IOWA DEPARTMENT OF AGRICULTURE & LAND STEWARDSHIP

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Secretary of Agriculture

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IOWA MONTHLY WEATHER SUMMARY – JULY 2022

General Summary: Temperatures averaged 74.1 degrees or 0.7 degree above normal while precipitation totaled 3.15 inches or 1.02 inches below normal. July 2022 ties 1917, 1942 and 1998 as the 72nd warmest; it was also the 52nd driest July in 150 years of statewide records. A warmer and drier July last occurred in 2020.

Temperatures: Slightly above-normal monthly temperatures were observed across Iowa's reporting stations in July with positive departures of up to a degree over much of the state. Near-normal conditions were reported across parts of eastern and southern Iowa. July's statewide average maximum temperature was 84.8 degrees, 0.9 degree above normal while the average minimum temperature was 63.4 degrees, 0.5 degree above normal. Several stations reported the month's high temperature of 100 degrees on the 5th and 23rd, on average 15 degrees above normal. Storm Lake (Buena Vista County) reported the month's low temperature of 42 degrees on the 29th, 17 degrees below normal.

Cooling Degree Days: Home air conditioning requirements, as estimated by cooling degree day totals, averaged 8% more than last July and 6% more than normal. Cooling degree day totals since January are running 4% less than last year at this time and 11% more than normal.

Precipitation: July was drier than average across a majority of Iowa with pockets of above-average rainfall totals in northeastern and western Iowa. The driest conditions were found in south-central Iowa with departures of up to four inches below normal. Monthly precipitation totals ranged from 0.50 inch in Columbia (Marion County) to 11.37 inches at a Community Collaborative Rain, Hail and Snow (CoCoRaHS) network gauge in Postville (Allamakee County).

Southerly winds persisted overnight into the 4th as a warm front pushed west to east over Iowa, firing a wide shield of showers and thunderstorms. The disturbance continued through Iowa before exiting the eastern border during the early afternoon hours. Measurable rain fell across Iowa's northern three-quarters with over 50 stations measuring at least an inch of rain. Several stations also reported more than two inches with 2.91 inches observed at Decorah Municipal Airport (Winneshiek County); the statewide average rainfall for the event was 0.74 inch. The 5th was an eventful day across the Upper Midwest as a derecho propagated over 600 miles from northwest South Dakota through northern Iowa before dissipating in Illinois. Sustained wind speeds along the derecho's path approached 40 mph with wind gusts over 60 mph; a personal weather station near Hartley (O'Brien County) clocked a 79 mph gust. A spin-up tornado was also reported near Estherville (Emmet County). A secondary system brought additional rainfall across southern Iowa through the afternoon of the 6th with storms refiring after sunset. The heaviest rain fell over the Iowa-Missouri border with many stations measuring over 0.30 inch; Clarinda (Page County) reported 2.00 inches.

More showers and thunderstorms moved into western Iowa and persisted across the state for most of the 7th. Slower moving thunderstorms produced locally heavy rainfall with Iowa Falls (Hardin County) observing 3.31 inches. Heavier showers lingered in eastern Iowa through the early afternoon hours of the 8th, leading to isolated flash flooding on Interstate 80 and north. Anamosa (Jones County) measured 2.48 inches over a period of a few hours. Clouds increased overnight as a disturbance pushed into western Iowa, firing a complex of severe thunderstorms that raced through the central portion of the state before pushing out of eastern Iowa by the morning the morning of the 11th. A county-wide band of at least 0.50 inch was observed from Monona County to Johnson County. Several stations in central Iowa reported at least an inch with Story City (Story County) measuring 1.90 inches. Light rain showers persisted through the afternoon hours leaving behind widespread though very light

totals that were generally less than a tenth of an inch. A weak cold front dropped into northeastern Iowa after midnight on the 13th bringing light shower to a few counties.

Another low pressure system pushed through Iowa into the evening and overnight hours, bringing locally heavy rainfall to northeastern Iowa. Additional storms formed along a cold front as the low moved east, leaving behind widespread rain across much of Iowa. The system persisted through the early hours of the 15th before dissipating after noon. Event totals were highest in the northeast with over 25 stations measuring an inch and a statewide average of 0.35 inch; four stations measured at least three inches with Dubuque Lock and Dam (Dubuque County) registering 3.79 inches. On the 18th, a low pressure center approached southern Minnesota from the Dakotas, helping southerly winds increase through the latter part of the day, The low skirted the Iowa-Minnesota border through the 19th with isolated thundershowers forming along the attendant cold front in north-central Iowa; several stations picked up a few hundredths of an inch.

An isolated complex of thunderstorms pushed into extreme northeastern Iowa around sunrise on the 21st, producing a pocket of moderate rainfall; a gauge in Decorah (Winneshiek County) measured 0.66 inch. Clouds were on the increase again in western Iowa overnight as a disturbance brought showers and thunderstorms into Iowa's western half with a severe-warned cell producing wind damage and heavy rainfall, amounting to 0.63 inch, in Orange City (Sioux County). Showers persisted into the morning of the 22nd as cloud cover burned off into the afternoon. Additional thunderstorms, some severe, fired in eastern Iowa after midnight on the 23rd. Heavier totals were measured in east-central Iowa with DeWitt (Clinton County) reporting 0.51 inch while 0.88 inch was observed in Anamosa. Event totals for stations measuring rainfall were generally at or below a few tenths of an inch. A potent low pressure system pushed through Iowa during the afternoon and evening hours, producing two waves of severe thunderstorms. The first thunderstorm complex moved over northeastern Iowa with a second line forming in western Iowa during the evening hours along a cold front. The line lost energy over central Iowa but then turned severe in eastern Iowa, where high wind reports were found from Decorah to Hopkinton (Delaware County) and east. The highest totals measured at 7:00 am on the 24th ranged from 1.05 inches at Lake Mills (Winnebago County) to 3.82 inches in Calmar (Winneshiek County). General totals across Iowa's northern half were between 0.25 to 0.75 inch. The cold front exited southeastern Iowa by the with light north-northwesterly winds and mostly sunny skies.

Rain showers pushed through much of western Iowa over the afternoon hours on the 25th with heavier showers moving along the Iowa-Missouri border. Rainfall amounts were generally under a tenth of an inch. Another round of showers and thunderstorms popped up in western Iowa on the 26th with an additional line moving through northeastern Iowa overnight into the 27th. Sioux City (Woodbury County) measured 0.29 inch while several stations in Winneshiek County reported 0.48 inch to 0.70 inch. Widespread rain fell over Iowa's northern half later in the evening and after midnight with general totals in the 0.25-0.50 inch range; Churdan (Greene County) picked up 0.87 inch.

Outlooks: Much of the central part of the United States remained in the grips of oppressive heat. Shorter-term outlooks into early August from the Climate Prediction Center (CPC) suggest a transition to near-normal to slightly warmer temperatures and elevate probabilities of wetter conditions. As the triple-dip La Niña (LN) pattern persists, a slightly elevated dry signal remains from the Upper Midwest into the Great Plains as indicated by the CPC initial August and August-September-October outlooks. The temperature signal continues to show elevated chances of warmer temperatures for August and into early fall. Final outlooks will be issued at the end of the month and will partially hinge temperature and precipitation behavior over the next 10 days as well as the larger-scale atmospheric setup.

US Drought Monitor: Lower than normal rainfall led to an expansion of drought conditions through July. During the month, drought conditions expanded in both northwest Iowa as well as southern Iowa. In northwest Iowa the area of D3 (Extreme Drought) conditions doubled from 1.5% to over 3% of the state. Extreme drought conditions now cover all of Plymouth County, as well as parts of the four surrounding counties. In southern Iowa, a large area of D1 (Moderate Drought) was introduced, covering all or part of 24 counties stretching almost from the Missouri River to the Mississippi River; 60% of Iowa is now designated as Abnormally Dry (D0) or in drought (D1-D3), up from less than 50% at the start of July. Please send any impact reports that indicate agricultural dryness to the US Drought Monitor or to the contact information below.

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July 2022

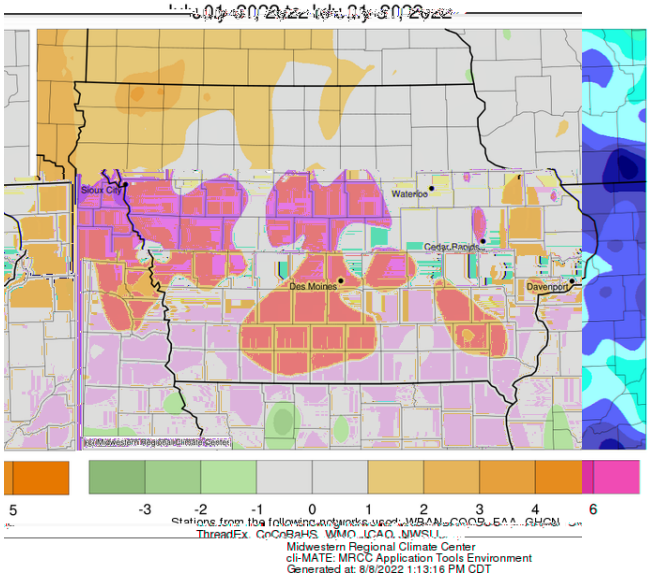
WEATHER BY DISTRICTS

DISTRICT	TEMPERATURE (F)		COOLING DEGREE DAYS				PRECIPITATION (inches)			
	July 2022		July 2022		Since Jan., 1, 2022		July 2022		Since Jan.1, 2022	
	Average	Departure*	Average	Departure*	Average	Departure*	Average	Departure*	Average	Departure*
Northwest	74.1	+1.4	290	+35	550	+72	2.76	-0.82	13.00	-6.15
North Central	72.7	+0.8	250	+17	484	+43	3.02	-1.33	17.43	-4.84
Northeast	71.9	+0.2	228	+2	432	+19	5.39	+0.71	21.10	-2.51
West Central	74.6	+1.0	305	+25	601	+71	3.05	-0.80	15.47	-5.05
Central	74.3	+0.9	295	+22	586	+65	3.17	-1.05	19.32	-3.11
East Central	73.9	+0.4	282	+10	568	+49	3.81	-0.51	19.35	-3.61
Southwest	75.6	+0.7	336	+19	665	+60	2.51	-1.68	16.93	-5.17
South Central	75.7	+0.9	337	+23	664	+77	2.13	-2.17	17.56	-5.40
Southeast	74.9	0.0	313	-2	655	+53	2.07	-2.05	16.07	-7.28
STATE	74.1	+0.7	288	+16	571	+56	3.15	-1.02	17.35	-4.72

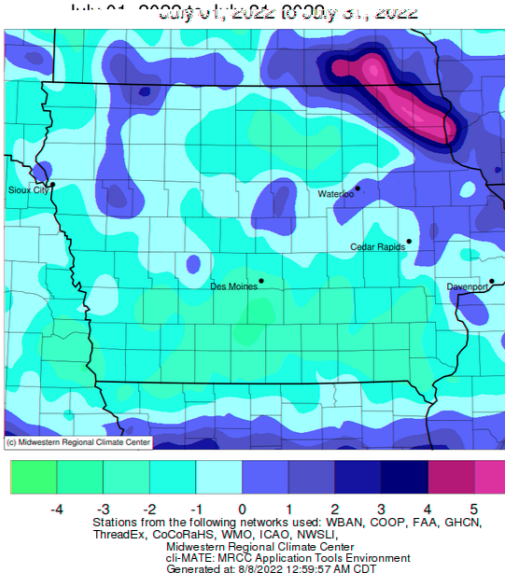
* Departures are computed from 1991-2020 normals.

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



Accumulated Precipitation (in): Departure from 1991-2020 Normals



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