

= June 2008 tornado outbreak sequence =

The June 2008 tornado outbreak sequence was a series of tornado outbreaks affecting most of central and eastern North America from June 3 ? 11 , 2008 . 192 tornadoes were confirmed , along with widespread straight ? line wind damage . Seven people were killed from a direct result of tornadoes ; four in Iowa , two in Kansas , and one in Indiana . Eleven additional people were killed across five states by other weather events including lightning , flash flooding , and straight @-@ line winds . Severe flooding was also reported in much of Indiana , Wisconsin , Minnesota and Iowa as a result of the same thunderstorms , while high heat and humidity affected much of eastern North America ; particularly along the eastern seaboard of the United States from New York City to the Carolinas .

= = Meteorological synopsis = =

= = = June 3 = = =

Several clusters of thunderstorms developed during the morning from eastern Nebraska across Iowa into Illinois , taking place along a warm front . The front remained over the same areas during the day , as daytime heating and southwesterly surface winds brought warm and unstable air northward , resulting in severe weather development . The presence of strong winds aloft aided in development of multiple clusters and lines of thunderstorms that produced damaging wind , hail and tornadoes across Missouri , Illinois and Indiana .

A moderate risk of severe weather was issued by the Storm Prediction Center for parts of Indiana , Kentucky , Illinois , Ohio and West Virginia on June 3 , Two particular tornadoes , rated EF2 and EF3 on the Enhanced Fujita Scale , caused extensive damage across portions of central Indiana . The EF3 tornado damaged 34 structures in Rush County , of which 27 of them were in Middletown . Eight people were injured in Rush County , including a 67 @-@ year @-@ old woman who was impaled in the chest by a large tree limb and later died as a result of her injury on August 17 . A 19th century landmark covered bridge in Moscow was destroyed , as well as severe damage to dozens of homes , including some that were swept completely off the foundation . The EF2 tornado damaged 20 to 30 homes in Brown County , 40 buildings at Camp Atterbury in Johnson County and 59 buildings in Edinburgh .

= = = June 4 = = =

A moderate risk of severe weather was issued for northern Kansas into southern Nebraska and from eastern West Virginia through Virginia , Maryland and Delaware . An ongoing line of thunderstorms moved east across West Virginia as the atmosphere began to destabilize . The thunderstorms resulted in a threat for isolated tornadoes in eastern sections of West Virginia , Virginia , Delaware and Maryland . In the central Great Plains region , a warm front extended northeast in northeastern Kansas from a surface low in central sections of Kansas . Strong instability occurred in the vicinity of the area as a result of surface heating . An intensifying low @-@ level jet stream broke the cap in the region and resulted in the development of thunderstorms . During the afternoon , numerous thunderstorms formed across the Mid @-@ Atlantic States . An EF0 tornado was produced from one of the thunderstorms that impacted portions of Chesapeake Beach , tearing off sections of roof and siding from 10 to 20 single family homes . EF1 tornadoes were produced in Culpeper , Clarke and Stafford counties in Virginia . Several other EF0 and EF1 tornadoes formed throughout the Great Plains region .

= = = June 5 = = =

A strong jet stream moved northeast across the Great Plains region and a strong surface low in

western Kansas strengthened as it moved to the Nebraska @-@ South Dakota border . Ahead of the low , very warm and moist air spread throughout the South Central United States into Nebraska , eastern sections of South Dakota and the upper Mississippi Valley . The combination of strong winds and warm and moist air created conditions favorable for strong thunderstorms . On June 5 , a high risk of severe weather was issued for six different states in the Midwestern United States , with a moderate risk area surrounding the high risk area . Forecasters had warned of a potentially historic outbreak , as computer forecasting models for June 5 resembled those on June 8 , 1974 , when 39 tornadoes struck the southern Great Plains and killed 22 people . Wichita State University canceled evening classes because of the weather predictions . Severe weather began developing across eastern Colorado and northwestern Kansas during the morning and into the early afternoon , producing several weak tornadoes in the process . An EF1 tornado impacted a campground near Kellogg , Iowa and injured two people . Despite extremely favorable conditions , severe weather for the day was limited and the tornadoes generally caused minimal damage .

= = = June 6 = = =

During the morning hours of June 6 , two strong tornadoes caused damage throughout Wadena and Hubbard counties in Minnesota . The first tornado , rated EF2 on the Enhanced Fujita Scale , touched down south of Stocking Lake and downed several trees onto cabins , vehicles and storage sheds . It also toppled an irrigation system in a field north of the lake . The tornado moved to the north and expanded to its maximum width of 450 yards (410 m) and reached estimated peak winds of 130 miles per hour (210 km / h) . Eight turkey barns were destroyed , killing an estimated 15 to 20 thousand turkeys . The tornado swept a home north of the area in Hubbard County off its foundation , as well as causing damage to several homes along with hundreds of acres of forest . One man working at a turkey barn was injured . The storm then produced an EF3 tornado , which eventually grew to a width of 400 yards (370 m) and reached wind speeds of 160 miles per hour (260 km / h) . At Pickerel Lake , it nearly flattened every tree in the area , while destroying a trailer home , a camper , a garage and a house . At northern sections of Pickerel Lake , one home had its roof torn off and numerous trees were snapped onto other residences and farm buildings . The tornado began to lose its intensity but continued to topple trees , damage storage structures and toss debris before dissipating in Emmaville .

= = = June 7 ? 8 = = =

A series of impulses moved from the central Rocky Mountains into the central Great Plains . Opulent moisture formed over the Missouri and Mississippi Valleys with dew points reaching near 70 ° F (21 ° C) . Strong low level winds over the area created favorable wind shear for supercells . During the afternoon , a supercell developed in western portions of Illinois and moved northeast reaching Lake Michigan around the Illinois @-@ Indiana border , during which it produced eight tornadoes along its path . At 4 : 21 pm (2121 UTC) , an EF0 tornado occurred 4 miles (6 @.@ 4 km) east of Cornell in Livingston County . The tornado occurred in an open field with no damage observed . At 4 : 31 pm CDT (2131 UTC) , an EF1 tornado touched down southwest of Dwight in Livingston County , snapping power poles and damaging trees and roofs ; this tornado lifted at 4 : 45 pm CDT (2145 UTC) . From 5 : 18 pm CDT (2218 UTC) to 5 : 46 pm CDT (2246 UTC) , an EF2 tornado traveled 13 @.@ 6 miles (21 @.@ 9 km) across southwestern Will County and extreme northwestern Kankakee County , near Wilmington , uprooting trees , damaging homes and destroying sheds . At 5 : 51 pm CDT (2251 UTC) , an EF2 tornado touched down for three minutes in central Will County near Wilton Center , destroying a garage and severely damaging a metal building . From 5 : 55 pm CDT (2255 UTC) to 6 : 08 pm CDT (2308 UTC) , an EF2 tornado occurred west of Monee , leveling barns , garages , and outbuildings and damaging homes . An EF2 tornado re @-@ formed at 6 : 13 pm CDT (2313 UTC) , injuring six people as it crossed Interstate 57 .

As the tornado moved into more densely populated southern Cook County , it destroyed homes in

Richton Park , before dissipating at 6 : 30 pm CDT (2330 UTC) . At approximately 6 : 32 pm CDT (2332 UTC) , an EF0 tornado hit South Chicago Heights , causing minor damage to several homes , with two homes sustaining significant damage . At 6 : 49 pm CDT (2349 UTC) , an EF0 tornado touched down in Lansing , damaging tree limbs . In Wisconsin , five people suffered minor injuries after an EF2 tornado went through Columbia County . Further west , a new complex of storms produced two tornadoes inside the Omaha metropolitan area during the early hours of June 8 . A total of 539 homeowners reported damage from the tornadoes . Seven homes were destroyed and 21 others sustained major damage . The two tornadoes that hit the region were rated EF1 and EF2 . The EF2 tornado was the strongest to strike the Omaha metropolitan area since 1975 .

= = = June 11 = = =

A storm system moved to the northern and central Great Plains region during the day , as strong winds helped push a moist air mass northward ahead of the system . Thunderstorms developed during the afternoon ahead of a cold front from southeast South Dakota into central Kansas . Strong winds along with instability in the atmosphere created favorable conditions for supercell development with the potential to produce strong tornadoes . At approximately 6 : 35 pm CDT (2335 UTC) a tornado hit the Little Sioux Scout Ranch in Little Sioux , Iowa , killing four Boy Scouts after a chimney collapsed on them and injuring 48 others . The camp received a tornado warning 12 minutes before it struck . There were 93 campers and 25 staff members at the camp . The campers were between 13 and 18 years old and were attending a leadership training camp . The tornado was rated EF3 on the Enhanced Fujita Scale .

Tornadoes also caused major damage in Kansas . In Chapman , one person was killed and three others were critically injured after an EF3 tornado struck the town . About 80 percent of Chapman suffered serious damage , with minor damage occurring to the downtown area . 70 homes in Chapman were destroyed with 215 receiving damage . Two churches were demolished and the town 's elementary , middle and high schools were severely damaged . Manhattan was also heavily impacted by a tornado that was rated EF4 on the Enhanced Fujita Scale . Forty @-@ five residences in Manhattan were destroyed , as well as two mobile homes and three businesses . An additional 67 residences , three multi @-@ family homes , one mobile home and 10 businesses suffered significant damage . Also , 75 single @-@ family residences , three multi @-@ family structures and 20 businesses sustained minor damage , and 637 residences , 93 multi @-@ family structures , 20 mobile homes and 10 businesses were partially affected . An elementary school was also heavily damaged in Manhattan . There was also damage to Kansas State University , where the Wind Erosion Lab was damaged . Also suffering severe damage was the engineering complex , the Sigma Alpha Epsilon fraternity house , Waters , Call and Cardwell halls as well as Ward Hall , which houses the university 's nuclear reactor . One person was also killed near the town of Soldier in Jackson County from an EF2 tornado . 32 homes were damaged in Jackson County . The southern outskirts of Salina near the junction of Interstate 135 was also hard hit by an EF3 tornado . Several homes , outbuildings , trees and power lines were damaged in the area .

= = Confirmed tornadoes = =

Note : Four tornadoes in Canada were rated according to the Fujita scale , but are included in the table using their corresponding number rating .

= = Non ? tornadic events = =

On June 3 , the communications tower at a courthouse in Shelbyville , Missouri was struck by lightning , damaging computers for the 911 system and the sheriff 's office , radio consoles , and various other electronic equipment . In Oklahoma , high winds in excess of 80 miles per hour (130 km / h) caused major damage to five to six barns in Cherokee and destroyed one barn in Ingersoll . Three people were injured in Frontenac , Kansas after a tree was blown down on a vehicle . The

next day , the inclement weather moved into the Mid @-@ Atlantic States . A 57 @-@ year @-@ old man was killed in Annandale , Virginia after a large tree crushed his vehicle . More than 250 @,@ 000 customers lost power in Virginia . Washington Monument State Park suffered extensive damage after thunderstorms knocked out phone , electricity , and water service . Fallen trees and branches blocked the main road and the hiking trail to the monument in several places . The museum and water treatment buildings were severely damaged , and as a result , the park was closed for two weeks . A total 70 severe thunderstorm , marine , and tornado warnings were issued in the Baltimore / Washington region . In Bloomington , Indiana , two people had lightning strikes near them and were taken to the hospital for lighting related injuries . The cell phone of another individual was stuck while the person was talking on the phone and was also taken to the hospital for treatment .

On June 5 , a storm system caused damage throughout the Great Plains . The most substantial damage occurred in Altus , Oklahoma , where 179 homes sustained some form of damage , with two destroyed , five with major damage , 43 with minor damage and 129 affected . Seventeen businesses were damaged , with two destroyed , four with major damage and eight with minor damage . A school in Mulvane , Kansas had roof damage and there was significant roof damage to the terminal building at an airport near Winfield . In Lawrence , The Wakarusa Music and Camping Festival shut down while the storm passed through . On June 8 , thunderstorms affected areas across the Great Lakes region . Two people were killed in Ottawa County , Michigan due to the straight @-@ line winds that toppled trees ; one onto a pedestrian and another onto a car . In Eaton County , a woman was killed by winds which blew a large trailer on to her . Over 300 @,@ 000 people in Michigan were left without power due to the storm .

On June 10 , a powerful squall line of thunderstorms with embedded supercells developed across New York and moved northeast through parts of northern New England and Quebec . Particularly hard hit was the Montreal region and its southern suburbs including Longueuil , Châteauguay , Brossard and Saint @-@ Jean @-@ sur @-@ Richelieu . Barns were reported damaged and other structures sustained roof and siding damage ; particularly in the Saint @-@ Blaise @-@ sur @-@ Richelieu area where one home was pushed from its foundation . In Sainte @-@ Catherine , the roof of an office was blown into a nearby residence punching a large hole on the back wall . On Montreal 's Champlain Bridge , eight tractor trailers were overturned forcing the closure of the entire bridge in both directions . In addition , a window washing platform tumbled from a high rise building in downtown Montreal . The workers were able to get inside .

Severe thunderstorms also affected the Saint @-@ Hyacinthe , Sherbrooke , Trois @-@ Rivières and Quebec City where winds as strong as 68 miles per hour (109 km / h) were reported with locally higher gusts while hail from golf ball to baseball size were reported in Mont @-@ Saint @-@ Hilaire and Bel?il breaking windows from homes and vehicles . The roof of a 65 unit apartment complex in Sainte @-@ Foy was heavily damaged . The Quebec Bridge linking the city to the suburb of Levis was also temporarily shut down because of a collapsed scaffolding . About 300 @,@ 000 Hydro @-@ Québec customers across the province lost power , particularly in the Quebec City , Montérégie and Montreal regions with outages occurring in the Eastern Townships and Mauricie regions . Schools in some areas were closed on June 11 due to the power outages . The tractor trailer accidents resulted in two minor injuries during the storms . According to a report from the Insurance Bureau of Canada , insured damage amounts were estimated at \$ 56 million (2008 CAD) , and up to 16 @,@ 000 insurance claims were filed for damage to homes and automobiles .

The severe weather extended south into the Eastern Seaboard of the United States where it ended a prolonged period of intense heat . Temperatures had reached the mid to upper 90s ° F (mid 30s ° C) for several days in a row , with some areas exceeding 100 ° F (38 ° C) . About 150 @,@ 000 customers in New Jersey , 140 @,@ 000 in Pennsylvania and 50 @,@ 000 in northern New York lost power . One person was killed in Lewis County , New York by fallen trees during the storm .

= = = Flooding = = =

The same series of systems contributed to a significant flooding event in many parts of the Midwest . Several counties in this region in Iowa , Illinois and Wisconsin were declared disaster areas . Over 10 inches (25 cm) fell in areas over the course of a week , and in Indiana some rivers approached levels similar to flooding in 1913 which killed 200 people . In Franklin , Indiana , water at one point reached the first level of the area hospital , and buildings at Franklin College were damaged . Flooding was reported also in Columbus , Helmsburg and Terre Haute , Indiana . US Coast Guard units were deployed in assistance for rescue efforts . Parts of Interstate 65 and U.S. Route 31 were temporarily shut down . Thirty thousand people in Indiana lost power during the storms , and several counties filed disaster declarations .

Beginning on June 8 , flooding also started occurring across parts of Iowa following several round of thunderstorms and heavy rains . In Parkersburg , Iowa , a levee burst , flooding three nearby highways . In New Hartford , which was also hit by the same tornado , water gushed over a levee forcing the evacuation of 650 people . The flood waters also damaged a water treatment plant leaving Mason City without drinking water . Up to 5 inches (13 cm) of rain fell in parts of the state . Mandatory evacuations were also made in Cedar Falls and Waterloo . Several entire blocks in Cedar Rapids were under water (which was at times as high as stop signs) after the Cedar River overflowed its banks . Flooding later affected the Iowa City area along the Iowa River where 20 buildings on the University of Iowa campus were affected . Many other towns across the state became flooded as well as the rising water levels slowly made their way into the Mississippi River across southeastern Iowa , western Illinois and northeastern Missouri .

Flooding was also reported north of Mason City in southeastern Minnesota , where several inches of rain closed roads and forced evacuations . Gays Mills , Wisconsin was evacuated for the second time in ten months when the Kickapoo River flooded the town . These same areas were also affected by the 2007 Midwest flooding . From June 3 to June 11 eight people were killed due to flooding ; three in Indiana , three in Michigan , and one in Illinois and Minnesota .