

## The Top 10 Weather Events of the Decade

### **1. Memorial Day 2004 Storms and Flooding**

On the afternoon of Sunday May 30<sup>th</sup>, 2004 a warm front was draped across east Kentucky, creating a boundary between warm and moist air over the region and cooler, drier air to the northeast. These ingredients created the perfect environment for numerous supercell thunderstorms to track along this boundary, causing tree damage and dumping very heavy rain over the region. Initially, flash flooding was the concern, however another wave of storms moved through the region as a powerful cold front swept through on the evening of Monday, May 31<sup>st</sup>. This new round of rainfall, combined with the rain from the previous afternoon and evening was too much to handle and very serious flash flood, areal flood, and river flooding conditions occurred. To top this all off, widespread thunderstorm wind damage was reported along with 6 confirmed tornadoes. Overall, an estimated 33 million dollars in property damage was caused by the flooding alone, with additional impacts due to wind and tornado damage. Shortly after the event through June 2<sup>nd</sup>, all three forks of the Kentucky River flooded with crests anywhere from 1 to 3 feet over flood stage. The Red River at Clay City also flooded during this time, cresting over 5 feet above flood stage. Overall, 31 of the 33 counties in the Jackson NWS's jurisdiction were declared

Federal Disaster Areas mainly as a result of this storm.

## **2. May 8th - 9th 2009 Flash Flood**

Arguably the worst flash flooding event this decade, the evening of May 8<sup>th</sup> and 9<sup>th</sup> has left a lingering impact on portions of east Kentucky. During a 14 hour span from the afternoon of Friday May 8<sup>th</sup> through the late morning of Saturday May 9<sup>th</sup>, 4 to 6 inches of rain fell from Jackson County eastward to Pike County. Initially, a complex of severe storms rolled through the area on Friday afternoon, however the rainfall didn't stop there. A nearly stationary boundary set up south of the Ohio River and nearly perfectly bisected the state of Kentucky from west to east. Strong southwest flow around the 3000 to 5000 foot level allowed ample amounts of moisture from the Gulf of Mexico to pile into Kentucky before being stopped by the boundary. The result was a steady "train of rain" that continuously moved from west to east across the state.

The area that received the most rainfall was the west to east line from McKee in Jackson County, through Booneville in Owsley County, to just south of Jackson in Breathitt County, eastward to Pikeville. One thunderstorm after another kept pounding this area and eventually 4 to 6 inches of rain had fallen. The already saturated grounds could not absorb anymore water, and with the steep and rugged terrain of east Kentucky flash flooding commenced from

excess runoff. Shortly thereafter, small creeks and streams overflowed their banks as the overwhelming amounts of water kept coming. The end result was the destruction of many homes, buildings and infrastructure as the devastating power of water was shown. Luckily, no lives were lost, however hundreds of water rescues had to be performed. In Floyd County alone, 281 water rescues were executed.

In many locations, creeks and streams reached their highest crests. Interviews with local residents in Breathitt County revealed that this was the highest Cane Creek in the western part of the county had ever been in a 31 year memory. Also, Quicksand Creek in the central part of the county was the highest it had ever been in memory as far as pure floodwater coming down the creek was concerned. A few residents remembered a time when the portion of Quicksand Creek near the North Fork of the Kentucky River had been higher due to back water from the river. 13 of the 33 counties in the Jackson National Weather Service's jurisdiction were declared federal disaster areas for either public or individual assistance.

### **3. 2003 Valentine's Day Ice Storm and Flooding**

The Valentine's Day of 2003 was not all that romantic in east Kentucky as heavy rain fell from the 14<sup>th</sup> through the 16<sup>th</sup>. During this time, 3 to 7 inches of rain was dumped across east Kentucky, resulting in serious mudslides and flooding. Also, 1.5 to 2 inches of ice

accumulated, mainly north of the Mountain Parkway. Initially, flash flooding was the main concern as excess runoff from the copious amounts of rain flooded low lying areas and urban areas. Then as rain continued, the flash flooding turned to more widespread areal flooding as excess runoff continued and streams and creeks backed up due to the amount of water flowing through them. Finally, river flooding occurred as all of the water from the tributaries spilled into the rivers. Moderate to major flooding occurred in the Kentucky, Cumberland, Big Sandy, and Licking River basins, with crests in many locations the highest they had been since May of 1984. Also, with a coating of 1 to 2 inches of ice on trees, power lines, roads, and structures, widespread power outages occurred and travel was nearly impossible. Overall, estimations to property damage exceeded 20 million dollars. 24 of the 33 counties in the Jackson NWS's jurisdiction were declared Federal Disaster Areas mainly as a result of this storm.

#### **4. Ice Storm '09**

A devastating ice storm impacted much of the commonwealth of Kentucky in late January of 2009 and went down in the record books as having caused the biggest power outage of any event in state history. By early in the morning on Wednesday January 28<sup>th</sup>, precipitation was falling in the form of rain, freezing rain, sleet, and snow across east Kentucky as a layer of warmer air just above the ground and freezing temperatures at the surface allowed for a perfect ice setup. According to the Public

Service Commission of the state of Kentucky, at the peak of the event on January 29<sup>th</sup> just under 770,000 customers had lost power. Although portions of extreme eastern Kentucky were spared, areas north of the Hal Rogers Parkway were hit with at least a quarter inch or higher of ice. In east Kentucky, locations hardest hit were along and north of the Mountain Parkway where as much as a half an inch to 1 inch of ice accumulated, along with 2 to 4 inches of sleet and snow. The accumulated snow, sleet and ice was quick to weigh on trees and power lines and it did not take long for the impact to be felt as power outages commenced. Also, ice, sleet and snow covered roads made travel virtually impossible. Flooding was a problem along the Red River near Clay City and roads had to be closed as runoff, ice and debris caused the river to overflow its banks. 21 of the 33 counties in the Jackson National Weather Service's jurisdiction were declared federal disaster areas for public assistance.

## **5. Drought '07 - '08**

An 11 month streak of below normal precipitation, which started at the end of 2006, helped precipitation shortages continue throughout 2007. Precipitation deficits, especially in areas bordering Tennessee and Virginia, were more than 20 inches by late October with all of eastern Kentucky in extreme to exceptional drought conditions. Exceptional drought is the highest category of drought that a region can be in and can be measured by large

scale hydrologic, agricultural, and economic impacts.

A water shortage watch was in effect for all counties in eastern Kentucky, with a few counties under water shortage warnings. There were concerns on reservoirs running dry and water having to be transported into the area. The drought of 2007 was agriculturally devastating as well. Tobacco crops, along with other crops, suffered as the lack of water and extreme heat took their toll. Cattle were unable to graze in pastures as the grass died from the heat and drought. Dry conditions throughout the late summer also had an impact on forest fire danger. Experts predicted an especially bad forest fire season across east Kentucky, however, a few timely rainfall events helped to reduce the threat.

At the Jackson weather office, February 2007 was 2.5 inches below normal which made it the driest February ever. Also, May 2007 was 3.3 inches below normal for precipitation making it the driest May ever. For London, August and September of 2007 were both 2.9 inches below normal making them the driest months on record, respectively. 2007 will go down as the second driest year at Jackson since record keeping began in 1981.

Unfortunately, the dry spell continued into 2008. In fact, both the Jackson National Weather Service and the London Corbin Airport experienced below normal precipitation 9 of the 12 months. Furthermore, 8 of the 9 months that were below normal recorded deficits of greater

than 1 inch. An especially brutal stretch of dry weather came from August through November where east Kentucky set many records for a lack of precipitation.

Relief finally came on December 2008 as some very beneficial 1 inch plus rainfalls occurred. In fact, December '08 ended up nearly 3 inches above normal at Jackson, putting a small dent in the damage done from late Summer into early Fall.

Along with the dry conditions, droughts are also characterized by extreme heat much of the time. August of 2007 was no exception. The month of August was hampered by a heat wave that set 56 records of daily, monthly, or all time marks at the Jackson National Weather Service and London-Corbin Airport. The drought conditions across much of Kentucky combined with a lingering high pressure area allowed temperatures to soar to dangerous levels. A lack of consistent rainfall dried out the surface soils, which allowed them to heat up much quicker. This fact, combined with clear skies due to a persistent ridge of high pressure, allowed for maximum heating by the sun. August 16<sup>th</sup> was the hottest day of the year, and helped set the most notable record of the August heat wave with a 102 degree reading at the London-Corbin Airport; an all time high temperature record for that location. Another very impressive mark was set when London smashed the record string of days above 90 degrees with 20 in a row. The previous mark was 13, which was set back in August of 1993. Along with these two

records, London was able to record the warmest month of August and the warmest summer of all time.

The Jackson weather office ended the month of August with an average daily high temperature of 90.3 degrees, six degrees warmer than the average. Eight daily high temperature records were either tied or broken at Jackson, which was just enough to make August 2007 the second warmest August ever recorded. Overall, the impact of the high temperatures took their toll on east Kentucky, both physically and economically, as already exceptional drought conditions were exasperated by the extreme heat. Agricultural crops were affected, along with soaring energy bills for folks trying to keep cool from the sweltering heat. According to the National Centers for Climate Diagnostics at least 51 people died in August from heat related causes across the nation.

## **6. December '09 Snowstorm**

A powerful surface low pressure system tracked from the northern Gulf of Mexico to the southeast Atlantic Coast on Friday December 18th, to just off the North Carolina coast by Friday night. Meanwhile, an upper level low pressure system swept across the lower Ohio Valley. With a relatively cold air mass already in place across east Kentucky, the stage was set for the largest snowfall in more than 10 years across the eastern part of the Commonwealth.



Heavy snow began along the Tennessee border by mid afternoon with as much as 2 inches falling per hour in some locations. Precipitation changed back over to rain by early evening in many locations, however shortly before midnight, the rain changed back over to snow. When the sun came up on Saturday the 19<sup>th</sup>, much of east Kentucky was blanketed with 4 to 8 inches of heavy and wet snow and 8 to 12 inches of snow was evident in the extreme southeastern counties along the Virginia border. In the highest elevations along the Virginia border, as much as 16 to 20 inches of snow fell. The light snow continued for much of the day Saturday and Saturday night with total snowfall throughout the entire event at the Jackson Julian Carroll Airport of 13.9 inches. The impact of the snow was catastrophic as the weight overwhelmed and downed trees onto roadways and power lines. Numerous major roadways were closed for periods of time, including U.S. 92 in McCreary county and U.S. 23 in Pike county. Power outages were also widespread. The Public Service Commission in Kentucky stated that at the height of the event, 116,000 customers were without power in east Kentucky, and by 10 am Sunday the 20<sup>th</sup>, approximately 93,000 customers were still without power. Below is map of storm total snowfall reported to the National Weather Service office in Jackson from December 18<sup>th</sup> - 20<sup>th</sup>.

## **7. June 2<sup>nd</sup>, 2001 London Tornado**

During the early evening of June 2<sup>nd</sup> 2001, an F-2 tornado with wind speeds estimated at 135-155 miles per hour touched down in the populous city of London, KY in Laurel County. During the 28 minutes that this tornado was on the ground it traveled 7 miles, was as wide as a football field, minorly injured 10 people, and did an estimated 17.1 million dollars in property damage. When the twister initially touched down, the Carnaby Square shopping center was the first to feel its wrath. In fact, the tornado remained nearly stationary in the parking lot of the shopping center for nearly 4 minutes! During this time, the tornado hurled vehicles and actually scoured the parking lot pavement. The storm finally began to move and then lifted just before crossing U.S. 25. It touched down again along Bellinger Street where several homes were damaged and then lifted again as it approached the Rolling Acres Subdivision. Finally, the twister touched down once more near a ball park where 4 teams were playing. Miraculously, everyone escaped harm, despite cars being tossed in the parking lot and the fencing around the ball field being torn away. 3 of the teams took refuge in the concession stand while the 4<sup>th</sup> team survived the storm inside the dugout. After the storm, emergency management official reported 10 minor injuries, with the worst being a broken arm. Overall, 18 residences were destroyed, 21 received major damage, and 84 receive minor damage. 26 businesses were majorly damaged, along with 2 churches, and 33 vehicles. This was the strongest tornado to affect east Kentucky this decade.

## **8. April 3-10, 2007 Tornadoes and Subsequent Freeze**

April 2007 was a very wild month as it experienced a significant tornado outbreak followed by a disastrous freeze. On April 3<sup>rd</sup>, 2007, the 33-year anniversary of the 1974 Super Outbreak of tornadoes, a powerful storm system moved across east Kentucky dropping numerous twisters, along with damaging straight-line winds and large hail. Overall, five tornadoes were confirmed with Pulaski and Harlan Counties being hit by two twisters each and Laurel County being hit by one.

Despite many tornadoes in the month of April, a much larger group of people were impacted economically by the April freeze. Following the same storm system that brought most of the April tornadoes, was a blast of cold air that lingered for 6 straight days between April 5<sup>th</sup> and 10<sup>th</sup>. The taste of arctic air caused billions of dollars in damage nationwide. In east Kentucky alone, an estimated 2.7 million dollars in damage was done to the wheat crop and 3.2 million dollars in damage was done to the fruit crop. During the event, the lowest temperatures dipped down into the teens, which cooperative observers measured at Island City, Barbourville, and Stearns, all recording 17 degrees. On April 7<sup>th</sup>, most areas were not able to climb above freezing.

Many temperature records were set during the chilly 6 day stretch. Perhaps the most

impressive record broken at the Jackson weather office was the longest run of consecutive days at or below freezing. The previous record of 5 days, set back in April 1987, was bested by one day as temperatures dipped below freezing from the 5<sup>th</sup> through the 10<sup>th</sup>. The all time lowest April temperature for the London Corbin Airport was recorded on the 8<sup>th</sup> with 19 degrees. This broke the previous record of 21 degrees set back on April 7<sup>th</sup> 1982. One-and-four tenths of an inch of snow fell at the Jackson National Weather Service office on April 6<sup>th</sup>, which set the new daily snowfall record for that day.

## **9. May 1, 2002 Softball Sized Hail**

During the afternoon and evening of May 1<sup>st</sup>, 2002 a supercell traveled from just north of St. Louis, Missouri southeastward through east Kentucky, before collapsing in the extreme eastern portions of Tennessee. During this time, the unusually long track supercell produced a steady swath of wind damage and dropped very large hail. In fact, the supercell dropped anomalously large hail as big as softballs in Rockcastle, Pulaski, and Laurel counties. Numerous homes and automobiles were considerably damaged as the giant hailstones fell. Estimates from the three counties hardest hit indicate that 12.5 million dollars in property damage occurred, along with an additional 4 million in crop damage. In Rockcastle County alone, over 400 homes and 900 vehicles were damaged. Other counties that were also hit hard by the storms were Jackson, Clay, Leslie, and Harlan.

## 10. Tornado "Firsts"

Tornado records for the Jackson National Weather Service's 33 counties date back to 1950. In the 57 years that these records have been kept, there had never been a tornado reported in the months of November or January. On November 5<sup>th</sup> and November 14<sup>th</sup> 2007, tornadoes were confirmed in Bath and Laurel counties, leaving January as the only month to never have a recorded tornado.

On November 5<sup>th</sup>, 2007, an EF-0 tornado with winds estimated to 85 mph touched down in Bath County about 3 miles southwest of Owingsville. This weak tornado was only on the ground for 1.5 miles and was only 30 yards wide; however, it was able to cause considerable damage. Four barn roofs, a billboard, and numerous trees were downed about 1.5 miles west northwest of the intersection of Day and Stepstone roads. Just nine days later, another tornado touched down in Laurel County, making November of 2007 very unique when compared to the previous Novembers on record. On November 14<sup>th</sup>, an EF-1 tornado with winds estimated between 86 to 110 mph touched down 3 miles northwest of London. This tornado, which had a path length of around 2 miles and a width of 200 yards, damaged several homes in the Glenview Road area near Pittsburg. Numerous trees were downed, with one tree falling on a mobile home and another mobile home was blown off its foundation.

On April 3<sup>rd</sup>, 2007, history was also made in Harlan County as it experienced the effects of

its very first confirmed tornado since records began back in 1950. Ironically, this was the 33 year anniversary of the 1974 "Super Outbreak" of tornadoes across the Midwest to the gulf states. At 10:19 PM a weak EF-0 tornado with winds around 80 mph damaged a maintenance building and heavily damaged a trailer roof two miles south of the city of Harlan. Then, just 12 minutes later, Mother Nature did not wait long to introduce Harlan County's second tornado. Another weak EF-0 tornado with winds estimated at 75 mph destroyed an old barn and damaged some outbuildings near Popeville in Harlan county.