

## ILLINOIS WATER AND CLIMATE SUMMARY

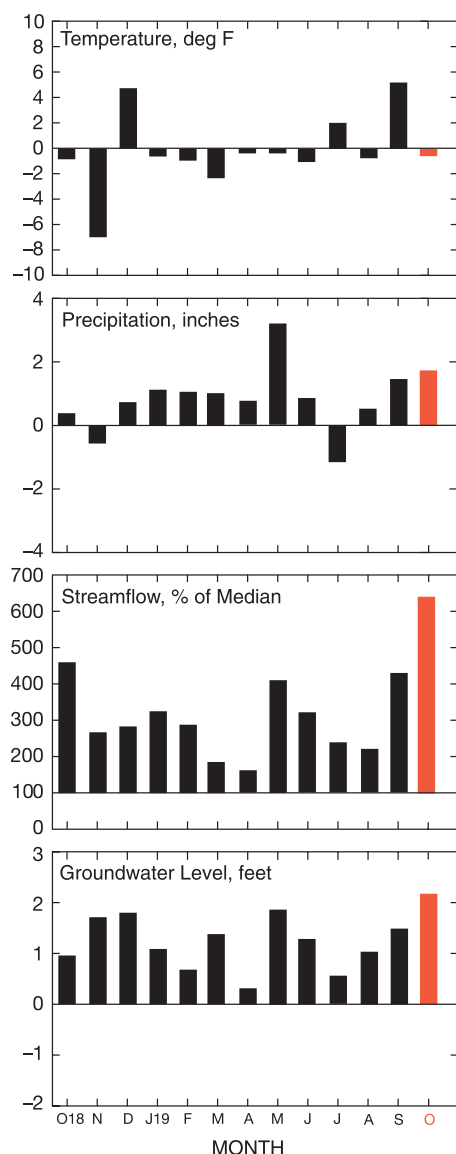


Figure 1. Statewide departures from normal.

### OCTOBER 2019 OVERVIEW

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

**Air temperatures** averaged 53.9°F in October, 0.5° below the long-term average (Figure 1). The southeast crop reporting district (CRD) was the warmest with an average of 58.3°F. The lowest regional temperature was 50.2°F, reported by the northwest CRD.

**Precipitation** averaged 5.04 inches, 1.80 inches above the long-term average (Figure 1). The southeast CRD was the wettest with an average of 6.50 inches. The driest was the northwest CRD with 3.81 inches.

**Soil moisture** increased due to the heavy precipitation across the state. Moisture levels rose 46% on average at depths of 2 inches, and double-digit increases were seen down to 20 inches. Soil moisture remained relatively steady at the deeper depths. Levels at 39 inches rose by 4% while there was no change at 59 inches.

**Mean provisional streamflow** aggregated statewide was well above the long-term median flow for October, about 650% of median (Figure 1). Monthly mean discharge values ranged from normal to much above normal for October. The Illinois and Mississippi Rivers approached or exceeded the local flood stage levels at many locations in October.

**Water surface levels** at the end of October were below the full pool or target level at 8 of 22 reporting reservoirs. At the end of October, Lake Shelbyville was 0.8 feet above the seasonal target level, Carlyle Lake was 2.3 feet above the seasonal target level, and Rend Lake was 1.3 feet above the spillway level. Lake Michigan's mean level was above its long-term mean for the month.

**Shallow groundwater levels** statewide were above normal this month with an average departure of 2.11 feet from the period of record (Figure 1). An increase of 0.62 feet in departures was observed from the deviation in normal groundwater levels between September and October. Levels averaged 0.53 feet above September 2019 and 1.03 feet above October 2018 levels.

# Weather/Climate Information

— KEVIN GRADY

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

October in Illinois was cooler and much wetter than average across most of the state, with temperatures changing from much above average to much below average during the month.

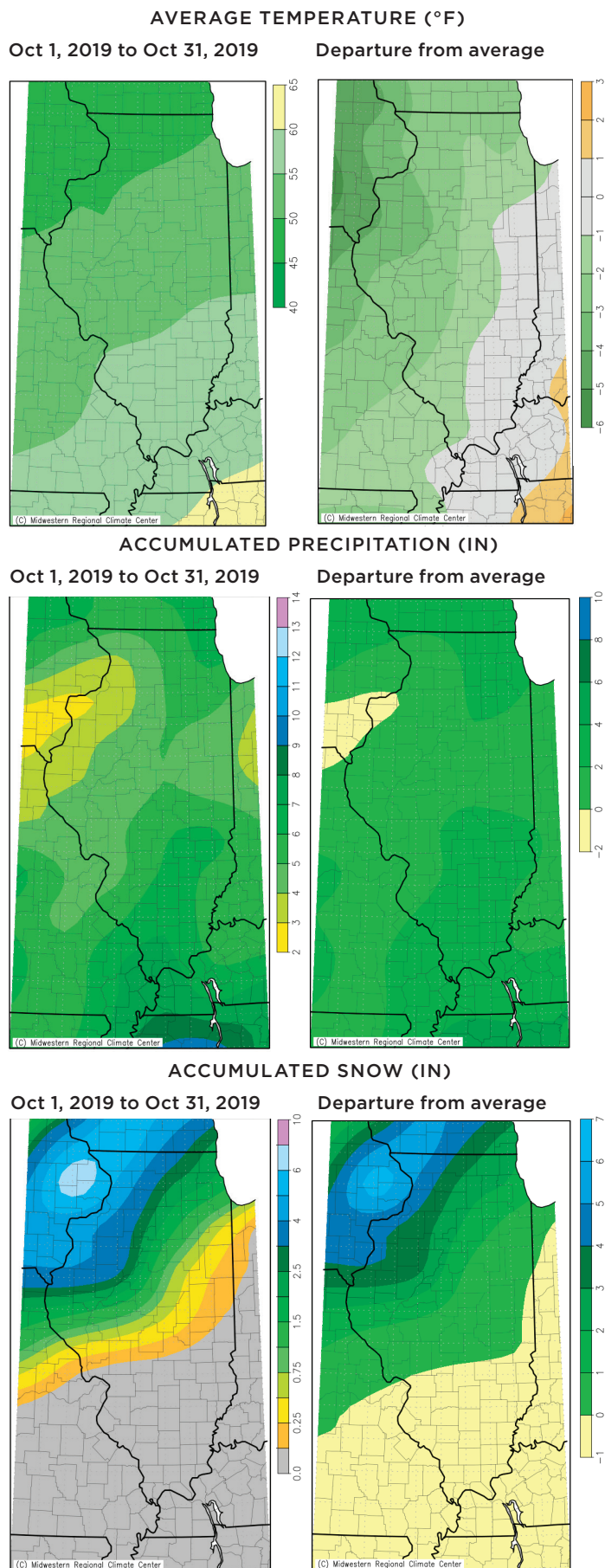
**Temperatures** averaged 53.9°F, 0.5° below the long-term average, despite a very strong heat wave that affected the entire state during the first few days of the month, continuing from a warm September (Table 1, Figure 2a). Summer-like temperatures were generally well over 10° above average across most of the state the first two days of the month. Highs those days were commonly in the upper 80s and 90s, especially in central and southern Illinois.

The warmest reading of the month, 96°F, occurred twice: near Mascoutah (St. Clair County) on October 1 and near Carmi (White County) on October 2. According to the NOAA National Centers for Environmental Information (NCEI), 46 daily high maximum and 9 all-time October high maximum temperature records were broken over the first four days of the month. Temperatures remained warm at night over those days as well, with many lows in the 70s. NCEI also reported that 73 daily high minimum and 13 all-time October high minimum temperature records were broken, even as far north as Rockford (Winnebago County). Its minimum temperature of 70°F on October 1 broke its daily high minimum record by 7° as well as the all-time October high minimum temperature (going back to 1905).

**Table 1. Temperature and Precipitation for October 2019**

	Temp. (°F)	Departure from long- term avg. (1981–2010)	Precip. (in)	Departure from long- term avg. (1981–2010)
Illinois	53.9	−0.5	5.04	+1.80
CRD 1 (northwest)	50.2	−1.4	3.81	+0.89
CRD 2 (northeast)	51.1	−1.0	5.55	+2.60
CRD 3 (west)	51.7	−2.2	4.14	+1.11
CRD 4 (central)	53.2	−0.5	4.67	+1.58
CRD 5 (east)	53.8	+0.2	4.50	+1.31
CRD 6 (west southwest)	54.3	−1.3	4.61	+1.38
CRD 7 (east southeast)	56.1	+0.4	5.91	+2.39
CRD 8 (southwest)	57.7	+0.3	6.00	+2.29
CRD 9 (southeast)	58.3	+1.0	6.50	+2.80

Data from NOAA's National Centers for Environmental Information, accessed 11/6/2019.



**Figure 2a. Illinois temperature, precipitation, snow and their departures from average for October 2019.**

Source: cli-MATE, Midwest Regional Climate Center.

<http://mrcc.illinois.edu/CLIMATE>, accessed on November 6, 2019.

Temperatures quickly moderated after the first few days to near average in eastern Illinois and slightly below average in western Illinois for most of the month. Many places saw the first frost of the season around the second weekend of the month. Temperatures would really fall the last few days of the month, however, in a complete contrast to how the month started. Temperatures ranged from 6 degrees below average in southeast Illinois to over 14 degrees below average in western Illinois the last four days of the month. Forty-eight daily low maximum and 12 daily low minimum temperature records were broken those days.

Halloween was the coldest day of the month for many areas and the coldest Halloween on record for 51 stations, with lows generally in the lower 30s into the 20s. The coldest temperature of the month of 20°F (76° below the state's warmest temperature of the month) occurred near three places on October 31: Rockford (Winnebago County), Shabbona (DeKalb County), and a station in Whiteside County. The large temperature swing in October is well illustrated by Rockford, which broke a record for high minimum temperature on the first day of the month and had the state's coldest monthly temperature on the last day of the month.

**Growing degree days** (DD, base 50°, from April 1) ranged from just below 3000 in far northern Illinois to well over 4000 in southern Illinois (Figure 2b). This was slightly below the long-term average in northwestern Illinois, while near or

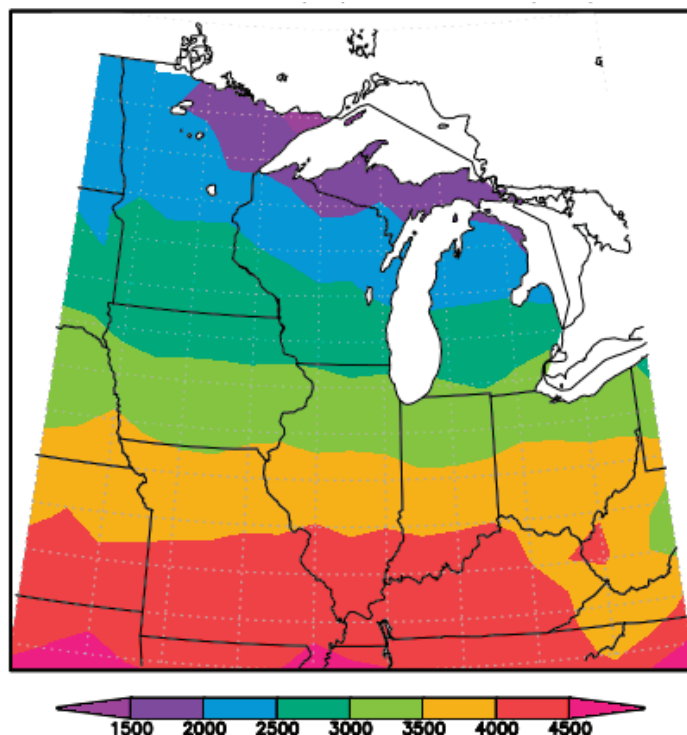
slightly above average across the rest of the state.

**Precipitation** averaged 5.04 inches in October, 1.80 inches above the long-term average and the 9th wettest October on record back to 1895 (Table 1, Figure 2a). Nearly all parts of Illinois saw much above average precipitation, and northeastern and southern Illinois were the wettest areas in the state, where totals over 6 inches were common. A good portion of this precipitation came in the last 10 to 12 days of the month, with most areas outside of northwestern Illinois receiving over 3 inches during this time. The highest monthly total in Illinois was recorded near Marion (Williamson County) with 8.86 inches. The above normal precipitation led to parts of some rivers in Illinois, including the Illinois and Mississippi Rivers, to experience flooding.

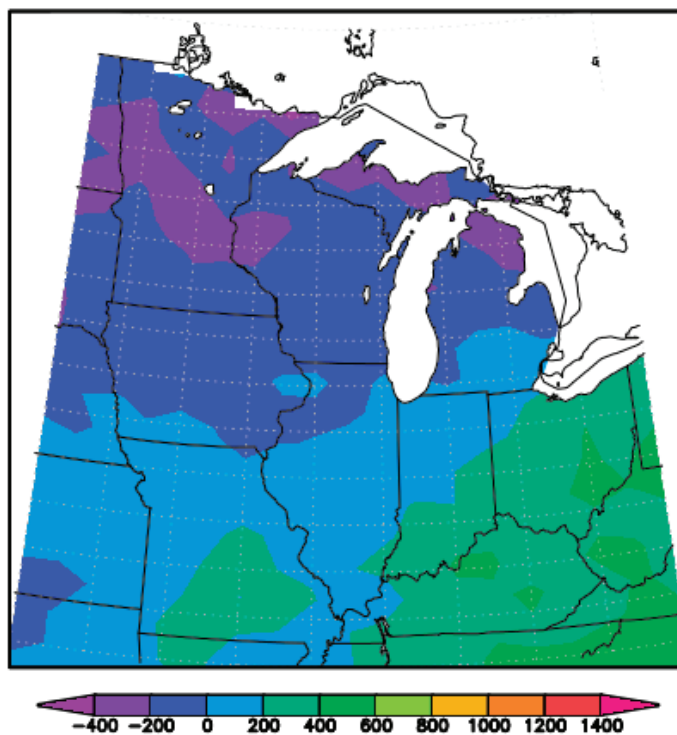
The 10-month period from January through October 2019 tied with 1993 for the record for the largest year-to-date average statewide precipitation of 45.43 inches, 11.63 inches above the 1981-2010 average. (Data from 125 years are available, going back to 1895).

**Snow:** Most areas north of I-70 in Illinois saw their first accumulating snow of the season during the last few days of October, including on Halloween in many areas. In fact, Chicago recorded 3.4 inches of snow on October 31 at O'Hare, contributing to the city's second snowiest October on record with 4.6 inches total, only behind 1989. Generally, monthly totals were highest in northwest Illinois where 5 to 7+ inches were common and gradually dropped off to the southeast. The highest monthly snowfall total in Illinois was recorded

TOTAL MGDD FROM 4/1/2019 TO 10/31/2019



MGDD DEPARTURE FROM 4/1/2019 TO 10/31/2019



**Figure 2b. Illinois growing degree days and departure from average through the end of October.** Source: Midwestern Regional Climate Center. <http://mrcc.illinois.edu>, accessed on November 1, 2019.

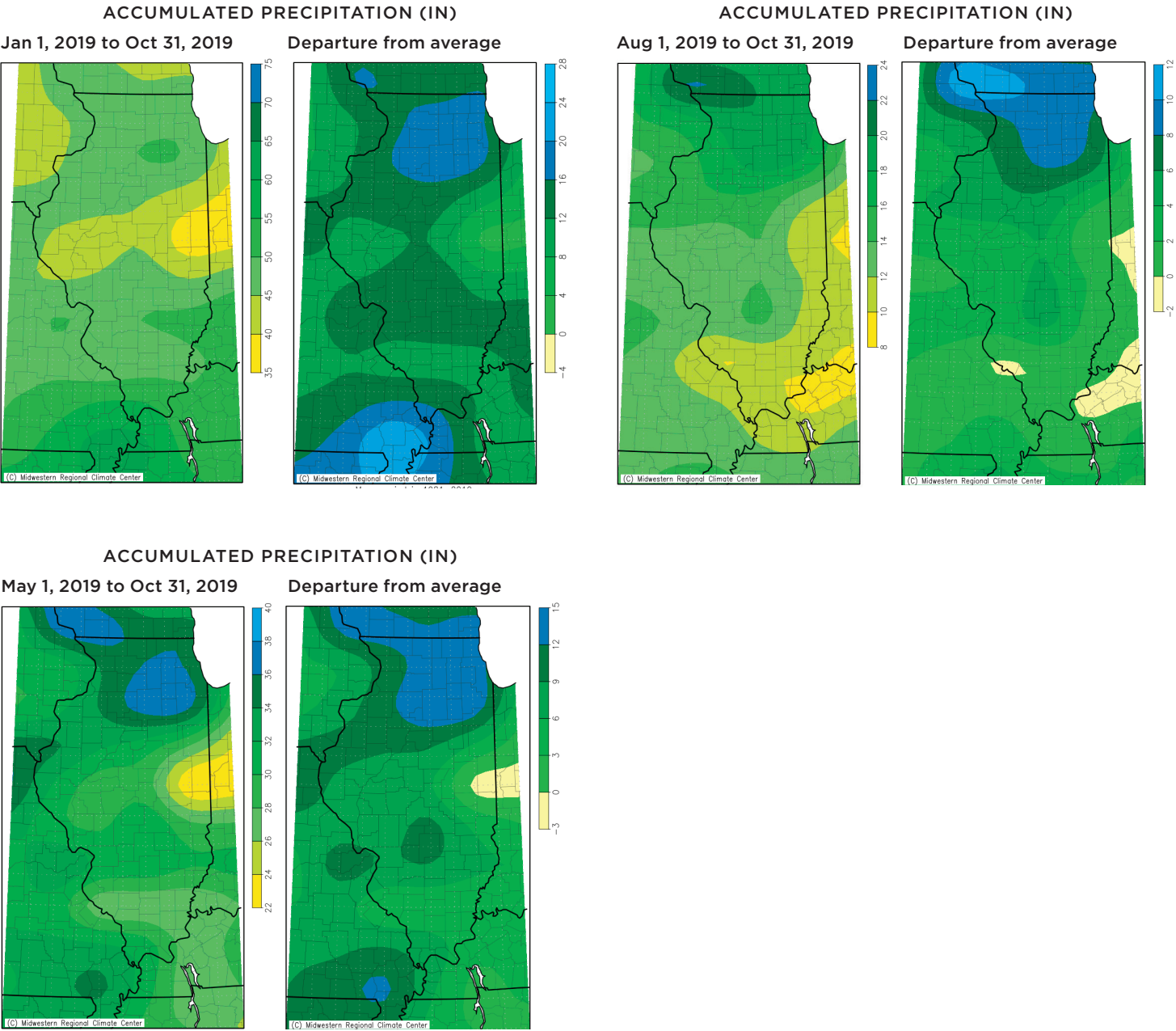


near Orangeville (Stephenson County) with 8.5 inches.

**Severe weather reports:** The NOAA Storm Prediction Center recorded 4 severe weather reports for October in Illinois, 0 for tornadoes, 1 for hail, and 3 for wind. (Multiple reports can be generated for a single event.)

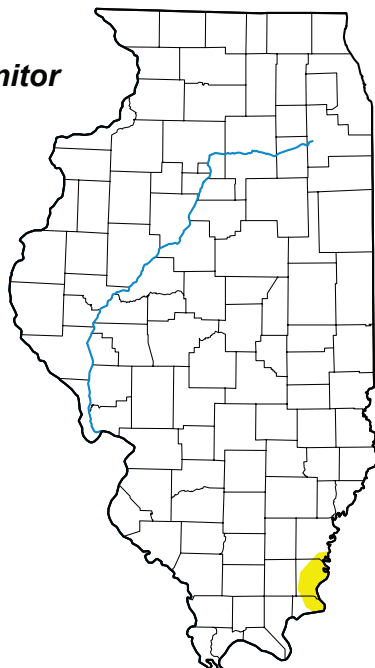
**Drought:** October began with many areas south of I-64 under moderate drought (D1) with eastern Gallatin County under severe drought (D2). A pocket of abnormal dryness (DO) near Champaign and Danville also lingered from September, although the U.S. Drought Monitor removed it early in the month. The southern Illinois drought persisted through

mid-October with a small expansion northward along the Wabash River. However, precipitation a couple of inches above average in the second half of the month quickly improved the situation, with the removal of all drought by the end of the month. This was the first time Illinois had been drought-free since early August. Only a small area of abnormal dryness (DO) remained on the Drought Monitor's October 29 report in eastern Gallatin, Hardin, and White Counties, covering 0.69% of the state (Figure 4).



**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, Midwest Regional Climate Center. <http://mrcc.illinois.edu/CLIMATE>, accessed on November 6, 2019.

## U.S. Drought Monitor Illinois



**October 29, 2019**  
(Released Thursday, Oct. 31, 2019)  
Valid 8 a.m. EDT

Drought Conditions (Percent Area)						
	None	D0	D1	D2	D3	D4
<b>Current</b>	99.31	0.69	0.00	0.00	0.00	0.00
<b>Last Week</b> 10-22-2019	86.91	12.45	0.64	0.00	0.00	0.00
<b>3 Months Ago</b> 07-30-2019	81.86	18.14	0.00	0.00	0.00	0.00
<b>Start of Calendar Year</b> 01-01-2019	100.00	0.00	0.00	0.00	0.00	0.00
<b>Start of Water Year</b> 10-01-2019	82.16	7.06	10.59	0.19	0.00	0.00
<b>One Year Ago</b> 10-30-2018	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. See accompanying text summary  
for forecast statements.

### Author:

David Simeral  
Western Regional Climate Center



**Figure 4. U.S. Drought Monitor report for Illinois.** Source:  
U.S. Drought Monitor. Author: David Simeral, Western Regional  
Climate Center  
<http://droughtmonitor.unl.edu>, accessed on November 6, 2019.

## 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 October are presented in Table 2.

**Wind speeds** increased in October to an average of 6.1 mph, 1.2 mph higher than in September but 0.5 mph lower than the network's long-term average. ICN Monmouth was the windiest station with a monthly average of 9.3 mph. The highest recorded wind gust was 44.2 mph, recorded at ICN Stelle on October 21.

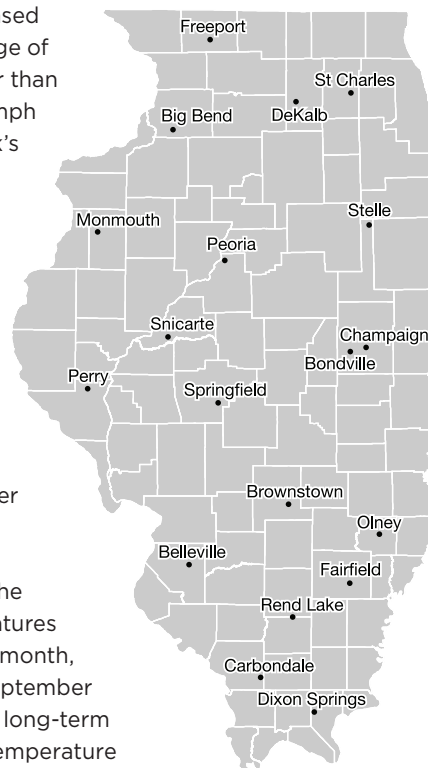
**Air temperatures** ran the range in October as the month began with temperatures in the 90s and ended in the teens. Overall, temperatures averaged 52.7° for the month, a drop of 18.8° from September and 1.7° lower than the long-term average. The highest temperature was 96.3°, recorded at ICN Rend Lake on October 2. The coolest was 15.5°, reported by the Monmouth station on October 31.

**Soil temperatures** declined 14° to 20° from September to averages in the high 50s and low 60s. Temperatures were 2° warmer than the long-term average for the month. Under bare soil, temperatures ranged from 31.6° to 97.1° at 2-inch depths and from 35.2° to 93.2° at 4 inches. Temperatures under sod were reported from 37.7° to 90.5° at 4 inches and 41.6° to 84.6° at 8 inches.

**Precipitation** was higher than normal across the state with a network average of 5.40 inches or 2.45 inches above the long-term average. All stations recorded higher amounts than normal, but the highest totals were in southern Illinois. ICN Rend Lake reported 7.96 inches, 4.29 more than normal for the month and 7.70 inches more than in September.

**Soil moisture** increased throughout the state as a result of the higher precipitation. Soil moisture at the 2-inch depths increased 46 percent on average. Double-digit increases were seen in depths from 2 to 20 inches. The largest differences occurred in the south. After a dry September and very wet October, moisture levels at 2 inches in the region rose 137% to end the month with levels averaging 0.47 water fraction by volume (wfv).

Soil moisture levels remained steady at 39- and 59-inch depths, showing little overall change on average.



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

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	5.8	190.5	36.9	94.5	26.1	55.2	369.6
Big Bend	7.3	215.9	39.9	86.9	17.0	49.2	322.5
Bondville	9.3M	190.7M	42.9M	90.3M	23.3M	52.5M	386.1
Brownstown	6.0	182.2	33.0	92.4	28.1	54.7	363.5
Carbondale	5.2	196.3	32.4	94.8	24.8	56.4	406.6
Champaign	3.4	188.5	28.1	92.2	24.2	53.5	349.5
DeKalb	6.8	209.3	34.6	85.9	18.1	48.1	327.1
Dixon Springs	3.3	174.6	28.4	94.6	24.8	57.1	392.7
Fairfield	5.5M	171.9M	28.6M	92.8M	27.1M	56.1M	389.5M
Freeport	4.6	220.9	32.0	82.9	15.6	47.4	298.8
Monmouth	9.3	215.7	35.0	89.3	15.5	49.5	359.3
Olney	4.8	179.6	37.0	94.3	27.9	55.9	383.7
Peoria	6.8	201.2	35.1	88.4	22.3	51.3	338.8
Perry	5.4	211.8	31.9	90.9	27.1	51.7	366.6
Rend Lake	4.0	186.5	26.5	96.3	27.1	56.8	366.2
Snicarte	8.4	202.6	38.6	90.3	27.1	51.8	370.5
Springfield	5.4	196.4	24.9	92.3	28.2	53.9	362.7
St. Charles	6.0	191.5	34.3	86.6	22.3	49.9	313.3
Stelle	9.2	209.3	44.2	89.7	23.8	51.0	335.3

**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	77.7	4.49	47.1	2.84	60.9	61.6	57.5	60.9
Big Bend	80.1	3.06	42.6	2.26	56.4	56.4	55.0	56.3
Bondville	77.3M	5.53	44.6M	1.76M	56.9M	60.8M	57.4M	60.1M
Brownstown	75.4	5.95	46.1	2.76	62.0	61.9	57.3	56.4
Carbondale	81.5	7.53	49.6	3.01	63.7	62.4	61.5M	60.0
Champaign	75.1	5.02	44.8	2.52	60.8	62.2	58.9	58.1
DeKalb	80.7	5.06	41.8	2.21	56.4	56.6	56.0	53.8
Dixon Springs	76.1	7.47	48.2	2.92	63.0	64.0	61.7	63.3
Fairfield	76.7	5.74M	47.9M	2.90M	63.3M	63.9M	56.0M	61.9M
Freeport	78.3	4.62	40.4	2.00	58.4	56.9	50.9	50.7
Monmouth	77.9	4.12	42.0	2.57	56.6	56.7	54.8	52.6
Olney	75.7	6.89	47.3	2.86	61.3	62.1	59.8	59.0
Peoria	75.1	5.29	42.8	2.56	59.0	58.4	53.6	54.5
Perry	77.0	4.24	43.8	2.64	59.7M	60.9	56.7M	56.0
Rend Lake	70.1	7.96	46.0	2.89	62.5	64.3	62.1	60.9
Snicarte	72.7	4.06	42.5	2.88	59.2	60.7	57.5	58.6
Springfield	74.1	4.48	44.8	2.72	60.8	60.8	57.7	56.9
St. Charles	77.7	4.77	42.5	2.17	56.4	57.2	54.2	52.8
Stelle	76.8	4.98	43.2	2.54	57.7	58.3	55.6M	52.2

M = Missing data.

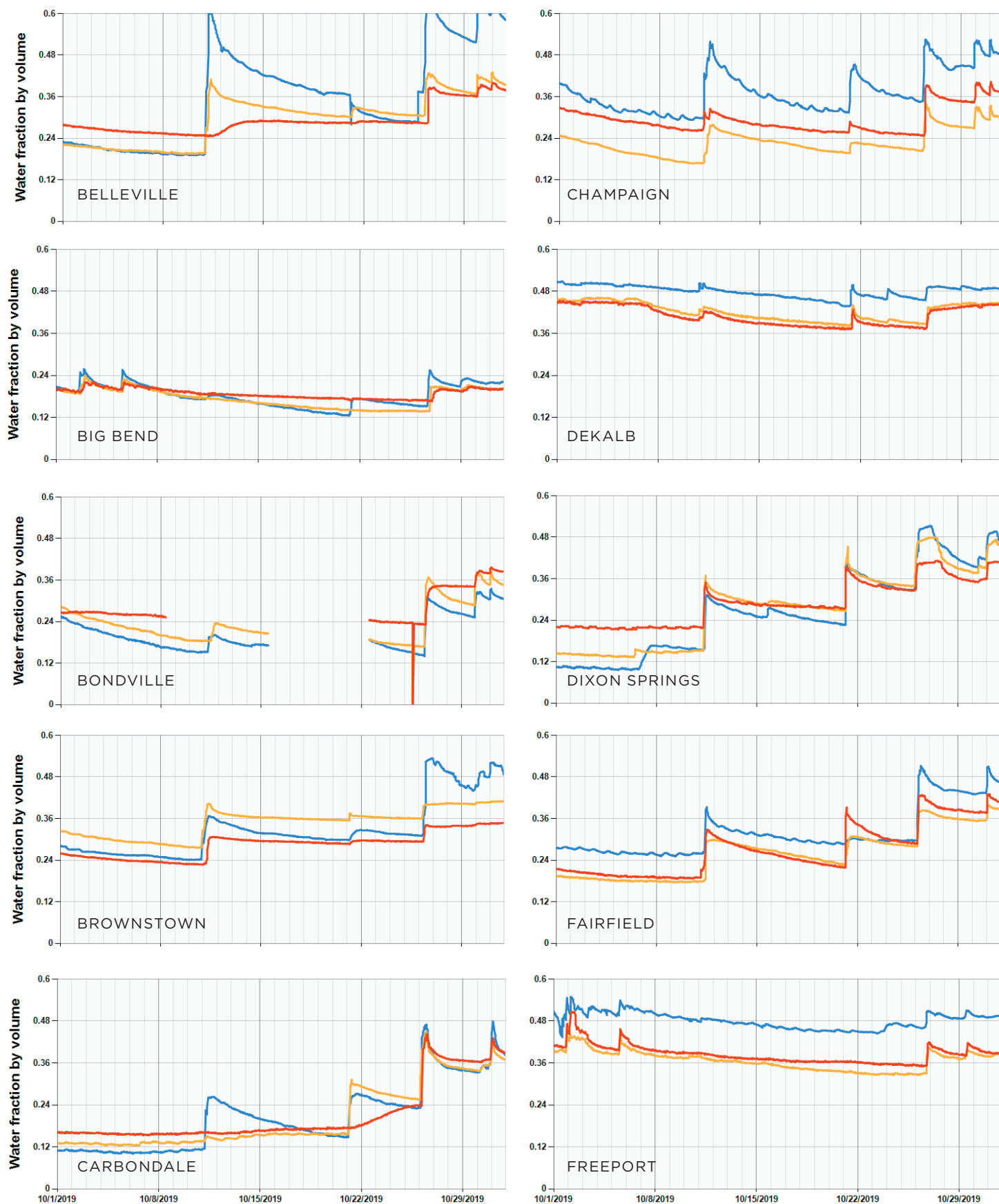


Figure 5. October soil moisture levels at ICN stations: — 2 in, — 4 in, and — 8 in

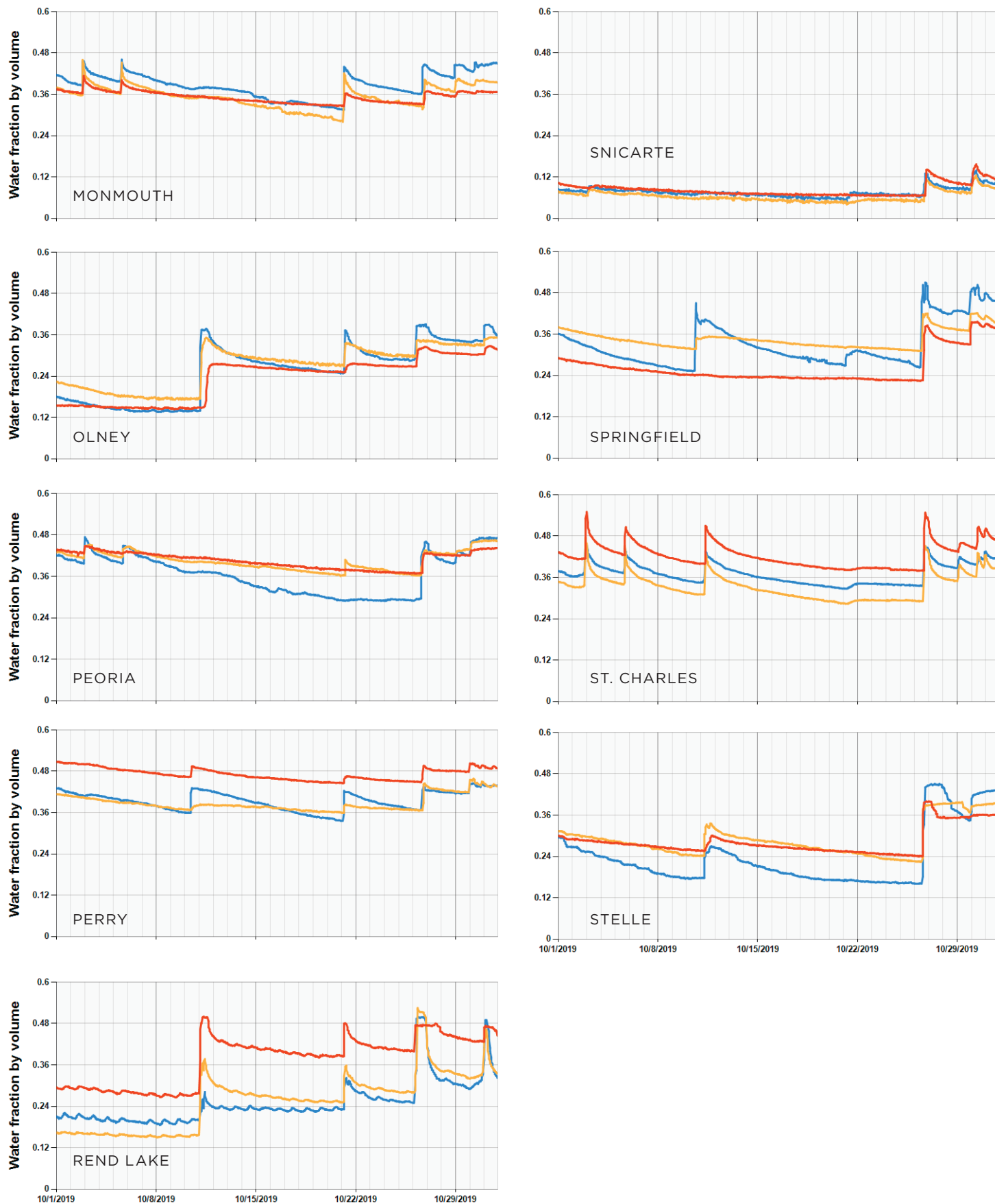


Figure 5. October soil moisture levels at ICN stations: — 2 in, — 4 in, and — 8 in



# 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.

Illinois River water surface levels were above or near the local flood stages at the beginning of the month and again at the end of the month at some gage locations. The Mississippi River crested near or above the local flood stages in mid-October at most gaging stations along the Illinois border and remained above the flood stage at some locations throughout the month.

**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 October 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 October (approximately 650 percent of the median) and above the mean for October (approximately 300 percent of the mean). Monthly mean discharge values ranged from normal to much above normal for October. The Rock River at Rockton, the Rock River near Joslin, and the Pecatonica River at Freeport streamgages posted monthly mean flows that are the second highest for the month of October in the periods of record of the respective gages. The October 2019 monthly mean streamflow of the Fox River at Dayton was the highest recorded for the month of October in the period of record of the streamgage.

**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-September water levels at 24 reservoirs for which levels were reported last month and this month, reported end-of-October water levels were lower at 3 reservoirs, higher at 20 reservoirs, and about the same as last month at 1 reservoir. For the 24 reservoirs with measurements reported at the end of October, water levels were below normal target pool or spillway level at 8 reservoirs, above normal target pool or spillway level at 11 reservoirs, and at about full pool level at 5 reservoirs.

**Major Reservoirs.** Compared to water levels at the end of September, at the end of October the water level at Lake Shelbyville was 0.7 feet higher, Carlyle Lake was 1.9 feet higher, and Rend Lake was 0.6 feet higher. At the end of October, Lake Shelbyville was 0.8 feet above the seasonal target level, Carlyle Lake was 2.3 feet above the seasonal target level, and Rend Lake was 1.3 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 October 2019 mean level for Lake Michigan was 581.7 feet. The monthly mean level one year ago (October 2018) was 580.4 feet. The long-term average lake level for October is 578.9 feet, based on 1918-2018 data. In this period of record, the lowest mean level for Lake Michigan for October occurred in 1964 at 576.4 feet, and the highest mean level for October occurred in 1986 at 582.4 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 October 2019

River	Station	River mile*	Flood stage (feet)*	Peak stage (feet)**	Date
Illinois	Morris	263.1	16	15.7	28
	La Salle	224.7	20	25.5	01
	Peoria	164.6	18	20.4	03
	Havana	119.6	14	18.0	05
	Beardstown	88.6	14	16.5	09
	Hardin	21.5	25	27.6	13
Mississippi	Dubuque	579.9	17	17.9	14
	Keokuk	364.2	16	16.6	16
	Quincy	327.9	17	20.0	17
	Grafton	218.0	18	22.6	13
	St. Louis	180.0	30	32.1	13
	Chester	109.9	27	32.8	14
	Thebes	43.7	33	34.0	15
Ohio	Cairo	2.0	40	31.6	28

**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, October 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	17,694	3,172	2,932	much above normal	2	31
Rock River near Joslin	9549	75	23,516	4,599	4,180	much above normal	3	31
Pecatonica River at Freeport	1326	99	5,010	716	634	much above normal	2	31
Green River near Geneseo	1003	80	1,778	377	215	much above normal	2	31
Edwards River near New Boston	445	80	776	138	48	much above normal	5	31
Kankakee River at Momence	2294	100	2,483	1,247	922	much above normal	10	31
Iroquois River near Chebanse	2091	93	909	733	193	above normal	20	31
Fox River at Dayton	2642	100	6,966	1,153	894	much above normal	**	31
Vermilion River at Pontiac	579	73	304	152	24	above normal	15	31
Spoon River at Seville	1636	100	2,464	514	179	much above normal	5	31
LaMoine River at Ripley	1293	94	903	430	113	above normal	18	31
Bear Creek near Marceline	349	73	496	122	13	above normal	12	31
Mackinaw River near Congerville	767	72	509	203	30	above normal	11	31
Salt Creek near Greenview	1804	75	686	546	218	above normal	21	31
Sangamon River at Monticello	550	105	59	173	35	normal	41	31
South Fork Sangamon near Rochester	867	68	201	208	24	above normal	23	31
Illinois River at Valley City	26,743	78	38,135	12,770	7,888	much above normal	6	31
Macoupin Creek near Kane	868	88	151	262	41	above normal	23	31
Vermilion River near Danville	1290	95	171	364	104	normal	40	31
Kaskaskia River at Vandalia	1940	47	745	581	172	above normal	29	31
Shoal Creek near Breese	735	73	300	181	45	above normal	16	31
Embarras River at Ste. Marie	1516	103	342	428	100	normal	32	31
Skillet Fork at Wayne City	464	97	564	107	12	much above normal	7	31
Little Wabash below Clay City	1131	102	815	231	51	above normal	11	31
Big Muddy at Plumfield	794	46	150	143	65	above normal	27	31
Cache River at Forman	244	93	128	61	16	above normal	14	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 October in the period of record of the streamgage.

**Table 5. Reservoir Levels in Illinois, October 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	September reported pumpage (million gallons)
Altamont	Effingham	582.0	-0.3	+0.9	-2.5	35	6.9
Bloomington	McLean	719.5	-0.4	+1.7	-3.8	31	N/A
Carlinville	Macoupin	571.1	0.0	+1.3	-1.5	34	27.5
Carlyle <sup>(1)</sup>	Clinton	445.0	+2.3	+1.9	+0.1	41	N/A
Decatur <sup>(1,3)</sup>	Macon	614.3	+0.1	+1.1	-1.3	36	N/A
Evergreen <sup>(4)</sup>	Woodford	720.0	-0.4	+1.2	-3.1	28	N/A
Glenn Shoals <sup>(2)</sup>	Montgomery	590.0	+0.3	+0.8	-0.9	23	w/Hillsboro
Highland	Madison	500.0	+0.4	+0.5	-0.6	31	32.1
Hillsboro <sup>(2)</sup>	Montgomery	589.0	N/A	N/A	-0.3	23	36.3
Jacksonville <sup>(2)</sup>	Morgan	644.0	N/A	N/A	-0.8	18	w/Mauvaise Terre
Kinkaid	Jackson	420.0	-0.4	+0.4	-0.7	31	52.1
Lake of Egypt	Williamson	500.0	-0.3	+1.2	-1.4	24	N/A
Mattoon	Coles	632.0	0.0	+1.0	-0.8	24	w/Paradise
Mauvaise Terre <sup>(2)</sup>	Morgan	588.5	N/A	N/A	-0.2	20	no meter
Mt. Olive (new)	Macoupin	600.0	N/A	N/A	-0.2	5	w/Mt. Olive (old)
Mt. Olive (old)	Macoupin	654.0	N/A	N/A	-1.3	21	4.7
Pana	Christian	641.6	0.0	+0.5	-1.8	33	N/A
Paradise	Coles	685.0	0.0	+0.4	-0.6	27	69.9
Paris (east)	Edgar	660.0	+0.2	+0.4	-1.1	32	Not PWS
Paris (west)	Edgar	660.1	+0.2	+0.3	0.0	22	w/Paris (east)
Raccoon <sup>(1)</sup>	Marion	477.0	+0.9	+0.8	N/A	N/A	98.0
Rend	Franklin	405.0	+1.3	+0.6	+0.3	41	N/A
Salem <sup>(3)</sup>	Marion	546.5	0.0	+0.9	-0.7	23	24.9
Shelbyville <sup>(1)</sup>	Shelby	599.7	+0.8	+0.7	-0.1	41	Not PWS
Sparta <sup>(3)</sup>	Randolph	497.0	-0.7	-0.1	-1.4	20	N/A
Spring <sup>(3,4)</sup>	McDonough	654.0	+0.3	-0.3	-1.0	36	51.2
Springfield <sup>(1,3)</sup>	Sangamon	560.0	+0.5	0.0	-2.2	36	647.1
Taylorville	Christian	590.0	-0.6	-0.3	-0.8	26	52.8
Vermilion <sup>(4)</sup>	Vermilion	581.7	-0.2	+0.3	-0.8	34	203.8

**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 November 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 13 observation wells, which are remote from pumping centers, were above normal for the month of October. Levels averaged 2.11 feet above normal and ranged from 2.73 feet below to 6.30 feet above normal levels (Table 6).

**Comparison to September 2019.** Shallow groundwater levels were above those of the previous month. Levels averaged 0.53 feet above and ranged from 1.62 feet below to 2.76 feet above September levels.

**Comparison to October 2018.** Shallow groundwater levels in October were above levels from one year ago. Levels averaged 1.03 feet above and ranged from 4.11 feet below to 6.62 feet above October 2018 levels.

**Table 6. Month-End Shallow Groundwater Level Data Sites, October 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	17.02	2.88	3.97	0.95	-1.08
2	Mt. Morris	Ogle	55.00	13.52	5.95	6.30	-0.37	N/A
3	Crystal Lake	McHenry	18.00	3.42	1.54	2.20	-0.12	0.07
4	Fermi Lab	DuPage	15.00	1.20	6.19	6.27	1.28	6.62
5	Good Hope	McDonough	30.00	6.43	1.96	3.12	-1.62	-1.06
6	Snicarte	Mason	42.00	37.21	-0.48	0.71	-0.12	-0.41
7	Coffman	Pike	28.00	13.89	-0.13	0.19	-0.11	4.07
8	Greenfield	Greene	20.70	14.83	0.57	0.52	0.61	3.08
9	Janesville	Coles	11.00	4.17	1.77	2.03	2.76	1.44
10	St. Peter	Fayette	15.00	N/A	N/A	N/A	N/A	N/A
11	SWS #2	St. Clair	80.00	13.21	0.77	2.34	0.63	-0.27
12	Boyleston	Wayne	23.00	5.56	1.10	1.77	1.88	2.28
13	Sparta	Randolph	27.00	N/A	N/A	N/A	N/A	N/A
14	SE College	Saline	11.00	6.78	0.78	0.73	1.52	1.77
15	Bondville	Champaign	21.00	8.72	-2.18	-2.73	-0.42	-4.11
					<b>1.59</b>	<b>2.11</b>	<b>0.53</b>	<b>1.03</b>

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](http://WWW.ISWS.ILLINOIS.EDU)

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