

IOWA MONTHLY WEATHER SUMMARY – AUGUST 2019

General Summary: Iowa temperatures averaged 69.6 degrees or 1.9 degrees below normal while rainfall totaled 3.53 inches or 0.67 inches below normal. August 2019 was the 31st coldest August on record; a colder August last occurred in 2017. This was also the 71st driest August in 147 years of statewide records, tying 1968. A drier August last occurred in 2013.

Temperatures: Temperature departures show below average conditions across the state with up to three degrees below normal in isolated sections of Iowa. Eighteen days during the month were below average statewide with the longest stretch occurring between August 20th through the 31st. Average temperatures during this stretch were anywhere from two to nine degrees below average. The month's high temperature of 92 degrees was reported at Donnellson (Lee County) and Muscatine (Muscatine County) on the 4th; this reading was also reported at Little Sioux (Harrison County), Oakland (Pottawattamie County) and Red Oak (Montgomery County) on the 20th. The reported high temperature was on average eight degrees above normal. The lowest temperature of 46 degrees was reported on the 29th at Elkader (Clayton County) and on the 30th at Cresco (Howard County) and Fayette (Fayette County), on average nine degrees below normal.

Cooling Degree Day Totals: Home air conditioning requirements, as estimated by cooling degree day totals, averaged 18% less than normal and 22% less than seen during August 2018. Cooling degree day totals are running 4% less than normal and 23% less than last year at this time.

Precipitation: Mostly sunny and dry conditions began the month, though isolated showers were present across northwestern Iowa during the afternoon of the 2nd. Light rain continued into the 3rd with totals ranging from 0.01 inches in Sheldon (O'Brien County) to 0.10 inches in Akron (Plymouth County). Isolated thunderstorms popped up in north central Iowa during the early morning hours of the 5th ahead of a line of strong thunderstorms that sped through much of Iowa's eastern half during the afternoon into the late-night hours. Much of the northeastern two-thirds of the state reported measurable rainfall; totals ranged from 0.01 inches in Lowden (Cedar County) to 1.68 inches in Stanley (Buchanan County) with the statewide average rainfall at 0.28 inches.

Showers and thunderstorms popped up in central Iowa during the morning hours of the 8th with a brief downpour on the opening ceremonies of the 160th Iowa State Fair in Des Moines (Polk County); a total of 0.22 inches was reported near the fair grounds. Higher totals were found in east-central Iowa with Newton (Jasper County) reporting 0.42 inches and Montezuma (Poweshiek County) observing 0.40 inches. Rain showers pushed into northwestern Iowa during the evening hours and remained into the 10th. Additional thundershowers popped up in north-central Iowa and moved east in two rounds into the afternoon hours. A system of showers and thunderstorms moved into southwestern Iowa early on the 11th. Rain totals, reported at 7:00 am for the previous 24-hours, were mostly under one inch and in the range of 0.10 – 0.50 inches; Underwood (Pottawattamie County) reported one inch.

A low pressure system moved across Iowa through the afternoon on the 11th bringing measurable rainfall from showers and thunderstorms. There were locally heavy downpours with a stronger line of storms in southwest Iowa. A second low pressure system propagated through Iowa early on the 12th bringing another wave of thunderstorms. As of 7:00 am, over 35 stations reported totals above an inch with Oakland (Pottawattamie County) reporting the highest 24-hour total of 2.82 inches. The system continued through eastern Iowa through the afternoon leaving behind 0.25 inches to 0.75 inches of rain in the northeast and southeast corners with isolated totals above an inch. Centerville (Appanoose County) reported 1.98 inches while Guttenberg Lock and Dam (Clayton County) observed 1.30 inches

Rain moved into southern Iowa on the 17th along with isolated thunderstorms throughout the day. Chariton (Lucas County) reported 0.95 inch of rain. A squall line ahead of a cold front brought much needed rain to Iowa on Saturday night into the morning of the 18th. Totals across the state were above one inch at over 60 stations with isolated two-inch totals at several stations. A low pressure system moved out of Iowa through later in the afternoon, leaving measurable rainfall across the southern half of the state. Rain totals reported at 7:00 am on the 19th were heaviest in southeast Iowa with a station in Ottumwa (Wapello County) observing 0.92 inches. Widespread totals between 0.10 inches and 0.25 inches were also reported

Strong thunderstorms left widespread rainfall on the 20th; over 100 stations reported an inch or more. In locations with stronger storms, rain totals varied from 2.00 inches Eldora (Hardin County) to 4.30 inches in Coon Rapids (Carroll County). Another low pressure system moved through Iowa on the 21st bringing additional widespread rain to much of the state. Totals were highest across central and southern Iowa. Pella (Marion County) reported 2.22 inches while Rathbun Dam (Appanoose County) reported 2.10 inches

A low pressure system moving through Missouri brought waves of showers across eastern Iowa on the afternoon of the 25th and into the evening hours before dissipating. Storms reformed during the early morning hours on the 26th bringing much needed rain to eastern Iowa; three stations near Burlington (Des Moines County) reported over two inches. A small cluster of thunderstorms formed across west-central Iowa in the early morning hours of the 29th. The storms moved through central Iowa before heading southeast. Isolated thunderstorms re-fired across southwestern Iowa just before midnight. Twenty-four hour rain totals at 7:00 am on the 30th ranged from 0.01 inch in Atlantic (Cass County) to 1.85 inches at Rathbun Dam (Appanoose County).

Summer Summary: Temperatures for the three summer months of June, July and August averaged 71.3, which is 0.30 degrees below normal. Precipitation totaled 10.82 inches or 2.89 inches below normal. This ranks as the 41st driest and 55th coldest summer in 147 years of records. A drier and colder summer last occurred in 2017.

Severe Weather: Widespread severe weather was reported on four days during August with the first occurrence of active weather during the afternoon of the 5th. Some thunderstorms produced severe straight-line winds in northern Iowa. An EF-1 rated tornado was also reported southwest of Dubuque (Dubuque County) causing damage to corn, trees and houses along its path. A cold frontal passage forced severe storms on the 17th which produced a brief tornado in Rock Rapids (Lyon County) as well as in Grand Mound (Clinton County). Several severe straight-line wind events were reported in northwestern Iowa.

Daytime conditions on the 19th created an unstable atmosphere primed for overnight convection; discrete thunderstorms began to fire just before midnight in north-central Iowa. These thunderstorms quickly turned severe and coalesced into strong mesoscale convective system (MCS) that moved southeast through central Iowa into the morning hours of Tuesday (20th). Along with multiple severe straight-line wind events, three tornadoes were reported. Two tornadoes, one hitting Tracy (Marion County) and the other moving through Badger Creek State Park (Madison County), were rated EF-1 with peak winds estimated at 110 mph. A strong EF-3 rated tornado, with estimated winds of 150 mph, caused substantial damage to several structures in Lacona (Warren County).

A small cluster of thunderstorms formed across west-central Iowa in the early morning hours of the 29th. The storms moved through central Iowa before heading southeast. As the thunderstorms approached the Iowa Missouri border, quarter-size hail was reported in Bloomfield (Davis County).

Drought: Abnormally Dry (D0) conditions continued to expand across Iowa, now covering a little over 35% of the state. Moderate Drought (D1) conditions were also introduced into eastern and central Iowa on August 13th, as precipitation deficits continued to accumulate. As of September 10th, D1 conditions covered almost 10 percent of Iowa.

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August 2019

WEATHER BY DISTRICTS

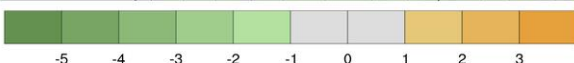
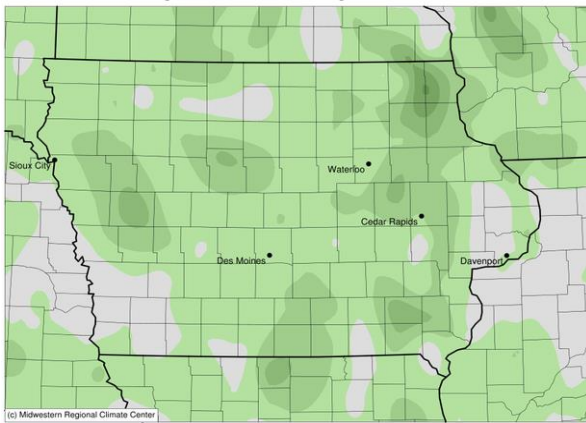
| DISTRICT | TEMPERATURE (F) | | COOLING DEGREE DAYS | | | | PRECIPITATION (inches) | | | |
|---------------|-----------------|------------|---------------------|------------|---------------------|------------|------------------------|------------|-------------------|------------|
| | August 2019 | | August 2019 | | Since Jan., 1, 2019 | | August 2019 | | Since Jan.1, 2019 | |
| | Average | Departure* | Average | Departure* | Average | Departure* | Average | Departure* | Average | Departure* |
| Northwest | 68.6 | -1.7 | 153 | -40 | 604 | -60 | 2.33 | -1.45 | 26.82 | +4.33 |
| North Central | 67.8 | -1.8 | 135 | -43 | 569 | -50 | 2.85 | -1.26 | 25.67 | +0.03 |
| Northeast | 67.8 | -2.4 | 136 | -43 | 567 | -17 | 2.91 | -1.72 | 28.71 | +2.14 |
| West Central | 69.8 | -1.8 | 183 | -43 | 694 | -58 | 3.78 | -0.11 | 23.30 | -1.39 |
| Central | 69.4 | -2.0 | 171 | -49 | 685 | -50 | 3.52 | -0.94 | 26.67 | -0.28 |
| East Central | 70.1 | -1.7 | 185 | -39 | 735 | 0 | 4.05 | -0.45 | 30.27 | +3.97 |
| Southwest | 71.8 | -1.3 | 233 | -33 | 817 | -44 | 4.47 | +0.66 | 27.14 | +0.70 |
| South Central | 71.1 | -1.9 | 215 | -52 | 790 | -54 | 4.93 | +0.64 | 31.74 | +4.34 |
| Southeast | 71.1 | -2.6 | 213 | -57 | 804 | -68 | 3.40 | -0.86 | 32.52 | +5.11 |
| STATE | 69.6 | -1.9 | 177 | -44 | 693 | -37 | 3.53 | -0.67 | 27.87 | +1.97 |

* Departures are computed from 1981-2010 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 1981-2010 Normals

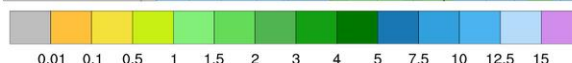
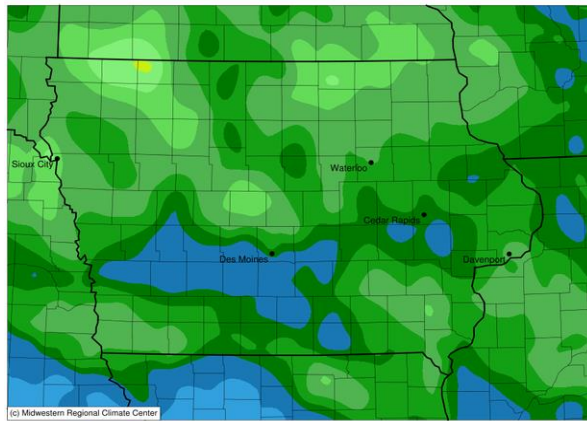
August 01, 2019 to August 31, 2019



Stations from the following networks used: WBAN, COOP, FAA, GHCN, ThreadEx, CoCoRaHS, WMO, ICAO, NWSLI, Midwestern Regional Climate Center
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 Generated at: 9/5/2019 9:47:37 AM CDT

Accumulated Precipitation (in)

August 01, 2019 to August 31, 2019



Stations from the following networks used: WBAN, COOP, FAA, GHCN, ThreadEx, CoCoRaHS, WMO, ICAO, NWSLI, Midwestern Regional Climate Center
 cli-MATE: MRCC Application Tools Environment
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