

## IOWA MONTHLY WEATHER SUMMARY – AUGUST 2023

General Summary: Temperatures averaged 72.5 degrees or 1.5 degrees above normal while precipitation totaled 2.99 inches or 1.14 inches below normal. August 2023 ties 1928, 1968 and 1970 as the 53<sup>rd</sup> warmest August in 151 years of statewide records; it also ranks as the 52<sup>nd</sup> driest on record. August 2021 was warmer while 2020 was drier and the 3<sup>rd</sup> driest on record.

Temperatures: Statewide average temperatures in August were above-normal across most of Iowa with near-normal conditions around the Iowa-Missouri border. August's statewide average maximum temperature was 83.4 degrees, 1.7 degrees above normal while the average minimum temperature was 61.6 degrees, 1.3 degree above normal. Decorah (Winneshiek County) and Waterloo Municipal Airport (Black Hawk County) reported the month's high temperature of 105 degrees on the 23<sup>rd</sup>, on average 23 degrees above normal. Elkader (Clayton County) reported the month's low temperature of 40 degrees on the 31<sup>st</sup>, 14 degrees below normal.

Cooling Degree Days: Home cooling requirements, as estimated by cooling degree day totals, averaged 7% more than last August and 17% more than normal. Cooling degree day totals are running 4% less than last year at this time and 6% more than normal.

Precipitation: A majority of Iowa's National Weather Service co-op stations reported precipitation deficits through August with widespread one to two-inch departures across much of eastern Iowa. Sections of northeastern Iowa experienced deficits above three inches. Stations across Iowa's western one quarter reported above-average totals as did stations along the Iowa-Missouri border. Monthly precipitation totals ranged from 0.62 inch in Clinton (Clinton County) to 10.24 inches at a Community Collaborative Rain, Hail and Snow (CoCoRaHS) network gauge near Davis City (Decatur County).

Showers pushed through southern Iowa into the later evening hours on the 1<sup>st</sup> as a line of stronger storms again formed in southwestern Iowa, producing locally heavy rainfall and flash flood warnings through late morning on the 2<sup>nd</sup>. Most of Iowa's southwestern half reported measurable totals with a widespread swath of at least 0.50 inches; 60 stations hit this threshold with nearly 30 measuring at an inch or more. Two Harrison County locations, Little Sioux and Blencoe, registered 4.25 inches and 4.50 inches, respectively. Showers developed in southwestern Iowa through the afternoon of the 4<sup>th</sup> as a low-pressure center pushed into northern Missouri, slowly moving due east through the remains of the day and into the wee hours of the 5<sup>th</sup>. Several slow-moving thunderstorms dropped heavy amounts of rain in southeastern Iowa; Augusta (Lee County) recorded 3.95 inches, while Burlington's (Des Moines County) National Weather Service Station and airport observed 4.44 inches and 6.14 inches, respectively. Another broad-scale and more powerful low pressure spinning over North Dakota fired showers and a line of severe thunderstorms over northwestern Iowa during the late afternoon as southeasterly winds pumped southerly moisture into Iowa. The initial line spawned a weak tornado near Sioux Center (Sioux County) along with flash flood warnings over several counties. The line sped southeast as moderate rain showers filled in behind, bringing totals above 0.50 inch to most of Iowa's western half; the average rainfall was 0.62 inch.

Several west-central and northwest stations measured nearly a month's worth of rain with 3.14 inches at Holstein (Ida County) to 4.30 inches in Remsen (Plymouth County). Thunderstorms continued into eastern Iowa at daybreak on the 6<sup>th</sup> with lows in the mid to upper 60s mostly and thick, overcast skies statewide. The low pressure center continued to spin slowly across Iowa through the day; the system cleared Iowa into the early morning of the 7<sup>th</sup> with rain totals at 7:00 am highest through a northwest to southeast swath with widespread amounts from 0.50 to 1.50 inches. The statewide average total was 0.60 inch as over 70 stations measured at least 1.00 inch with 15

stations at 2.00 inches or more; Columbus Junction (Louisa County) hit the mark while Estherville (Emmett County) observed 2.35 inches and Maxwell (Story County) registered 3.70 inches.

Dense fog formed overnight into the 8<sup>th</sup> with spotty showers developing across Iowa's southeastern half just before noon and persisting through the early evening; rainfall was not widespread but where it did fall, totals were in the 0.20 to 0.60-inch range. Another disturbance brought stronger thunderstorms into portions of western Iowa after midnight on the 9<sup>th</sup>. The complex spread east before dissipating over eastern Iowa a few hours later. Atmospheric conditions conducive to funnel clouds were present in central Iowa later in the afternoon as spotty thundershowers fired. Many stations from west-central to northwest Iowa received at least 0.25 inch with 0.95 inch near Storm Lake (Buena Vista County) to 1.15 inches near Sac City (Sac County). Central Iowa stations received higher totals from slower-moving and more intense storms; Boone (Boone County) collected 0.75 inch with 1.90 inches reported at Sully (Jasper County). Thunderstorms associated with an upper-level trough pushed into northwestern Iowa during the late evening of the 10<sup>th</sup> as rain showers expanded over southern Iowa. The line sped through eastern Iowa where pockets of moderate to heavy rain were reported within two northwest to southeast oriented bands. Nearly 60 stations had an inch or more into the morning of the 11<sup>th</sup> with the highest amounts in Muscatine and Story counties, where totals varied from 2.16 to 2.50 inches. Scattered thunderstorms formed in southwestern Iowa in the afternoon with a secondary line firing over northern Iowa several hours later. A few storms turned severe with two to three-inch hail reported from Lu Verne (Humboldt County) to Meservey (Hancock County) along with much-needed rainfall; Nashua (Floyd County) measured 0.31 inch with 0.44 inch in Mason City (Cerro Gordo County).

A strong low-pressure center continued to spin showers and thunderstorms across Iowa on the 13<sup>th</sup>, bringing widespread rain totals. Stations in southern and northeastern Iowa collected the highest amounts, generally in the 0.50 to 0.75-inch range; two stations in Bedford (Taylor County) reported 1.05 and 1.64-inch totals with a 0.91-inch measurement in Asbury (Dubuque County). Moderate showers and some thunderstorms formed on the backside of the low pressure over central Iowa with a pocket of heavy rain and flash flooding along the Iowa-Wisconsin border; nine stations in Dubuque County reported totals from 1.01 inches at Dyersville to 3.20 inches at Dubuque Regional Airport. A weak cold front dropped southeast through Iowa, producing isolated thundershowers in north-central Iowa after midnight on the 17<sup>th</sup>; light rain was reported at a handful of stations. A stronger cell fired later in the morning in southeastern Iowa, bringing Columbus Junction (Louisa County) a 0.30-inch measurement. Showers and thunderstorms pushed across northern Iowa after early on the 25<sup>th</sup> with morning conditions noticeably less humid statewide. Additional scattered thunderstorms fired in central and southeastern Iowa into the late afternoon hours before dissipating into the evening as a cold front swept south.

A secondary disturbance produced thunderstorms in southern Iowa overnight into the 26<sup>th</sup> with heavier totals reported at a handful of stations; Shenandoah (Page County) measured 0.72 inch while 1.09 inches was observed at Randolph (Fremont County). Widespread, though generally meager, totals were reported at northern and south-central locations from the two disturbances; rain gauges generally collected amounts below two-tenths of an inch. Showers and thunderstorms continued to push out of eastern Iowa through the 28<sup>th</sup> as clouds cleared across western Iowa. A secondary cold front moved through Iowa overnight, producing spotty thunderstorms in western and central Iowa just before sunrise. Rain totals reported at 7:00 am on the 29<sup>th</sup> were highest in northeastern and east-central Iowa, with more than 0.50 inch measured at 20 stations; Calamus (Clinton County) reported 1.13 inches while Cresco (Winneshiek County) observed 1.40 inches. A narrow line of severe-warned thunderstorms continued in central and southern Iowa through the late morning hours before crossing the Iowa-Illinois border before noon. Accumulating rain totals were isolated to Iowa's southeastern one-quarter with Chariton (Lucas County) picking up 0.22 inch and a 0.64 inch-total found in Muscatine (Muscatine County).

Summer Summary: Temperatures for the three summer months of June, July and August averaged 71.9 degrees, which is 0.5 degree above normal. Precipitation totaled 8.90 inches or 4.66 inches below normal. This ties several years as the 76<sup>th</sup> warmest summer on record. It also ranks as the 17<sup>th</sup> driest summer in 151 years of records. Summer 2022 was warmer while 2012 was drier and the 5<sup>th</sup> driest on record.

US Drought Monitor (USDM): Through August, drought conditions deteriorated over much of the state, especially in north-central and northeast Iowa. A large area of Extreme Drought (D3) was introduced in northeast Iowa later in the month. As of the first week of September, the area of D3 has been expanded to cover part or all of 28 counties in northeast Iowa, and another 10 counties in the southeast part of the state. There are now two areas of Exceptional Drought (D4) located just outside of Iowa in southern Minnesota and southwest Wisconsin. At the end of August, 25% of Iowa was rated D3, 30% was rated D2 (Severe Drought) and 37% at D1 (Moderate Drought); Abnormally Dry (D0) conditions covered 9% of Iowa. Except for a very small area of Fremont County along the Missouri border, all of Iowa has some level of drought or dryness designation at this time. The current coverage of D3 in Iowa is the most significant since March of 2013.

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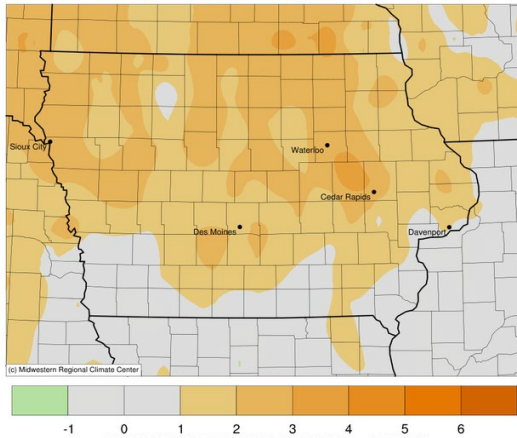
## WEATHER BY DISTRICTS

DISTRICT	TEMPERATURE (F)		COOLING DEGREE DAYS				PRECIPITATION (inches)			
	August 2023		August 2023		Since Jan., 1, 2023		August 2023		Since Jan. 1, 2023	
	Average	Departure*	Average	Departure*	Average	Departure*	Average	Departure*	Average	Departure*
Northwest	71.9	+1.9	231	+43	752	+86	3.93	+0.23	19.97	-2.88
North Central	71.4	+2.1	217	+46	673	+61	2.19	-1.96	19.53	-6.89
Northeast	71.4	+2.0	217	+44	625	+39	1.31	-2.88	17.92	-9.87
West Central	72.7	+1.6	254	+36	808	+60	3.41	-0.84	18.85	-5.93
Central	72.6	+1.6	250	+38	774	+41	2.68	-1.60	19.71	-7.00
East Central	73.1	+1.8	262	+44	809	+73	1.94	-2.20	17.53	-9.57
Southwest	73.3	+0.6	272	+12	867	+2	4.17	0.00	21.09	-5.17
South Central	73.2	+0.5	269	+10	865	+20	3.95	-0.25	19.54	-7.61
Southeast	73.4	+0.6	273	+13	864	+1	3.71	-0.35	20.23	-7.18
STATE	72.5	+1.5	250	+36	776	+47	2.99	-1.14	19.33	-6.87

\* Departures are computed from 1991-2020 normals.

The weather data in this report are based upon information collected by the U. S. Dept. of Commerce, NOAA National Weather Service.

**Average Temperature (°F): Departure from 1991-2020 Normals**  
August 01, 2023 to August 31, 2023



**Accumulated Precipitation (in)**  
August 01, 2023 to August 31, 2023

