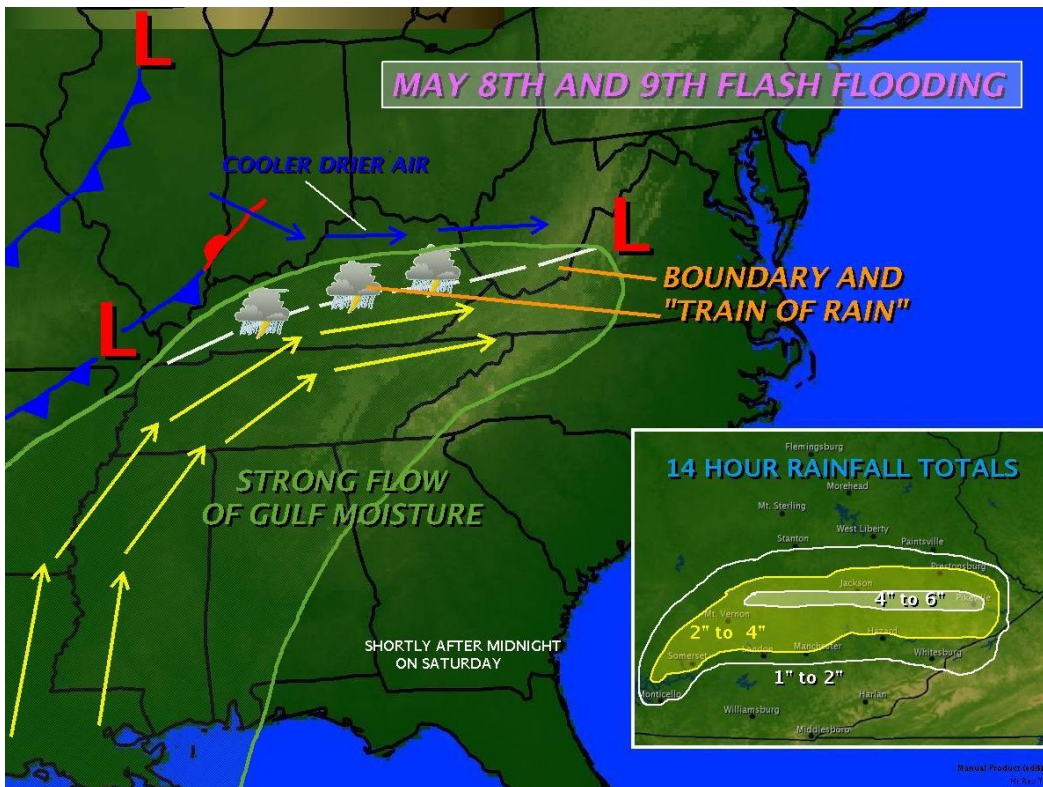


2009 Top 5 Weather Events

The first decade of the new century ended with a bang as east Kentucky was impacted by historic weather events. Early in 2009, the devastating ice storm that broke the record for power outages in the state of Kentucky looked to have the year's top event honor locked up. However, the flash flooding of May 8th and 9th in eastern Kentucky displaced many families as buildings and homes were completely destroyed. The impact from 4 to 6 inches of rainfall over a 14 hour period is still being felt by some, and scars to the landscape can still be seen by all. Hazardous weather was not the only phenomena to impact the region as cool July temperatures made headlines. The Jackson Julian Carroll airport recorded the coolest July on record, and the London Corbin airport recorded its fourth coolest July on record. Two of this year's top events came in December, as powerful storm systems characterized the weather pattern to end the year 2009, and the decade. Without further delay, the Top 5 Weather Events of 2009:

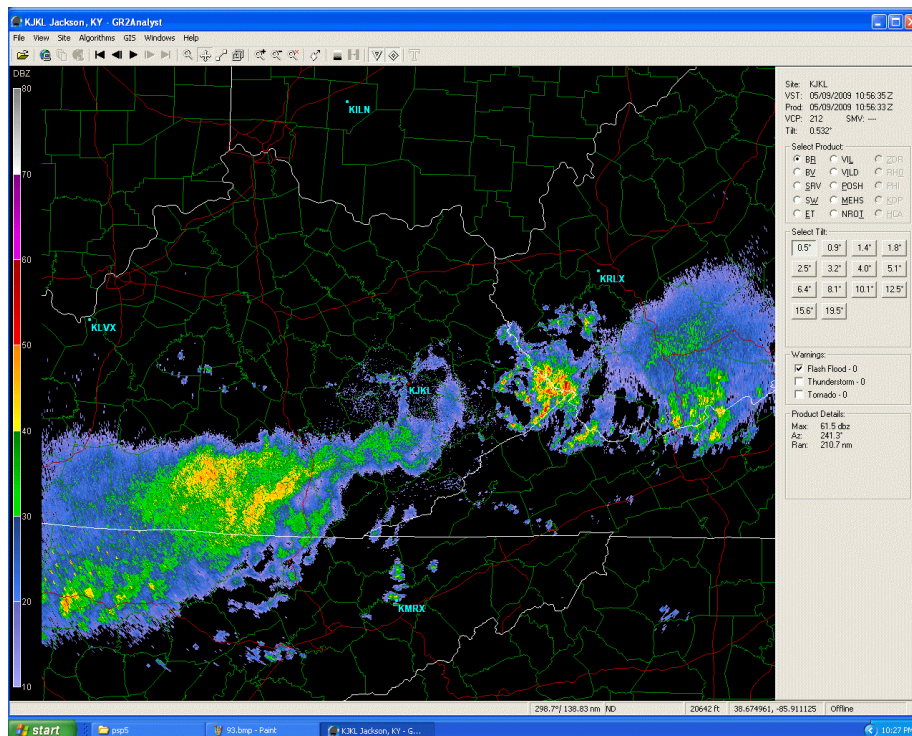
1. May 8-9th Flash Flooding



Likely the worst flash flooding event this decade, the evening of May 8th and 9th has left a lingering impact on portions of east Kentucky. During a 14 hour span from the afternoon of Friday May 8th through the late morning of Saturday May 9th, 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.

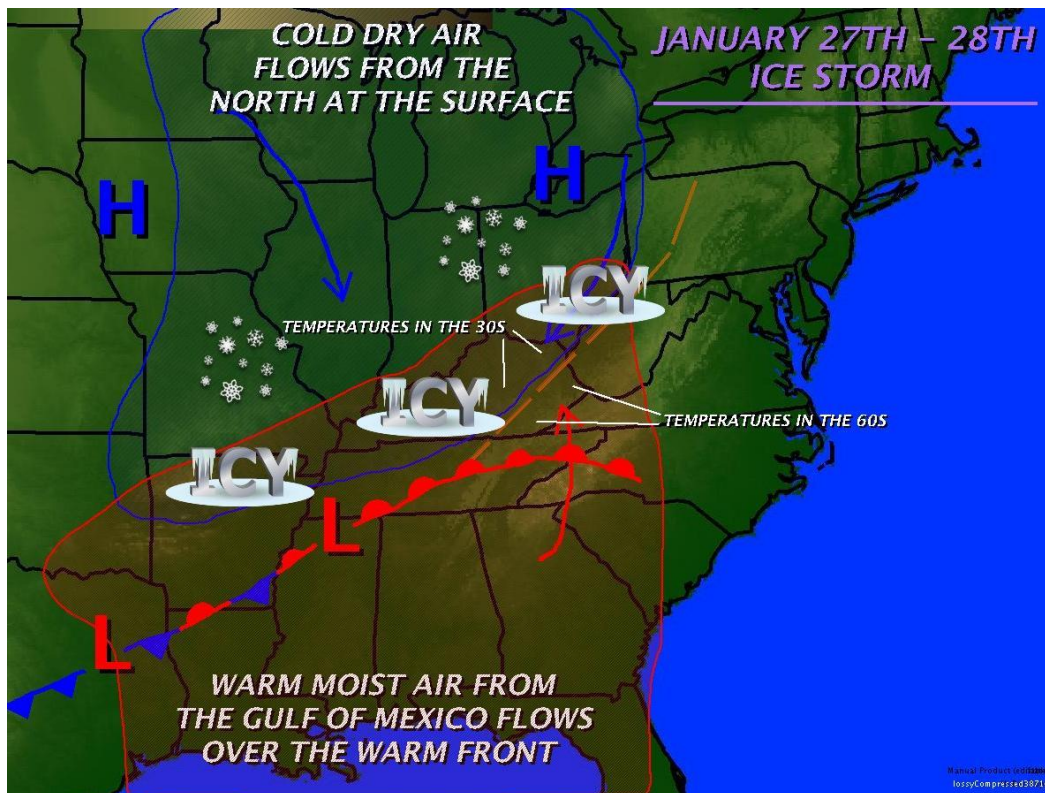
The area that received the most rainfall was the west to east line from McKee in Jackson County, through Booneville in Owsley County, to just south of Jackson in Breathitt County, eastward to Pikeville. One thunderstorm after another kept pounding this area and eventually 4 to 6 inches of rain had fallen. 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.



Above is a radar loop of the 14 hour rainfall event. Notice how showers and thunderstorms continue to "train" over the same area.

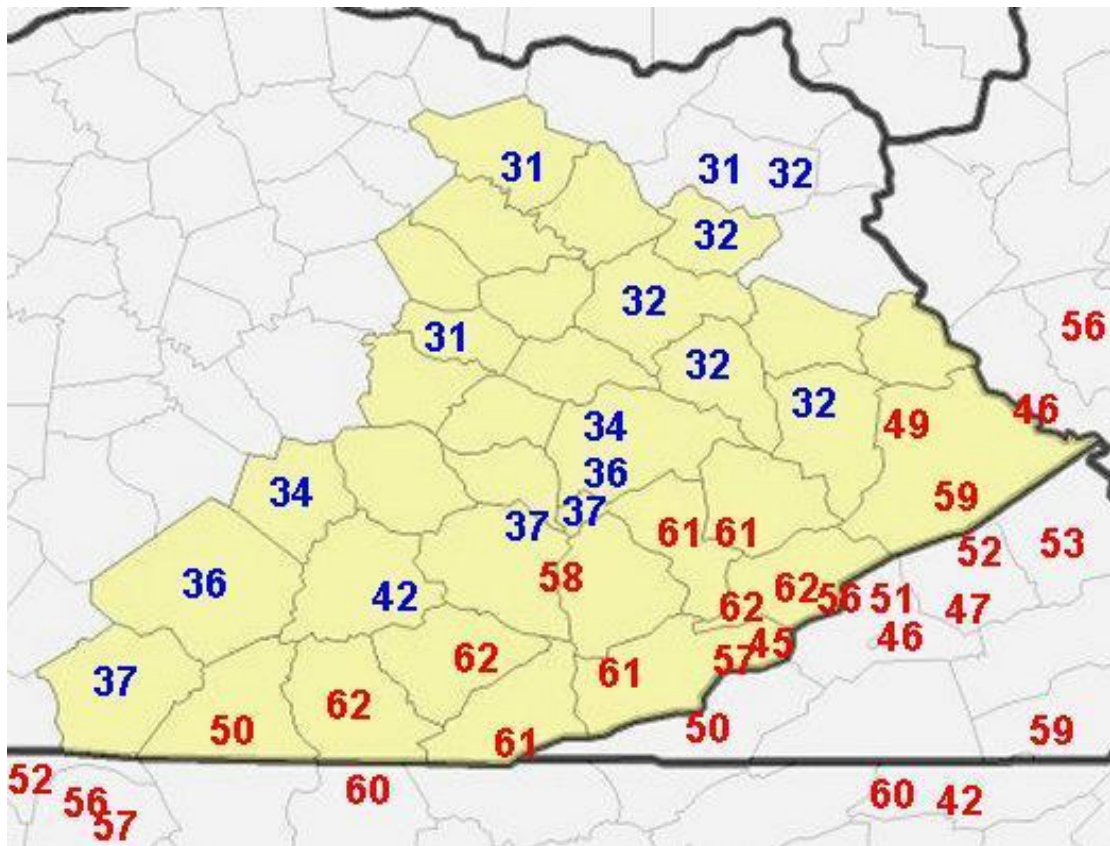
2. Ice Storm



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 28th, 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 29th 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.

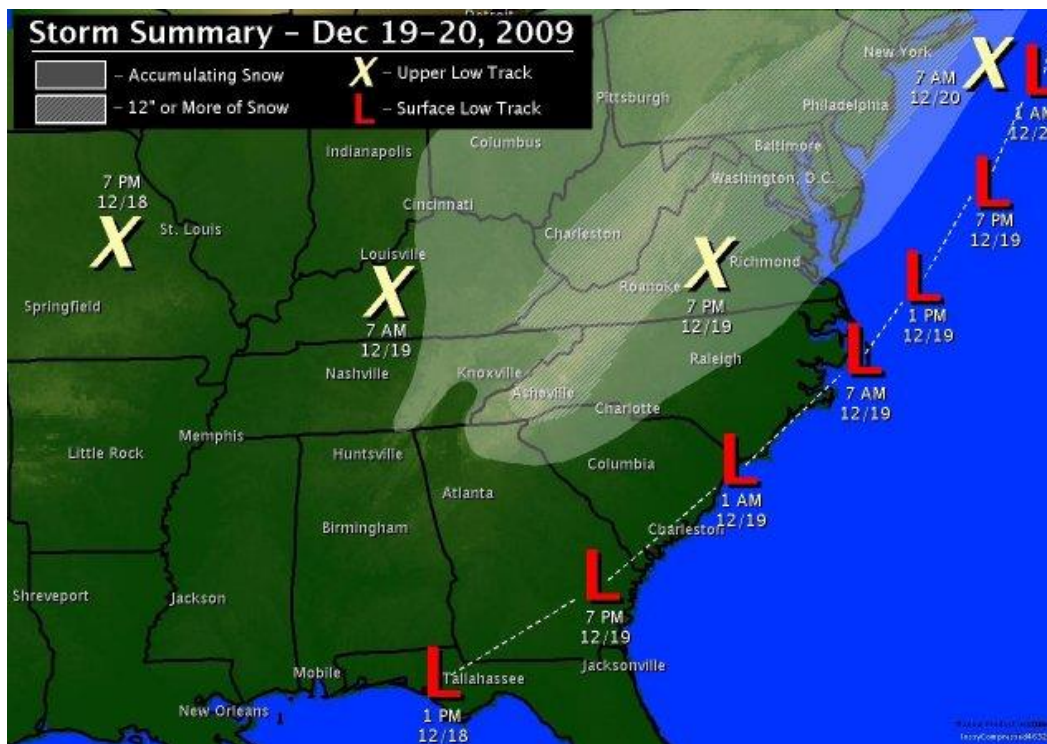


Damage in Elliott County.



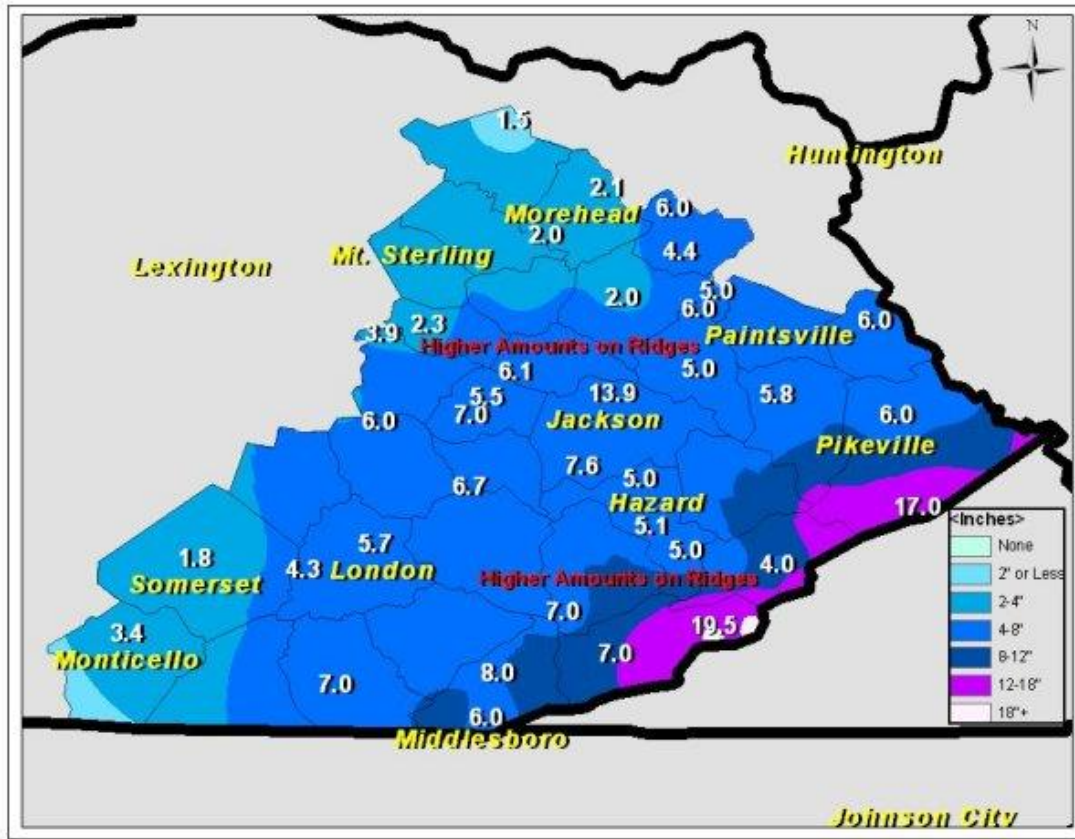
During the event, one of the more impressive temperature gradients set up along the Hal Rogers Parkway. Areas to the south saw temperatures in the 50s and low 60s, while just to the north the mercury was down in the 30s!!

3. December 18-20th Heavy Snowfall



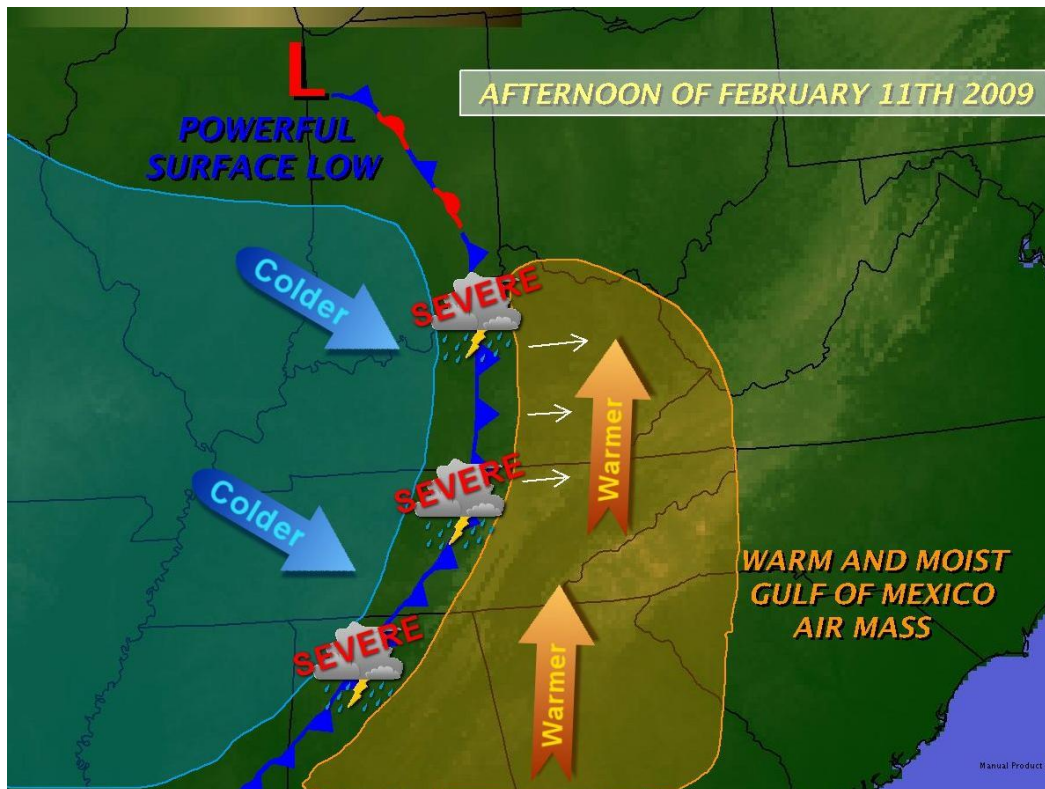
A powerful surface low pressure system tracked from the northern Gulf of Mexico to the southeast Atlantic Coast on Friday December 18th, to just off the North Carolina coast by Friday night. Meanwhile, an upper level low pressure system swept across the lower Ohio Valley. With a relatively cold air mass 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 19th, 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 20th, 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 18th – 20th.

Storm Total Snowfall Noon Dec 18 - 7 AM Dec 20, 2009



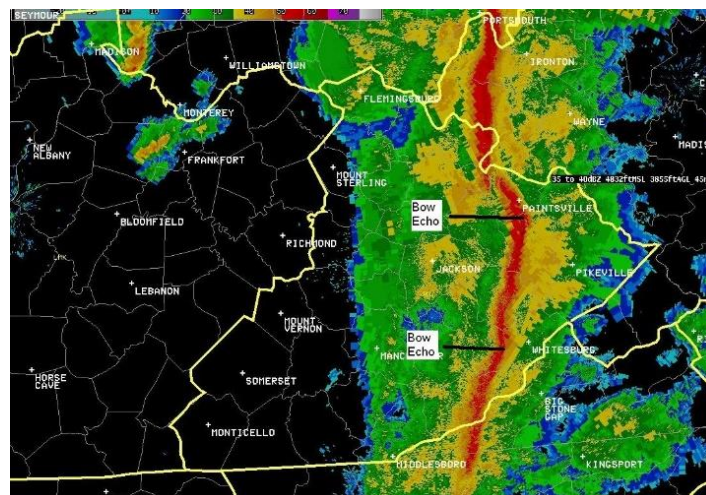
At this point, 10 inches of snow was on the ground at the Jackson Julian Carroll Airport.

4. February 11th High Wind Event



The afternoon and evening hours of February 11th brought an early beginning to Spring across east Kentucky as a powerful storm system dragged a cold front through the area and produced widespread wind damage along with it. Ahead of the system, unseasonably warm and moist air was transported into east Kentucky from the south, creating an unstable air mass. Once the cold front moved near the area, a line of low-topped thunderstorms initiated and raced eastward. Along with a few lightning strikes, and brief intense rainfall, “bow echo” signatures produced significant wind damage. Some of the damage was severe enough that it was thought to have been tornadic. However, after two damage surveys were conducted in Whitley, Knox, and Breathitt Counties, strong straight line winds between 70 and 100 miles per hour were determined to be the cause.

Below is a radar image of the line of storms as it moved through east Kentucky. Notice the “bow echoes”.



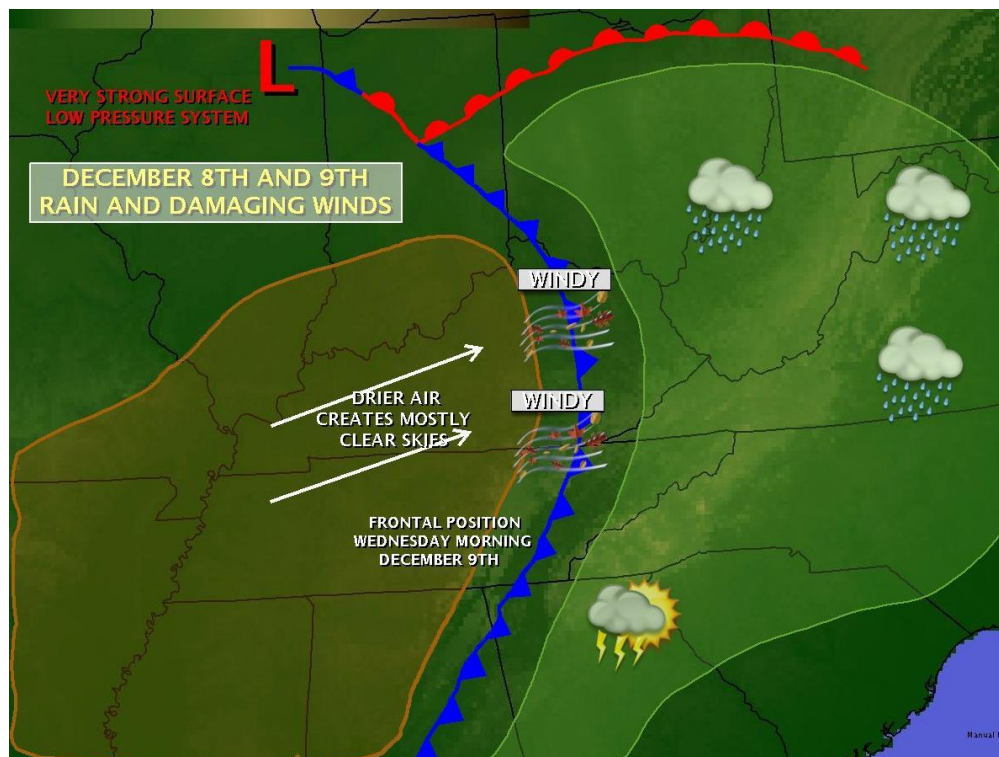
Below is a table of the strongest **measured** wind gusts from across the region and time of occurrence if available.

LOCATION	COUNTY	PKGUST	TIME (EST)
BIG SANDY RAWS	MARTIN	71 MPH	5:05 PM
MOREHEAD 4NE MESONET	ROWAN	67 MPH	4:25 PM
SOMERSET ARPT	PULASKI	60 MPH	3:15 PM
LONDON CORBIN ARPT	LAUREL	59 MPH	3:50 PM
BARBOURVILLE 3E MESONET	KNOX	58 MPH	4:10 PM
JACKSON 3SE MESONET	BREATHITT	57 MPH	4:30 PM
MONTICELLO ARPT	WAYNE	56 MPH	3:02 PM
PEABODY RAWS	CLAY	55 MPH	
JACKSON NWS	BREATHITT	54 MPH	4:47 PM
MCKEE 5S MESONET	JACKSON	53 MPH	4:20 PM
TRIANGLE MTN RAWS	ROWAN	52 MPH	
KOOMER RAWS	WOLFE	50 MPH	4:20 PM
YELLOW CREEK RAWS	BELL	47 MPH	



Although straight line winds are not perceived to be a big concern, they can reach speeds in excess of 100 mph and cause as much damage as a weak tornado. In the picture above, a roof is nearly removed from a home due to straight line winds.

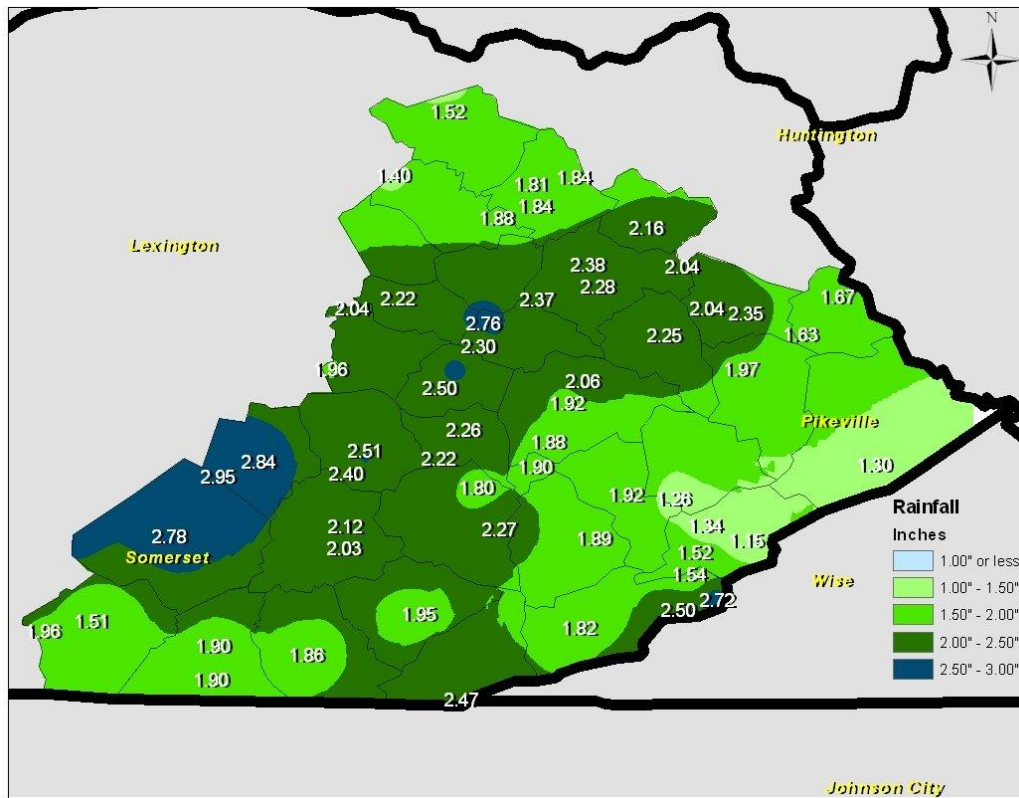
5. December 8-10th Heavy Rain and Winds



Above is a picture of damage to Missy's All In One Liquidation Store in Campton, KY. Thanks to WTVQ 36 in Lexington for sharing this picture.

The first of two powerful storm systems to impact east Kentucky in the month of December rolled across the lower Great Lakes Tuesday night and Wednesday morning of the 8th and 9th. Three different weather phenomena with this storm system combined to make for a hazardous two and a half days. The first hazard occurred on Tuesday night as heavy rains blanketed east Kentucky, causing numerous urban and small stream flood advisories to be issued. Anywhere from 1 to 3 inches of rain fell in the region, leading to numerous minor flooding problems. Although the rains caused many problems, the biggest impact came on Wednesday the 9th as the powerful cold front associated with the storm system swept through the area. As the front was sweeping through, very strong winds aloft were able to be mixed down to the surface because skies were able to clear out. This caused very strong wind gusts and produced a lot of damage across the entire Ohio Valley region. A rare High Wind Warning was issued for much of the region. Recent rainfall from the night before weakened tree root systems more than normal, and widespread tree damage was reported in nearly every county in east Kentucky. Sadly, two fatalities were reported in the town of Somerset when a 3 foot diameter tree fell on a pregnant woman and her unborn child. A young man was also injured by this tree.

Unfortunately, a third hazard presented itself by Wednesday evening and Thursday as rivers began to swell from the widespread heavy rainfall that had fallen. Portions of the South and Middle forks of the Kentucky River, the Cumberland River, the Red River, and the Licking River all went into action stage for a period of time. For the most part, impacts were low; however, a few roadways had to be closed along the Red River in Powell County.



Storm total rainfall from December 8th through the 10th. Widespread minor flood problems were experienced in many counties with some minor river flooding, thereafter.

Below is a table of wind gusts measured by Kentucky Mesonet, ASOS, and AWOS sites along with RAWS sites.

SITE	COUNTY	PEAK WIND
BMBL	KNOX	41 MPH
BNVL	OWSLEY	42 MPH
BTCK	JOHNSON	33 MPH
MRHD	ROWAN	50 MPH
OLIN	JACKSON	43 MPH
QKSD	BREATHITT	44 MPH
WLBT	MORGAN	50 MPH
LOZ	LAUREL	49 MPH
JKL	BREATHITT	55 MPH
SME	PULASKI	48 MPH
FGX	FLEMING	56 MPH
IOB	MONTGOMERY	48 MPH
K22	FLOYD	49 MPH
7KO	PIKE	46 MPH
1A6	BELL	33 MPH
HAZ	PERRY	45 MPH
EKQ	WAYNE	49 MPH

AND HERE ARE SOME PEAK WINDS FROM RAWS SITES AROUND EASTERN KENTUCKY...

STATION	COUNTY	PEAK WIND
TRIANGLE MTN	ROWAN	59 MPH
SOMERSET	PULASKI	47 MPH
YELLOW CREEK	BELL	36 MPH
KOOMER	WOLFE	50 MPH
JULIAN CARROLL	BREATHITT	49 MPH
PEABODY	CLAY	45 MPH
BIG SANDY	MARTIN	49 MPH



Honorable Mention:

Cool July:

With the official beginning of the “Dog Days of Summer” in the middle of July, the typical heat that is expected was nowhere to be found. In fact, the month of July in 2009 was the coolest July on record at the Jackson Julian Carroll Airport since records began in January of 1981. At the London Corbin Airport in Laurel county, this was the 4th coolest July on record since records began in November of 1954. At Jackson, the mean temperature for the entire month ended up being 70.6 degrees Fahrenheit, which shattered the old record of 72.7 degrees from 1996. Only 18 of the 31 days in July were able to reach a high temperature in the 80s, with no 90 degree days. Also, 3 days only topped out in the upper 60s for highs. At London, July 2009 had a mean temperature of 72.0 degrees, making it the fourth coolest July of all time. The coolest July ever recorded at London was back in 1967 when the mean temperature was only 69.9 degrees. 1963 at 71.1 degrees and 1976 at 71.3 degrees were second and third, respectively.