

ILLINOIS WATER AND CLIMATE SUMMARY

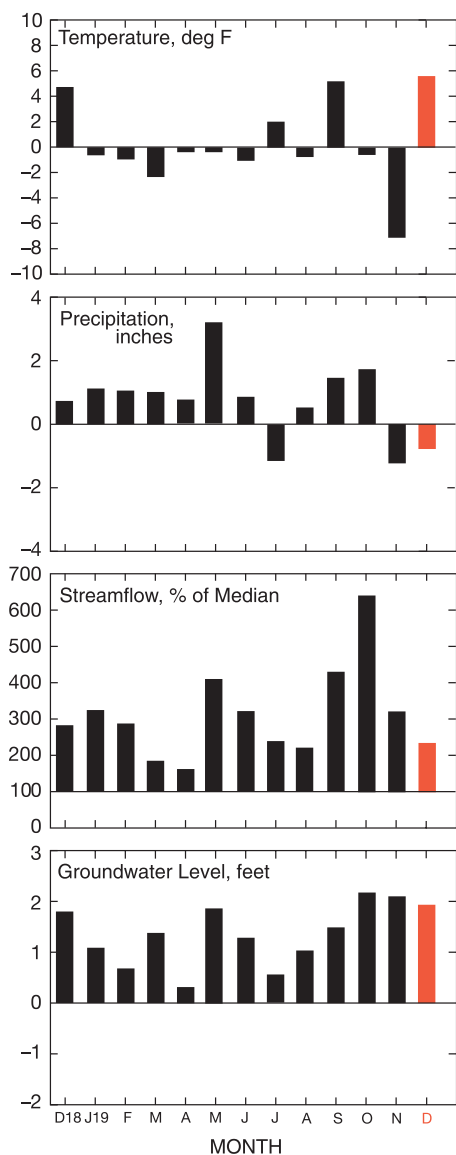


Figure 1. Statewide departures from normal.

December 2019 OVERVIEW

Temperatures were above and precipitation was below the long-term average in Illinois in December. Mean streamflow statewide was above the median for the month. Shallow groundwater levels were above the long-term depths.

Air temperatures averaged 35.5°F in December, 5.6° above the long-term average (Figure 1). The southeast crop reporting district (CRD) was the warmest with an average of 40.2°. The lowest regional temperature was 32.1°, reported by the northwest CRD.

Precipitation averaged 1.84 inches, 0.85 inches below the long-term average (Figure 1). The southeast CRD was the wettest with an average of 2.69 inches. The west and east CRDs were the driest, each with 1.39 inches.

Mean provisional streamflow aggregated statewide was above the long-term median flow for December, about 220% of median (Figure 1). Monthly mean discharge values ranged from normal to much above normal for December. The Ohio River crested above flood stage at Cairo in early December.

Water surface levels at the end of December were below the full pool or target level at 2 of 21 reporting reservoirs. At the end of December, Lake Shelbyville was 6.6 feet above the January 1 target level, Carlyle Lake was 3.6 feet above the January 1 target level, and Rend Lake was 3.0 feet above the spillway level. Lake Michigan's mean level approached the record high monthly mean level for December (in 101 years of record).

Shallow groundwater levels statewide were above normal this month with an average departure of 1.96 feet from the period of record (Figure 1). A decrease of 0.09 feet in departures was observed from the deviation in normal groundwater levels between November and December. Levels averaged 0.52 feet above November 2019 and 0.02 feet below December 2018 levels.

Weather/Climate Information

— KEVIN GRADY

The following description of temperatures, precipitation, snow, severe weather, and drought comes from data compiled by a number of networks that report to the National Oceanic and Atmospheric Administration (NOAA). These data are provisional and may change slightly over time.

December in Illinois was drier and much warmer than average across the state.

Temperatures averaged 35.5°F, 5.6° above the long-term average (Table 1a, Figure 2). The first nine days of December had temperatures 2° to 5° above average before entering a colder period in the middle of the month. The third week of December was cold with temperatures commonly 4° to 6° below average between December 15 and 19. Most stations' monthly minimum temperatures in the teens or single digits occurred during this period. The lowest reading of the month for Illinois was -4°, recorded in Rock Island County on December 15.

A dramatic shift occurred in the last third of December when temperatures rose far above average. Especially notable was the week from December 23 through December 29, when temperatures were over 17 degrees above average across nearly the entire state. On December 25, most of the state was around 20 degrees or more above average. Most Illinois stations made it into the 60s that week for their monthly maximum temperatures. Three stations hit 70°, the warmest reading of the month: one near Carmi (White County) on December 25, one near Fairfield (Wayne County) on December 26, and one in Pope County on December 29. According to the NOAA National Centers for Environmental Information (NCEI), 104 daily high maximum temperatures and 31 daily high minimum temperature records were broken in Illinois in December, nearly all during this one week. This warm period was enough for most of Illinois to be 4° to 7° above average for December, with the largest departures from average in the northwest part of the state. Overall, it was the 15th warmest December on record in Illinois.

Precipitation averaged 1.84 inches in December, 0.85 inches below the long-term average (Table 1a, Figure 2). The southern part of Illinois was relatively wetter than other parts of the state, despite still being below average, with monthly totals of over 2 inches more common. This was especially true in the southeast, with the highest monthly total in Illinois of 4.49 inches recorded at a station near Lawrenceville in Lawrence County. Totals below 2 inches were more common north of I-72. However, the southern part of Illinois also experienced some of the larger departures below normal for the month, especially the southernmost part of the state where departures of 2 inches or more below average were common.

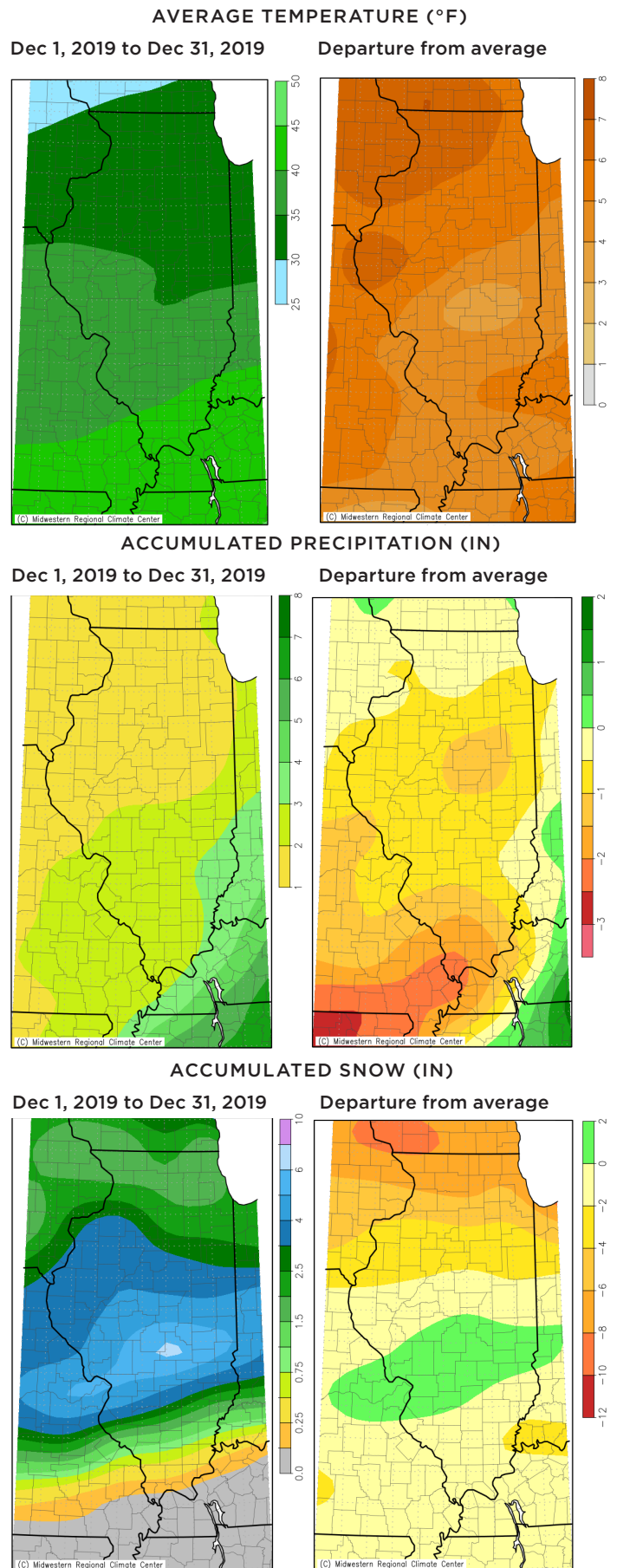


Figure 2 Illinois temperature, precipitation, snow and their departures from average for December 2019.

Source: cli-MATE, Midwest Regional Climate Center.

<http://mrcc.illinois.edu/CLIMATE>, accessed on January 8, 2020.

Snow: Almost the entire state saw measurable snow during December, with most areas north of I-64 receiving at least an inch (Figure 2). Totals were highest in the central part of Illinois, with many places between the I-70 and I-72 corridors receiving at least 4 inches. The highest monthly snowfall total in Illinois was recorded near Belleville (St. Clair County) with 10.5 inches. Most of the snow in this area fell around December 15 and 16 as a storm system passed through much of the state. These areas generally had totals up to 2 inches above average for the month, while most of the rest of the state was below average. This was especially true in northern Illinois, where December totals of around 2 inches were up to 6 to 8 inches below average for December.

Severe weather reports: The NOAA Storm Prediction Center did not record any severe weather reports for December in Illinois.

Drought: Despite most of Illinois receiving below average precipitation in both November and December, soil moisture and streamflows remained near or above average across the state. Thus, the Drought Monitor reported Illinois free of drought and abnormally dry conditions on every map released in December (Figure 4).

2019 was slightly cooler than average across most of Illinois, except for the southernmost part of the state, which was slightly warmer than average. Temperatures for the year averaged 52.1°F statewide, 0.2° below the long-term average (Table 1b, Figure 3). Only three months in 2019 had temperatures above average: July, September, and December. Most of the state experienced the year's hottest

temperatures during a heat wave in mid-July, reaching the middle or upper 90s. September was also the fourth warmest on record. The coldest temperatures came at the end of January, with much of Illinois dropping into the negative teens or below. This included a new record for the coldest temperature ever recorded in Illinois of -38°F, set near Mt. Carroll in Carroll County on January 31.

The annual precipitation averaged 49.85 inches in Illinois, 9.89 inches above the long-term average (Table 1b, Figure 3). That made 2019 the 5th wettest year on record for the state. 2019 set the state precipitation record for the ten-month period from January through October with 45.60 inches. However, below average precipitation in November and December prevented 2019 from setting the annual record; only those months and July were drier than average.

The first half of the year was particularly wet, with May the third wettest on record in Illinois with 8.16 inches. Southern Illinois was the wettest part of the state for the year with totals approaching 60 inches or more; a station near Murphysboro (Jackson County) had the largest annual total in Illinois of 69.31 inches. Northern Illinois saw the largest departures above average with 2019 being the wettest year on record for the northernmost two CRDs. Even the driest part of the state, east central Illinois, had yearly totals of around 4 inches above average. Some areas in the central and northwest parts of the state experienced moderate drought in August and September, while the southern part of the state had moderate and a very small area of severe drought in October.

Table 1a. Temperature and Precipitation for December 2019

	Temp. (°F)	Departure from long- term avg. (1981–2010)	Precip. (in)	Departure from long- term avg. (1981–2010)
Illinois	35.5	+5.6	1.84	−0.85
CRD 1 (northwest)	32.1	+6.8	1.58	−0.47
CRD 2 (northeast)	32.8	+6.2	1.59	−0.60
CRD 3 (west)	34.6	+6.1	1.39	−0.87
CRD 4 (central)	34.6	+6.1	1.48	−1.00
CRD 5 (east)	33.8	+5.2	1.39	−1.12
CRD 6 (west southwest)	36.4	+5.0	1.88	−0.80
CRD 7 (east southeast)	36.6	+4.7	2.49	−0.56
CRD 8 (southwest)	39.6	+4.9	2.14	−1.37
CRD 9 (southeast)	40.2	+5.4	2.69	−1.12

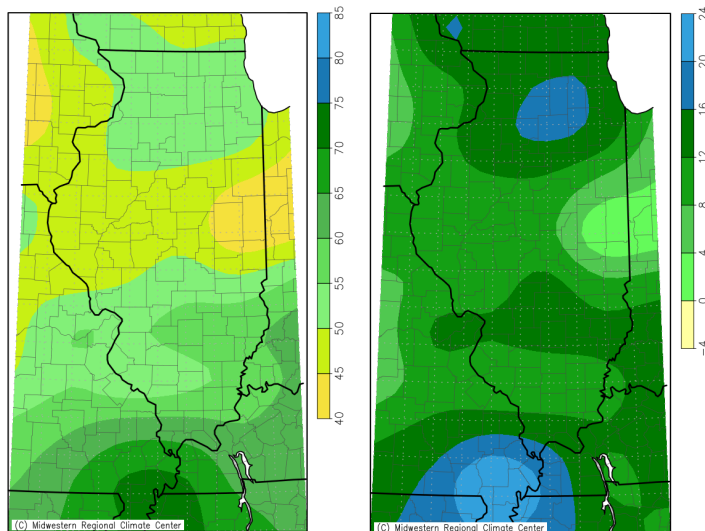
Data from NOAA's National Centers for Environmental Information, accessed 1/8/2020.

Table 1b. Temperature and Precipitation for 2019

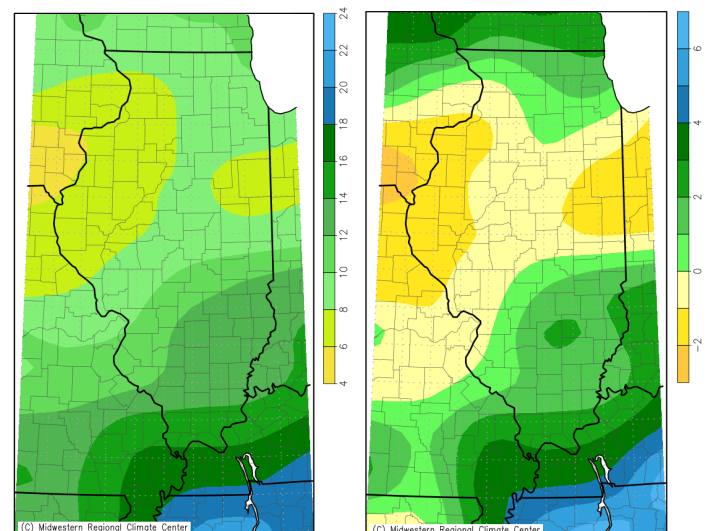
	Temp. (°F)	Departure from long- term avg. (1981–2010)	Precip. (in)	Departure from long- term avg. (1981–2010)
Illinois	52.1	−0.2	49.85	+9.89
CRD 1 (northwest)	48.4	−0.7	51.02	+14.09
CRD 2 (northeast)	48.7	−0.7	50.27	+13.44
CRD 3 (west)	51.1	−0.6	48.31	+9.66
CRD 4 (central)	51.3	−0.2	47.07	+8.95
CRD 5 (east)	50.9	−0.3	42.91	+4.35
CRD 6 (west southwest)	53.3	−0.4	48.10	+8.45
CRD 7 (east southeast)	53.7	0	51.64	+9.44
CRD 8 (southwest)	56.4	+0.5	53.32	+8.84
CRD 9 (southeast)	56.5	+0.7	56.93	+10.81

Data from NOAA's National Centers for Environmental Information, accessed 1/8/2020.

ACCUMULATED PRECIPITATION (IN)
Jan 1, 2019 to Dec 31, 2019 Departure from average



ACCUMULATED PRECIPITATION (IN)
Oct 1, 2019 to Dec 31, 2019 Departure from average



ACCUMULATED PRECIPITATION (IN)
July 1, 2019 to Dec 31, 2019 Departure from average

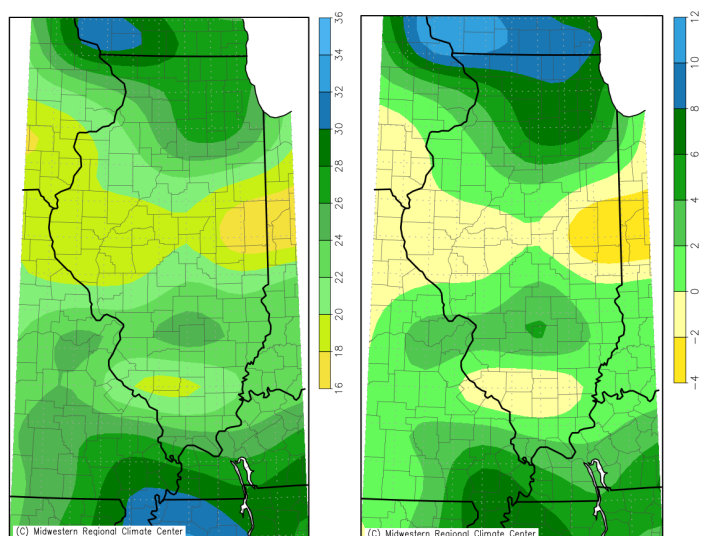
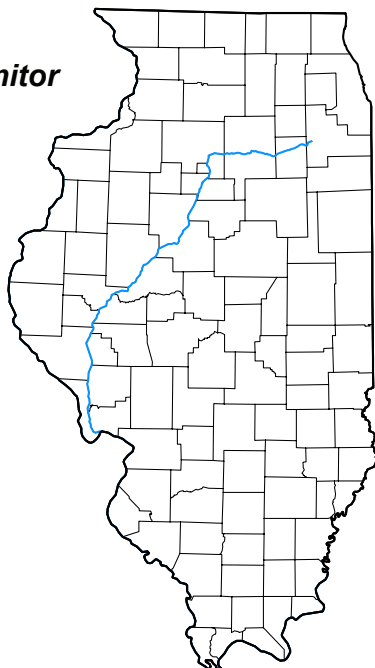


Figure 3. Illinois precipitation and precipitation departure from average for year to date (top left), last 3 months (top right), and last 6 months (bottom). Source: cli-MATE, Midwestern Regional Climate Center. <http://mrcc.illinois.edu/CLIMATE>, accessed on January 8, 2020.

U.S. Drought Monitor Illinois



December 31, 2019

(Released Thursday, Jan. 2, 2020)

Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0	D1	D2	D3	D4
Current	100.00	0.00	0.00	0.00	0.00	0.00
Last Week 12-24-2019	100.00	0.00	0.00	0.00	0.00	0.00
3 Months Ago 10-01-2019	82.16	7.06	10.59	0.19	0.00	0.00
Start of Calendar Year 01-01-2019	100.00	0.00	0.00	0.00	0.00	0.00
Start of Water Year 10-01-2019	82.16	7.06	10.59	0.19	0.00	0.00
One Year Ago 01-01-2019	100.00	0.00	0.00	0.00	0.00	0.00

Intensity:

None	D2 Severe Drought
D0 Abnormally Dry	D3 Extreme Drought
D1 Moderate Drought	D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

Author:

Brad Pugh
CPC/NOAA

Illinois Climate Network (ICN)

— JENNIE ATKINS

The Illinois Climate Network (ICN) collects hourly weather and soil information from 19 stations across the state. ICN data for December are presented in Table 2.

Winds increased slightly to an average of 7.2 mph for December, 0.6 mph higher than in November, but 0.6 mph lower than the network's long-term average. The windiest station of the month was ICN Monmouth with an average of 11.2 mph. The highest recorded wind gust was 44.0 mph, measured at the DeKalb station on December 30.

Air temperatures fluctuated greatly in December from highs in the 60s to lows in the single digits. Overall, network temperatures averaged 35.4°F, 4.1° warmer than the long-term average. However, most stations had monthly highs in the 60s, 20° to 30° warmer than the long-term averages. ICN Rend Lake had the network's warmest temperature, reporting 69.7° on December 26. This was 25.7° warmer than normal for the station.

December also saw considerably colder weather. Station lows were in the single digits and teens, 8° to 19° lower than normal. The coldest temperature was 3.6°, recorded at ICN Bondville on December 18.

Soil temperatures declined 3° to 5° from in November to network averages in the high 30s to low 40s. Temperatures under bare soil fell below freezing with network temperatures ranging from 23.7° to 61.5°F at depths of 2 inches and 25.3° to 57.0° at 4 inches. Under sod, temperatures remained warmer and ranged from 32.6° to 54.3° at 4 inches and 32.8° to 54.6° F at 8 inches.

Precipitation was lower than the long-term average for the month, averaging 1.98 inches across the network, or 0.44 inches less than normal. The majority fell during a two-day period. The network received 1.32 inches on December 28, 29, 66% of the month's total. Station totals ranged from 1.28 inches at ICN Stelle to 3.01 inches at ICN Dixon Springs.

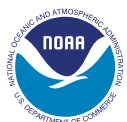
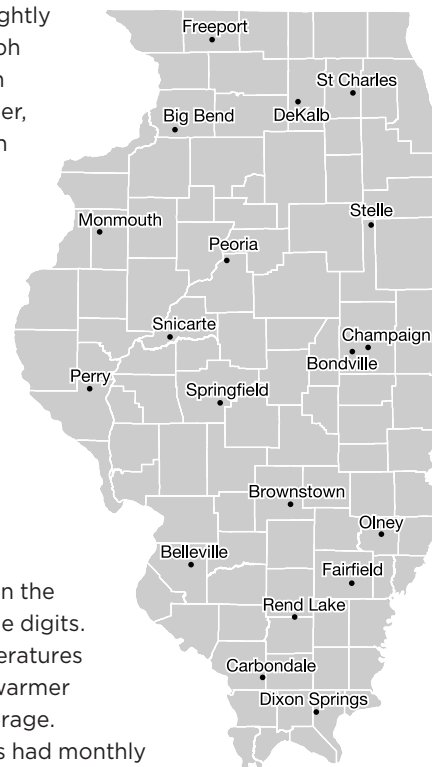


Figure 4. U.S. Drought Monitor report for Illinois. Source: U.S. Drought Monitor. Author: Brad Pugh, CPC/NOAA <http://droughtmonitor.unl.edu>, accessed on January 8, 2020.

Table 2. Data from the Illinois Climate Network (ICN), December 2019

Station	Wind			Air Temperature (°F)			Total Solar Radiation (MJ/m²)
	Avg. Speed (mph)	Avg. Direction (°)	Max. Gust (mph)	Max.	Min.	Avg.	
Belleville	6.3	198.0	33.4	68.3	7.8	37.4	219.5
Big Bend	7.7	222.8	34.6	59.8	9.2	32.4	180.5
Bondville	11.2	201.1	39.0	62.5	3.6	33.3	218.4
Brownstown	6.7	185.1	40.5	66.3M	13.9	36.9	201.0
Carbondale	6.0	200.6	34.6	69.0	17.6	40.2	205.4
Champaign	4.9	199.8	30.7	63.9M	4.1M	34.2M	197.3
DeKalb	9.3M	217.3M	44.0M	59.0M	7.8M	30.8M	185.2M
Dixon Springs	4.2	191.8	34.2	68.9	16.2	41.3	183.3
Fairfield	6.2	183.0	31.4	67.7	18.7	39.3	204.5
Freeport	5.6	226.5	28.5	58.0	6.3	30.4	148.3
Monmouth	11.2	217.3	37.8	62.5	6.4	32.7	199.7
Olney	5.7	190.9	41.0	68.6	16.1	38.7	212.1
Peoria	7.9	207.5	35.0	63.2	12.1	34.5	199.8
Perry	6.6	208.9	30.2	66.1	10.8	36.2	201.0
Rend Lake	4.7	196.5	29.3	69.7	19.7	39.5	203.5
Snicarte	9.2	207.6	36.9	64.3M	9.0	34.9	210.8
Springfield	5.9M	214.1M	27.7	64.1M	14.7M	35.3M	205.7
St. Charles	6.9	208.6	36.4	61.9	7.5	31.7	178.0
Stelle	10.6	208.0	39.2	63.1	5.7	32.5	189.9

Table 2. continued

Station	Average Relative Humidity (%)	Total Precip. (in)	Average Dew Point (°F)	Total Potential Evapotranspiration (in)	Average Soil Temperature (°F) at			
					4" under Sod	8" under Sod	2" under Bare Soil	4" under Bare Soil
Belleville	82.6	1.98	32.1	1.21	41.5	42.4	36.5	40.0
Big Bend	85.9	1.98	28.4	0.9	36.3	35.8	35.6	37.0
Bondville	89.1	2.00	30.3	0.96	37.1	41.0	37.1	36.5
Brownstown	81.1	2.66	31.3	1.14	43.5	42.9	38.1	37.4
Carbondale	83.8	1.84	35.0	1.23	44.7	43.5	41.9	40.9
Champaign	85.4	1.79	29.9M	0.95M	39.4	40.8	37.8	37.0
DeKalb	87.0	1.93M	27.3M	0.83M	37.1M	37.0M	37.3M	35.2M
Dixon Springs	78.6	3.01	34.5	1.16	44.1	45.1	42.5	43.9
Fairfield	81.5	2.30	33.7	1.20	43.6	43.9	39.9	42.6
Freeport	82.8	1.76	25.6	0.75	37.9	36.4	32.5	32.3
Monmouth	85.2	1.49	28.6	1.00	36.8	37.2	36.9	35.1
Olney	79.6	2.75	32.6	1.25	40.8	41.6	42.4	41.8
Peoria	78.5	2.08	28.3	1.14	39.9	38.3	37.5	36.8
Perry	77.0	1.39	29.2	1.21	40.1	40.8	38.4	38.1
Rend Lake	75.9	2.35	32.1	1.27	41.2	42.4	42.0	41.1
Snicarte	76.6	1.53	28.0	1.29	38.5	39.4	37.4	38.6
Springfield	79.5M	1.78	29.3M	0.98M	40.2	39.9	38.1	37.6
St. Charles	83.7	1.78	27.2	0.86	36.9	38.1	35.4	34.0
Stelle	85.0	1.28	28.3	0.95	37.8	37.9	37.0	35.5

M = Missing data.

Surface Water Information

— BILL SAYLOR

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, the Illinois State Water Survey (ISWS), and the USACE. Provisional discharge data are obtained from the USGS.

Table 3 lists the provisional peak stage for the current month compared to flood stage at selected streamgaging stations located on the Illinois, Mississippi, and Ohio Rivers. Peak stage is represented here by morning readings posted daily by the USACE or the National Weather Service. Flood stage is defined locally for each gage location.

The Ohio River crested above flood stage at Cairo in early December.

Provisional monthly mean flows for 26 streamgaging stations located throughout Illinois are shown in Table 4. Mean values posted by the USGS are listed if available; otherwise, daily mean discharge data posted by the USGS are 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 December 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 aggregated statewide, using the available monthly mean data shown this month in Table 4, was above the median value for December (approximately 220 percent of the median) and above the mean for December (approximately 135 percent of the mean). Monthly mean discharge values ranged from normal to above normal for December, except for Table 4 rivers originating in Wisconsin, which were much above normal. The December 2019 monthly mean streamflows recorded at the Rock River at Rockton streamgage and the Fox River at Dayton streamgage were the second highest for the month of December in the period of record of the respective gages.

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-November water levels at 21 reservoirs for which levels were reported last month and this month, reported end-of-December water levels were lower at 12 reservoirs, higher at 6 reservoirs, and about the same as last month at 3 reservoirs. For the 21 reservoirs with measurements reported at the end of December, water levels were below normal target pool or spillway level at 2 reservoirs, above normal target pool or spillway level at 13 reservoirs, and at about full pool level at 6 reservoirs.

Major Reservoirs. Compared to water levels at the end of November, at the end of December the water level at Lake Shelbyville was 0.1 foot lower, Carlyle Lake was 1.1 feet higher, and Rend Lake was 0.8 feet higher. At the end of December, Lake Shelbyville was 6.6 feet above the January 1 target level, Carlyle Lake was 3.6 feet above the January 1 target level, and Rend Lake was 3.0 feet above the spillway level. (Target operational levels decrease seasonally in December at Lake Shelbyville and Carlyle Lake.)

Great Lakes. Current month mean and end-of-month values are provisional and are relative to International Great Lakes Datum 1985. The December 2019 mean level for Lake Michigan was 581.5 feet. The monthly mean level one year ago (December 2018) was 580.2 feet. The long-term average lake level for December is 578.5 feet, based on 1918-2018 data. In this period of record, the lowest mean level for Lake Michigan for December occurred in 2012 at 576.2 feet, and the highest mean level for December occurred in 1986 at 581.6 feet. The month-end level of Lake Michigan was 581.6 feet. All values are provided by the U.S. Army Corps of Engineers Detroit District.

Table 3. Peak Stages for Major Rivers during December 2019

River	Station	River mile*	Flood stage (feet)*	Peak stage (feet)**	Date
Illinois	Morris	263.1	16	8.0	31
	La Salle	224.7	20	16.5	31
	Peoria	164.6	18	12.9	06
	Havana	119.6	14	12.7	04-07
	Beardstown	88.6	14	12.8	05-06
	Hardin	21.5	25	22.0	01-02
Mississippi	Dubuque	579.9	17	12.0	03
	Keokuk	364.2	16	9.6	01
	Quincy	327.9	17	17.4	01
	Grafton	218.0	18	16.5	01
	St. Louis	180.0	30	23.8	02
	Chester	109.9	27	26.3	03
	Thebes	43.7	33	30.5	04
Ohio	Cairo	2.0	40	41.8	06

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 (and Addendum, February 2007).

**Peak stage based on daily a.m. readings, not instantaneous peak. Stage data obtained from U.S. Army Corps of Engineers.

Table 4. Provisional Mean Flows, December 2019

Station	Drainage area (sq mi)	Years of record	2019 mean flow (cfs)	Long-term flows		Flow condition	Percent chance of exceedence	Days of data this month
				Mean* (cfs)	Median (cfs)			
Rock River at Rockton	6363	83	9,682	3,509	3,196	much above normal	2	31
Rock River near Joslin	9549	75	13,697	5,432	4,925	much above normal	4	31
Pecatonica River at Freeport	1326	99	1,939	722	612	much above normal	2	31
Green River near Geneseo	1003	80	983	520	403	above normal	15	31
Edwards River near New Boston	445	80	396	202	119	above normal	16	31
Kankakee River at Momence	2294	100	2,335	2,069	1,764	normal	38	31
Iroquois River near Chebanse	2091	93	1,086	1,650	1,090	normal	51	31
Fox River at Dayton	2642	100	3,462	1,611	1,284	much above normal	10	31
Vermilion River at Pontiac	579	73	218	400	170	normal	47	31
Spoon River at Seville	1636	100	1,342	739	401	above normal	15	31
LaMoine River at Ripley	1293	94	849	550	240	above normal	20	31
Bear Creek near Marceline	349	73	293	164	36	above normal	20	31
Mackinaw River near Congerville	767	72	459	477	194	above normal	30	31
Salt Creek near Greenview	1804	75	1,025	1,132	533	normal	36	31
Sangamon River at Monticello	550	105	145	380	184	normal	53	31
South Fork Sangamon near Rochester	867	68	896	593	139	above normal	26	30
Illinois River at Valley City	26,743	78	25,573	18,590	15,396	above normal	20	31
Macoupin Creek near Kane	868	88	460	531	155	normal	33	31
Vermilion River near Danville	1290	95	371	993	564	normal	64	31
Kaskaskia River at Vandalia	1940	47	2,056	2,076	1,677	normal	39	31
Shoal Creek near Breese	735	73	1,254	628	195	above normal	20	31
Embarras River at Ste. Marie	1516	103	1,464	1,337	833	normal	31	31
Skillet Fork at Wayne City	464	97	1,117	468	255	above normal	15	30
Little Wabash below Clay City	1131	102	2,528	1,112	533	above normal	15	31
Big Muddy at Plumfield	794	46	755	713	337	normal	35	31
Cache River at Forman	244	93	636	363	215	above normal	23	31

Notes:

Source streamflow data are obtained from the U.S. Geological Survey.

N/A = not available (due to ice or equipment problems).

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 2016.

** Highest monthly mean flow for November in the period of record of the streamgage.

Table 5. Reservoir Levels in Illinois, December 2019

Reservoir	County	Normal pool or target level (feet)	Current level difference from normal or target	Monthly change (feet)	Average difference from normal or target (feet)	Years of record	November reported pumpage (million gallons)
Altamont	Effingham	582.0	0.0	-0.3	-2.0	36	5.5
Bloomington	McLean	719.5	+0.2	-0.1	-3.2	33	N/A
Carlinville	Macoupin	571.1	+0.1	-0.1	-0.9	34	25.3
Carlyle ⁽¹⁾	Clinton	443.0	+3.6	+1.1	+2.4	41	N/A
Decatur ^(1,3)	Macon	612.5	+0.4	+0.2	+0.2	36	980.3
Evergreen ⁽⁴⁾	Woodford	720.0	+0.1	+0.1	-2.8	29	N/A
Glenn Shoals ⁽²⁾	Montgomery	590.0	N/A	N/A	-0.3	25	w/Hillsboro
Highland	Madison	500.0	+1.2	-0.4	-0.1	31	28.8
Hillsboro ⁽²⁾	Montgomery	589.0	N/A	N/A	0.0	24	35.6
Jacksonville ⁽²⁾	Morgan	644.0	N/A	N/A	-0.4	14	w/Mauvaise Terre
Kinkaid	Jackson	420.0	-2.1	-0.8	-0.5	31	50.9
Lake of Egypt	Williamson	500.0	N/A	N/A	-0.5	25	N/A
Mattoon	Coles	632.0	N/A	N/A	-0.6	26	w/Paradise
Mauvaise Terre ⁽²⁾	Morgan	588.5	N/A	N/A	0.0	18	no meter
Mt. Olive (new)	Macoupin	600.0	N/A	N/A	-0.2	10	w/Mt. Olive (old)
Mt. Olive (old)	Macoupin	654.0	0.0	0.0	-0.7	21	4.5
Pana	Christian	641.6	+0.1	0.0	-1.2	35	N/A
Paradise	Coles	685.0	N/A	N/A	-0.2	29	66.5
Paris (east)	Edgar	660.0	+0.2	-0.2	-0.4	33	Not PWS
Paris (west)	Edgar	660.1	+0.2	-0.2	+0.2	23	w/Paris (east)
Raccoon ⁽¹⁾	Marion	477.0	+0.5	-0.3	N/A	N/A	85.8
Rend	Franklin	405.0	+3.0	+0.8	+1.7	41	N/A
Salem ⁽³⁾	Marion	546.5	0.0	+0.2	-0.7	24	23.0
Shelbyville ⁽¹⁾	Shelby	594.0	+6.6	-0.1	+6.5	41	Not PWS
Sparta ⁽³⁾	Randolph	497.0	-0.5	-0.5	-0.7	23	N/A
Spring ^(3,4)	McDonough	654.0	+0.2	-0.1	-0.6	36	45.7
Springfield ^(1,3)	Sangamon	559.6	0.0	0.0	-1.4	36	494.8
Taylorville	Christian	590.0	0.0	+0.1	-0.7	26	47.5
Vermilion ⁽⁴⁾	Vermilion	581.7	0.0	-0.1	-0.5	34	199.8

Notes:

Normal pool and target level datum is NGVD 1929.

Current levels reported represent water surface levels at the end of the month, not the monthly average.

Average difference from normal or target level is the arithmetic average of reported month-end values for the period of record indicated.

Years of record = total number of monthly readings included in month-end average. Total period of record may be longer.

Not PWS = not a public water supply.

N/A = not available.

(1) Target operating level may vary. Seasonal target levels this month represent January 1 values.

(2) Instrumentation not available to measure height of water elevation above spillway.

(3) Natural inflow can be supplemented by other sources.

(4) Normal pool elevations have changed during period of record reported.

Groundwater Information

— JENNIE ATKINS

Comparison to Period of Record. Shallow groundwater levels in 14 observation wells, which are remote from pumping centers, were above normal for the month of December. Levels averaged 1.96 feet above normal and ranged from 0.77 feet below to 5.57 feet above normal levels (Table 6).

Comparison to November 2019. Shallow groundwater levels were above those of the previous month. Levels averaged 0.52 feet above and ranged from 2.28 feet below to 3.46 feet above November levels.

Comparison to December 2018. Shallow groundwater levels in December were slightly below levels from one year ago. Levels averaged 0.02 feet below and ranged from 3.32 feet below to 4.52 feet above December 2018 levels.

Table 6. Month-End Shallow Groundwater Level Data Sites, December 2019

No.	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	18.39	2.07	2.95	-0.87	-0.63
2	Mt. Morris	Ogle	55.00	14.35	5.14	5.57	-0.90	N/A
3	Crystal Lake	McHenry	18.00	3.78	0.93	1.56	-0.11	-0.24
4	Fermi Lab	DuPage	15.00	3.14	2.52	3.30	0.31	0.47
5	Good Hope	McDonough	30.00	5.11	1.65	3.03	0.49	-1.30
6	Snicarte	Mason	42.00	37.30	-0.31	0.16	0.15	-0.13
7	Coffman	Pike	28.00	11.91	0.22	0.34	1.53	4.52
8	Greenfield	Greene	20.70	13.48	0.66	-0.66	1.58	1.83
9	Janesville	Coles	11.00	2.52	1.97	2.27	2.88	0.15
10	St. Peter	Fayette	15.00	1.73	-0.17	0.42	1.21	N/A
11	SWS #2	St. Clair	80.00	12.08	0.81	2.74	-0.54	N/A
12	Boyleston	Wayne	23.00	N/A	N/A	N/A	N/A	N/A
13	Sparta	Randolph	27.00	4.51	1.45	3.40	-2.28	-3.32
14	SE College	Saline	11.00	0.88	3.27	3.16	3.46	0.78
15	Bondville	Champaign	21.00	4.97	-0.73	-0.77	0.41	-2.65
					1.39	1.96	0.52	-0.02

Notes: N/A = Data not available.

Data sources for this publication include the following:

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

ISWS - Illinois State Water Survey, <http://www.isws.illinois.edu>

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

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

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

USACE - U.S. Army Corps of Engineers, <http://rivergages.com>, <https://www.lre.usace.army.mil>

USGS - U.S. Geological Survey, <http://waterdata.usgs.gov/il/nwis>

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

ILLINOIS STATE WATER SURVEY

WWW.ISWS.ILLINOIS.EDU

2204 Griffith Drive
Champaign, IL 61820
(217) 333-2210