ILLINOIS DEPARTMENT OF NATURAL RESOURCES

Illinois State Water Survey

Derek Winstanley, Chief • 2204 Griffith Dr., Champaign, IL 61820 • *Tel (217) 333-2210 • Fax (217) 333-6540*

ILLINOIS WATER AND CLIMATE SUMMARY
January 2004

January 2004 Overview (Bob Scott)

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

Temperatures across Illinois (Figure 1) for January were below average (a -1.0-degree departure). The coolness was uniform across the state. Crop Reporting District (CRD) temperatures ranged from 0.6 degrees below average (southeast) to 2.0 degrees below average (northeast).

Precipitation amounts for the state as a whole were slightly above average (Figure 1). The statewide average of 2.15 inches represents a +0.23-inch departure or 112 percent of average. However, regional rainfall variability was considerable. Precipitation was greatest in the east-southeast CRD (4.09 inches or 173 percent of average) and least in the northwest CRD (0.75 inches or 54 percent of average).

Soil moisture in the 0- to 40-inch (0- to 100-centimeter) layer at the end of January was slightly below normal. Near normal to above normal soil moisture existed across Illinois within all layers, except for a region of dry soils in the deepest layer over a small part of central Illinois.

Mean provisional streamflow statewide was above the median flow, 195 percent of median (Figure 1). Rivers in Illinois recorded mean discharges in the much above normal to below normal range this month. Peak stages recorded were below flood stage at stations on the Illinois River and on the Mississippi River along the Illinois border. The Ohio River at Cairo recorded a peak stage just above flood stage.

Water surface levels at the end of January were below the normal pool/target operating level at 8 of 37 reporting reservoirs. The water surface levels at Rend Lake, Lake Shelbyville, and Carlyle Lake were above target levels at the end of January. Lake Michigan's mean level remains below the long-term average.

Statewide, **shallow groundwater levels** continue to be below normal for the 17th consecutive month. Deviations from normal averaged 2.0 feet below average, with levels averaging 0.5 feet lower than December levels, and approximately 2.0 feet above January levels one year ago. *Editor's note: Reanalyses of Figure 1 were performed after questionable groundwater data was verified.*

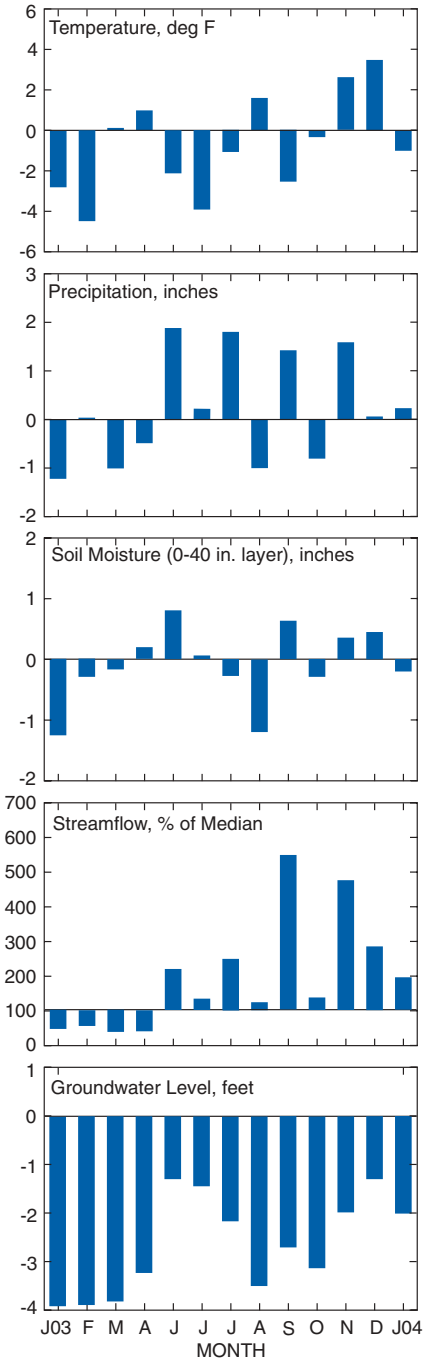

Figure 1.
Statewide departures from normal

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

Contact

Bob Scott: (217) 333-4966, email: rwscott1@uiuc.edu
For more information, see www.sws.uiuc.edu/warm

Weather/Climate Information (Jim Angel and Bob Scott)

Temperatures across Illinois for January were below average (Figure 2 and Table 1). This was the 35th coolest December since 1895. Extremes ranged from 71°F at Winchester on January 3 to -17°F at Bondville (Champaign County) on January 31.

Precipitation for January was slightly above average statewide (Figure 2 and Table 1). The 2.15-inch statewide average ranks as the 43rd wettest January since 1895. Belleville reported the highest one-day rainfall (2.67 inches), while Alton reported the highest monthly total (5.42 inches). Regional precipitation was quite varied. Monthly totals in the northwest and northeast CRDs ranked as the 18th and 21st driest, respectively, since 1895. Monthly totals for the west-southwest and the east-southeast CRDs ranked as the 22nd and 19th wettest, respectively, since 1895.

Snowfall for January was near average for most of Illinois and above average for a portion of the state near the Quad Cities (Figure 2). Northeastern Illinois received much more snow in January than in December. For example, Midway Airport at Chicago reported only 2.6 inches in December but 13.3 inches in January, 0.4 inches above average. Galesburg reported the most January snowfall, 19.8 inches.

No **severe weather** was reported in Illinois during January.

Illinois Climate Network (ICN) Data. Average daily wind speeds across Illinois for January (Figure 3) ranged from 6 mph at Rend Lake to 13 mph at Bondville. Several sites across central Illinois recorded the highest wind gusts for the month between 37 and 38 mph on January 14 and 22. The prevailing wind direction during the month was west-northwest statewide. Wind speeds in excess of 8 mph varied from 120 hours at Rend Lake to ~570 hours at Bondville and Stelle. (January has 744 hours.) Average air temperatures for the month ranged from the middle teens to the lower 30s from north to south across the state.

Solar radiation totals in January reached seasonal minimums, ranging from 171 Mega-Joules per meter squared (MJ/m^2) at St. Charles to 249 MJ/m^2 at Belleville. Potential evapotranspiration observations also were at an annual minimum from a low of ~0.7 inches at DeKalb and Freeport to ~1.3 inches at Belleville. Soil temperatures at the 4- and 8-inch levels showed a minimal range from the lower 30s in northern Illinois to near 40°F in southern Illinois.

Extended climate outlooks issued by the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Climate Prediction Center for February and for February–April call for equal chances of above, below, and normal temperatures and precipitation across Illinois.

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

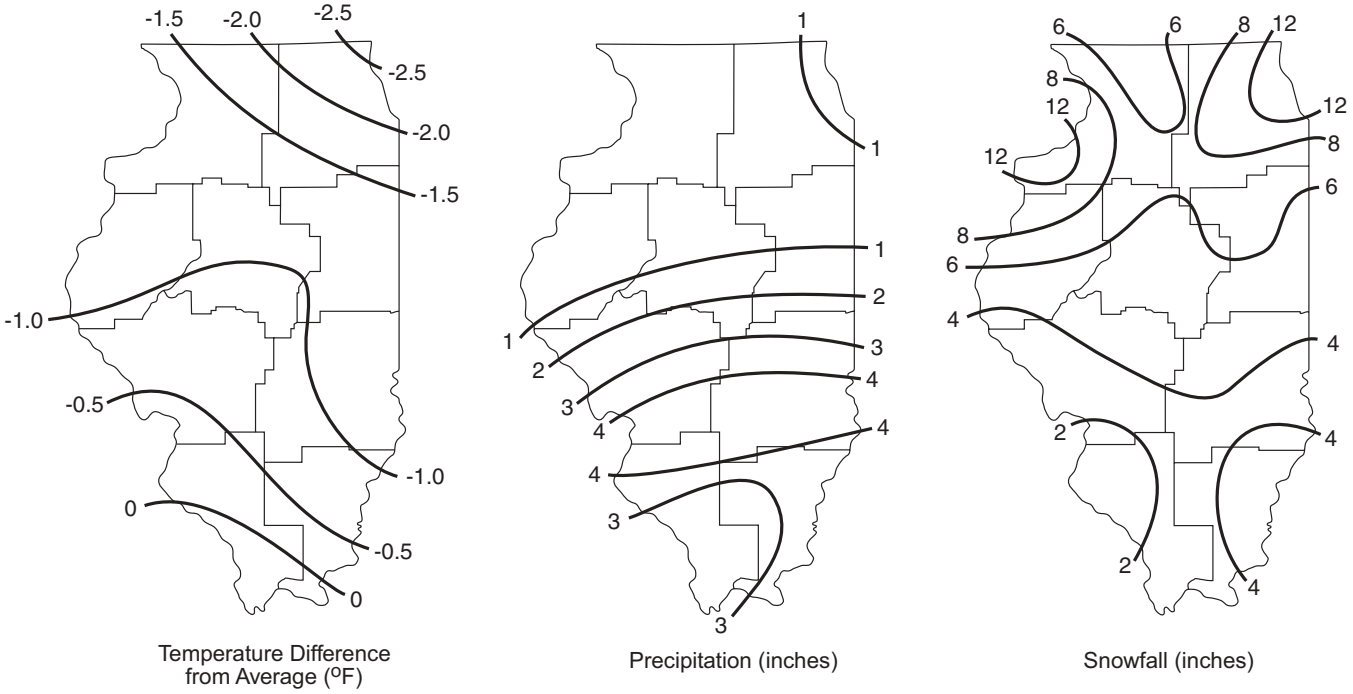

Figure 2. Illinois temperature, precipitation, and snowfall during January 2004

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		
	Jan 04 Amount	% Avg	Temp Dev	Nov 03-Jan 04	% Avg	Temp Dev	Aug 03-Jan 04	% Avg	Temp Dev	Feb 03-Jan 04	% Avg	Temp Dev
Northwest	0.75	54	-1.2	7.67	128	1.9	14.05	85	1.2	31.34	86	-0.1
Northeast	0.87	53	-2.0	8.10	118	1.6	15.01	88	0.9	34.48	94	-0.4
West	1.00	70	-1.2	8.20	125	1.4	20.45	123	0.6	40.17	107	-0.5
Central	1.08	67	-1.0	7.39	104	1.7	17.30	103	0.7	37.39	101	-0.4
East	1.65	95	-1.0	8.58	116	1.8	20.28	119	0.6	42.13	112	-0.5
West-southwest	2.87	156	-0.7	10.54	132	1.7	23.11	136	0.6	45.31	120	-0.4
East-southeast	4.09	173	-1.1	12.02	129	1.7	25.04	134	0.6	46.58	113	-0.3
Southwest	3.53	137	-0.1	11.79	115	2.0	18.75	94	1.0	43.31	101	-0.1
Southeast	3.62	120	-0.6	10.62	97	1.8	18.70	92	1.0	43.69	98	0.0
State Average	**2.15**	**112**	**-1.0**	**9.43**	**119**	**1.7**	**19.29**	**109**	**0.8**	**40.40**	**104**	**-0.3**

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

National Oceanic and Atmospheric Administration (NOAA), U.S. Department of Commerce (USDOC). The Midwestern Regional Climate Center (MRCC) housed at the Illinois State Water Survey (ISWS) receives near real-time data 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 of NOAA/USDOC, about three months in arrears.

The ICN is a 19-station array of automated weather sites scattered across Illinois and 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 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 (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)

At the end of January, periods of very cold temperatures froze surface soils over the northern two-thirds of Illinois, and snow covered much of the same region. Near surface moisture levels were near normal to above normal statewide (Figure 4). Moisture values in the 0- to 6-inch layer ranged from ~80 percent of normal at Monmouth and Rend Lake to ~120 percent of normal at Brownstown and Olney. Conditions were very similar in the 6- to 20-inch layer, and amounts ranged from 79 percent of normal at Topeka to 115 percent of normal at Perry. Soil moisture 20 to 40 inches deep also was near to above normal, except for below normal conditions in northeastern Illinois. Values in that layer ranged from less than 60 percent of normal at DeKalb and Peoria to 120 percent of normal at Rend Lake. Conversely, soil moisture in the 40- to 72-inch layer was quite variable, maintaining the pattern observed in this layer for the past several months. Levels ranged from 17 percent of normal at Peoria to more than 200 percent of normal at Rend Lake. Overall, soil moisture in Illinois at the end of January was slightly below normal (Figure 1).

Compared to the end of last month, soil moisture generally decreased across the state in all layers (Table 2). Small decreases were observed in the 0- to 6-inch layer, but none were more than 10 percent. Conversely, four scattered sites measured increases from 11 to 25 percent. Small soil moisture decreases dominated the 6- to 20- and the 20- to 40-inch layers. All changes were less than 15 percent. In opposition to this trend, Carbondale showed increases in all soil layers.

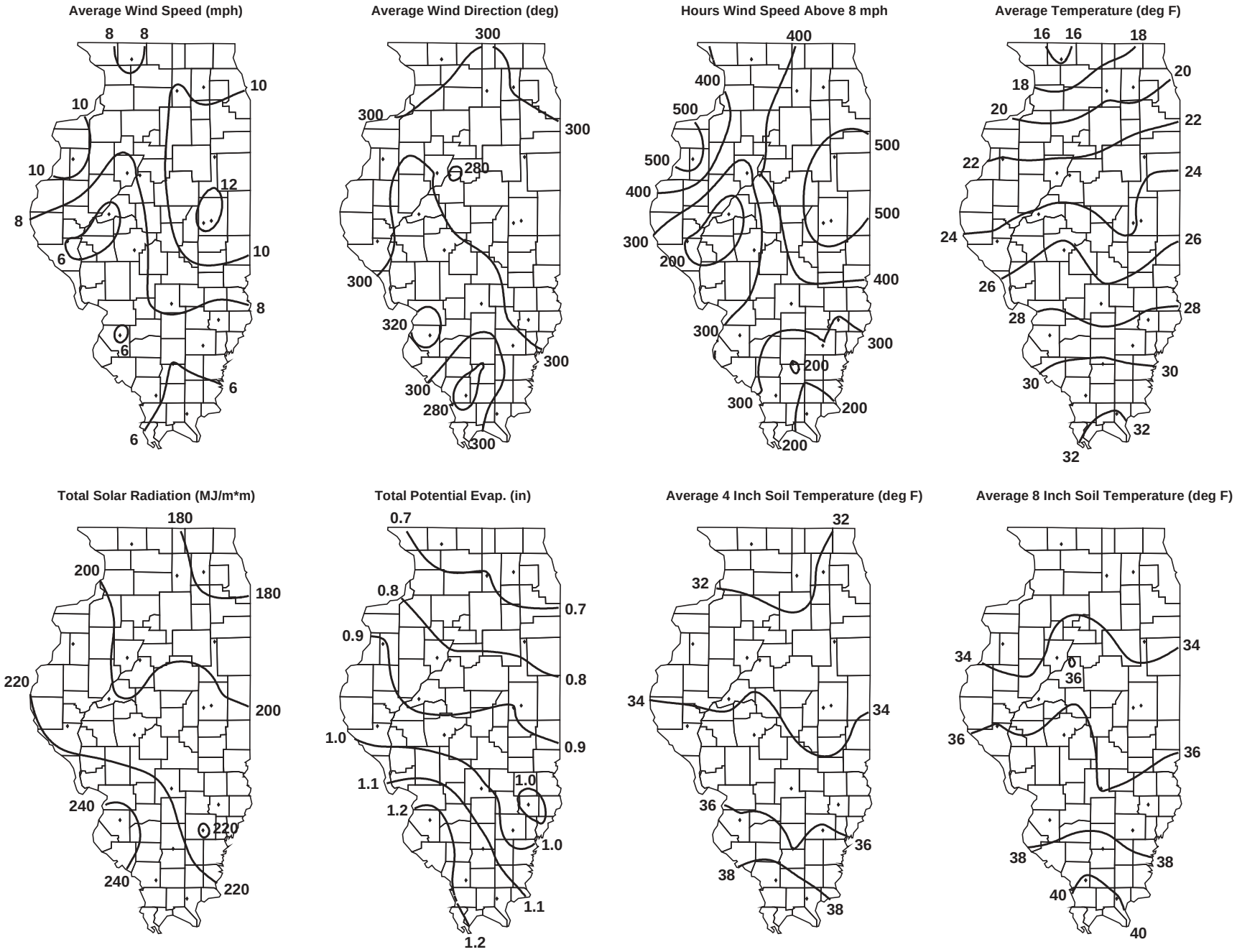

Figure 3. January monthly averages and totals as collected by the Illinois Climate Network

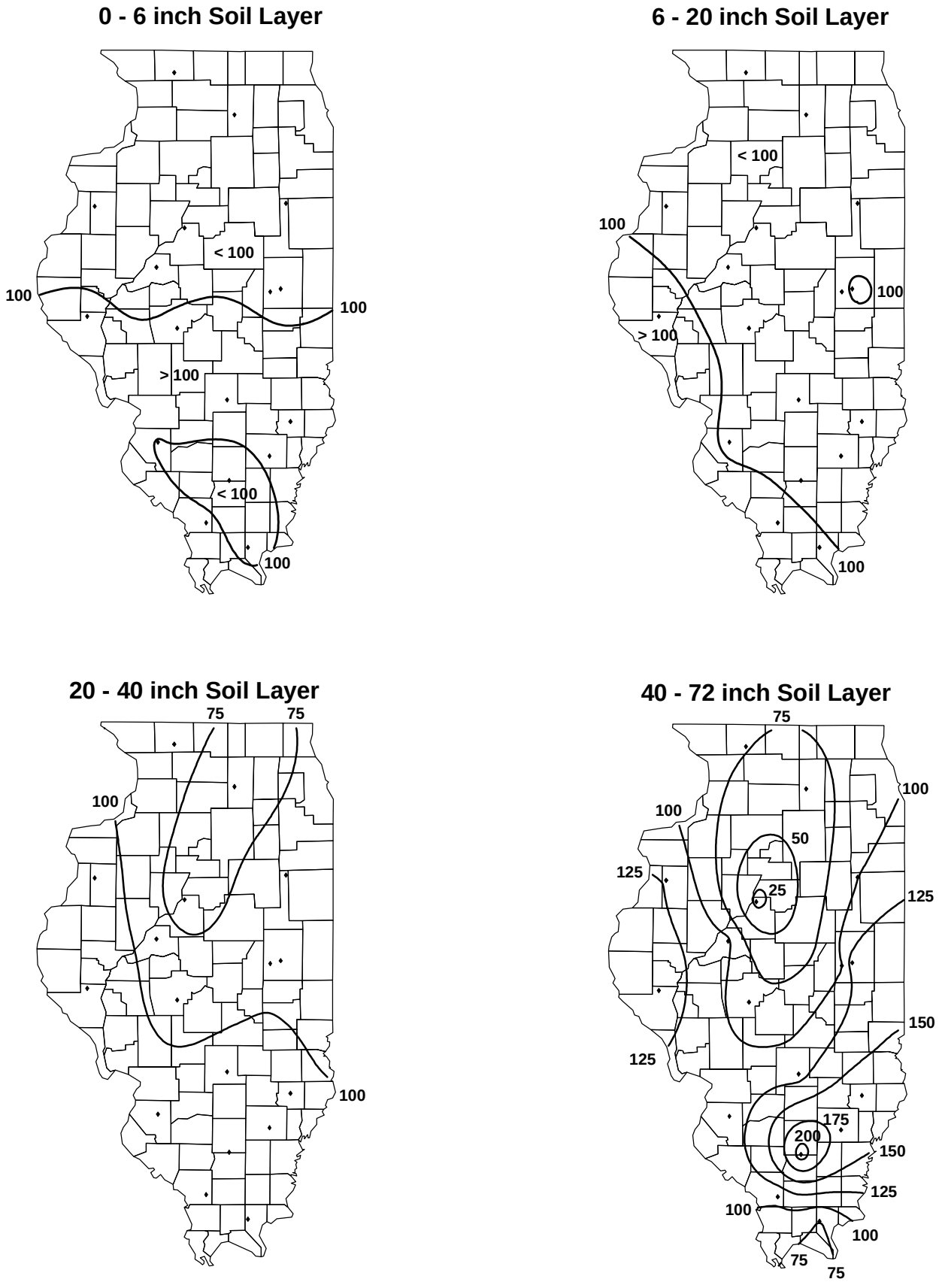

Figure 4. February 1 observed percent-of-normal soil moisture based on 1985-1995 mean

Table 2. Soil Moisture in Various Layers on February 1, 2004

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)	2.4	5	4.1	-11	6.5	-6
DeKalb (NE)	2.4	11	4.5	-8	6.2	-7
Monmouth (W)	2.1	-3	4.4	-10	6.6	-4
East Peoria (C)	2.1	-8	4.9	-4	7.3	-7
Topeka (C)	1.3	14	2.6	-3	3.1	-9
Stelle (E)	2.2	-7	5.1	-15	6.7	-6
Champaign (E)	2.2	-4	5.3	-6	6.4	-10
Bondville (E)	2.3	-4	4.9	-11	8.0	-6
Perry (WSW)	2.4	2	5.5	-4	8.2	-4
Springfield (WSW)	2.2	-3	5.1	2	7.7	-3
Brownstown (ESE)	3.0	5	4.7	-3	8.3	1
Olney (ESE)	2.9	16	4.5	-6	7.0	-2
Belleville (SW)	2.4	-10	5.1	-6	8.7	1
Carbondale (SW)	2.6	25	5.3	14	8.0	6
Ina (SE)	2.2	-8	5.1	0	7.7	2
Fairfield (SE)	2.7	-3	5.4	-3	7.5	-1
Dixon Springs (SE)	2.5	-5	5.4	-3	8.1	0

Additional Information: Soil moisture is monitored at 17 stations across Illinois, mostly at sites co-located with the ICN locations. Data are collected manually twice a month during the growing season (March–October) and monthly during the remainder of the year. The information aids in pinpointing areas and extent of unusual soil moisture levels, their impacts on Illinois agriculture, and 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 (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 and on the Mississippi River along the Illinois border recorded peak stages below flood stage this month. The Ohio River at Cairo peaked just above flood stage on January 16.

Table 4 lists 26 streamgaging stations located throughout Illinois. Provisional monthly mean flows posted by the USGS are listed if available; otherwise, daily mean discharge data posted by the USGS were used to estimate the mean flow for the month. Long-term mean flows for each month are published by the USGS. 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 was above the median this month (195 percent of the median) and above the mean (116 percent of the mean). Flows in the northern half of the state were generally in the normal range this month. The southern half of the state reported flows in the much above normal to below normal range. The Big Muddy at Plumfield was the only station reporting flow in the below normal range. The Kaskaskia River at Vandalia, where flow is controlled by releases from Carlyle Lake, was the only station reporting flow in the much above normal range.

Water-Supply Lakes and Major Reservoirs. Reservoir levels are reported in terms of their difference from normal pool (or target level). Table 5 lists reservoirs in Illinois, their normal pool or target water surface elevation, and other

Table 3. Peak Stages for Major Rivers, January 2004

River	*Station*	*River mile**	*Flood stage (feet)**	*Peak stage (feet)***	*Date*
Illinois					
	Morris	263.1	13	6.6	02
	La Salle	224.7	20	13.6	02
	Peoria	164.6	18	12.8	03
	Havana	119.6	14	9.7	05
	Beardstown	88.6	14	11.5	09
	Hardin	21.5	25	21.4	05
Mississippi					
	Dubuque	579.9	17	7.4	13
	Keokuk	364.2	16	4.2	14
	Quincy	327.9	17	12.2	10
	Grafton	218.0	18	16.0	05
	St. Louis	180.0	30	8.3	05
	Chester	109.9	27	12.7	06
	Thebes	43.7	33	18.3	07
Ohio					
	Cairo	2.0	40	40.4	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.

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. 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 the end of December at 35 reservoirs, by the end of January, the water surface elevation had risen at 8 reservoirs, was the same as last month at 5 reservoirs, and had decreased at 22 reservoirs. For the 37 reservoirs reporting at the end of January, 16 reservoirs had water surface levels above the normal pool (or target operating level), 13 reservoirs were at normal pool, and 8 reservoirs were below normal pool. Bloomington, Canton, and Sparta reservoirs were 2 feet or more below normal pool. The community of Georgetown in Vermilion County developed a groundwater source for its public supply and started using groundwater in April 2003. The Georgetown reservoir will no longer be used as a public water supply. Water levels at Georgetown reservoir will no longer be reported.

Major Reservoirs. The water levels at Lake Shelbyville and Carlyle Lake decreased since the end of December but remained above their respective seasonal target levels. Rend Lake was 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 January mean level for Lake Michigan was 577.0 feet, compared to a mean level of 576.8 feet in 2003. The long-term average lake level for January is 578.6 feet, based on 1918–2002 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 577.0 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 the gage's 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 typically is defined as the level at which a river goes out of its banks.

Table 4. Provisional Mean Flows, January 2004

Station	*Drainage area (sq mi)*	*Years of record*	*2004 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	68	3201	3222	2748	normal	41	31
Rock River near Joslin	9549	60	3872	5239	4253	normal	53	31
Pecatonica River at Freeport	1326	84	565	755	618	normal	57	24
Green River near Geneseo	1003	64	436	535	353	normal	42	24
Edwards River near New Boston	445	65	126	243	139	normal	51	31
Kankakee River at Momence	2294	85	3114	2214	1932	above normal	26	31
Iroquois River near Chebanse	2091	79	2330	1878	1326	normal	32	31
Fox River at Dayton	2642	83	787	1474	1111	normal	65	27
Vermilion River at Pontiac	579	59	174	363	242	normal	59	31
Spoon River at Seville	1636	86	674	1017	658	normal	47	31
LaMoine River at Ripley	1293	79	335	624	367	normal	54	31
Bear Creek near Marceline	349	58	67	152	70	normal	52	31
Mackinaw River near Congerville	767	54	125	459	258	normal	66	29
Salt Creek near Greenview	1804	61	1094	1156	807	normal	40	31
Sangamon River at Monticello	550	90	585	416	258	above normal	26	31
South Fork Sangamon near Rochester	867	53	1504	584	297	above normal	11	31
Illinois River at Valley City	26,743	64	16,944	19,640	16,339	normal	47	30
Macoupin Creek near Kane	868	74	764	525	226	above normal	24	31
Vermilion River near Danville	1290	81	2091	1122	597	above normal	17	29
Kaskaskia River at Vandalia	1940	33	5028	2374	2091	much above normal	9	31
Shoal Creek near Breese	735	59	1635	655	325	above normal	13	31
Embarras River at Ste. Marie	1516	89	4080	1649	1002	above normal	12	29
Skillet Fork at Wayne City	464	83	630	646	355	normal	35	31
Little Wabash below Clay City	1131	88	3318	1362	622	above normal	12	31
Big Muddy at Plumfield	794	32	144	836	681	below normal	85	31
Cache River at Forman	244	79	381	493	344	normal	47	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 2002.

Table 5. Reservoir Levels in Illinois, January 2004

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.

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. The statewide average of the computed percentages of median streamflow for the stations are presented in Figure 1. With very few exceptions, the median flow for a particular month will be less than the mean flow at the 26 reporting stations. That is, the current month's flow as a percent of the median in nearly every case will exceed 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 the current water levels. The ISWS started collecting month-end water surface elevations at reservoirs in 1983. The number of reporting stations changes 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 also is tabulated.

Groundwater Information (Ken Hlinka)

Comparison to Average Levels. Shallow groundwater levels in 16 observation wells, which are remote from pumping centers were below average levels for January by 2.0 feet and ranged from 26.1 feet below average to 5.2 feet above average (Table 6). The northern part of the state reported the largest deviations at Cambridge (Henry County) and Mt. Morris (Ogle County). This is the 11th consecutive month for a record monthly low at Mt. Morris.

Comparison to Previous Month. Shallow groundwater levels were below those of December. Levels averaged 0.5 feet lower than those of last month and ranged from 4.7 feet below to 4.2 feet above levels last month.

Comparison to Same Month, Previous Year. Shallow groundwater levels in January were above levels of last year. Levels averaged 2.0 feet higher and ranged from 7.5 feet lower to 7.7 feet above levels of last year.

Table 6. Month-End Shallow Groundwater Level Data Sites, January 2004

					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	22.27	-0.50	-0.49	-0.30	-1.18
2	Mt. Morris	Ogle	55.00	32.92*	-7.26	-12.98	-0.36	-7.51
3	Crystal Lake	McHenry	18.00	6.47	-1.52	-0.98	0.00	+0.11
4	Cambridge	Henry	42.00	36.90	-19.78	-26.07	-4.70	+5.07
5	Fermi Lab	DuPage	17.00	7.80	+1.73	-1.20	-2.62	+3.57
6	Good Hope	McDonough	30.00	5.28	-2.01	+3.10	-0.81	+5.76
7	Snicarte	Mason	42.00	38.73	-0.56	-1.46	+0.05	-0.79
8	Coffman	Pike	28.00	7.53	N/A	+5.15	N/A	+7.45
9	Greenfield	Greene	20.70	9.67	-6.18	+1.48	+0.42	+7.69
10	Janesville	Cumberland	11.00	5.03	-1.25	+0.09	-3.46	+1.20
11	St. Peter	Fayette	15.00	2.00	-1.73	+0.08	-1.02	+1.63
12	SWS #2	St. Clair	80.00	N/A	N/A	N/A	N/A	N/A
13	Boyleston	Wayne	23.00	2.52	-1.33	+0.47	-1.44	+1.35
14	Sparta	Randolph	27.00	7.94	-2.76	-0.56	+0.95	+1.25
15	SE College	Saline	10.19	2.53	-1.18	+0.15	+1.49	+1.45
16	Dixon Springs	Pope	8.63	1.52	-0.06	+0.60	+4.18	+1.12
17	Bondville	Champaign	21.00	2.80	-1.73	+1.01	+0.75	+3.17
				Averages	-3.08	-1.98	-0.46	+1.96

Notes:
N/A = Data not available.
*Lowest level of record for 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 both short- and long-term trends in water-table levels under natural conditions. These data help clarify 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 Illinois.

Addendum

Long-Term Precipitation Networks (Nancy Westcott)

Imperial Valley Precipitation. January 2004 melted precipitation amounts (Figure 5a) were light. Gage amounts were greatest in the southern and eastern portions of the network, and precipitation was lightest in the northern region of the network. Individual gage totals ranged from 0.40 inches at sites #2 and #4 to 0.94 inches at site #19. 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 2004 network average of 0.67 inches is about 33 percent of the 11-year (1992–2002) January network average of 2.03 inches.

Cook County Precipitation. January 2004 melted precipitation amounts (Figure 5b) were below average. Precipitation was greatest in the northeastern region of the network and lightest in the southwestern portion of the network. Precipitation values ranged from 1.58 inches at site #10 (West 26th Street) to 0.40 inches at site #20 (Orland Park). The January 2004 network average of 0.87 inches is about 42 percent of the 14-year (1990–2003) January network average of 2.05 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 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 the state. 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 to determine the rate of groundwater drawdown in dry periods and during the growing season, and 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 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.

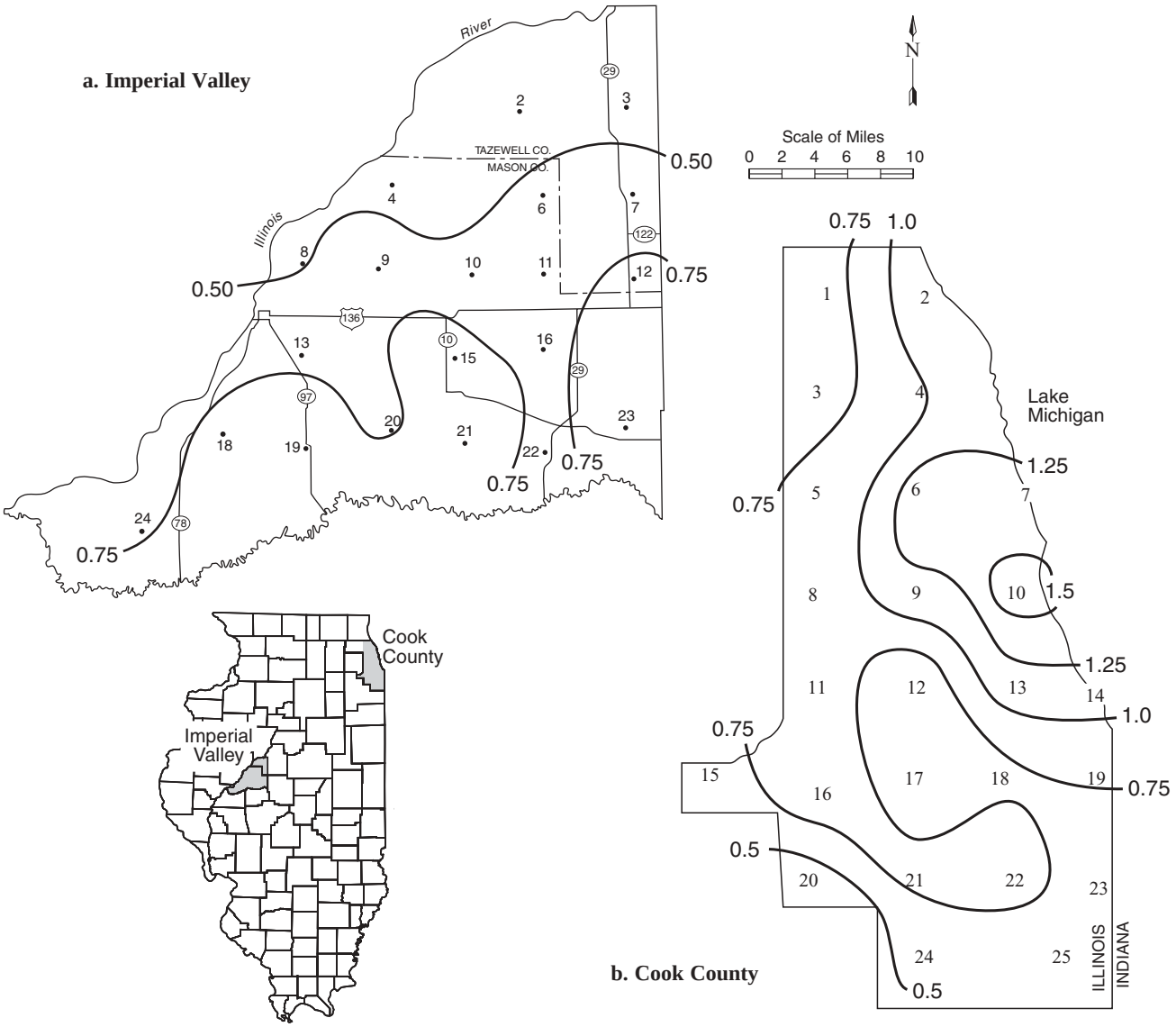

Figure 5. Long-term raingage network precipitation totals (inches) for January 2004

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 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/