

## IOWA MONTHLY WEATHER SUMMARY – JUNE 2024

General Summary: Temperatures averaged 72.0 degrees or 2.1 degrees above normal while precipitation totaled 5.22 inches or 0.04 inch below normal. June 2023 ties 1890, 1914, 1922 and 1986 as the 25<sup>th</sup> warmest and ranks as the 57<sup>th</sup> wettest June in 152 years of statewide records. A warmer June occurred in 2021, while a wetter June occurred in 2018.

Temperatures: Average temperatures were warmer than normal across most of Iowa with the warmest conditions found in east-central and southern Iowa. Stations along the Iowa-Minnesota border reported seasonal temperatures. June's statewide average maximum temperature was 83.0 degrees, 2.4 degrees above normal while the average minimum temperature was 61.0 degrees, 1.8 degree above normal. Little Sioux (Harrison County) reported the month's high temperature of 102 degrees on June 24<sup>th</sup>, 17 degrees above normal. Iowa City (Johnson County) reported the month's low temperature of 43 degrees on June 11<sup>th</sup>, 15 degrees below normal

Cooling Degree Days: Home cooling requirements, as estimated by cooling degree day totals, averaged 13% more than last June and 29% more than normal. Cooling degree day totals are running 8% more than last year at this time and 19% more than normal.

Precipitation: Overall statewide precipitation through June was near-normal with a notable exception across northern Iowa. Many stations in northwest and north-central Iowa reported two to three times the normal monthly precipitation. Twelve counties saw their top ten wettest June on record, which is of particular note as June is climatologically the wettest month for the northern two-thirds of Iowa.

Two National Weather Service co-op stations in Dickinson County, Lake Park and Spirit Lake with periods of record beginning in 1912 and 1893, respectively, had their wettest June on record. Portions of the southern two-thirds of Iowa received near to slightly below normal precipitation with deficits in the 50-75 percent range in some locations. Monthly precipitation totals ranged from 1.96 inches at Rathbun Dam (Appanoose County) to 18.46 inches at a Community Collaborative Rain, Hail and Snow (CoCoRaHS) network gauge in Lake Park; this represents more than a half-years' worth of precipitation.

Isolated thunderstorms fired in northwestern Iowa just before midnight on the 2<sup>nd</sup> and spread over northern Iowa into the 3<sup>rd</sup>; Estherville (Emmet County) collected 2.10 inches with many northwest stations reporting 0.25 to 0.75 inches of rainfall. Additional thunderstorms formed in eastern Iowa into the afternoon hours with some sluggish cells producing localized flooding. Five stations in Dubuque County registered totals ranging from 2.00 inches in Dubuque to 2.83 inches at Asbury. A strong cold front produced several severe thunderstorms on the afternoon of the 4<sup>th</sup> as a more consolidated line developed through the evening hours. The system cleared eastern Iowa by daybreak on the 5<sup>th</sup>. More than 50 stations reported at least an inch of rainfall with heavier amounts in central and north-central Iowa; Algona (Kossuth County) measured 2.52 inches with two Dallas County locations: Waukee and Clive registering 2.88 inches and 3.44 inches, respectively. Most stations received at least 0.30 inches with a statewide average of 0.49 inches. Light showers pushed into northern Iowa on the 7<sup>th</sup> as strong northwesterly flow produced a complex of fast-moving thunderstorms that grazed the southwest corner of Iowa. More showers formed farther east with the highest rain totals north; Osage (Mitchell County) and Stanley (Buchanan County) observed 0.40 inches with totals tapering off to the south. Heavier showers persisted in northeastern Iowa through Saturday (8<sup>th</sup>) morning with Waterloo Municipal Airport (Black Hawk County) reporting a 0.48 inches total. On the 12<sup>th</sup>, an outflow boundary from convection in Minnesota fired stronger storms in northeastern Iowa just after noon. These storms continued east with several high wind reports as isolated, severe warned supercells

formed in western Iowa and slowly moved south. Hail in the 1.50-2.50-inch diameter range was observed from Sioux City (Woodbury County) to Council Bluffs (Pottawattamie County) with a 3.50-inch hailstone in Onawa (Monona County). Heavier rainfall was also observed along this southward track with 0.63 inches in Blencoe (Monona County) to 1.03 inches in Pacific Junction (Mills County). Stations in the northeast corner also accumulated higher totals with 0.44 inches at Decorah Municipal Airport (Winneshiek County) and 0.65 inches at Lansing (Allamakee County); amounts in between these two regions were in the 0.10-0.25-inch range where rain fell. A cold front dropped through the state through the 13<sup>th</sup>, encountering a warm and unstable airmass over southern Iowa. Supercells quickly developed along with large hail and localized heavy rain. Observers in Keosauqua (Van Buren County) reported 3.00-inch diameter hail while an 80-mph wind gust was observed farther northeast in Oakville (Lousa County). Six stations across Des Moines, Lee and Van Buren counties reported totals ranging from 1.09 inches to 1.73 inches with amounts in the 0.40-0.80-inch range in adjacent locations.

Winds shifted easterly early on the 15<sup>th</sup> as an organized complex of thunderstorms, known as a Mesoscale Convective System (MCS) approached Iowa from Nebraska. The MCS brought measurable rain to western Iowa and then several hours later to eastern Iowa. A secondary disturbance with strong to severe thunderstorms moved into Iowa during the evening hours and sped through central to northeast Iowa overnight. Except for the Iowa's southeast corner, totals for the two systems reported at 7:00 am on the 16<sup>th</sup> were in the 0.30-to-0.75-inch range with the highest totals north and in the southwest quadrant; Clarinda (Page County) hit an inch with 1.52 inches reported in Kesley (Butler County) and Shenandoah (Page County). Clouds increased over northwest Iowa overnight into the 17<sup>th</sup> as a strong low pressure center pushed along the Iowa-Minnesota border. Thunderstorms along the initial line were severe warned with reports of straight line winds and very heavy rain. Convection re-fired across northwestern Iowa and sped east into the evening; four stations in Dickinson County observed totals from 2.60 inches in Lake Park to 4.76 inches at Spirit Lake with almost 30 stations registering at least an inch. Afternoon temperatures in the 80s coupled with higher dew points ahead of a strong cold front helped strong to severe thunderstorms form over western Iowa during the early evening hours of the 18<sup>th</sup>. The line, initially narrow and concentrated, expanded and lost strength as it moved through central Iowa. Redevelopment occurred into the 19<sup>th</sup> and persisted over central and eastern Iowa into the nighttime hours. Event rain totals were highest southwest, central and east with most Iowa stations accumulating at least 0.50 inches. Thirty stations observed 2.00 inches or more with 3.00 inches in North Liberty (Johnson County) to 4.30 inches in Creston (Union County) and a statewide average of 0.86 inches.

A stationary front draped across the state was a forcing mechanism for slow moving showers and thunderstorms along the Iowa-Minnesota border on the 20<sup>th</sup>. Several flash flood warnings were issued for northwestern counties as three Rock Rapids (Lyon County) stations reported from 5.45 to 6.20 inches. Totals for adjacent counties were also anomalously high, ranging from 3.20 inches in Sheldon (O'Brien County) to 3.87 inches at Estherville Municipal Airport (Emmet County). Skies remained overcast across much of northern and eastern Iowa into the 21<sup>st</sup> as another disturbance slowly propagated through northern Iowa as scattered thundershowers popped across southern Iowa. Widespread and slow moving thunderstorms brought additional higher-end totals on top of the previous day's accumulations that were already more than a month's worth at several stations. Seventy five stations reported an inch with 26 locations registering at least 3.00 inches. The highest totals ranged from 4.18 inches in Milford (Dickinson County) to 5.50 inches in Forest City (Winnebago County). Amounts tapered off to a few tenths of an inch in southern Iowa with an overall statewide average of 0.78 inch. Afternoon temperatures were in the mid to upper 80s in eastern Iowa on the 22<sup>nd</sup> as a cold front clashed with the warm and saturated airmass during the evening hours. A few storms were tornado warned, though nothing was observed on the ground. Heavy rain fell in the northeast with 2.12 inches in Oelwein (Fayette County) to 2.59 inches in Waukon (Allamakee County) with most of eastern Iowa registering 0.25 to 0.50 inches.

Clouds hung around portions of southern Iowa as afternoon temperatures rose into the upper 80s and low 90s with dewpoint temperatures in the upper 70s and low 80s. Strong southwesterly winds built in after sunset before shifting to the northwest over northern Iowa as a cold front dropped south. Strong storms fired after sunrise on the 25<sup>th</sup> across southern Iowa where morning lows were in the low 80s, up to 20 degrees above normal. Unseasonable warm air, ample moisture and instability refired strong to severe storms during the evening hours. With existing outflow boundaries from morning storms and ideal atmospheric conditions, funnel clouds were observed across central and southern Iowa; several land spouts were reported from funnels contacting the surface. There were also multiple reports of severe straight-line winds and heavy rain. Much of Iowa's southern half received at least 0.50 inches with nearly 60 stations registering an inch; numerous central Iowa gauges collected over two inches with 2.03 inches in Pleasant Hill (Polk County) to 2.71 inches in Norwalk (Warren County). An easterly shifting wind signaled an approaching weather disturbance that brought widespread showers throughout the state on 27<sup>th</sup>. Showers and thunderstorms persisted into the morning of the 28<sup>th</sup> as a cold front advanced southeast through the state. Most of the state's stations reported at least 0.75 inches with much of eastern Iowa registering more than double. Over 175 locations broke the 1.00 inch mark with a swath of 2.00 inch totals in east-central Iowa; Robins (Linn County) observed 2.04 inches while 2.60 inches was reported in Dysart (Tama County) and an overall statewide average coming in at 0.93 inches. A brief and narrow line of strong thunderstorms produced a few reports of a rope tornado near Atlantic (Cass County) into the evening hours.

US Drought Monitor (USDM): There was continued improvement in conditions through June that began this spring. At the start of June, the USDM included an area of Abnormally Dry (D0) conditions in eastern and northeast Iowa. As of the first week of July, conditions were upgraded to show only portion of Clinton and Scott counties in D0, with over 99% of Iowa free of abnormal dryness and drought. This represents the best conditions since May 5, 2020, a period of 218 weeks. Soil moisture levels have improved across the state in response to recent rainfall events, with nearly all of Iowa showing adequate to surplus soil moisture. The USDM, one measure reflected in the Iowa Drought Plan (IDP), shows very limited areas of D0 -Abnormal Dryness. According to the IDP, all five monitoring regions are drought free, with conditions stabilized. After above normal precipitation in seven of the last nine months, all areas of the state are now in "Normal" condition.

Justin Glisan, Ph.D.  
State Climatologist of Iowa  
Iowa Dept. of Agriculture & Land Stewardship  
Wallace State Office Bldg.  
Des Moines, IA 50319  
Telephone: (515) 281-8981  
E-mail: Justin.Glisan@IowaAgriculture.gov