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 2005

January 2005 Overview (Bob Scott)

Temperatures in Illinois during January were above average, while precipitation was well above average, the sixth wettest January since 1895. Soil moisture within the top 40 inches of soil was near the long-term statewide average. Mean streamflows were well above median heights. Shallow groundwater levels were above long-term average depths. All water resources in Illinois are high due to statewide October–January precipitation totals, the second wettest such period since 1895.

Temperatures across Illinois (Figure 1) for January were above average (a +3.7-degree departure). Crop Reporting District (CRD) temperatures ranged from 2.2 degrees above average (northwest) to 6.4 degrees above average (southeast).

Precipitation amounts for Illinois in January were well above average (Figure 1). The statewide average of 5.56 inches represents a +1.93-inch departure or 288 percent of average. Rainfall totals were lowest in the northwest CRD (3.59 inches, 256 percent of average) and highest in the east-southeast CRD (7.71 inches, 326 percent of average). Totals recorded at all CRDs in the northern two-thirds of the state ranked among the top six wettest of all Januaries since 1895, with the central and east CRDs recording the wettest and second wettest Januaries on record, respectively.

Soil moisture in the 0- to 40-inch (0- to 100-centimeter) layer at the end of January was near normal. Conditions were below normal to normal near the surface statewide, but normal to above normal in deeper layers in southeastern Illinois.

Mean provisional streamflow statewide was well above the median flow in January, 695 percent of median (Figure 1). Rivers in Illinois recorded monthly mean discharges in the much above normal range this month throughout most of Illinois. Monthly mean discharges were the highest recorded for January at several streamgage locations. Peak stages were above flood stage at several Illinois River stations, on the Ohio River at Cairo, and on Mississippi River stations in southern Illinois.

Water surface levels at the end of January were below the normal pool/target operating level at 8 of 36 reporting reservoirs. Levels at Rend Lake, Lake Shelbyville, and Carlyle Lake were well above their seasonal target levels. Lake Michigan's mean level remains below the long-term average.

Statewide, **shallow groundwater levels** were above average for January by 1.8 feet. Levels also averaged 0.6 feet higher than December levels and 2.2 feet above January levels one year ago.

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

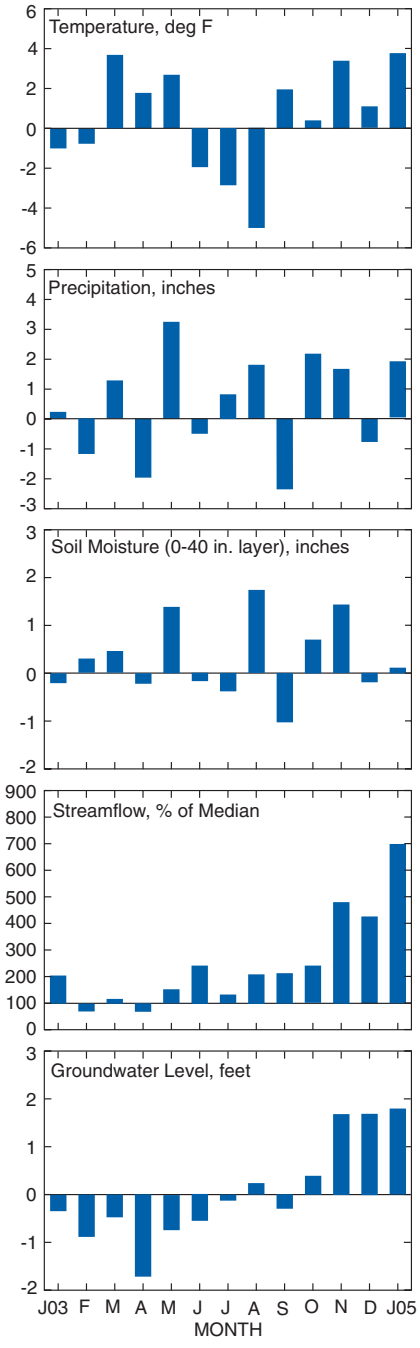

Figure 1.
Statewide departures from normal

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 above average (Figure 2 and Table 1). Southern Illinois reported the warmest temperatures, including the 12th (+5.9°F) and 15th (+6.4°F) warmest Januaries in the southwest and southeast CRDs since 1895, respectively. Extremes ranged from 72°F at Kaskaskia on January 1 to -13°F at Morrisonville on January 18.

Precipitation was well above average statewide (Figure 2 and Table 1), the sixth wettest January on record since 1895. Three totals were of special note: 6.31 inches, wettest on record in the east CRD; 6.88 inches, second wettest on record in the west-southwest CRD; and 5.30 inches, third wettest on record in the central CRD. Edwardsville reported the highest one-day precipitation, 3.05 inches on January 5. Olney reported the highest monthly total for January, 9.58 inches. Statewide, it was also the fourth wettest November–January since 1895 (12.14 inches), tenth wettest August–January (22.75 inches), and 13th wettest February–January (44.26 inches).

Snowfall was reported across most of Illinois in January (Figure 2), with largest totals in the Chicago area. Lake Villa reported 35.1 inches, the highest statewide January snowfall total,while Midway Airport reported 29.3 inches and O'Hare Airport reported 27.8 inches.

Severe weather was reported in Illinois on January 12. Winds damaged homes, trees, and power lines in Kane, Christian, Fayette, Effingham, Marion, Jefferson, Pulaski, and Johnson Counties.

Illinois Climate Network (ICN) Data. Average daily wind speeds across Illinois for January (Figure 3) ranged from 5 mph at Kilbourne and Dixon Springs to 11 mph at Bondville and Stelle. Brownstown recorded the highest wind gust for the month, 58 mph, on January 13. The prevailing wind direction was northwesterly in southern Illinois to northerly and northeasterly in northern Illinois. Wind speeds in excess of 8 mph varied from 125 hours at Kilbourne to 508 hours at Bondville. (January has 744 hours.) Average air temperatures ranged from the low 20s to upper 30s north to south across the state.

Solar radiation totals in January were near seasonal minimums, ranging from 176 Mega-Joules per meter squared (MJ/m^2) between Springfield and Big Bend to 203 MJ/m^2 at Freeport, DeKalb, and Belleville. Potential evapotranspiration observations also were at an annual minimum from a low of 0.7 inches at Big Bend to just over an inch at Belleville, Carbondale, and Rend Lake. Soil temperatures at the 4- and 8-inch levels ranged from near 30°F in northwestern Illinois to the low 40s in 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 February call for much above average tempera-

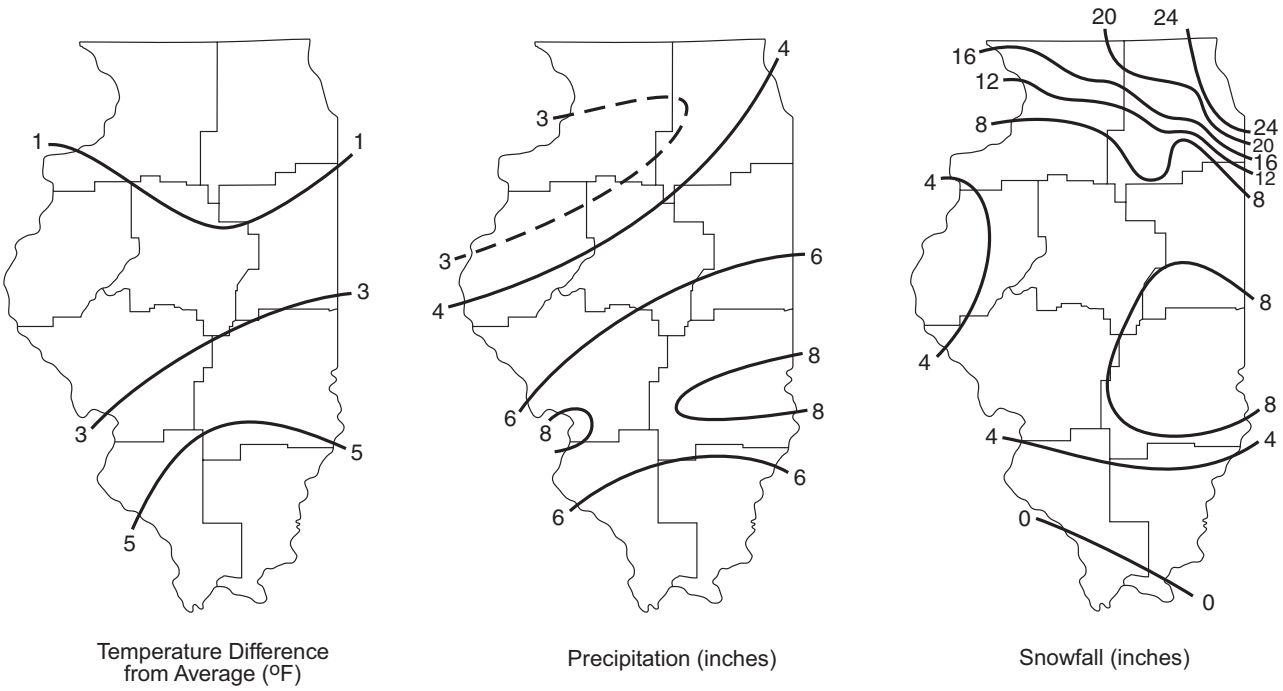

Figure 2. Illinois temperature, precipitation, and snowfall during January 2005

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 05 Amount	% Avg	Temp Dev	Nov 04-Jan 05	% Avg	Temp Dev	Aug 04-Jan 05	% Avg	Temp Dev	Feb 04-Jan 05	% Avg	Temp Dev
Northwest	3.59	256	2.2	7.82	131	3.0	17.66	107	1.2	39.12	108	1.1
Northeast	4.25	258	2.4	9.47	138	2.4	18.33	107	0.9	40.37	110	0.8
West	4.23	295	3.0	9.67	148	3.0	24.10	145	0.9	42.24	113	0.7
Central	5.30	327	3.3	11.39	161	2.8	22.29	133	0.7	42.07	113	0.7
East	6.31	361	3.3	13.22	179	2.5	23.80	140	0.6	46.53	124	0.6
West-southwest	6.88	373	3.0	13.95	175	2.8	24.03	141	0.6	43.05	114	0.6
East-southeast	7.71	326	4.6	15.38	166	2.9	26.56	142	1.0	49.21	120	0.9
Southwest	5.76	223	5.9	14.43	140	3.2	24.55	124	1.1	48.91	114	0.9
Southeast	5.58	185	6.4	14.40	132	3.2	24.35	120	1.4	48.82	110	1.2
State Average	**5.56**	**288**	**3.7**	**12.14**	**153**	**2.8**	**22.75**	**129**	**0.9**	**44.26**	**114**	**0.8**

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

tures across the state, especially in northern Illinois, and much above average precipitation, especially in the southern two-thirds of Illinois. February–April outlooks 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 NOAA, 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 (NCDC) 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 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.

Two ICN sites were moved during 2004. The site at Wildlife Prairie Park was moved northward to Big Bend Fish and Wildlife Conservation Area in June 2004, and the site located on the campus of Lake Land Community College was moved approximately 1.5 miles to the campus of the University of Illinois at Springfield in October 2004.

The 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 in Illinois during January was well above average statewide. This resulted in near-surface soil moisture at normal to below normal levels across the state (Figure 4). Moisture values in the 0- to 6-inch layer ranged from 75 percent of normal at Champaign and Monmouth to 119 percent at Stelle. Conditions in the 6- to 20- and 20- to 40-inch layers were wetter. Values 6 to 20 inches deep ranged from 80 percent at Champaign and Topeka to 137 percent at Olney, while values in the 20- to 40-inch layer ranged from 87 percent at Topeka and Dixon Springs to 130 percent at Olney and Rend Lake. Values in the 40- to 72-inch layer were even wetter and varied from 94 percent of normal at Perry to more than 200 percent at Champaign and Rend Lake. Overall, soil moisture in Illinois at the end of January was near normal (Figure 1).

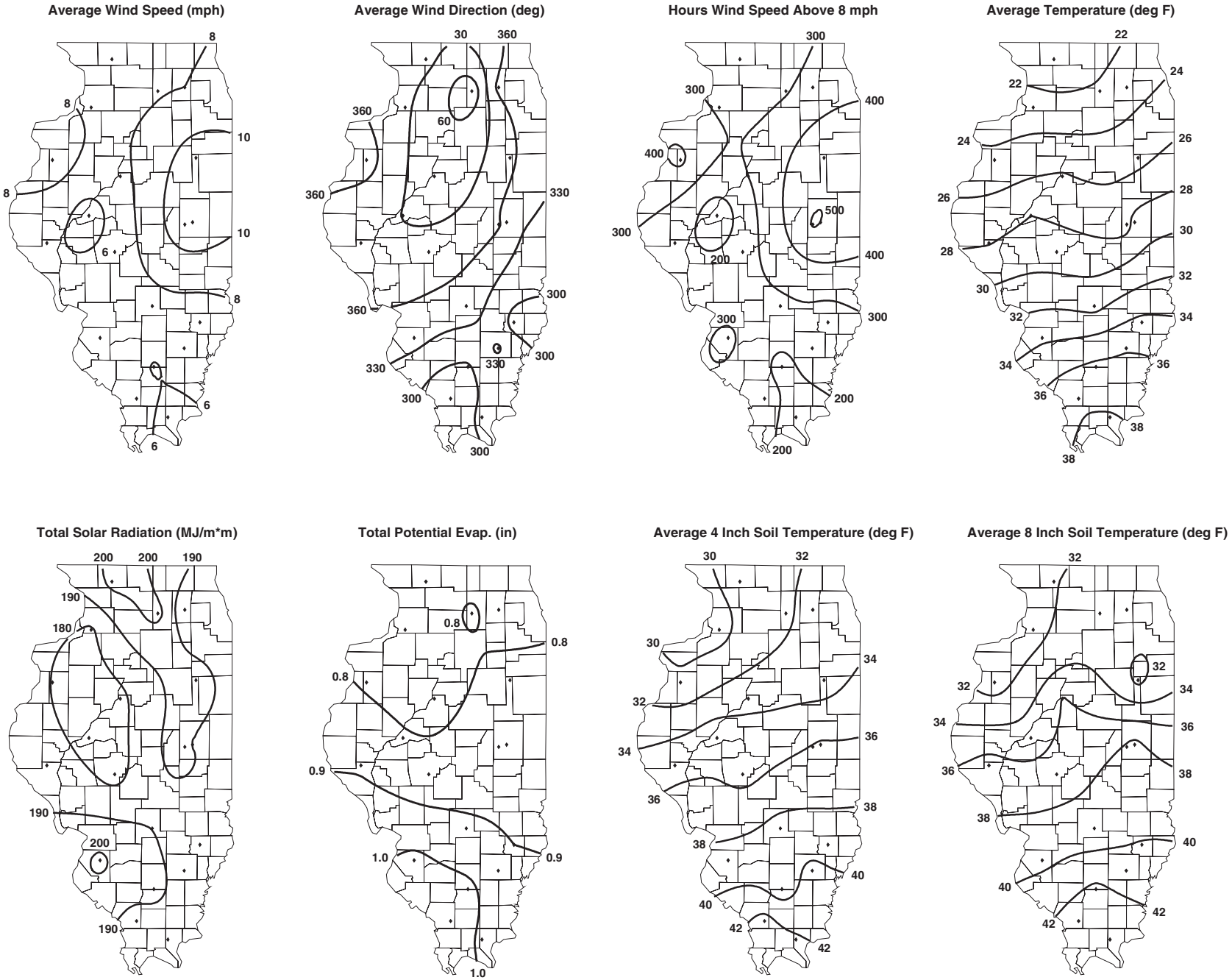

Figure 3. January monthly averages and totals as collected by the Illinois Climate Network

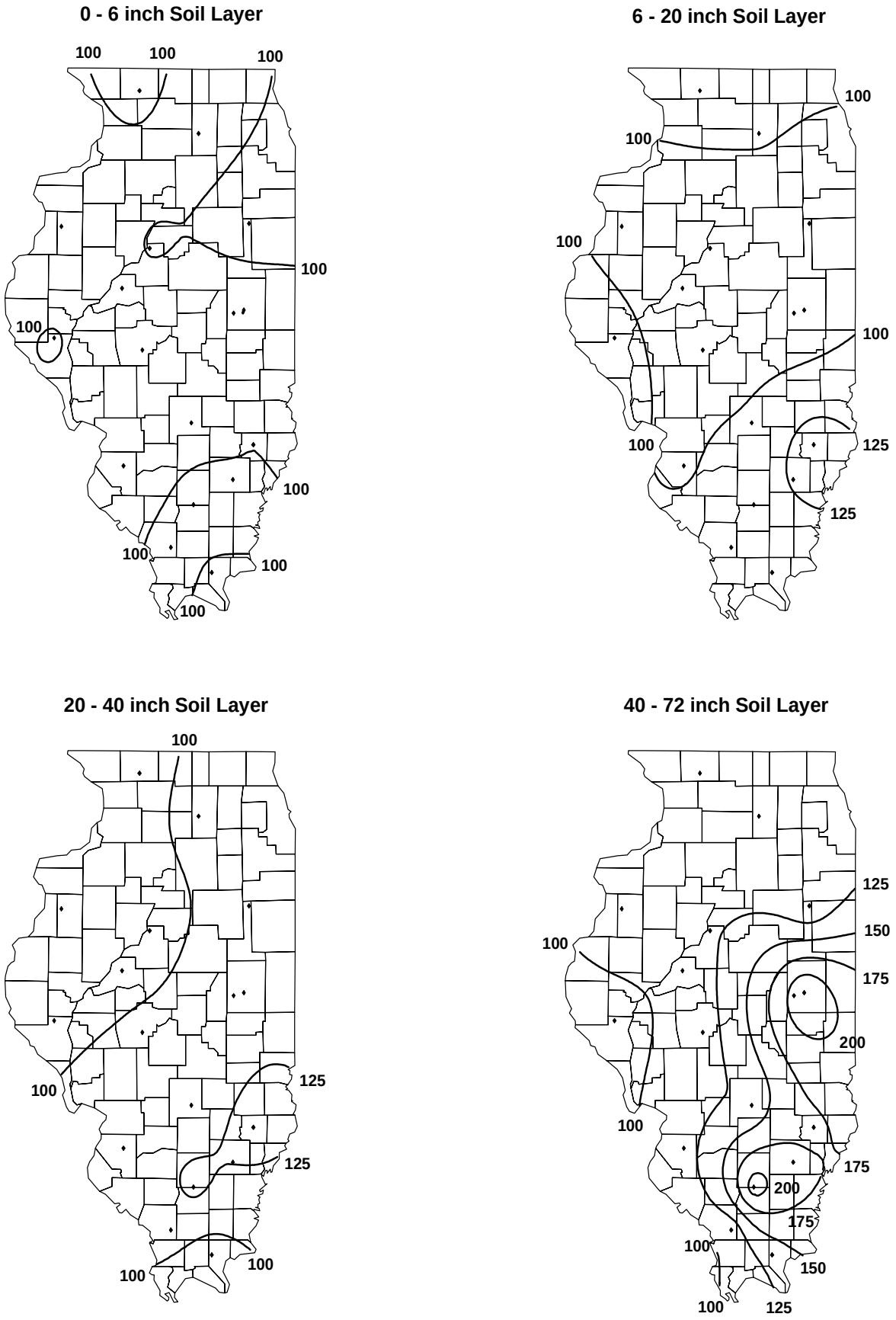

Figure 4. February 1 observed percent-of-normal soil moisture based on 1985-1995 mean

Table 2. Soil Moisture in Various Layers on February 1, 2005

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)	2.7	49	5.1	20	6.7	-3
DeKalb (NE)	2.2	35	5.2	36	7.3	17
Monmouth (W)	2.0	14	4.4	6	6.3	1
East Peoria (C)	2.3	21	4.9	5	7.9	2
Topeka (C)	1.3	35	2.6	5	3.0	-6
Stelle (E)	2.6	59	4.9	28	7.1	20
Champaign (E)	2.0	8	4.7	-1	6.6	1
Bondville (E)	2.1	10	5.1	7	7.4	13
Perry (WSW)	2.3	9	5.4	6	7.4	0
Springfield (WSW)	2.0	9	5.0	3	8.0	1
Brownstown (ESE)	2.5	-0	5.0	7	8.3	-0
Olney (ESE)	2.5	3	5.2	9	7.3	-1
Belleville (SW)	2.1	2	5.1	3	8.6	1
Carbondale (SW)	2.6	-18	5.4	-3	8.0	0
Ina (SE)	2.8	1	5.5	0	7.8	1
Fairfield (SE)	2.7	-16	5.7	1	7.6	1
Dixon Springs (SE)	2.5	-10	5.4	-4	7.8	-5

Compared to the end of last month, soil moisture in the 0- to 6-inch layer increased across northern Illinois, but decreased in southern locations (Table 1). The largest increase in that layer occurred at Stelle (59 percent), the largest decrease at Fairfield (16 percent). Increases occurred in the 6- to 20-inch layer in northern Illinois (36 percent at DeKalb, 28 percent at Stelle, and 20 percent at Freeport), while changes were small elsewhere. Changes in the 20- to 40-inch layer were generally less than 5 percent, although Stelle, DeKalb, and Bondville reported increases of 10 to 20 percent.

Additional Information. Soil moisture monitoring is performed at 17 sites across Illinois at sites mostly co-located with the ICN locations. 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 also provides 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 NWS and/or the USACE. January peak stages were above flood stage at the Illinois River streamgages listed in Table 3, on the Ohio River at Cairo, and on the Mississippi River at Grafton, at Chester, and at Thebes.

Provisional monthly mean flows for 26 streamgaging stations located throughout Illinois are shown (Table 4). Provisional data posted by the USGS are listed as available. The USGS publishes long-term mean flows for each month in its annual water resources data report. The long-term monthly 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.) The statewide percent of historical median flow for each of the last 12 months and the current month is shown in Figure 1.

Table 3. Peak Stages for Major Rivers, January 2005

River	*Station*	*River mile**	*Flood stage (feet)**	*Peak stage (feet)***	*Date*
Illinois					
	Morris	263.1	13	21.6	14
	La Salle	224.7	20	28.9	15
	Peoria	164.6	18	24.3	18
	Havana	119.6	14	23.0	20
	Beardstown	88.6	14	24.9	21
	Hardin	21.5	25	28.9	22
Mississippi					
	Dubuque	579.9	17	8.9	06
	Keokuk	364.2	16	5.5	05
	Quincy	327.9	17	11.9	13
	Grafton	218.0	18	18.2	06
	St. Louis	180.0	30	28.7	07
	Chester	109.9	27	30.3	08
	Thebes	43.7	33	35.8	16
Ohio					
	Cairo	2.0	40	53.2	17

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

Mean provisional flow statewide was well above the median this month (695 percent of the median) and above the long-term mean (470 percent of the mean). The mean streamflows for the month were in the much above normal range this month throughout the state, except at some northern Illinois stations where monthly flows were in the above normal range. During January 2005, nearly half of the Table 4 stations recorded the highest monthly mean flow observed for January during their respective periods of record.

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 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 end-of-December levels at 33 reservoirs, by the end of January the water surface elevation had decreased at 23 reservoirs, had risen at 7 reservoirs, and was the same as last month at 3 reservoirs. For the 36 reservoirs with observations reported at the end of January, the water surface level at 17 reservoirs was above normal pool (or target operating level), 11 reservoirs were at normal pool, and 8 reservoirs were below normal pool.

Major Reservoirs. Water levels at the three major reservoirs increased in January. Rend Lake, Carlyle Lake, and Lake Shelbyville were well above their seasonal target levels at the end of January.

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 577.7 feet, compared to a mean level of 577.0 feet in January 2004. The long-term average lake level for January is 578.6 feet, based on 1918–2004 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 577.7 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, in feet, above each gage's datum (zero reference). Stage may be converted to a standard vertical elevation datum (e.g., National Geodetic Vertical Datum [NGVD] 1929, or mean sea level) by adding the stage to the gage datum elevation in the same units. The elevation of the gage datum varies from station to station, as does the position of the gage zero relative to the riverbed. The stage of a river is not necessarily the same as the water depth. Flood stage also varies by location. Flood stage is typically

Table 4. Provisional Mean Flows, January 2005

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	69	5764	3210	2700	much above normal	10	31
Rock River near Joslin	9549	61	7757	5205	4074	above normal	17	31
Pecatonica River at Freeport	1326	85	1110**	751	622	above normal	15	28
Green River near Geneseo	1003	65	1230**	529	350	above normal	13	28
Edwards River near New Boston	445	66	550**	240	132	above normal	19	28
Kankakee River at Momence	2294	87	6197	2201	1866	much above normal	2	31
Iroquois River near Chebanse	2091	80	9130**	1860	1326	much above normal	H	28
Fox River at Dayton	2642	85	9700**	1465	1110	much above normal	H	31
Vermilion River at Pontiac	579	60	2364	357	231	much above normal	H	31
Spoon River at Seville	1636	87	3401	1007	651	much above normal	7	31
LaMoine River at Ripley	1293	80	3619	616	359	much above normal	H	31
Bear Creek near Marceline	349	59	845	150	69	much above normal	5	31
Mackinaw River near Congerville	767	55	2860**	452	255	much above normal	H	31
Salt Creek near Greenview	1804	62	7300**	1142	767	much above normal	H	29
Sangamon River at Monticello	550	91	2299	412	250	much above normal	2	31
South Fork Sangamon near Rochester	867	54	4278	573	294	much above normal	H	31
Illinois River at Valley City	26,743	65	64,360	19,430	16,226	much above normal	H	31
Macoupin Creek near Kane	868	75	4405	519	225	much above normal	H	31
Vermilion River near Danville	1290	82	5880**	1112	595	much above normal	2	31
Kaskaskia River at Vandalia	1940	34	7199	2309	1995	much above normal	H	31
Shoal Creek near Breese	735	60	4300**	646	317	much above normal	H	30
Embarras River at Ste. Marie	1516	90	8172	1632	992	much above normal	2	31
Skillet Fork at Wayne City	464	84	2645	640	317	much above normal	6	31
Little Wabash below Clay City	1131	89	7600**	1348	613	much above normal	2	25
Big Muddy at Plumfield	794	33	2706	823	627	much above normal	6	31
Cache River at Forman	244	80	1689	493	352	much above normal	6	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.
H = New high for January monthly mean flow for the period of record.
*As reported in U.S. Geological Survey (USGS) Water Resources Data, Illinois, Water Year 2003.
**Estimated mean flow.

Table 5. Reservoir Levels in Illinois, January 2005

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.

defined as either the level at which floodwaters reach a particular site near the gage or at which the river goes out of its banks.

The USGS publishes long-term mean streamflows for each month in its annual water resouces data report. The long-term monthly median flow for each of the 26 stations listed in Table 4 is determined by ranking the 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 by 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. 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.

Reservoir levels are obtained from a network of cooperating reservoir operators who are contacted each month by ISWS staff. 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 level for each reservoir is the arithmetic average of the month-end levels for the period of record obtained by ISWS. The number of years of data also is tabulated.

Groundwater Information (Ken Hlinka)

Comparison to Average Levels. Shallow groundwater levels in 15 observation wells, which are remote from pumping centers, were above average levels for January by 1.8 feet and ranged from 3.2 feet below to 7.5 feet above average (see Table 6).

Comparison to Previous Month. Shallow groundwater levels were above those of December. Levels averaged 0.6 feet higher and ranged from 2.7 feet below to 4.8 feet above levels last month.

Comparison to Same Month, Previous Year. Shallow groundwater levels in January were above levels of a year ago. Levels averaged 2.2 feet higher and ranged from 0.7 feet lower to 9.7 feet above 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 both short- and long-term trends in water table levels

Table 6. Month-End Shallow Groundwater-Level Data Sites, January 2005

					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	21.72	-0.08	+0.06	-0.16	+0.55
2	Mt. Morris	Ogle	55.00	23.20	-4.74	-3.18	+0.16	+9.72
3	Crystal Lake	McHenry	18.00	5.46	-0.39	+0.03	+0.22	+1.01
4	Cambridge	Henry	42.00	27.23*	N/A	N/A	N/A	N/A
5	Fermi Lab	DuPage	17.00	4.93	+1.62	+1.57	+1.69	+2.87
6	Good Hope	McDonough	30.00	3.79	+3.63	+4.47	-0.01	+1.49
7	Snicarte	Mason	42.00	34.94	+2.18	+2.32	+1.26	+3.79
8	Coffman	Pike	28.00	5.19	+6.05	+7.48	+2.39	+2.34
9	Greenfield	Greene	20.70	3.83	+6.37	+7.22	+4.78	+5.84
10	Janesville	Cumberland	11.00	4.98	-0.03	+0.13	-2.66	+0.05
11	St. Peter	Fayette	15.00	1.59	+0.25	+0.48	+0.32	+0.41
12	SWS #2	St. Clair	80.00	N/A	N/A	N/A	N/A	N/A
13	Boyleston	Wayne	23.00	2.43	-0.11	+0.53	-0.06	+0.09
14	Sparta	Randolph	27.00	3.15	+2.89	+4.14	+1.68	+4.79
15	SE College	Saline	10.19	2.05	+0.48	+0.60	-0.93	+0.48
16	Dixon Springs	Pope	8.63	2.17	+0.41	-0.05	+0.52	-0.65
17	Bondville	Champaign	21.00	2.86	+1.16	+0.91	-0.02	-0.06
				Averages	+1.31	+1.78	+0.61	+2.18

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

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 the state.

Addendum

Long-Term Precipitation Networks (Nancy Westcott)

Imperial Valley Precipitation. January 2005 precipitation amounts (Figure 5a) were very heavy. Gage amounts were greatest in the southeastern portion of the network, and precipitation was lightest in the northwestern half of the network. Individual gage totals ranged from 5.45 inches at site #23 to 3.92 inches at site #3. 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 2005 network average of 4.49 inches is about 234 percent of the 12-year (1993–2004) January network average of 1.92 inches.

Cook County Precipitation. January 2005 precipitation amounts (Figure 5b) also were very heavy. Precipitation was heaviest in the east-central and southeastern areas of the network and the lightest in the northwestern and central portions of the network. Values ranged from 5.85 inches at site #25 (Chicago Heights) to 3.73 inches at site #1

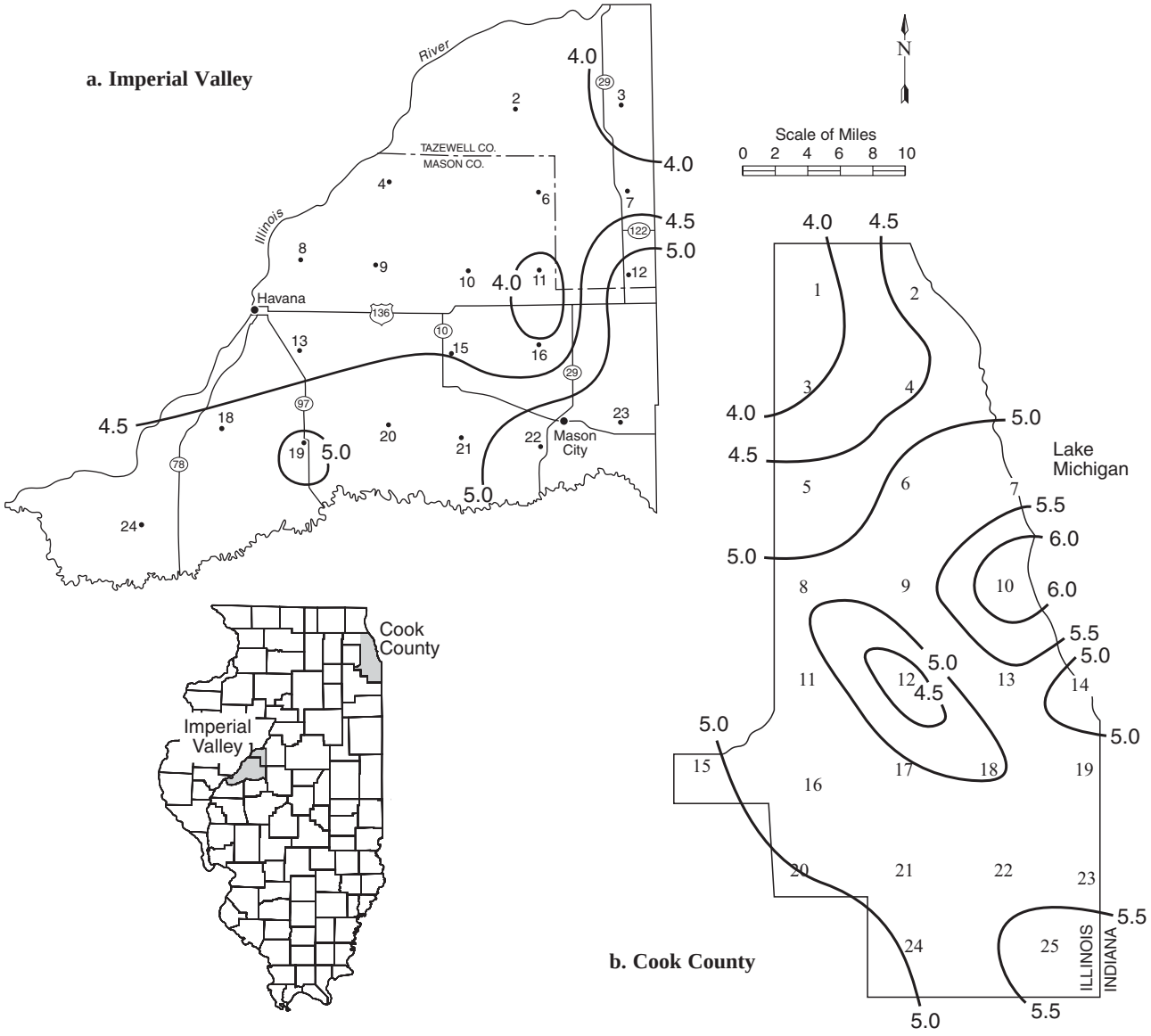

Figure 5. Long-term raingage network precipitation totals (inches) for January 2005

(Northbrook). The January 2005 network average of 5.00 inches is about 254 percent of the 15-year (1990–2004) January network average of 1.97 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 of Illinois 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 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.

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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