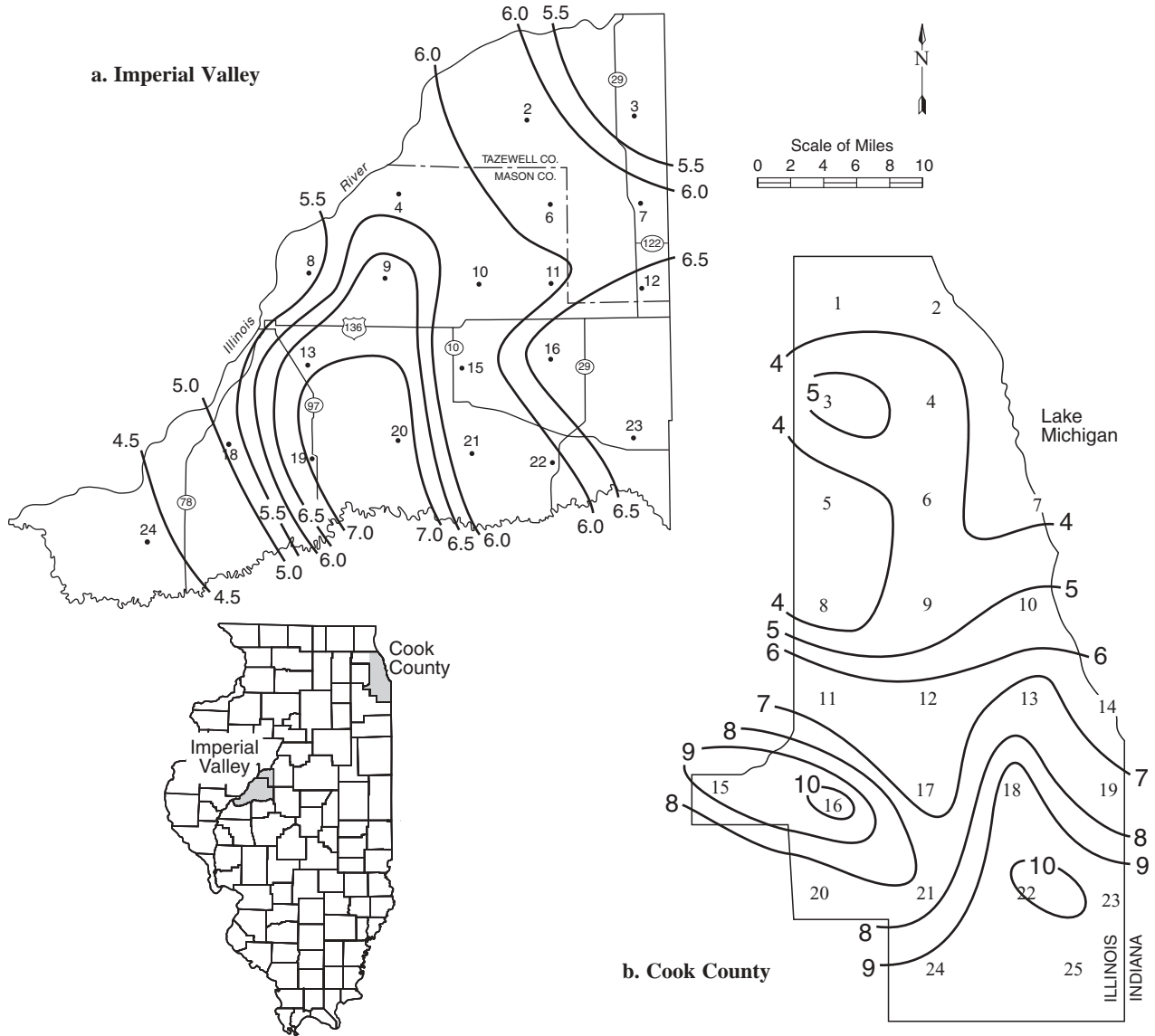
**Long-Term Precipitation Networks (Nancy Westcott)**

**Imperial Valley Precipitation.** July 2003 precipitation amounts (Figure 5a) were heavy. Gage amounts were greatest in south-central and southeast portions of the network, and precipitation was lightest in the southwest corner of the network. Individual gage totals ranged from 7.38 inches at site #20 to 4.30 inches at site #24. The 30-year, 1971–2000, average precipitation amounts for July at Havana and Mason City, are 3.87 and 4.04 inches, respectively. The July 2003 network average of 6.04 inches is about 154 percent of the 10-year (1993–2002) July network average of 3.92 inches.

**Cook County Precipitation.** July 2003 precipitation amounts (Figure 5b) were heavy. Precipitation was greatest in the southern third of the network and lightest in the northern portion of the network. Precipitation values ranged from 10.06 inches at site #22 (Harvey), to 3.12 inches at site #7 (Broadway Avenue). The July 2003 network average of 6.61 inches is about 196 percent of the 13-year (1990–2002) July network average of 3.38 inches.

*Additional Information:* The addendum reports on two small, regional, long-term precipitation networks in Illinois. The Imperial Valley Precipitation Network is a 20-site weighing-bucket rain gage array operated by the ISWS for the Imperial Valley Water Authority since 1992. The network is located in Mason and Tazewell Counties within the most heavily irrigated region of Illinois. Soils here are thick sand-and-gravel deposits associated with the confluence of two major ancient river valleys, the Mississippi and the Mahomet–Teays. The precipitation data help determine the rate of groundwater drawdown in dry periods and during the growing season, and the rate of aquifer recharge.

The Cook County Precipitation Network is a 25-site weighing-bucket rain gage array operated by the ISWS for the USACE and the USGS since 1989. The network is located in the Lake Michigan and Des Plaines River watersheds of Cook County to provide accurate precipitation measurements for modeling storm runoff, a crucial parameter used to compute the amount of water diverted from Lake Michigan.



**Figure 5. Long-term raingage network precipitation totals (inches) for July 2003**

Data sources for information in this publication include the following:

CPC - Climate Prediction Center, <http://www.cpc.ncep.noaa.gov/products/predictions/>

ISWS - Illinois State Water Survey, <http://www.sws.uiuc.edu/>

MRCC - Midwestern Regional Climate Center, <http://mrcc.sws.uiuc.edu/>

NCDC - National Climate Data Center, <http://www.ncdc.noaa.gov/>

NWS - National Weather Service, <http://www.nws.noaa.gov/>

USACE - U.S. Army Corp of Engineers, <http://water.mvr.usace.army.mil/>

USGS - U.S. Geological Survey, <http://water.usgs.gov/>

WARM - Water and Atmospheric Resources Monitoring Program, <http://www.sws.uiuc.edu/warm/>

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