

Top 5 Weather Events of 2024

As 2024 comes to a close, the employees of the National Weather Service Office near Jackson compiled a list of what we consider to be the top 5 weather events of the year. Here are the events:

1. Remnants of Hurricane Helene (9/27 through 9/30):

The remnants of Hurricane Helene brought widespread wind damage to much of Kentucky on Friday, September 27th. Helene initially made landfall along Florida's Big Bend region during the late evening of Thursday, September 26th as a fast-moving Category 4 hurricane. The hurricane's rapid forward movement did not give the system much time to weaken by the time the system's tropical rain bands spread across eastern Kentucky by early Friday morning. As the dissipating core of the hurricane approached, northeast to easterly winds intensified rapidly across eastern Kentucky between 6 AM and 10 AM EDT. Wind gusts peaked at around 12 PM, ranging from 35 to 60+ mph at most locations. The strongest wind gust in eastern Kentucky, 64 mph, was reported atop Koomer Ridge just west of Campton. The combination of full foliage on the trees, saturated soils, and an atypical wind direction led to many uprooted trees, resulting in blocked roads and extensive power line damage. Isolated instances of structural damage were also observed.



Power outages across the Commonwealth numbered over 200,000 customers, the vast number of which were in eastern Kentucky, by the time the winds had diminished Friday afternoon. Kentucky Power alone reported at least 137 broken power poles and 734 spans of downed wire. Clark Energy reported over 100 broken poles in their service area. Jackson Energy reported 71 broken power poles and close to 400 spans of downed wire. Power restoration efforts continued for days after the storm, as some customers in the hardest hit locations did not see their power restored until October 3rd. There were also several reports received of trees falling on homes. Unfortunately, one injury was reported in eastern Kentucky, due to a tree falling on a home in the community of Cawood (Harlan County). The winds also put a damper on the festivities at the World Chicken Festival in Laurel County and the Sorghum Festival in Morgan County for most of the day.

While 5-day rainfall amounts exceeded 5 inches across portions of far southeastern Kentucky (locally up to 7.74 inches atop Big Black Mountain), weeks of unusually dry weather had led to the development of abnormally dry to severe drought conditions across most of the Eastern Kentucky Coalfields. Consequently, when a sluggish frontal boundary and upper level low became quasi-stationary across the region earlier in the week (around September 23rd and 24th), the repeated rounds of rainfall were highly beneficial for alleviating the drought. In fact, the additional rainfall from Helene only led to minor instances of stream and street flooding.

For More Info:

<https://www.weather.gov/jkl/2024-09-27-easternkentucky-helene-damaging-winds>



**RV Destroyed by Fallen Tree in Wayne Co
Courtesy of Wayne Co EM**

2. Memorial Day Weekend Severe Weather (5/26 through 5/27):

Thunderstorms fired off over the Central Plains on Saturday evening, May 25th, then quickly organized into a line of severe storms (known as a Quasi-Linear Convective System or QLCS) and began a rapid trek eastward, all the while producing damaging wind gusts. This QLCS crossed the mid-Mississippi Valley during the early morning hours on Sunday and quickly pressed eastward across the Commonwealth, reaching eastern Kentucky by early afternoon. Ahead of the line, sufficient daytime heating occurred leading to the buildup of moderate instability. Meanwhile, a dry layer aloft, aided in creating an environment highly favorable for the generation of damaging straight-line thunderstorm wind gusts.

The thunderstorm line reached the Lake Cumberland area just after midday, quickly crossed the I-75 corridor shortly thereafter and continued to race

through the remainder of eastern Kentucky during the afternoon. The highest wind gusts and greatest damage were observed near and south of the Hal Rogers Parkway/Kentucky-80 corridor. The highest observed wind gust was 60 mph at the London-Corbin Airport at 1:51 PM. Several other gusts between 50 and 60 mph were also observed in the aforementioned corridor, though embedded elements with much higher gusts almost certainly occurred between weather observation stations. An NWS storm survey team estimated sporadic wind gusts up to 80 mph along this line of storms from central Whitley into far western Knox County where a brief, spin up tornado occurred on the east side of Corbin, near the Siler community. Those storms continued to progress east northeast and produce numerous instances of downed trees

and power lines, including several instances of trees falling onto homes and other structures. One person sustained minor injuries in Clay County when they became entrapped within a collapsed structure after the storms.

By the time the first line of storms cleared eastern Kentucky late in the afternoon, tens of thousands of electricity customers had lost their power. Another area of showers and storms followed closely behind the first line but was nowhere near as strong since much of the instability had already been depleted by the prior QLCS. Several hours of quiet conditions followed through the evening before another QLCS, which had developed over Missouri earlier in the day, dove across the Commonwealth overnight. As this third line of storms approached, it began to weaken due to limited instability recovery. Even so, several instances of wind damage were observed during the wee morning hours of the 27th, most notably at the Conley Bottom Resort on Lake Cumberland where local emergency management reported a covered dock collapse, entrapping three individuals and damaging many boats. There were also instances of large downed trees at the resort impacting campers and vehicles. In the wake of these storms, power crews worked tirelessly to fix damaged power lines and power poles. Even so, the last power outages lingered into May 30th.

For More Info:

https://www.weather.gov/jkl/2024-05-26-eastkentucky-straightline_wind-siler_tornado

3. Straight-Line Wind Damage (4/2):

Eastern Kentucky's first substantial severe weather day of 2024 occurred on April 2nd as a rapidly intensifying low-pressure system tracked just northwest of the area. The first round of severe weather occurred between 9 AM and 12 PM as a line of severe thunderstorms raced eastward and impacted many locations near and north of the Mountain Parkway. Along this line, several surges and pockets of circulation developed over the Bluegrass. Bath County suffered the brunt of the line with many instances of straight-line wind damage though substantial damage was also observed in Fleming and Rowan counties. Pockets of damage were also noted in most other counties along and north of the Parkway. An NWS storm survey estimated that winds reached 70 to 90 mph in three northwest to southeast-oriented swaths across Bath County. A couple of brief spin-up tornadoes also appear to have occurred within two of the swaths near the communities of Sharpsburg and Reynoldsville.

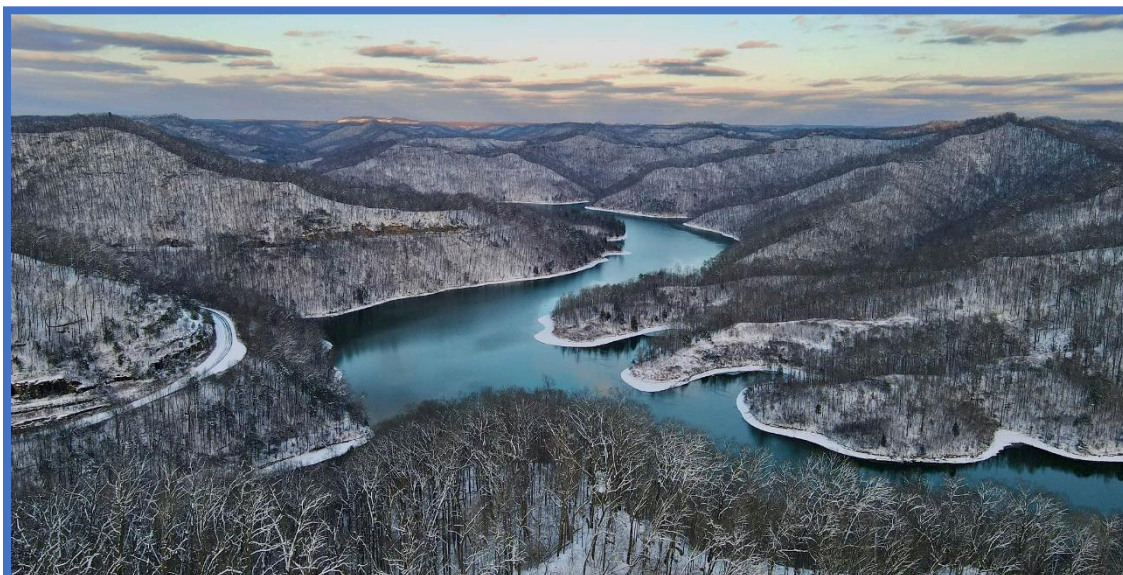


**Blown-in Grain Silo in Rowan County
Courtesy of NWS Storm Survey**

Once the late morning thunderstorm activity weakened, a messy mixture of showers and a few thunderstorms lifted across eastern Kentucky through the afternoon. Severe weather was not observed again until early evening when a couple of supercell thunderstorms developed over central/eastern Tennessee and moved into southeast Kentucky. The first storm, tracking northeast just east of Pine Mountain, produced a swath of hail up to half dollar size, though much of it likely fell in remote and rugged terrain. A second supercell thunderstorm moved northeast across the Cumberland River basin and eventually weakened over the basin of the South Fork Kentucky River. This storm produced pockets of wind damage, the most severe of which was observed in northeast Whitley County where many trees, multiple structures and an RV park suffered significant damage. An NWS storm survey found damage consistent with wind gusts of 80 to 90 mph in this area about 7 miles southwest of Corbin. Additional details on this straight-line wind event in Whitley County and also the straight-line wind/tornado event in the Bluegrass are available [here](#) and [here](#), respectively.

For More Info: https://www.weather.gov/jkl/2024-04-02-eastkentucky_severewind

4. Severe Arctic Cold and Snow (1/14 – 1/17):



**Bitter Cold Sunset at Jenny Wiley State Park
Photo Courtesy of Allen Bolling**

Arctic air and a winter storm kicked off the 3rd week of January 2024. The frigid air mass seeped into eastern Kentucky on Sunday, January 14th, following the passage of a shallow arctic cold front. That front eventually stalled along the spine of the Appalachians by late in the day. Temperatures fell into the 10s and 20s behind the front -- more than cold enough for snow. The first of multiple disturbances, passing through a deep upper level trough over much of the Lower 48 east of the Rockies, induced moist and relatively warm air to overrun the cold arctic air mass by Sunday evening, causing snow to develop across eastern Kentucky during the evening of the 14th. Light to moderate snowfall continued into Monday morning with the

heaviest amounts, exceeding 4 inches at some locations, falling between the Hal Roger Parkway/KY-80 corridor and the Mountain Parkway. Temperatures remained cold, only ranging in the teens to middle 20s. After periods of lighter snow for most of the day on Monday, the 15th, another disturbance caused steadier snow to develop from the southwest on Monday evening. The snow eventually tapered from the west on Tuesday morning, the 16th. The heavier snowfall with this second round was generally focused south of the Mountain Parkway with some locations again picking up in excess of 4 inches. Many locations saw snowfall tallies approaching a half foot or more. The highest snowfall report was 9.3 inches about 4 miles northeast of Booneville.

As the storm moved away on Tuesday, the arctic air remained entrenched over eastern Kentucky as strong high pressure built northeastward from the Tennessee Valley. Temperatures remained largely in the 10s to lower 20s through Tuesday afternoon once the snowfall ended. With minimal cloud cover and light wind, temperatures dropped quickly after sunset Tuesday evening, especially in valleys with deep snow cover. By early Wednesday morning, the 17th, many locations were below zero, including below -10°F in many of the sheltered valleys. The Monticello Airport took first place as the coldest location in eastern Kentucky, bottoming out at frigid -22°F. In fact, Monticello not only registered the coldest temperature for the Commonwealth, but also the entire Continental United States for that night.

For more info:

<https://www.weather.gov/jkl/2024-01-17-easternkentucky-firstsnowstormof2024>

5. Supercells with Significant Hail (9/24):

Unusually mild and humid weather spread across eastern Kentucky leading up to September 24th as the Ohio Valley became firmly entrenched within the warm sector of a low-pressure system. Multiple rounds of showers and storms, apparently sparked by passing upper-level disturbances aloft, worked across the area. One of these disturbances coincided with peak heating/destabilization and moderately strong wind shear during the late afternoon and evening of September 24th.

It was within this favorable environment that multiple rotating supercell thunderstorms developed over Middle Tennessee and Southcentral Kentucky where the strongest shear coincided with moderate instability.



Significant Hail at Bee Creek in Whitley County
Courtesy of Shawn Cowden

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Two of these supercells became intense, producing swaths of hail with diameter to between golf and baseball size. The first cell tracked from northern Cumberland City to just north of Corbin, pummeling northern McCreary and northern Whitley Counties with the largest reported hail of the day. Another developing cell lifted north out of Scott County, Tennessee and rapidly organized into a behemoth supercell north of Williamsburg, reaching peak intensity over the rural portions of far eastern Laurel County and west central Clay County before weakening north of Burning Springs. Outside of these hail swaths, instances of wind damage and smaller hail were reported, mostly in the Cumberland River basin.

For More Info.: <https://www.weather.gov/jkl/2024-09-24-significant-hail-eastern-kentucky>