

## ILLINOIS WATER AND CLIMATE SUMMARY

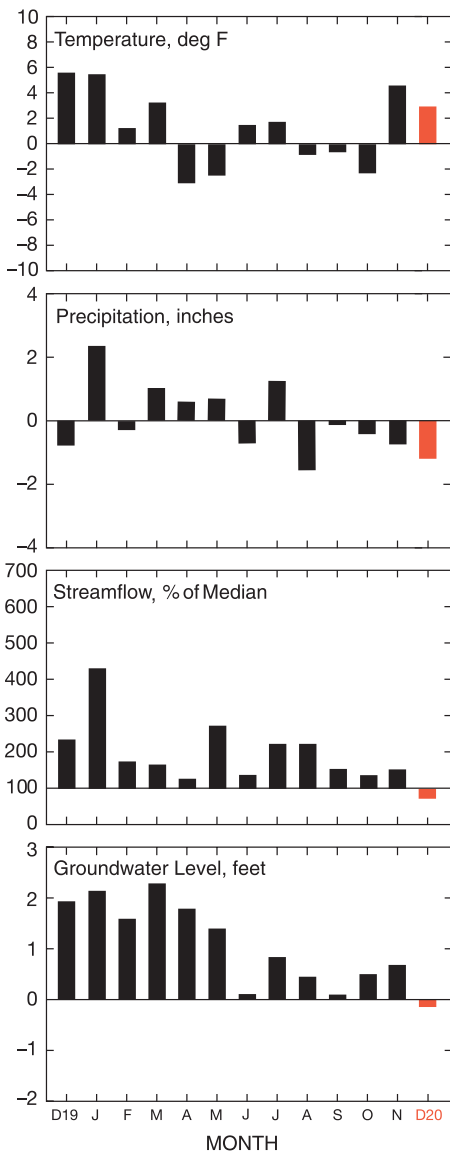


Figure 1. Statewide departures from normal.

### DECEMBER 2020 OVERVIEW

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

**Air temperatures** averaged 33.0°F in December, 3.1° above the long-term average (Figure 1). The southeast crop reporting district (CRD) was the warmest with an average of 37.0°F. The lowest regional temperature was 29.4°F, reported by the northwest CRD.

**Precipitation** averaged 1.60 inches, 1.09 inches below the long-term average (Figure 1). The northwest CRD was the wettest with an average of 1.93 inches. The driest was the west-southwest CRD with 1.20 inches.

**Mean provisional streamflow** aggregated statewide was below the long-term median flow for December, about 70% of median (Figure 1). Monthly mean discharge values ranged from much below normal to above normal for December.

**Water surface levels** at the end of December were below the full pool or target level at 12 of 24 reporting reservoirs. At the end of December, Lake Shelbyville was 4.2 feet above the winter target level, Carlyle Lake was 0.4 feet above the winter target level, and Rend Lake was 2.2 feet above the spillway level. Lake Michigan's mean level was above its long-term mean for the month.

**Shallow groundwater levels** statewide were near the long-term average this month with an average departure of 0.12 feet below the period of record (Figure 1). An increase of 0.91 feet in departures was observed from the deviation in normal groundwater levels between November and December. Levels averaged 0.06 feet below November 2020 and 2.62 feet below December 2019 levels.

# Weather/Climate Information

— KEVIN GRADY

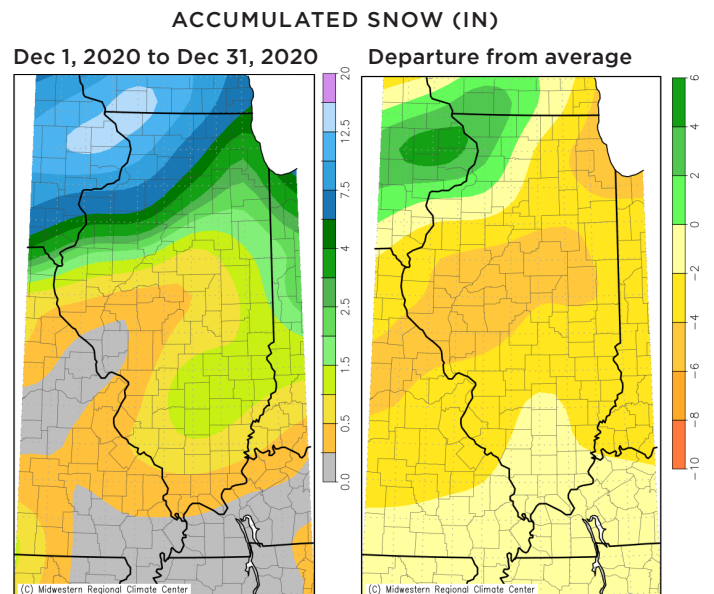
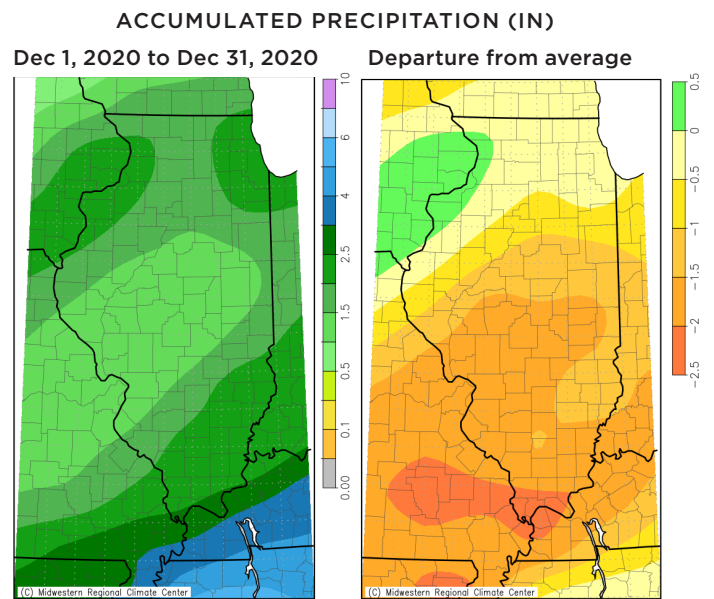
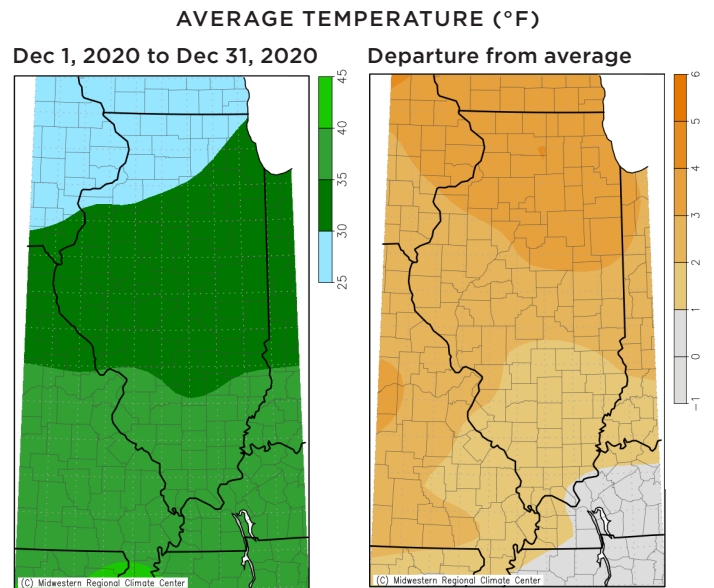
The following description of temperatures, precipitation, snow, severe weather, and drought comes from data compiled by networks that report to the National Oceanic and Atmospheric Administration (NOAA). These data are provisional and may change slightly over time.

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

**Temperatures** averaged 33.0°F, 3.1° above the long-term average (Table 1a, Figure 2). Monthly average temperatures in December ranged from the upper 20s in northern Illinois to the upper 30s in southern Illinois. These temperatures were above average across the state, with departures ranging from 1 to 2° above average in southern Illinois to around 4° above average in northern Illinois.

Following a much warmer than average November, much of December was also above average across Illinois. One especially warm period occurred December 9-12, when temperatures were 10-13° above average across most of the state. Many stations reached their monthly maximum temperatures during this period, ranging from the mid-50s in northern Illinois to the upper 60s in southern Illinois. The warmest reading of the month, 69°F, was recorded at five stations during this time. These included stations near Carmi (White County) and Dixon Springs (Pope County) on December 10 and stations in Randolph, St. Clair, and Saline Counties on December 11. Another warm period occurred around December 23, when many stations in northern Illinois reached their monthly maximum temperatures. This was then followed by some of the coldest days of December, with nearly all stations recording their monthly minimum temperatures on December 25 or 26. These temperatures were generally in the single digits, with some stations in southern Illinois dropping only to the lower teens. The lowest reading of the month, 1°F, was recorded at a station near Altona (Knox County) on December 25.

**Precipitation** averaged 1.60 inches in December, 1.09 inches below the long-term average (Table 1a, Figure 2). Following a dry October and November, much of the state saw less than 2 inches of precipitation for the month, especially in many areas in central Illinois and near St. Louis. As a result, totals in most of central and southern Illinois were commonly 1-2 inches below average, with the largest departures in far southern Illinois. Northern Illinois was not quite as far below average in December, with totals more commonly above 2 inches and in some areas around 3 inches; parts of northwestern Illinois were near to slightly above average. A station near Prophetstown (Whiteside County) had the highest monthly total of 3.72 inches. A significant amount of the precipitation that did fall across much of the state came around the second weekend of the month, with many stations receiving half or more of their monthly totals during that time.



**Figure 2. Illinois temperature, precipitation, snow and their departures from average for December 2020.** Source: cli-MATE, Midwest Regional Climate Center. <https://mrcc.illinois.edu/CLIMATE>. Information accessed on January 8, 2021.

**Snow:** Most areas of Illinois received measurable snow in December (Figure 2). For the third month in a row, the highest totals were in the northwest corner of Illinois, where totals around 10 inches or more were common. A large amount of the snow that fell in this area came during the last few days of December, when a system produced 6–8 inches across much of the area. The highest total for December was 17.7 inches, recorded at a station near Stockton (Jo Daviess County). Monthly totals quickly dropped off to the south and east, with much of the area around Chicago receiving less than 4 inches, including 2.8 inches at O’Hare Airport. Farther south, totals were even smaller, with most of east central Illinois receiving less than 2 inches for the month and many areas of west central and southern Illinois receiving less than one. These totals were below average across most of Illinois by 2–5 inches, with the highest departures in central Illinois and around Chicago. Northwestern Illinois was the only part of the state above normal for December by up to a couple of inches.

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

For the year 2020, the SPC recorded 754 severe weather reports in Illinois: 71 for tornadoes, 117 for hail, and 566 for wind. (Multiple reports can be generated for a single event.) Summer was by far the season with the most reports, with 353 total reports in July and August in Illinois, compared to only 227 in spring (March–May) and 77 in autumn (September–November). The large summer total was due partly to the most significant severe weather event of the year, the August 10 derecho, which caused damage across much of Illinois, especially in the northern part of the state.

**Drought:** Drought and abnormally dry conditions persisted in generally the same areas of central Illinois throughout December. The driest areas of the state were generally along and just to the north of the I-72 corridor. These locations received below average precipitation throughout most of the second half of 2020, including December, with six-month precipitation deficits of 4–6 inches in many areas (Figure 3). As a result, the United States Drought Monitor classified an area from Sangamon and Menard Counties east-northeast to Iroquois and Kankakee Counties as experiencing moderate drought (D1) or worse throughout most of December. Much of this area has been in drought since at least mid-October, including an area of severe drought (D2) between Springfield, Decatur, and Lincoln, where the soils were the driest and the precipitation deficits were the largest. Near the end of December, the D1 drought area was expanded west toward the Mississippi River so that nearly all the I-72 corridor was included. On the December 29 map (Figure 4), most of central Illinois was classified as abnormally dry (D0) or worse, covering approximately 45% of Illinois, and with 2.02% classified as D2 drought.

**The year 2020** was warmer than average across most of Illinois. Temperatures for the year averaged 53.3°F statewide, 1.0° above the long-term average (Table 1b), making 2020 the 21st warmest year on record in Illinois back to 1895. This was largely due to the year’s colder months all being warmer than average, with January, March, November, and December all more than 3° above average. January was the thirteenth

**Table 1a. Temperature and Precipitation for December 2020**

	Temp. (°F)	Departure from long-term avg. (1981–2010)	Precip. (in)	Departure from long-term avg. (1981–2010)
Illinois	33.0	+3.1	1.60	-1.09
CRD 1 (northwest)	29.4	+4.1	1.93	-0.12
CRD 2 (northeast)	30.9	+4.3	1.90	-0.29
CRD 3 (west)	31.7	+3.2	1.53	-0.73
CRD 4 (central)	32.1	+3.6	1.36	-1.12
CRD 5 (east)	32.1	+3.5	1.49	-1.02
CRD 6 (west southwest)	33.9	+2.5	1.20	-1.48
CRD 7 (east southeast)	34.6	+2.7	1.57	-1.48
CRD 8 (southwest)	36.9	+2.2	1.61	-1.90
CRD 9 (southeast)	37.0	+2.2	1.90	-1.91

Data from NOAA’s National Centers for Environmental Information, accessed 1/8/2021.

**Table 1b. Temperature and Precipitation for 2020**

	Temp. (°F)	Departure from long-term avg. (1981–2010)	Precip. (in)	Departure from long-term avg. (1981–2010)
Illinois	53.3	+1.0	41.84	+1.88
CRD 1 (northwest)	50.4	+1.3	38.16	+1.23
CRD 2 (northeast)	50.9	+1.5	37.80	+0.97
CRD 3 (west)	52.4	+0.7	34.77	-3.88
CRD 4 (central)	52.7	+1.2	37.22	-0.90
CRD 5 (east)	52.3	+1.1	38.63	+0.07
CRD 6 (west southwest)	54.3	+0.6	41.59	+1.94
CRD 7 (east southeast)	54.5	+0.8	47.86	+5.66
CRD 8 (southwest)	56.7	+0.8	48.86	+4.38
CRD 9 (southeast)	56.9	+1.0	53.69	+7.57

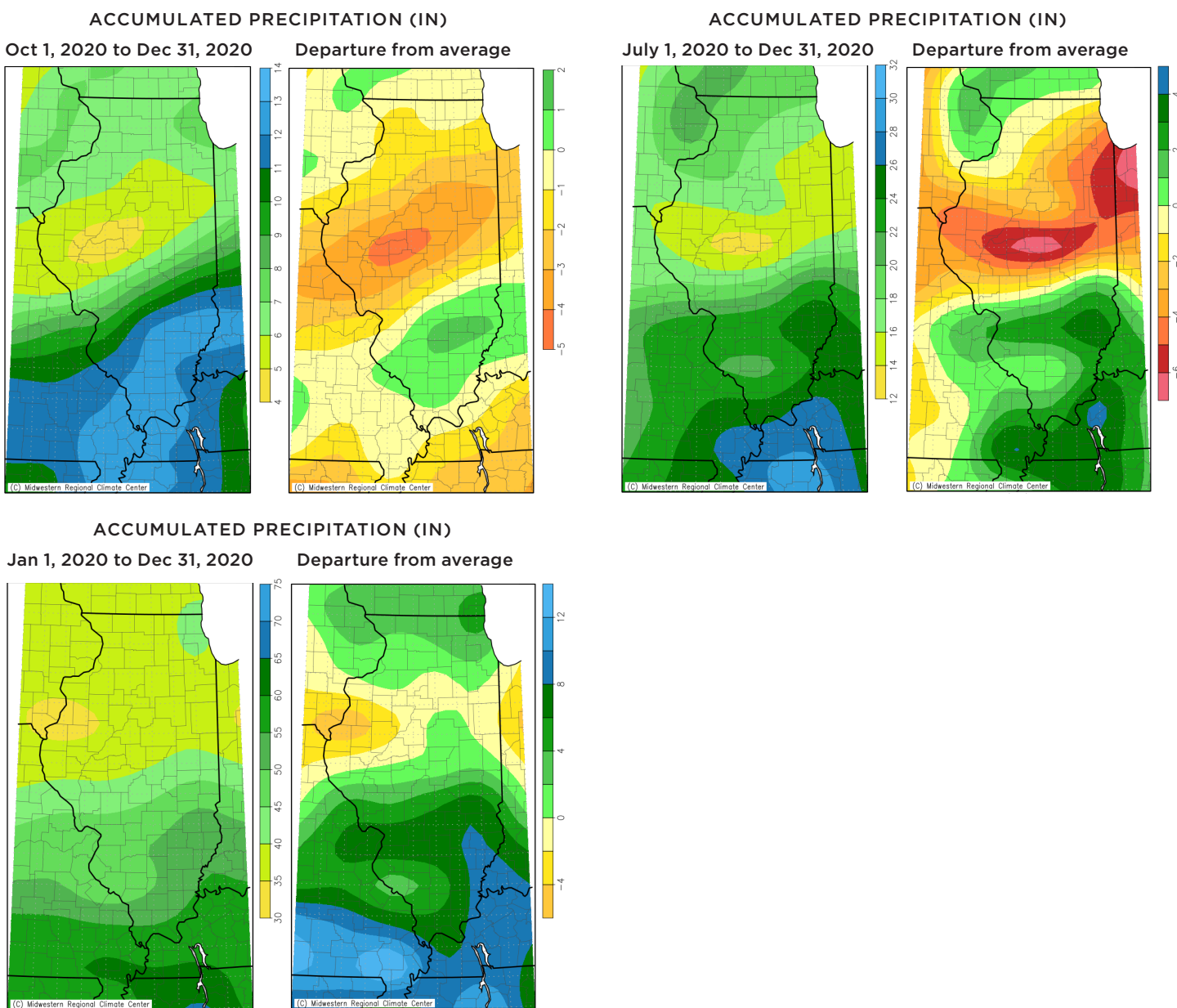
Data from NOAA’s National Centers for Environmental Information, accessed 1/8/2021.

warmest on record (5.5° above average), and November was the seventh warmest (4.6° above average). Following the warm winter to start the year, April and May were both well below average, with a late-season freeze event mid-May in the northern half of Illinois. Temperatures rebounded above average for most of the summer before falling below average again during the first part of autumn. After a cold end to October, November and December finished the year well above average.

The annual precipitation averaged 41.84 inches in Illinois, 1.88 inches above the long-term average (Table 1b, Figure 3), making 2020 the 23rd wettest year on record in Illinois. Southern Illinois was the wettest part of the state, with yearly totals over 45 inches in many areas to the south of I-70, generally 6 inches or more above average. A station near Rosiclare (Hardin County) had the highest yearly total of 61.44 inches. Totals were lower farther north with much of central Illinois either close to or slightly below average. West central Illinois was the driest part of the state, with departures up to around 4 inches below average in some areas. Northern Illinois was above average by around 2–4 inches.

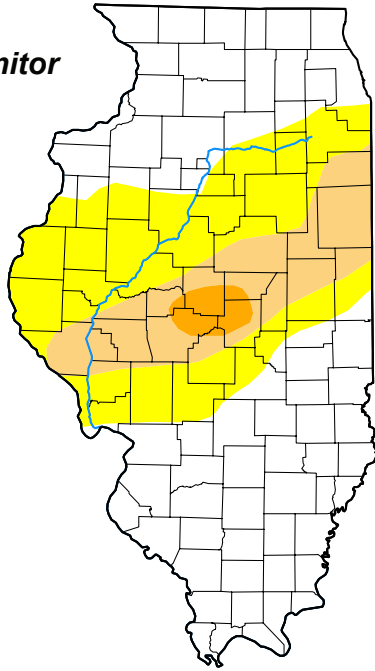
Following 2019, the fifth wettest year on record in Illinois, 2020 generally began wetter than average as well. January was much above average and ended up the ninth wettest on record in Illinois (2.30 inches above average). Spring (March–May) was also wet, 2.21 inches above average for the season statewide. After a below average June, July finished much above average as well and ended up the 16th wettest on record (1.55 inches above average). Starting in August, however, the rest of the year was near to below average statewide, including persistent dryness in central Illinois. This included August and December statewide precipitation totals both over an inch below average, with August being the 13th driest on record (1.68 inches below average).

The above average precipitation to start the year helped keep Illinois free of drought during that time. However, the below average precipitation and above average temperatures in June led to pockets of abnormal dryness (D0) across Illinois as well as some moderate drought (D1) by early July. July precipitation helped improve the situation before August dryness saw a return of D0 and D1 conditions to many parts of Illinois by the beginning of autumn. The below average end to 2020 allowed these conditions to persist through the end of the year, focused primarily in central Illinois, which was particularly dry in the second half of 2020. This included an area of severe drought (D2) in the central part of the state.



**Figure 3. Illinois precipitation and precipitation departure from average for last 3 months (top left), last 6 months (top right) and for the year 2020 (bottom).** Source: cli-MATE, Midwestern Regional Climate Center. <https://mrcc.illinois.edu/CLIMATE>. Information accessed on January 8, 2021.

**U.S. Drought Monitor  
Illinois**



**December 29, 2020**  
(Released Thursday, Dec. 31, 2020)  
Valid 7 a.m. EST

*Drought Conditions (Percent Area)*

	None	D0	D1	D2	D3	D4
<b>Current</b>	54.89	28.75	14.34	2.02	0.00	0.00
<b>Last Week</b> <i>12-22-2020</i>	59.33	27.58	11.06	2.02	0.00	0.00
<b>3 Months Ago</b> <i>09-29-2020</i>	42.28	54.03	3.69	0.00	0.00	0.00
<b>Start of Calendar Year</b> <i>12-31-2019</i>	100.00	0.00	0.00	0.00	0.00	0.00
<b>Start of Water Year</b> <i>09-29-2020</i>	42.28	54.03	3.69	0.00	0.00	0.00
<b>One Year Ago</b> <i>12-31-2019</i>	100.00	0.00	0.00	0.00	0.00	0.00

Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme 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>*

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**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.

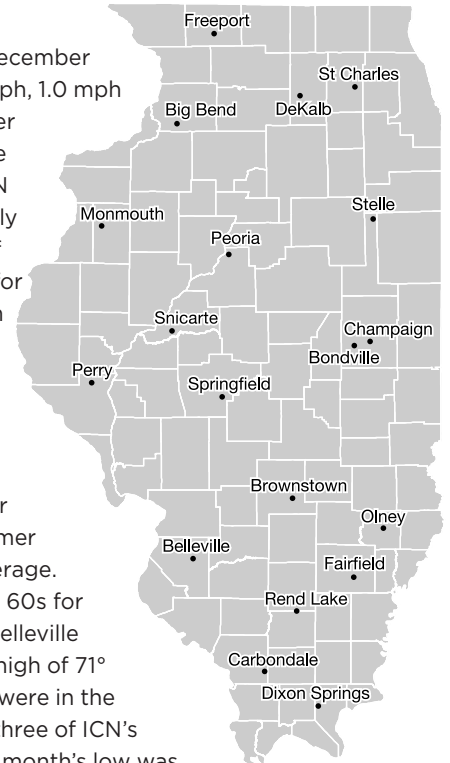
**Wind** declined in December to an average of 6.9 mph, 1.0 mph lower than in November and 0.9 mph below the long-term average. ICN Bondville had a monthly average wind speed of 10.7 mph, the highest for December. This station also had the highest reported wind gust, measuring 47.9 mph on December 23.

**Air temperatures** fell 14°F to a December average of 33°, 2° warmer than the long-term average. Highs reached into the 60s for most stations as ICN Belleville recorded the month's high of 71° on December 9. Lows were in the single digits at all but three of ICN's southern stations. The month's low was 3° recorded at ICN Monmouth on December 25.

**Soil temperatures** were 10 to 11°F lower than in November with averages in the mid- to high 30s. Temperatures were 1 to 2° above the long-term averages. Under bare soil, temperatures ranged from 23 to 58° at 2-inch depths and 27 to 53° at 4 inches. Temperatures under sod ranged from 28 to 53° at 4 inches and 33 to 51° at 8 inches.

**Precipitation** averaged 1.96 inches for the month, 1.35 inches less than in November and 0.46 inches below the long-term average. ICN Dixon Springs had the highest total of the month with 2.95 inches.

Soil moisture data will return to the IWCS in Spring 2021.



**Figure 4. U.S. Drought Monitor report for Illinois.** Source: U.S. Drought Monitor. Author: Adam Hartman, NOAA/NWS/NCEP/CPC <https://droughtmonitor.unl.edu>, accessed on January 8, 2021.

**Table 2. Data from the Illinois Climate Network (ICN), December 2020**

Station	Wind			Air Temperature (°F)			Total Solar Radiation (MJ/m <sup>2</sup> )
	Avg. Speed (mph)	Avg. Direction (°)	Max. Gust (mph)	Max.	Min.	Avg.	
Belleville	6.8	201.7	35.9	71.0M	9.6M	36.3M	225.6
Big Bend	6.9	214.7	41.6	61.7	4.7	29.3	199.7
Bondville	10.7	218.0	47.9	62.0	6.1	32.1	210.8
Brownstown	7.0	208.5	35.6	66.6	7.6	35.2	202.7
Carbondale	6.4	207.2	37.8	69.9	12.1	37.4	229.3
Champaign	4.8	216.0	34.0	61.8	5.8	32.5	200.9
DeKalb	7.8M	217.6M	44.0M	56.9	3.4	28.6	191.7
Dixon Springs	4.2	195.4	32.8	68.0	12.2	37.7	207.5
Fairfield	6.4	198.0	31.4	65.2	9.7	36.0	213.3
Freeport	5.1	224.6	33.0	56.4	3.9	27.3	158.9
Monmouth	9.6	222.1	47.4	61.6	3.4	30.2	213.6
Olney	5.6	205.5	30.6	65.4	8.8	35.7	203.4
Peoria	7.2	218.3	39.9	60.9M	5.0M	31.4M	212.5
Perry	6.0	224.7	37.7	66.2	4.5	32.8	200.2
Rend Lake	5.2	196.7	28.0	69.1	11.9	37.3	209.3
Snicarte	9.1M	210.1M	44.4M	65.1M	5.6M	33.4M	187.1M
Springfield	5.6	214.3	30.6	63.6	5.3	33.6	211.8
St. Charles	6.4	199.8	39.8	56.7	3.5	29.5	183.6
Stelle	10.0	221.6	43.9	60.3	4.2	30.5	186.6

**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	4" under Bare Soil	2" under Bare Soil
Belleville	76.0	1.20	28.9M	1.33M	40.3	41.2	38.5	37.5
Big Bend	80.2	2.58	23.6	0.98	35.9	35.6	34.9	33.4
Bondville	81.8	1.39	26.8	1.13	35.4	40.4	35.7	34.8
Brownstown	74.8	1.45	27.7	1.23	43.3	42.7	37.0	36.3
Carbondale	80.8	2.18	31.3	1.32	43.5	42.7	40.0	38.9
Champaign	80.4	1.52	26.8	1.04	38.8	40.5	37.0	35.9
DeKalb	82.1	1.68	23.6	0.90	37.4	37.3	35.2	31.9M
Dixon Springs	76.6	2.95	30.4	1.22	42.4	44.0	39.9	41.1
Fairfield	77.9	2.49	29.4	1.24	42.3	43.4	39.9	40.4
Freeport	81.4	2.34	22.1	0.75	36.4	36.7	32.6	32.1
Monmouth	81.8	2.87	25.0	1.05	35.7	36.3	35.0	32.7
Olney	77.0	2.49	28.8	1.21	40.0	42.4	39.1	38.3
Peoria	76.3	1.40	24.4M	1.15M	37.8	38.7	35.1	34.3
Perry	76.6	1.51	25.6	1.15	38.2	39.4	36.1	35.6
Rend Lake	74.1	2.32	29.3	1.26	40.3	41.9	41.7	38.8
Snicarte	77.2	1.27M	26.5M	1.11M	37.3M	38.5M	36.9M	36.6M
Springfield	75.7	1.13	26.3	1.15	39.6	39.6	36.6	35.9
St. Charles	79.5	2.55	23.7	0.93	35.8	37.5	34.7	33.1
Stelle	79.9	1.88	24.8	1.05	37.2	38.0	35.1	33.7

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.

**Provisional monthly mean flows** for this month for 26 streamgaging stations located throughout Illinois are shown in Table 4, compared to statistics of the past record of monthly mean flows at those stations for the same month. Both recent and long-term data are retrieved from USGS online data services following the end of the month. Years of record values in Table 4 represent the number of past monthly values included in the Table 4 statistics; at some stations, the available record may not be continuous. Additional source data may be available from USGS.

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 below the median value for December (approximately 70 percent of the median) and below the mean for December (approximately 40 percent of the mean). Monthly mean discharge values ranged mostly from below normal (in central and east-central Illinois) to normal for December. Streamflow in northern Illinois rivers in Table 4 originating in Wisconsin was above normal. Mean streamflow at the South Fork Sangamon River streamgage near Rochester, downstream of the diversion to Lake Springfield, was much below normal. The mean streamflow for December 2020 of the Illinois River at Valley City posted by USGS was the lowest monthly mean flow for December in the period of record (82 years).

**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 24 reservoirs for which levels were reported last month and this month, reported end-of-December water levels were lower at 10 reservoirs, higher at 7 reservoirs, and about the same as at the end of November at 7 reservoirs. For the 24 reservoirs with measurements reported at the end of December, water levels were below normal target pool or spillway level at 12 reservoirs, above normal target pool or spillway level at 10 reservoirs, and at about full pool level at 2 reservoirs.

**Major Reservoirs.** Compared to water levels at the end of November, at the end of December the water level at Lake Shelbyville was 1.8 feet lower, Carlyle Lake was 4.1 feet lower, and Rend Lake was at about the same level as at the end of November. (Target levels of Lake Shelbyville and Carlyle Lake decrease in December.) At the end of December, Lake Shelbyville was 4.2 feet above the winter target level, Carlyle Lake was 0.4 feet above the winter target level, and Rend Lake was 2.2 feet above the spillway level.

**Great Lakes.** Current month mean and end-of-month values are provisional and are relative to International Great Lakes Datum 1985. The December 2020 mean level for Lake Michigan was 581.2 feet. The monthly mean level one year ago (December 2019) was 581.5 feet. The long-term average lake level for December is 578.6 feet, based on 1918-2019 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 581.1 feet. All values are provided by the U.S. Army Corps of Engineers Detroit District.

**Table 3. Peak Stages for Major Rivers during December 2020**

River	Station	River mile*	Flood stage (feet)*	Peak stage (feet)**	Date
Illinois	Morris	263.1	16	6.6	13
	La Salle	224.7	20	13.0	13-15
	Peoria	164.6	18	12.4	15-16
	Havana	119.6	14	7.9	17
	Beardstown	88.6	14	9.8	15-16
	Hardin	21.5	25	20.2	23
Mississippi	Dubuque	579.9	17	9.3	01
	Keokuk	364.2	16	5.5	13
	Quincy	327.9	17	12.3	12, 14
	Grafton	218.0	18	16.2	23
	St. Louis	180.0	30	7.7	01
	Chester	109.9	27	12.4	01
	Thebes	43.7	33	18.6	01
Ohio	Cairo	2.0	40	26.9	31

**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 2020**

Station	Drainage area (sq mi)	Years of record*	2020 mean flow (cfs)	Long-term flows*		Flow condition	Percent chance of exceedance	Days of data this month
				Mean (cfs)	Median (cfs)			
Rock River at Rockton	6,363	81	5,824	3,675	3,230	above normal	14	31
Rock River near Joslin	9,549	81	7,919	5,674	5,107	above normal	19	30
Pecatonica River at Freeport	1,326	106	1,136	752	635	above normal	16	31
Green River near Geneseo	1,003	84	591	535	412	normal	35	30
Edwards River near New Boston	445	86	-225	208	119	normal	33	23
Kankakee River at Momence	2,294	105	1,100	2,087	1,872	below normal	73	31
Iroquois River near Chebanse	2,091	96	166	1,640	1,088	below normal	86	31
Fox River at Dayton	2,642	106	1,939	1,650	1,351	above normal	26	31
Vermilion River at Pontiac	579	78	30	398	170	below normal	76	31
Spoon River at Seville	1,636	106	281	752	401	normal	63	31
LaMoine River at Ripley	1,293	99	114	558	240	normal	67	31
Bear Creek near Marceline	349	76	> 21	165	36	normal	58	22
Mackinaw River near Congerville	767	76	80	474	226	normal	62	31
Salt Creek near Greenview	1,804	78	176	1,129	562	below normal	74	31
Sangamon River at Monticello	550	111	12	378	180	below normal	89	31
South Fork Sangamon near Rochester	867	71	7.3	586	147	much below normal	90	31
Illinois River at Valley City	26,743	82	4,675	18,793	15,820	much below normal	**	31
Macoupin Creek near Kane	868	92	58	519	155	normal	65	31
Vermilion River near Danville	1,290	99	85	988	564	below normal	85	31
Kaskaskia River at Vandalia	1,940	52	614	1,985	1,622	below normal	76	31
Shoal Creek near Breese	735	79	131	624	196	normal	63	31
Embarras River at Ste. Marie	1,516	109	477	1,327	833	normal	61	31
Skillet Fork at Wayne City	464	104	147	473	227	normal	57	31
Little Wabash River below Clay City	1,131	106	338	1,116	533	normal	59	31
Big Muddy River at Plumfield	794	49	348	711	363	normal	51	31
Cache River at Forman	244	98	153	364	215	normal	58	31

Notes:  
 Source streamflow data are obtained from the U.S. Geological Survey.  
 N/A = not available (e.g., due to ice or equipment problems).

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

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

Normal flow = 30-70% chance of exceedance.

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

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

\*As calculated from past monthly mean flow values retrieved from U.S. Geological Survey (USGS) data services this month.

\*\*Lowest monthly mean flow value for the month of December in the period of record.



**Table 5. Reservoir Levels in Illinois, December 2020**

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	-0.9	-0.2	-2.0	37	5.4
Bloomington	McLean	719.5	-4.2	+0.3	-3.1	34	N/A
Carlinville	Macoupin	571.1	0.0	0.0	-0.9	34	25.3
Carlyle <sup>(1)</sup>	Clinton	443.0	+0.4	-4.1	+2.5	42	N/A
Decatur <sup>(1,3)</sup>	Macon	612.5	-1.8	-0.5	+0.2	37	1,026.9
Evergreen <sup>(4)</sup>	Woodford	720.0	-2.7	-0.8	-2.7	30	N/A
Glenn Shoals <sup>(2)</sup>	Montgomery	590.0	-1.5	0.0	-0.3	23	w/Hillsboro
Highland	Madison	500.0	+0.2	+0.7	-0.1	32	27.8
Hillsboro <sup>(2)</sup>	Montgomery	589.0	N/A	N/A	0.0	23	36.5
Jacksonville <sup>(2)</sup>	Morgan	644.0	N/A	N/A	-0.4	10	w/Mauvaise Terre
Kinkaid	Jackson	420.0	+0.2	+0.2	-0.6	32	49.3
Lake of Egypt	Williamson	500.0	+0.5	+0.2	-0.5	26	N/A
Mattoon	Coles	632.0	-0.7	-0.6	-0.6	23	w/Paradise
Mauvaise Terre <sup>(2)</sup>	Morgan	588.5	N/A	N/A	0.0	15	no meter
Mt. Olive (new)	Macoupin	600.0	N/A	N/A	-0.2	11	w/Mt. Olive (old)
Mt. Olive (old)	Macoupin	654.0	-1.8	-0.3	-0.6	23	4.8
Pana	Christian	641.6	N/A	N/A	-1.2	35	N/A
Paradise	Coles	685.0	0.0	0.0	-0.2	27	54.4
Paris (east) <sup>(5)</sup>	Edgar	660.0	+0.2	0.0	+0.2	10	Not PWS
Paris (west) <sup>(5)</sup>	Edgar	660.1	+0.2	0.0	+0.2	10	w/Paris (east)
Raccoon <sup>(1)(5)</sup>	Marion	477.0	+0.6	-0.1	0.0	12	86.7
Rend	Franklin	405.0	+2.2	0.0	+1.7	42	N/A
Salem <sup>(3)</sup>	Marion	546.5	-0.2	-0.1	-0.7	24	22.3
Shelbyville <sup>(1)</sup>	Shelby	594.0	+4.2	-1.8	+6.5	42	Not PWS
Sparta <sup>(3)</sup>	Randolph	497.0	+0.1	+0.8	-0.7	21	N/A
Spring <sup>(3,4)</sup>	McDonough	654.0	-0.1	0.0	-0.6	36	45.1
Springfield <sup>(1,3)</sup>	Sangamon	559.6	-2.2	-0.1	-1.4	37	536.8
Taylorville	Christian	590.0	-0.3	+0.3	-0.7	27	42.1
Vermilion <sup>(4)</sup>	Vermilion	581.7	-0.1	+0.4	-0.4	35	187.5

**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.

(5) Years of record and average since supply switched to different source. Period of reporting is longer.

# Groundwater Information

— JENNIE ATKINS

**Comparison to Period of Record.** Shallow groundwater levels in 27 observation wells were near the long-term average for December. Levels were 0.12 feet below average and ranged from 5.77 feet below to 3.53 feet above normal levels (Table 6).

**Comparison to November 2020.** Shallow groundwater levels were near those of the previous month. Levels averaged 0.06 feet below and ranged from 3.20 feet below to 2.03 feet above November 2020 levels.

**Comparison to December 2019.** Shallow groundwater levels in December were below levels from one year ago. Levels averaged 2.62 feet below and ranged from 9.02 feet below to 1.85 feet above December 2019 levels.

**Table 6. Month-End Shallow Groundwater Level Data Sites, December 2020**

Well name	County	Well depth (feet)	This month's reading (depth to water, feet)	15-year avg. level (feet)	Deviation from		
					Period of record avg. (feet)	Previous month (feet)	Previous year (feet)
Belleville	St Clair	15.00	1.80	3.96	3.53	-0.62	-0.07
Bondville	Champaign	21.00	10.13	-5.81	-5.77	-0.16	-5.16
Bondville (ICN)	Champaign	20.00	8.82	-3.15	-3.49	-0.49	-6.02
Boyleston	Wayne	23.00	4.1	0.03	0.56	2.03	0.19
Brownstown	Fayette	15.00	0.06	2.02	1.98	0.05	0.00
Carbondale	Jackson	26.00	3.03	1.96	1.99	0.20	-0.19
Coffman	Pike	28.00	N/A	N/A	N/A	N/A	N/A
Crystal Lake	McHenry	18.00	3.97	0.49	1.35	0.08	-0.19
DeKalb	DeKalb	25.00	5.62	-0.88	-1.03	1.44	-2.87
Fairfield	Wayne	21.00	0.47	2.28	2.18	0.83	0.40
Fermi Lab	DuPage	15.00	8.17	-2.95	-1.67	1.36	-5.03
Freeport	Stephenson	26.00	18.91	-0.51	-0.41	-0.48	-7.12
Galena	JoDaviess	25.00	21.02	-0.66	0.31	-0.45	-2.63
Good Hope	McDonough	30.00	9.74	-3.28	-1.56	-0.05	-4.63
Greenfield	Greene	22.00	16.71	-2.69	-3.82	-0.32	-3.23
Janesville	Coles	11.00	5.08	0.66	-0.28	-0.78	-2.56
Monmouth	Warren	27.00	10.86	0.61	0.23	1.68	-1.67
Mt. Morris	Ogle	55.00	22.19	-3.17	-2.23	-0.69	-7.84
Olney	Richland	19.00	0.16	1.67	1.59	0.48	0.26
Perry	Pike	20.00	15.65	-3.39	-4.50	-3.20	-7.25
Rend Lake	Jefferson	21.00	1.65	2.35	2.25	0.77	1.10
SE College	Saline	11.00	0.5	3.31	3.44	1.70	0.38
Snicarte	Mason	42.00	35.45	1.17	2.01	0.15	1.85
Sparta	Randolph	27.00	6.37	-0.53	1.52	-2.87	-1.86
Springfield	Sangamon	20.00	9.98	-3.89	-2.44	0.22	-6.17
St. Charles	Kane	21.00	24.95	-1.36	-0.79	-0.94	-9.02
St. Peter	Fayette	15.00	2.1	-0.62	0.05	-0.13	-0.37
SWS #2	St. Clair	80.00	13.09	-0.19	1.70	-1.37	-1.01
				<b>-0.51</b>	<b>-0.12</b>	<b>-0.06</b>	<b>-2.62</b>

Notes: N/A = Data not available.

## Data sources for this publication include the following:

CPC - Climate Prediction Center, <https://www.cpc.ncep.noaa.gov/index.php>  
 ISWS - Illinois State Water Survey, <https://www.isws.illinois.edu>  
 MRCC - Midwestern Regional Climate Center, <https://mrcc.illinois.edu>  
 NCEI - National Centers for Environmental Information, <https://www.ncei.noaa.gov>  
 NWS - National Weather Service, <https://www.nws.noaa.gov>  
 SPC - Storm Prediction Center, <https://www.spc.noaa.gov>  
 USACE - U.S. Army Corps of Engineers, <http://rivergages.com>, <https://www.lre.usace.army.mil>  
 USDM - U.S. Drought Monitor, <https://droughtmonitor.unl.edu>  
 USGS - U.S. Geological Survey, <https://waterdata.usgs.gov/il/nwis>  
 WARM - Water and Atmospheric Resources Monitoring Program, <https://www.isws.illinois.edu/warm>

ILLINOIS STATE WATER SURVEY

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