ILLINOIS DEPARTMENT OF NATURAL RESOURCES

Illinois State Water Survey

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# ILLINOIS WATER AND CLIMATE SUMMARY
## January 2006

### January 2006 Overview (Bob Scott)

Temperatures in Illinois during January were the warmest since statewide records began in 1895. Precipitation during January was above average. Soil moisture within the top 40 inches of soil was slightly below the long-term statewide average. Mean streamflows were below median heights. Shallow groundwater levels continued to be below long-term average depths. Over the last 11 months, statewide precipitation was the sixth driest such period since 1895, and northwestern and northeastern Illinois also reported the second and third driest March–January on record, respectively.

**Temperatures** across Illinois (Figure 1) for January were well above average (a +12.7-degree departure). Crop Reporting District (CRD) temperatures ranged from 11.3 degrees above average (southeast) to 13.5 degrees above average (east and northwest). Temperatures in all districts were the warmest ever reported in 112 years.

**Precipitation** amounts for Illinois in January were above average across the state (Figure 1). The statewide average of 2.81 inches represents a +0.88-inch departure or 146 percent of average. The west-southwest CRD received the least rainfall, 2.23 inches (121 percent of average), while the southeast CRD recorded the greatest regional rainfall total, 4.01 inches (133 percent of average). Percent of average precipitation extremes in CRDs varied from 115 percent (east-southeast) to 196 percent (west).

**Soil moisture** in the 0- to 40-inch (0- to 100-centimeter) layer at the end of January was normal to below normal across Illinois (Figure 1). Deeper layers across central Illinois continued to be very dry, concurrent with above normal soil moisture in those layers in east-central and southern Illinois.

**Mean provisional streamflow** statewide was below the median flow in January, 80 percent of median (Figure 1). Rivers in Illinois recorded monthly mean discharges primarily in the below normal to above normal range this month. Peaks on the major rivers did not exceed flood stage.

**Water surface levels** at the end of January were below the normal pool/target operating level at 17 of 37 reporting reservoirs. Lake Shelbyville and Carlyle Lake were 0.6 feet above target operational levels, and Rend Lake was 1.5 feet above its target operational level. Lake Michigan's mean level remains below the long-term average.

Statewide, **shallow groundwater levels** continue to be below normal by an average of 2.1 feet. Levels averaged 1.7 feet higher than December levels and 3.9 feet below January levels one year ago.

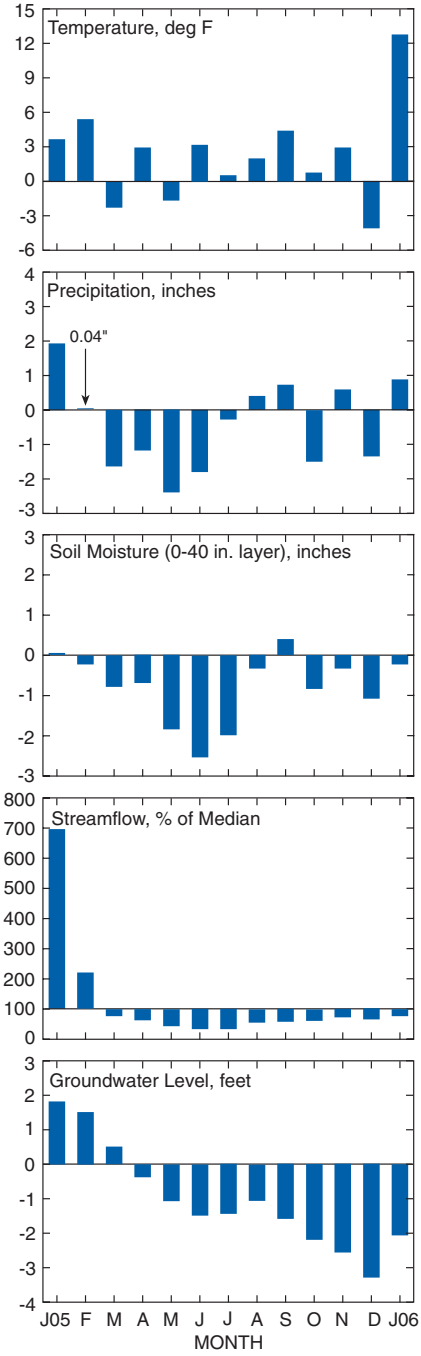


**Figure 1.**
**Statewide departures from normal**

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

**Contact**

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

**Temperatures** across Illinois for January were much above normal (Figure 2 and Table 1). Extremes ranged from 71°F at Belleville on January 8 to 3°F at Mt. Carroll on January 21. The mean daily statewide temperature remained above normal every day in January. It was the warmest January, fourth warmest November–January, second warmest August–January, and fourth warmest February–January since 1895.

**Precipitation** for January was above normal statewide (Figure 2 and Table 1). Shabonna reported the highest one-day precipitation, 3.05 inches on January 29, while Grand Tower reported the highest monthly total, 4.91 inches. The northwest and northeast CRDs continued to be the driest regions in the state. Their respective totals of 22.18 and 22.84 inches over the last 11 months represent the second and third driest March–January periods since 1895, and a 12.5-inch precipitation deficit (approximately 65 percent of average). Snowfall across the state was below normal although Elgin reported 12.1 inches in January.

**Severe weather** was documented only on January 2, with scattered reports of small hail and moderate wind damage across the state. Hail sizes ranged from ¾ to 1 inch in Cass, Tazewell, Madison, Wayne, and Cook Counties. Wind damage was reported to farm buildings (Randolph County), and there was significant damage at a Chatham trailer park (Sangamon County) after winds blew one trailer off its foundation and roofs off two others.

**Illinois Climate Network (ICN) Data.** Average daily wind speeds across Illinois for January (Figure 3) ranged from 6 mph at Dixon Springs and Kilbourne to 13 mph at Bondville and Stelle. Highest gusts during the month were recorded at Monmouth (50 mph on January 24) and Peoria (47 mph on January 2). The prevailing wind direction was west-southwesterly statewide. Wind speeds in excess of 8 mph varied from 216 hours at Kilbourne and Dixon Springs to more than 600 hours at Stelle and Bondville. (January has 744 hours.) Average air temperatures ranged from the low 30s (northern Illinois) to the low 40s in (southern Illinois).

Solar radiation totals in January varied from 154 Mega-Joules per meter squared ($MJ/m^2$) at St. Charles to nearly 242 $MJ/m^2$ at Dixon Springs. Potential evapotranspiration observations varied from a low of 0.8 inches at St. Charles to 1.6 inches at Carbondale and Dixon Springs. Soil temperatures at the 4-inch level ranged from 32°F at Big Bend to 45°F at Belleville, with similar temperatures at the 8-inch level, ranging from 35°F at Big Bend to 46°F at Dixon Springs.

**Extended climate outlooks** issued by the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Climate Prediction Center for both February and February–April call for equal chances of above, below, and normal temperatures and precipitation across the state, except for a slight chance of heavier than normal February precipitation in far southeastern Illinois.

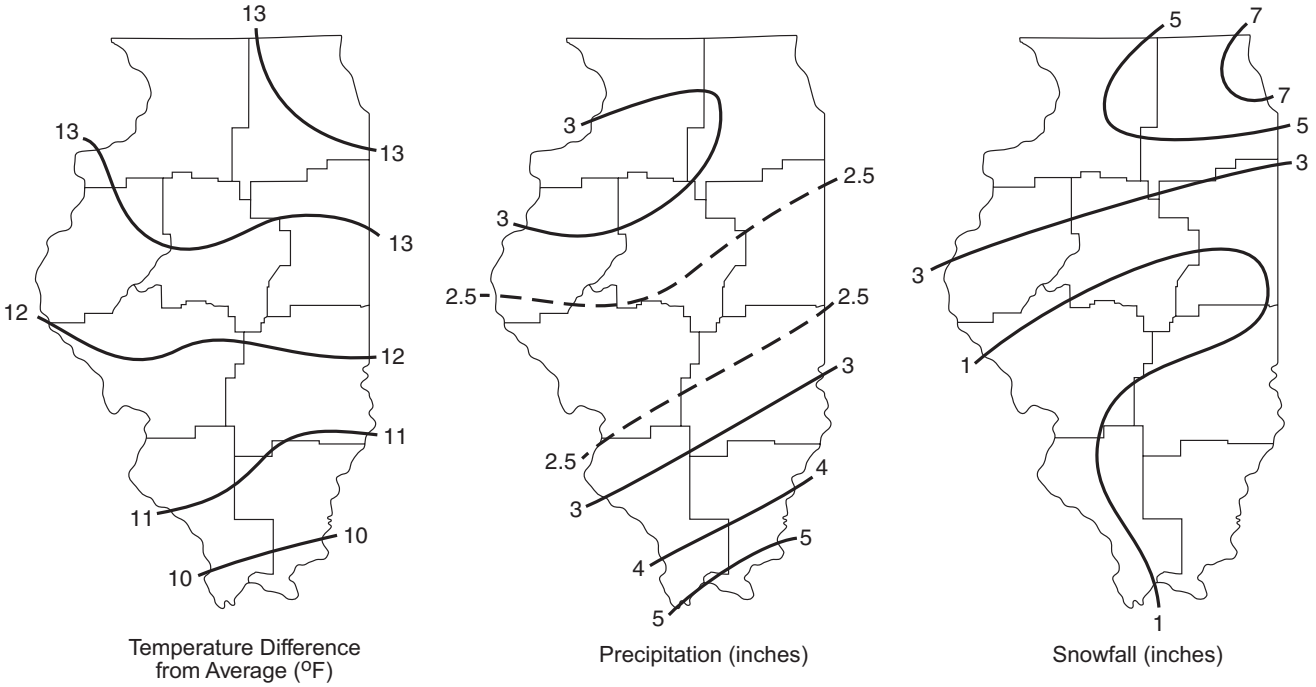


**Figure 2. Illinois temperature, precipitation, and snowfall during January 2006**

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

| Crop Reporting District | Last Month | | | Last 3 Months | | | Last 6 Months | | | Last 12 Months | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Jan 06 Amount | % Avg | Temp Dev | Nov 05-Jan 06 | % Avg | Temp Dev | Aug 05-Jan 06 | % Avg | Temp Dev | Feb 05-Jan 06 | % Avg | Temp Dev |
| Northwest | 2.70 | 193 | 13.5 | 6.72 | 112 | 3.4 | 13.66 | 82 | 3.1 | 23.59 | 65 | 2.6 |
| Northeast | 2.94 | 179 | 13.2 | 7.03 | 103 | 3.3 | 13.41 | 78 | 3.1 | 24.89 | 68 | 2.4 |
| West | 2.81 | 196 | 13.2 | 6.44 | 98 | 4.2 | 15.29 | 92 | 3.3 | 27.24 | 73 | 2.5 |
| Central | 2.80 | 173 | 13.4 | 7.20 | 102 | 3.8 | 14.71 | 88 | 3.2 | 25.30 | 68 | 2.5 |
| East | 2.32 | 133 | 13.5 | 7.04 | 95 | 3.4 | 15.72 | 92 | 2.9 | 30.44 | 81 | 1.9 |
| West-southwest | 2.23 | 121 | 12.2 | 7.70 | 97 | 3.7 | 16.62 | 98 | 2.9 | 27.55 | 73 | 2.1 |
| East-southeast | 2.71 | 115 | 12.2 | 8.90 | 96 | 3.4 | 18.70 | 100 | 2.9 | 32.95 | 80 | 1.8 |
| Southwest | 3.19 | 123 | 11.6 | 10.45 | 102 | 3.9 | 21.66 | 109 | 3.1 | 37.53 | 88 | 1.9 |
| Southeast | 4.01 | 133 | 11.3 | 11.37 | 104 | 3.6 | 23.35 | 115 | 3.2 | 40.63 | 91 | 2.0 |
| **State Average** | **2.81** | **146** | **12.7** | **7.98** | **101** | **3.6** | **16.75** | **95** | **3.1** | **29.50** | **76** | **2.2** |

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

*Additional Information*. Illinois temperature and precipitation data included in these monthly reports are observed at selected Cooperative Observer Network sites of the National Weather Service (NWS), an agency of the National Oceanic and Atmospheric Administration (NOAA), U.S. Department of Commerce (USDOC). The Midwestern Regional Climate Center (MRCC) at the Illinois State Water Survey (ISWS) receives near real-time data. These data are provisional. The MRCC receives complete, quality-controlled data from the National Climatic Data Center (NCDC) of NOAA, USDOC about three months after data initially are collected.

The (ICN) is a 19-station array of automated weather sites across Illinois operated by the ISWS. 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. Values of potential evapotranspiration and dewpoint temperatures are computed. Sites are located primarily at Illinois community colleges and University of Illinois and Southern Illinois University agricultural experimental 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 also are recorded. Daily 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 of Illinois.

The Climate Prediction Center (CPC) of 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)

Precipitation totals in Illinois during January were above average statewide, which resulted in near-surface soil moisture conditions that were close to normal statewide (Figure 4). Values in the 0- to 6-inch layer ranged from 71 percent of normal at Freeport to 116 percent at Dixon Springs. Values were similar in the 6- to 20-inch layer and varied from 79 percent at DeKalb to 125 percent at Olney. Moisture variability was greater in deeper layers. Values in the 20- to 40-inch layer varied from 30 percent at DeKalb to 111 percent at Rend Lake. Soils 40 to 72 inches deep remained very dry across central Illinois but wet in southern Illinois, with values ranging from less than 10 percent at Peoria and DeKalb to 193 percent of normal at Rend Lake. Overall, soil moisture in Illinois at the end of January was slightly below normal (Figure 1).

Compared to conditions at the end of December, soil moisture generally increased across most of Illinois (Table 2). Increases of 10–50 percent were widespread in the 0- to 6-inch layer, with Stelle and Carbondale reporting the largest changes, 46 and 34 percent, respectively. Nevertheless, 8 sites reported changes of 6 percent or less. Most sites reported small to moderate changes in the 6- to 20-inch layer, with the largest increases at Stelle and Monmouth (31 and 25 percent, respectively). Small increases (10 percent or less) dominated changes in the 20- to 40-inch layer, but increases as high as 20 percent were measured at Monmouth and Stelle.

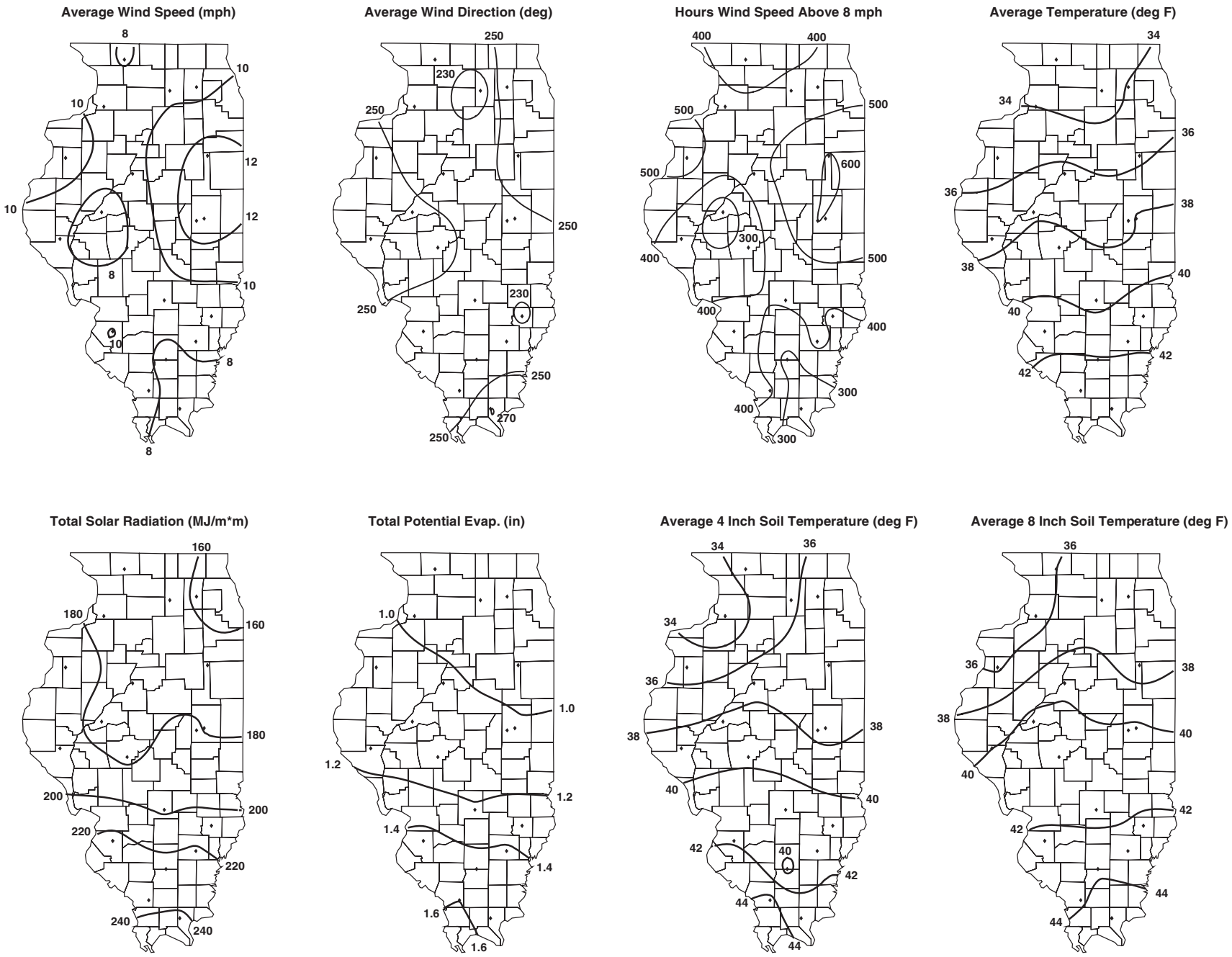


**Figure 3. January monthly averages and totals as collected by the Illinois Climate Network**

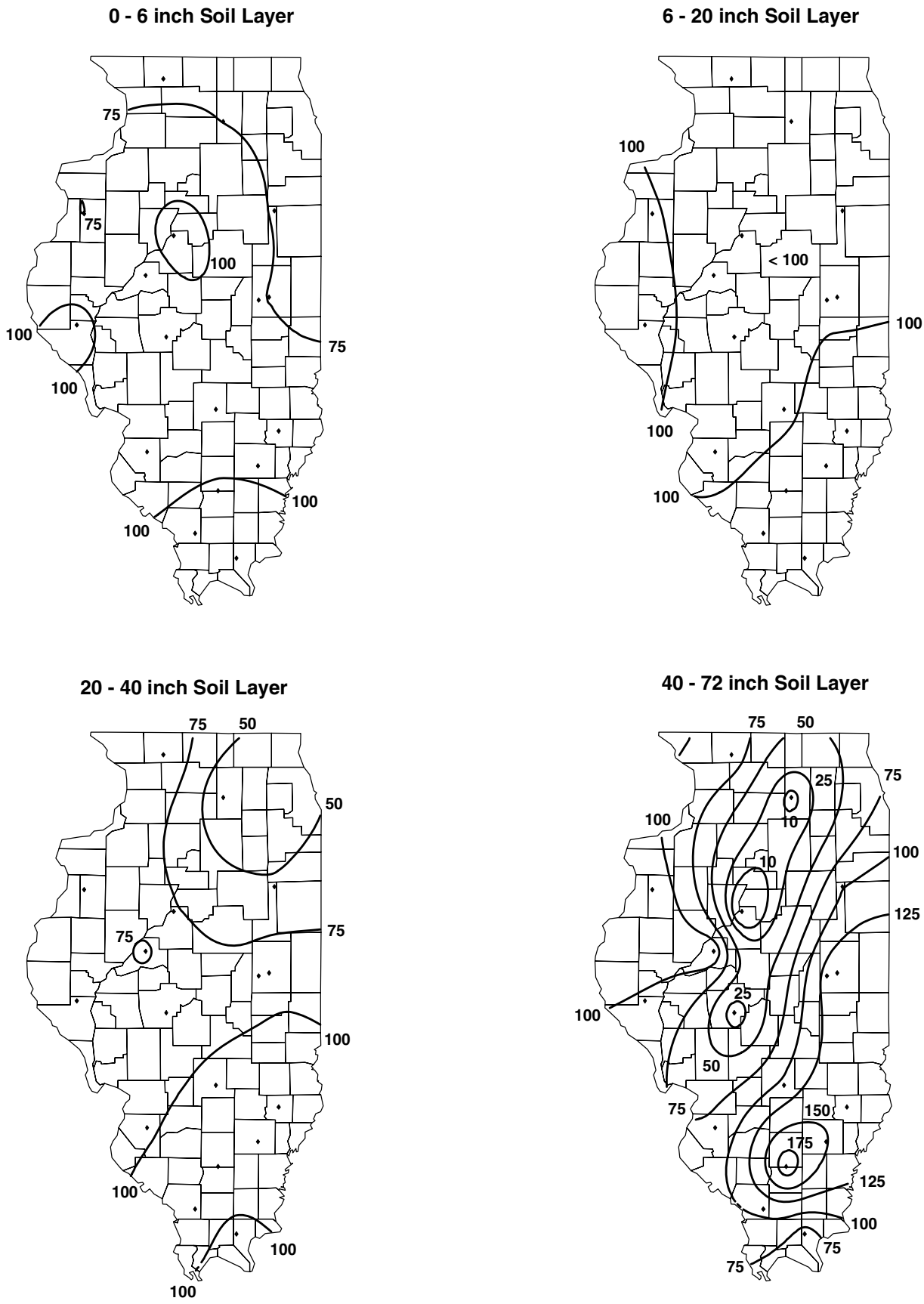


**Figure 4. February 1 observed percent-of-normal soil moisture based on 1985-1995 mean**

**Table 2. Soil Moisture in Various Layers on February 1, 2006**

| *Location* | *Feb 1 0 - 6 (inches)* | *Change from Jan 1 (%)* | *Feb 1 6 - 20 (inches)* | *Change from Jan 1 (%)* | *Feb 1 20 - 40 (inches)* | *Change from Jan 1 (%)* |
|---|---|---|---|---|---|---|
| Freeport (NW) | 1.9 | -4 | 4.5 | -3 | 6.9 | 0 |
| DeKalb (NE) | 2.1 | 0 | 4.7 | 15 | 5.6 | 10 |
| Monmouth (W) | 2.0 | 3 | 4.7 | 25 | 6.8 | 24 |
| East Peoria (C) | 2.5 | 11 | 5.1 | 2 | 7.6 | 10 |
| Topeka (C) | 1.3 | 6 | 2.8 | 5 | 3.3 | 5 |
| Stelle (E) | 2.2 | 46 | 4.9 | 31 | 6.0 | 20 |
| Champaign (E) | 2.4 | 20 | 5.2 | 6 | 6.4 | 2 |
| Bondville (E) | 2.5 | 13 | 5.0 | 10 | 7.8 | 15 |
| Perry (WSW) | 2.2 | -3 | 5.3 | 4 | 7.6 | 9 |
| Springfield (WSW) | 2.0 | -6 | 4.9 | -1 | 7.5 | 9 |
| Brownstown (ESE) | 2.3 | -5 | 4.6 | 7 | 8.3 | 9 |
| Olney (ESE) | 2.1 | 12 | 4.7 | 9 | 7.1 | 11 |
| Belleville (SW) | 2.3 | 23 | 5.2 | 15 | 8.8 | 10 |
| Carbondale (SW) | 2.8 | 34 | 5.4 | 19 | 8.0 | 6 |
| Ina (SE) | 2.7 | 12 | 5.4 | 4 | 7.7 | 0 |
| Fairfield (SE) | 2.8 | 26 | 5.6 | 9 | 7.5 | 3 |
| Dixon Springs (SE) | 2.4 | 6 | 5.4 | -2 | 8.2 | 3 |

*Additional Information.* Soil moisture is monitored at 17 sites across Illinois by ISWS staff at sites mostly co-located with the ICN locations. Data are collected manually on twice monthly site visits during the growing season (March–September) and monthly during the remainder of the year. The information helps pinpoint areas and extent of unusual soil moisture levels, impacts on Illinois agriculture, and also provides their potential insights on pending trends in other water resources of the state. These data become especially important during prolonged periods of precipitation extremes.

## Surface Water Information (Bill Saylor and Vern Knapp)

**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 Illinois State Water Survey (ISWS), and the USACE. Provisional discharge data are obtained from 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 National Weather Service and/or the USACE. Peak stages at the stations listed in Table 3 were below flood stage in January.

**Provisional monthly mean flows** for 26 streamgaging stations located throughout Illinois are shown (Table 4). Data posted by the USGS are listed if available; otherwise, daily mean USGS-posted discharge data are 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 January mean flow for each year of record, and selecting the middle value, 50 percent exceedence probability.

The statewide percent of historical mean flow and percent of historical median flow are calculated by dividing the sum of the average flows this month at stations in Table 4 by the sum of the historical mean and median flows calculated for the month, respectively, at the same stations. This method is intended to weight individual observations proportionately in the aggregate comparison. (The Illinois River and Rock River stations are excluded from the statewide calculation because other rivers listed in Table 4 contribute to their flow.)

Mean provisional flow statewide was below the median this month (80 percent of the median) and below the long-term mean (54 percent of the mean). Mean streamflows ranged primarily from below normal to normal, except for above normal flows on the Vermilion River at Pontiac and the Vermilion River near Danville. Monthly flows at the streamgage on the South Fork Sangamon River near Rochester were the lowest ever observed for January during the period of record; flows in this river upstream of the gage are being diverted into Lake Springfield.

**Table 3. Peak Stages for Major Rivers during January 2006**

| *River* | *Station* | *River mile** | *Flood stage (feet)** | *Peak stage (feet)*** | *Date* |
|---|---|---|---|---|---|
| Illinois | | | | | |
| | Morris | 263.1 | 13 | 7.2 | 31 |
| | La Salle | 224.7 | 20 | 13.8 | 31 |
| | Peoria | 164.6 | 18 | 12.8 | 29 |
| | Havana | 119.6 | 14 | 8.0 | 31 |
| | Beardstown | 88.6 | 14 | 10.1 | 26 |
| | Hardin | 21.5 | 25 | 20.3 | 16 |
| Mississippi | | | | | |
| | Dubuque | 579.9 | 17 | 9.5 | 06 |
| | Keokuk | 364.2 | 16 | 4.8 | 09 |
| | Quincy | 327.9 | 17 | 11.7 | 30 |
| | Grafton | 218.0 | 18 | 16.3 | 16 |
| | St. Louis | 180.0 | 30 | 2.9 | 14 |
| | Chester | 109.9 | 27 | 5.2 | 15 |
| | Thebes | 43.7 | 33 | 11.7 | 30 |
| Ohio | | | | | |
| | Cairo | 2.0 | 40 | 37.4 | 30 |

**Notes:**
*River mile and flood stage from *River Stages in Illinois: Flood and Damage Data*, Illinois Department of Natural Resources, Office of Water Resources, August 2004 (except as revised by the National Weather Service).
**Peak stage based on daily a.m. readings, not instantaneous peak.

**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 obtained from a network of cooperating reservoir operators who are contacted each month by ISWS staff for the current water levels. Reservoir levels are reported in terms of their difference from normal pool (or target level). 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 end-of-December levels at 32 reservoirs, by the end of January the water surface elevation had decreased at 6 reservoirs, had risen at 22 reservoirs, and was the same as last month at 4 reservoirs. For the 37 reservoirs with observations reported at the end of January, 15 reservoirs were above normal pool (or target operating level), 5 reservoirs were at normal pool, and 17 reservoirs were below normal pool.

**Major Reservoirs.** Compared to end-of-December water levels, end-of-January levels had decreased nearly a foot at Lake Shelbyville, but had increased 0.5 feet at Carlyle Lake and a foot at Rend Lake. At the end of January, the water surface level at Rend Lake was 1.5 feet above target level, and Carlyle Lake and Lake Shelbyville were each 0.6 feet above their winter target levels.

**Great Lakes.** Current month mean and end-of-month values are provisional and are relative to International Great Lakes Datum 1985. The January mean level for Lake Michigan was 577.0 feet, compared to a mean level of 577.7 feet in January 2005. The long-term average lake level for January is 578.5 feet, based on 1918–2005 data. Historically, the lowest mean level for Lake Michigan in January occurred in 1965 at 576.1 feet, and the highest level occurred in 1987 at 581.3 feet. The month-end level of Lake Michigan was 577.1 feet.

*Additional Information.* River stage observations are reported in Table 3 at 14 locations along the Illinois, Mississippi, and Ohio Rivers. River stage is the observed water surface level at the gage location, reported in feet relative to the gage's own datum (zero mark). The elevation of the gage zero is chosen arbitrarily and varies from station to station. Stage is not equivalent to depth to the river bottom. *Flood stage* is a specified stage value typically defined as the approximate level at which a river goes out of its banks at or near the gage. Flood stage designations vary from station to station and apply locally only. Stage may be converted to an elevation by adding the stage to the gage datum elevation as reported in feet in a common vertical datum [National Geodetic Vertical Datum (NGVD) 1929].

**Table 4. Provisional Mean Flows, January 2006**

| *Station* | *Drainage area (sq mi)* | *Years of record* | *2005 mean flow (cfs)* | *Long-term flows* *Mean* (cfs)* | *Median (cfs)* | *Flow condition* | *Percent chance of exceedence* | *Days of data this month* |
|---|---|---|---|---|---|---|---|---|
| Rock River at Rockton | 6363 | 70 | N/A | 3210 | 2700 | N/A | N/A | 16 |
| Rock River near Joslin | 9549 | 62 | 4550 | 5205 | 4074 | normal | 46 | 31 |
| Pecatonica River at Freeport | 1326 | 86 | 476 | 751 | 622 | normal | 63 | 31 |
| Green River near Geneseo | 1003 | 66 | 109 | 529 | 350 | below normal | 85 | 31 |
| Edwards River near New Boston | 445 | 67 | 27 | 240 | 132 | below normal | 87 | 31 |
| Kankakee River at Momence | 2294 | 88 | 1909 | 2201 | 1866 | normal | 49 | 31 |
| Iroquois River near Chebanse | 2091 | 81 | 1964 | 1860 | 1326 | normal | 35 | 31 |
| Fox River at Dayton | 2642 | 86 | 1217 | 1465 | 1110 | normal | 41 | 31 |
| Vermilion River at Pontiac | 579 | 61 | 467 | 357 | 231 | above normal | 23 | 31 |
| Spoon River at Seville | 1636 | 88 | 134 | 1007 | 651 | below normal | 83 | 31 |
| LaMoine River at Ripley | 1293 | 81 | 85 | 616 | 359 | below normal | 78 | 31 |
| Bear Creek near Marceline | 349 | 60 | 56 | 150 | 69 | normal | 56 | 31 |
| Mackinaw River near Congerville | 767 | 56 | 61 | 452 | 255 | below normal | 75 | 31 |
| Salt Creek near Greenview | 1804 | 63 | 418 | 1142 | 767 | normal | 64 | 31 |
| Sangamon River at Monticello | 550 | 92 | 229 | 412 | 250 | normal | 53 | 31 |
| South Fork Sangamon near Rochester | 867 | 55 | 4.4 | 573 | 294 | much below normal | ** | 31 |
| Illinois River at Valley City | 26,743 | 66 | 11,110 | 19,430 | 16,226 | below normal | 72 | 31 |
| Macoupin Creek near Kane | 868 | 76 | 36 | 519 | 225 | below normal | 82 | 31 |
| Vermilion River near Danville | 1290 | 83 | 1261 | 1112 | 595 | above normal | 29 | 31 |
| Kaskaskia River at Vandalia | 1940 | 35 | 899 | 2309 | 1995 | below normal | 75 | 31 |
| Shoal Creek near Breese | 735 | 61 | 171 | 646 | 317 | normal | 63 | 31 |
| Embarras River at Ste. Marie | 1516 | 91 | 624 | 1632 | 992 | normal | 64 | 27 |
| Skillet Fork at Wayne City | 464 | 85 | 314 | 640 | 317 | normal | 50 | 31 |
| Little Wabash below Clay City | 1131 | 90 | 331 | 1348 | 613 | normal | 63 | 31 |
| Big Muddy at Plumfield | 794 | 34 | 399 | 823 | 627 | normal | 63 | 31 |
| Cache River at Forman | 244 | 81 | 312 | 493 | 352 | normal | 55 | 31 |

**Notes:**
N/A = not available.
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 2004.
** New low for January monthly mean flow for the period of record.

**Table 5. Reservoir Levels in Illinois, January 2006**

**For security considerations, statewide tabular reservoir data are not available on the Internet. Specific data requests may be made to Bill Saylor at: wsaylor@sws.uiuc.edu.**

The USGS publishes long-term mean streamflows for each month. The month's median flow for the 26 stations listed in Table 4 is determined by ranking the monthly mean flows for the same month for each year of record, and selecting the middle value, 50 percent exceedence probability. The current month's flow condition at each station, much above normal to much below normal, is a ranking of the mean flow for the current month relative to the monthly mean flows for the period of record for the same month. Flow conditions are defined in the notes following Table 4. With very few exceptions, the median flow for a particular month will be less than the mean flow at the 26 stations reported herein. Thus, the current month's flow as a percent of the median in nearly every case will be higher than the percent of the mean.

The ISWS began collecting month-end water surface levels at some reservoirs in 1983 (Table 5). The current month's average month-end water surface level for each reservoir is the arithmetic average of the month-end levels for the period of record.

## 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 the tenth consecutive month. January levels averaged 2.1 feet below normal and ranged from 7.2 feet below to 1.9 feet above (Table 6). For the first time in seven months, water levels in wells located at Fermi National Laboratory (DuPage County) and Bondville (Champaign County) have risen and are not at their lowest ever for the month.

**Comparison to Previous Month.** Shallow groundwater levels were above those of December. Levels averaged 1.7 feet higher and ranged from 0.7 feet below to 4.3 feet above levels last month.

**Comparison to Same Month, Previous Year.** Shallow groundwater levels in January were below levels of one year ago. Levels averaged 3.9 feet lower and ranged from 14.7 feet below to 1.2 feet below levels last January.

*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 short- and long-term trends in water-table levels under natural conditions. These data help clarify 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, January 2006**

| | | | | | *Deviation from* | | | |
|---|---|---|---|---|---|---|---|---|
| *Number* | *Well name* | *County* | *Well depth (feet)* | *This month's reading (depth to water, feet)* | *15-year avg. level (feet)* | *Period of record avg. (feet)* | *Previous month (feet)* | *Previous year (feet)* |
| 1 | Galena | JoDaviess | 25.00 | 22.40 | -0.86 | -0.61 | +0.04 | -0.68 |
| 2 | Mt. Morris | Ogle | 55.00 | 29.41 | -9.99 | -9.17 | -0.74 | -6.21 |
| 3 | Crystal Lake | McHenry | 18.00 | 7.68 | -2.28 | -2.15 | +0.12 | -2.22 |
| 4 | Cambridge | Henry | 42.00 | 40.86* | N/A | N/A | N/A | N/A |
| 5 | Fermi Lab | DuPage | 17.00 | 9.62 | -2.91 | -2.94 | +4.22 | -4.69 |
| 6 | Good Hope | McDonough | 30.00 | 9.70 | -2.18 | -1.38 | +4.27 | -5.91 |
| 7 | Snicarte | Mason | 40.30 | 40.09 | -2.64 | -2.77 | +0.21 | -5.15 |
| 8 | Coffman | Pike | 28.00 | 16.64 | -5.16 | -3.89 | -0.41 | -11.45 |
| 9 | Greenfield | Greene | 20.70 | 18.48 | -7.54 | -7.24 | -0.15 | -14.65 |
| 10 | Janesville | Cumberland | 11.00 | 4.37 | +0.55 | +0.72 | +1.83 | +0.61 |
| 11 | St. Peter | Fayette | 15.00 | 1.00 | +0.75 | +1.04 | +2.11 | +0.59 |
| 12 | SWS #2 | St. Clair | 80.00 | N/A | N/A | N/A | N/A | N/A |
| 13 | Boyleston | Wayne | 23.00 | 1.27 | +0.97 | +1.61 | +3.69 | +1.16 |
| 14 | Sparta | Randolph | 27.00 | 5.37 | +0.83 | +1.88 | +2.61 | -2.22 |
| 15 | SE College | Saline | 10.19 | 2.59 | +0.08 | +0.06 | +3.03 | -0.54 |
| 16 | Dixon Springs | Pope | 8.63 | 5.16 | -2.31 | -2.98 | +3.11 | -2.99 |
| 17 | Bondville | Champaign | 21.00 | 6.81 | -2.50 | -2.92 | +2.14 | -3.95 |
| | | | | Averages | -2.35 | -2.05 | +1.74 | -3.89 |

**Notes:**
N/A = Data not available.
*Well not used for analyses.

## Addendum (Nancy Westcott)

**Imperial Valley Precipitation.** January 2006 precipitation amounts (Figure 5a) were above average for the month. Gage amounts were greatest in the northern portion of the network, and precipitation was lightest in the eastern region of the network. Individual gage totals ranged from 4.48 inches at site #2 to 2.27 inches at site #16. The 30-year, 1971–2000, average precipitation amounts for January at Havana and Mason City are 1.89 and 1.56 inches, respectively. The January 2006 network average of 3.14 inches was about 149 percent of the 13-year (1993–2005) January network average of 2.11 inches.

**Cook County Precipitation.** January 2006 precipitation amounts (Figure 5b) were also above average. Precipitation was heaviest in the northern and central regions of the network and lightest in the western portion of the network. Values ranged from 3.40 inches at site #10 (West 26th St.), to 2.05 inches at site #20 (Orland Park). The January 2006 network average of 2.74 inches was about 127 percent of the 16-year (1990–2005) January network average of 2.16 inches.

*Additional Information.* This addendum reports on two small, regional, long-term precipitation networks in Illinois. The Imperial Valley Precipitation Network is a 20-site weighing-bucket raingage 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. These precipitation data help determine the rate of groundwater drawdown in dry periods and during the growing season, and also the rate at which the aquifer recharges.

The Cook County Precipitation Network is a 25-site weighing-bucket raingage array operated by the ISWS for the USACE 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.

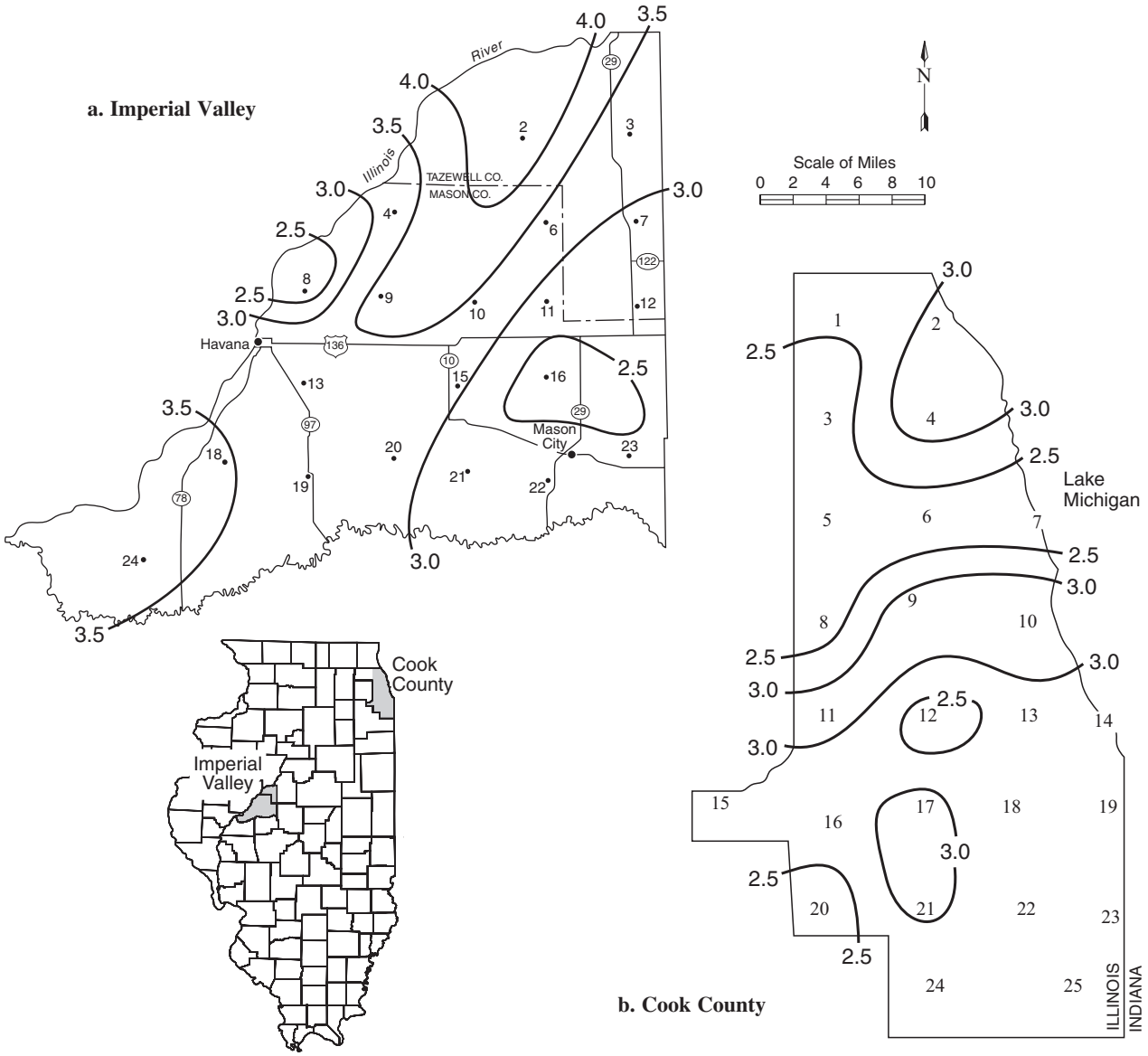


**Figure 5. Long-term raingage network precipitation totals (inches) for January 2006**

*Data sources for information in this publication include the following:*
CPC - Climate Predication 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 Corps of Engineers, http://www.rivergages.com
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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