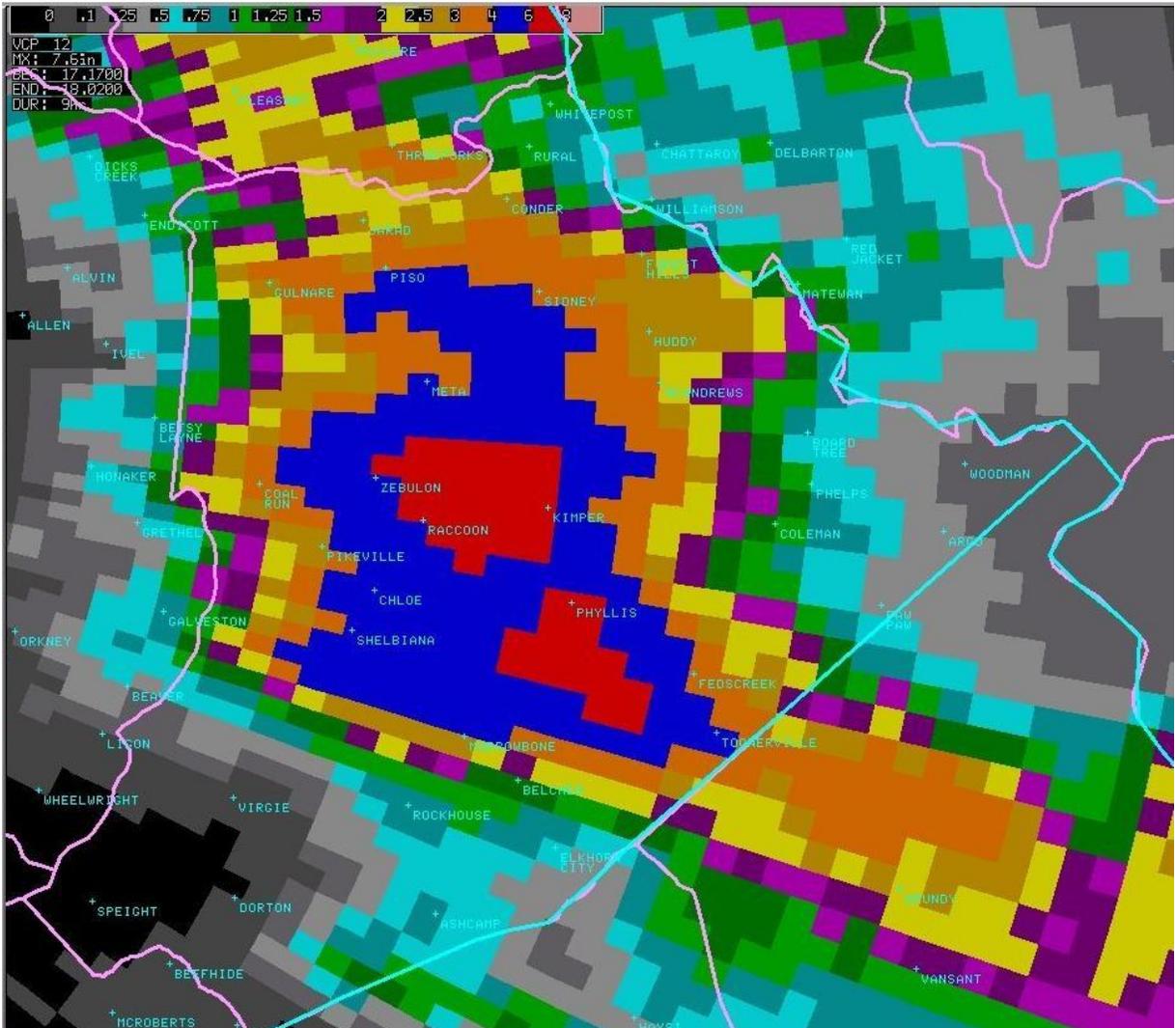


# 2010 Top 5 Weather Events

## 1. Pikeville Flash Flood

The middle of July was racked by a stretch of severe weather which brought 6 straight days with Severe Thunderstorm and Flash Flood Warnings to Eastern Kentucky from the 16<sup>th</sup> through the 21<sup>st</sup>. The period peaked with a devastating Flash Flood event near Pikeville on the 17<sup>th</sup> which directly or indirectly claimed the lives of two people.



*Radar estimated rainfall from 1 pm through 10 pm Saturday*

High pressure off the Southeastern United States set up a return flow of low level moisture into the region, which interacted with a weak surface boundary draped across the middle of Eastern Kentucky. Combined with a weak, West to East flow aloft directing the motion of the ensuing storms, this provided the focus for training thunderstorms, which are storms that repeatedly pass over the same general location. The first storms began impacting the Pikeville area around 4 pm on Saturday, but storms continue training over the area well into the overnight hours.

Areas along Raccoon Creek and Harless Creek were among the hardest hit, where as much as 10 inches of rain fell during the course of the event. One observer along Lick

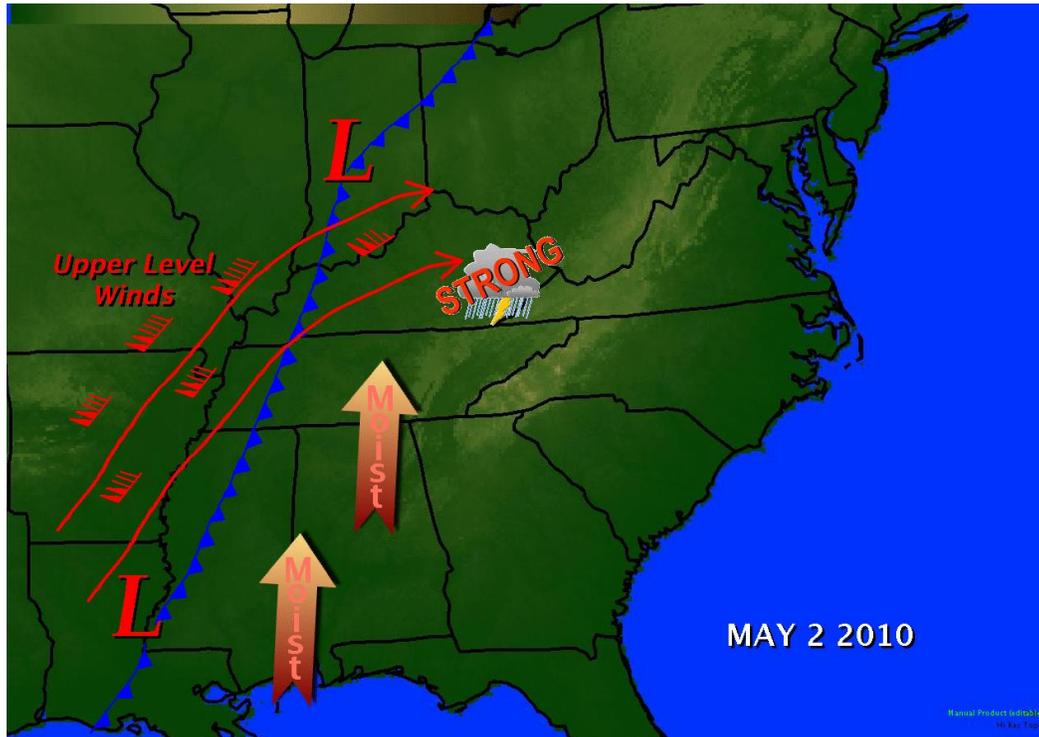
Creek measured 4.90 inches of rainfall between 6:30 and 10:00 pm on Saturday, while a cooperative observer in Fedscreek reported 3.66 inches from the onset of the event through 7:00 am on Sunday. An IFLOWS gage at East Ridge High School recorded 4.36 inches over a three and a half hour period Saturday evening as well.



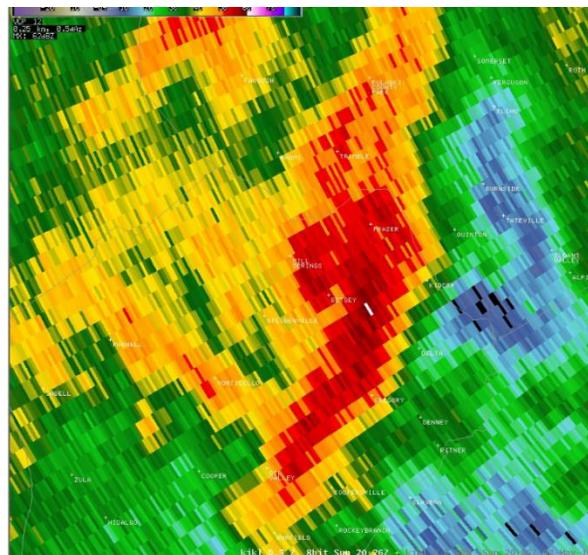


## 2. Wayne County & Middlesboro Tornadoes

### May 2 Wayne County

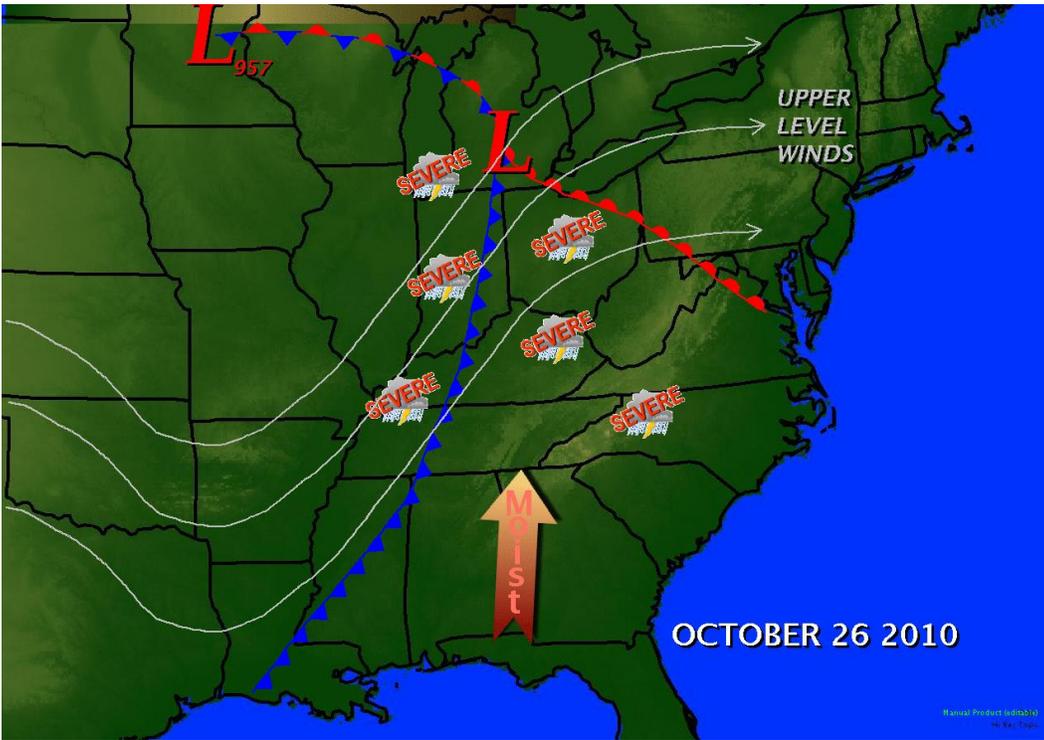


On the morning of May 2<sup>nd</sup>, strong upper level winds over the Mississippi Valley combined with a slow moving cold front over the Ohio and Tennessee Valleys, creating an environment conducive for severe thunderstorms and heavy rains over central and Eastern Kentucky. In the midst of widespread flooding over 10 counties in Eastern Kentucky, one thunderstorm over Wayne County became strong enough to produce a tornado. Around 4:25 pm, the tornado touched down near Steubenville, about 6 miles Northeast of Monticello, then traveled a quarter of a mile, producing estimated wind speeds of 110 to 120 mph. The twister struck a home near Betsy, collapsing a brick wall of the house and tearing off part of the roof.

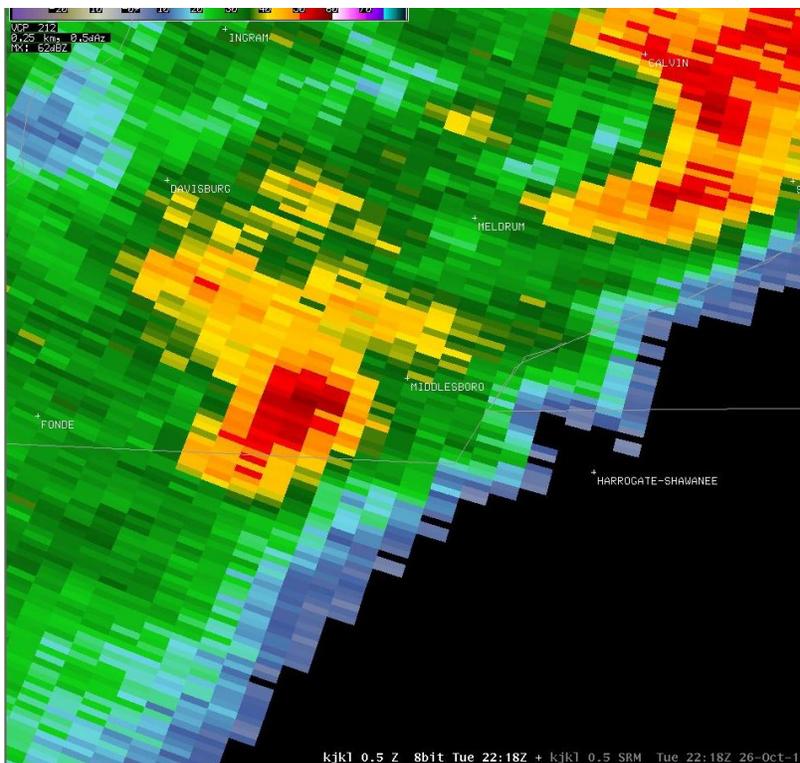
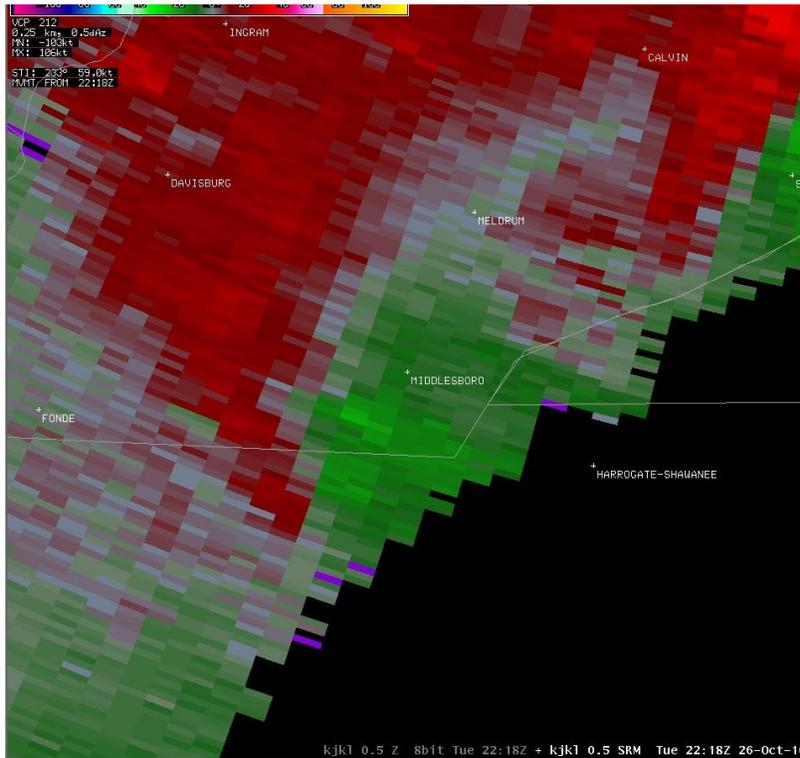




October 22 Middlesboro



On October 26<sup>th</sup> 2010, an unusually deep Low pressure system was working its way across the Upper Midwest, pushing a strong cold front across the Mississippi Valley and through the Ohio and Tennessee Valleys. A strong upper level Jet Stream was in place, along with a 50 to 60 mph Low Level Jet feeding Gulf moisture into the area ahead of the front, creating a dynamic environment suitable for a severe weather outbreak that ranged from the Lower Great Lakes region to the Southern Appalachians. During the afternoon, over a dozen Severe Thunderstorm Warnings were issued throughout Eastern Kentucky as a line of storms developed along the front and began racing across Kentucky.



Shortly after 5 pm, a weakening thunderstorm over Bell County developed a tornado that touched down in Middlesboro, tracking about a quarter of a mile through the downtown area. Despite being rated as a weaker tornado than the one which struck Wayne County earlier in the year, the impact was actually greater because the event occurred in a more populated area. Although the tornado was short lived, accounts indicated that the twister was only on the ground for a couple of minutes, the damage along the path from 19<sup>th</sup> street to 12<sup>th</sup> street was extensive. Part of the roof on the mall was damaged, 2 cinder block buildings at a lumber yard were demolished, a roof was blown off of another building supplier, and 2 large steel doors were blown off of another business.





### **3. Record Summer Heat**

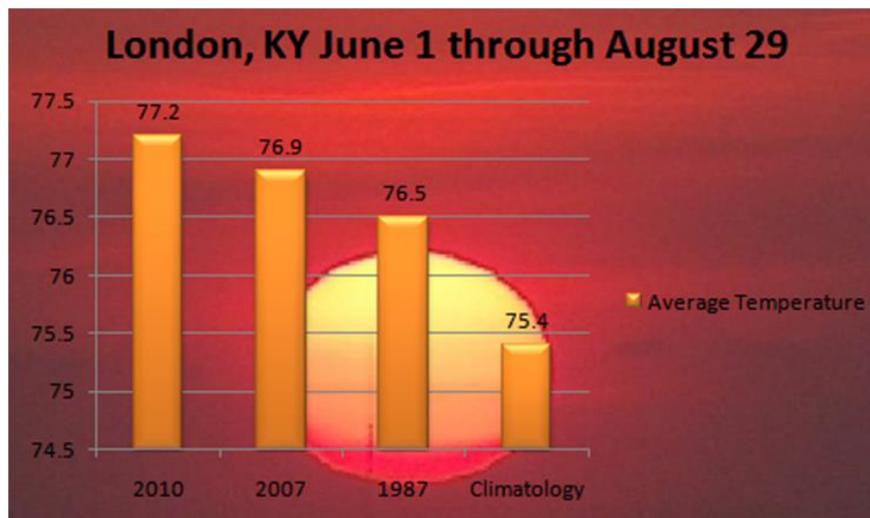
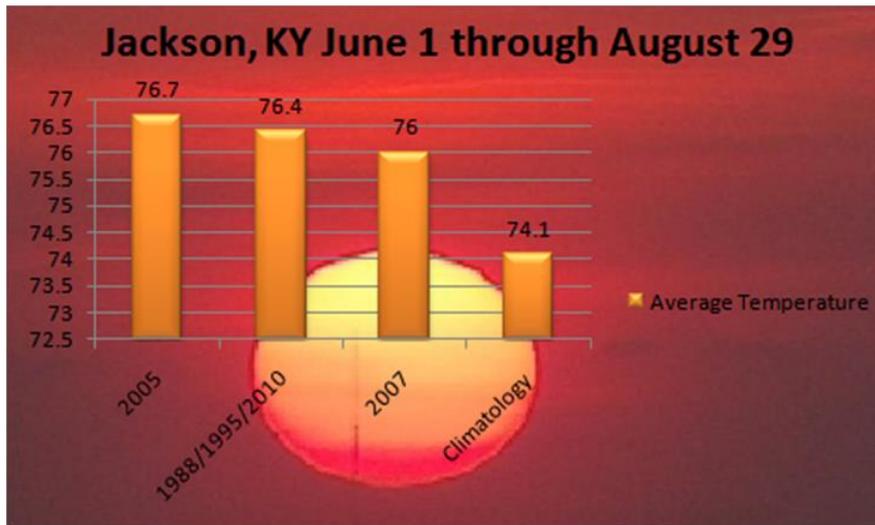
The summer of 2010 went down in the books as one of the warmest on record at Jackson, and was in fact the warmest at many locations across Eastern Kentucky, despite the fact that only a handful of record high temperatures were broken, or even tied. The reason for the unusually warm summer was more subtle, and the key ingredient was the persistence of relatively moist lower levels of the atmosphere, reflected by high dew points, which prevented the mercury from falling off at night.

The season began with record setting average temperatures for the month of June at both the Jackson and London climate stations along with several cooperative weather stations, some of which have records dating back to the 1950's.

Station	June 2010 Avg Temp	Rank	Warmest June on Record	Reliable Records Began
Jackson	75.4°F	Warmest	75.0°F in 1984	1981
London	76.6°F	Warmest	75.6°F in 1994	1954
Farmers 2S (Cave Run)	76.6°F	3rd Warmest	78.0°F in 1943	1904
Monticello 3NE	77.5°F	Warmest	75.7°F in 1994	1956
Mount Sterling 5N	74.9°F	17th Warmest	78.3°F in 1914	1892
Mount Vernon	76.1°F	Warmest	74.6°F in 1971	1956
Somerset 2N	76.9°F	2nd Warmest	77.5°F in 1952	1950
West Liberty	74.6°F	2nd Warmest	76.7°F in 1952	1950

Overall, the month of July did not even rank among the top 10 warmest for either Jackson or London, and neither location saw any days with record high temperatures. Three maximum low temperature records were tied at Jackson during the month, while 21 days in the month experienced daily average temperatures above normal. Similarly, the London climate station did not experience any record high temperatures during the month. However, a maximum low temperature record was set on the 29<sup>th</sup> when the mercury failed to fall below 73° F, along with four other days during the month which saw the maximum low temperature records tied.

The month of August was similar to July in that its contribution did not come from an abundance of record high temperatures as much as the lack of relief evident in the persistent warm overnight temperatures. In fact, the London-Corbin airport only broke one maximum temperature record, with an afternoon high of 95° F on the 4<sup>th</sup>, while the 94° F on the 11<sup>th</sup> tied the record for that date. However, several new maximum low temperature records were established during the month, including 74° F on the 11<sup>th</sup>, along with the 72° F on both the 12<sup>th</sup> and the 14<sup>th</sup>. Overnight lows of 72° F on the 1<sup>st</sup> and the 4<sup>th</sup> tied the existing record for those dates, in addition to the 71° F on the 31<sup>st</sup>. The National Weather Service office near Jackson experienced 23 overnight lows which were above normal, and in some cases well above normal, including a 7 day stretch from the 16<sup>th</sup> to the 22<sup>nd</sup> when the mercury did not fall below 71 degrees. A maximum low temperature record was tied on the 4<sup>th</sup> with the overnight low of 73° F, while another maximum low temperature record was established on the 11<sup>th</sup> when the mercury failed to drop below 72° F.

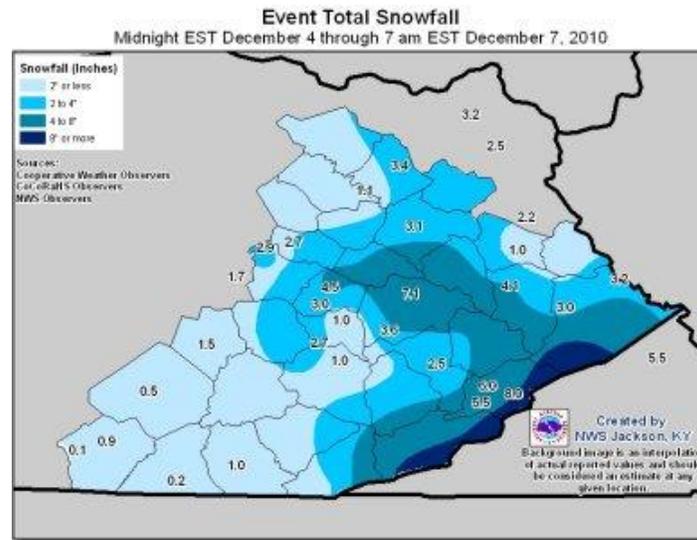


As one might guess, Eastern Kentucky was not the only area to experience a warmer than normal summer. In fact, most of the southern and southeastern United States saw temperatures well above average. As a result, the National Climatic Data Center ranked the summer of 2010 as the 4<sup>th</sup> warmest for the United States, based on records dating back to 1895.

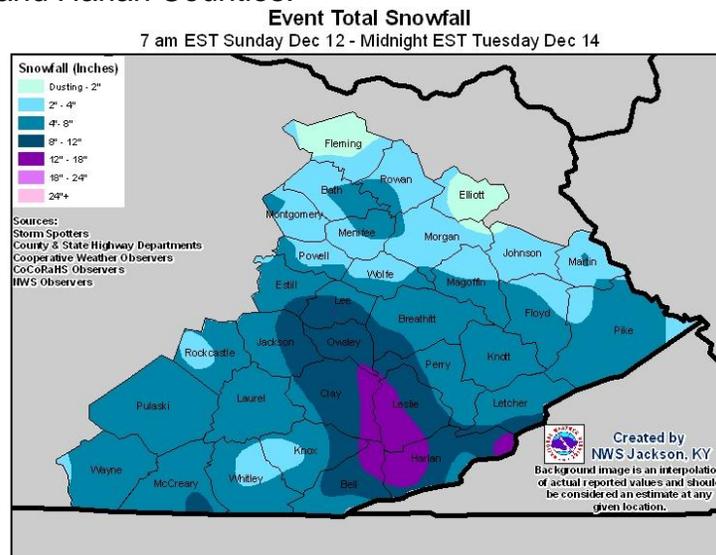
## 4. Record December Snowfall

Following a series of winter storms throughout the month, and culminating with relatively modest event beginning on Christmas Eve and continuing through the 27<sup>th</sup>, December of 2010 now ranks as the snowiest on record at the National Weather Service office near Jackson with a total of 18.5 inches, surpassing the previous record of 17.6 inches set just one year ago.

The month began with measurable snow falling on the 1<sup>st</sup> through the 7<sup>th</sup>, accounting for the first 7.5 inches in Jackson, although some locations around the typically favored upslope areas along the Virginia border were already looking at a foot of snow on the ground.

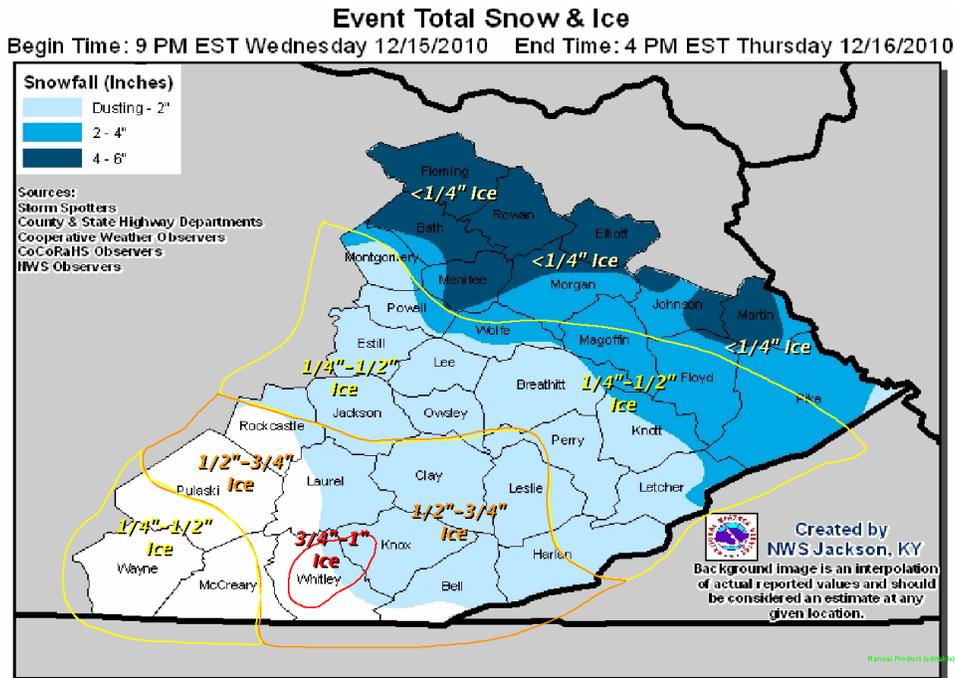


On December 11<sup>th</sup>, a powerful winter storm was gaining strength over the Upper Mississippi Valley. By the morning of the 12<sup>th</sup>, the storm had reached the Eastern Great Lakes where it began to lose some of its forward momentum, but not its strength. The system proceeded to dump another 5.9 inches of snow at the National Weather Service office near Jackson over the next two days, with over a foot of snow falling over parts of Leslie, Clay, Bell and Harlan Counties.



A brief interlude began as the system eventually moved into the Atlantic off the Northeastern United States on the 14th, leaving a stationary boundary draped across the Deep South in its wake while High pressure developed off the coast of the Southeastern U.S.

On the 15<sup>th</sup>, the stationary boundary evolved into a warm front which began lifting north into Eastern Kentucky. With the High pressure parked off to our south and east, strong southerly flow began pumping Gulf moisture back into the region. The warm front set up across the heart of the Coal Fields and Blue Grass of Kentucky, with cooler temperatures promoting snow generally along and to the north of the Mountain Parkway, heavy rains generally along and south of the Hal Rodgers/Hwy 80 corridor, and a nasty, wintery mix in between.



## Snowfall

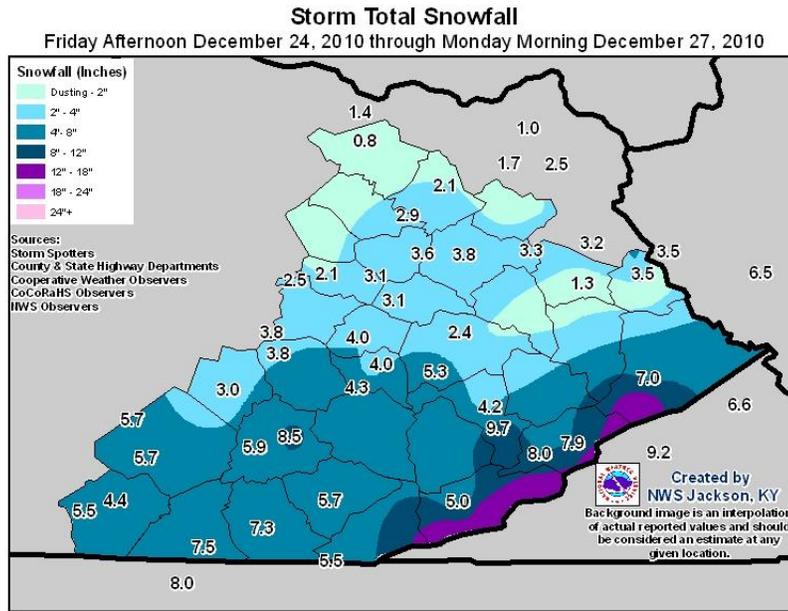
<u>location</u>	<u>inches</u>
CRANSTON	6
FLEMINGSBURG	5
MOREHEAD	4
INEZ	4
SANDY HOOK	4
FLATGAP	4
WEST LIBERTY	4
HAZEL GREEN	4
FRENCHBURG	4
OWINGSVILLE	4

## Ice & Sleet

<u>location</u>	<u>inches</u>
WILLIAMSBURG	0.75
BUCKHORN	0.50
MOUNT VERNON	0.50
PINEVILLE	0.50
HARLAN	0.50
BARBOURVILLE	0.50
8 NNE PIKEVILLE	0.40
2 W STANTON	0.33
4 NE JACKSON	0.30
ROYALTON	0.25

The record breaking month culminated with a spectacular winter storm which arrived just in time for Christmas. On the 23<sup>rd</sup> and 24<sup>th</sup> yet another Low pressure system began

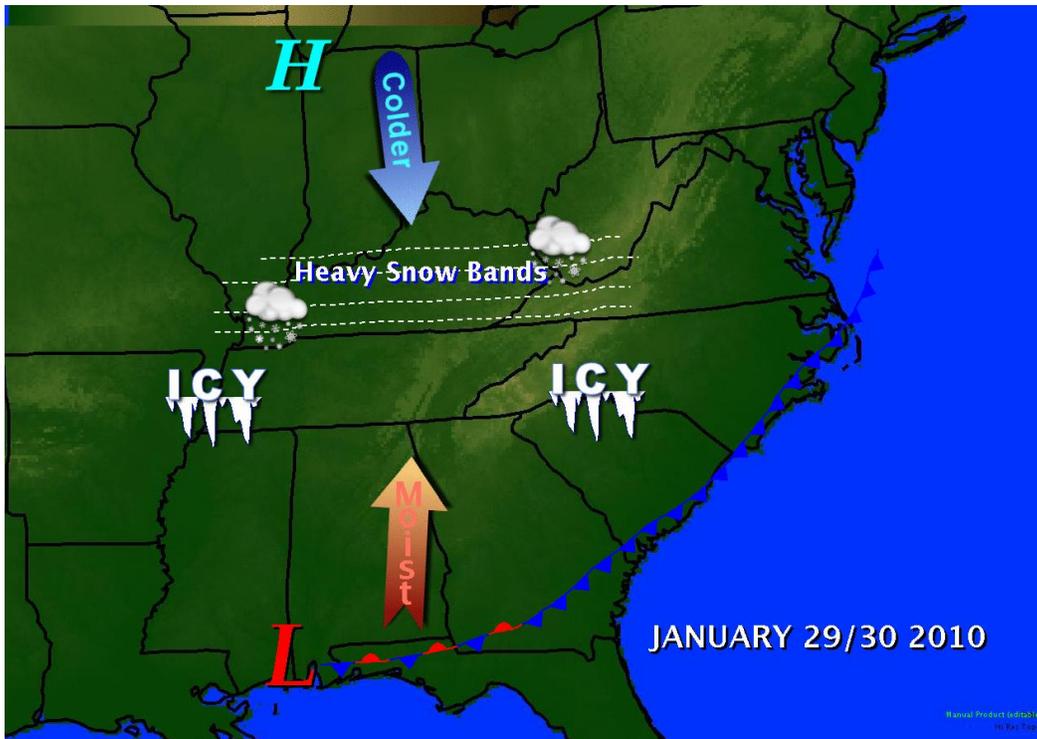
taking shape over the Deep South along the Gulf Coast and thus began the process of ushering warm, moist air northward into the region once again. The first flakes began falling over Eastern Kentucky late on Christmas Eve as the relatively weak Low pressure made its way across the Tennessee Valley, with the snow continuing to fall through the night and into early Christmas morning. On Christmas Night, the system began to strengthen over the Southern Appalachians as an upper level trof began crossing the Mississippi Valley. Snow continued falling through the day on Sunday before tapering off to flurries on Monday, and by the time the totals were tallied the month had officially become the snowiest December on record.



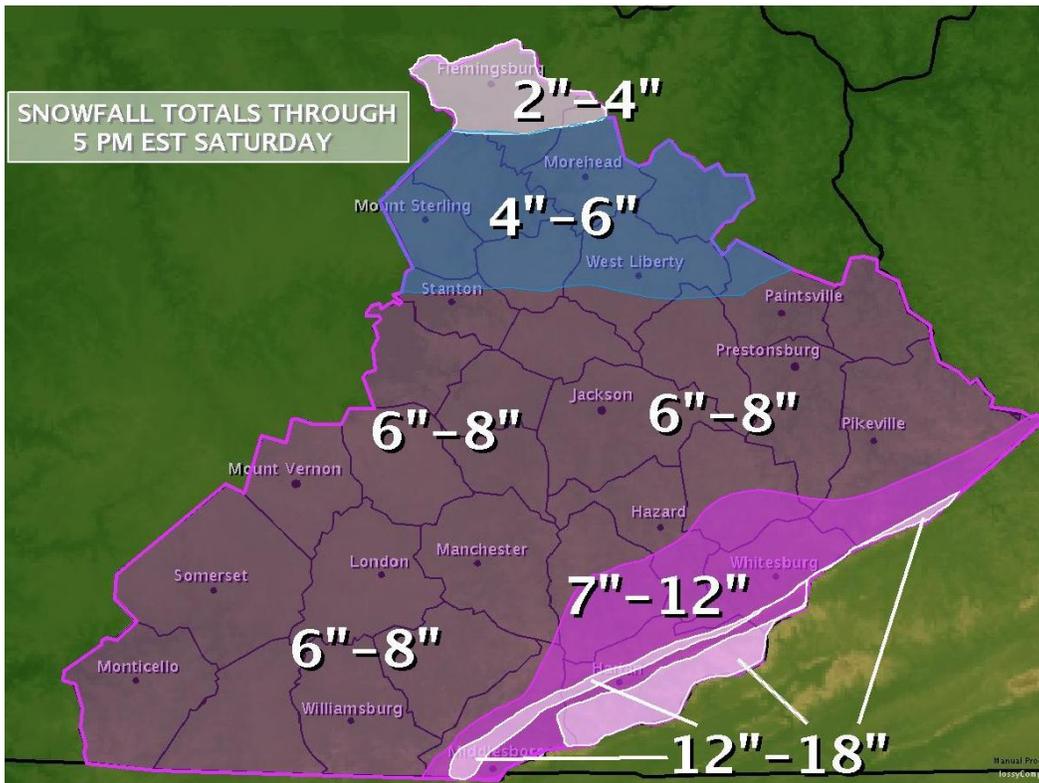
Residents of Kentucky were spared the worst of the storm, which eventually turned north and headed up the East Coast, dumping as much as 2 to 3 feet of snow over parts of the Northeastern United States, effectively shutting down several key airports in the region and leaving thousands of holiday travelers stranded.

## 5. January 29-30 Snow Storm

On January 28<sup>th</sup> 2010, a strong cold front swept through the region, bringing an abundance of cold air to the Commonwealth and setting the stage for what would become one of the biggest snowstorms to hit Eastern Kentucky in 2010.



Snow began falling on Friday the 29<sup>th</sup> as a deep Low pressure system began tracking from the Gulf Coast across the Southern Appalachians, bringing an ample supply of Gulf moisture northward into the Coal Fields. The National Weather Service issued a Winter Storm Warning for 19 counties in Eastern Kentucky on the 28<sup>th</sup> and 29<sup>th</sup> along with a Winter Weather Advisory for another 13 counties around central and northeastern Kentucky. By Saturday night, the Low had reached the Mid-Atlantic Coast as the snow began tapering off, but the totals already reflected the ferocity of the event:



This event, combined with a very active snowy period at the beginning of the month, vaulted January of 2010 into 3<sup>rd</sup> place for the all time snowiest January on record with 17.1 inches at the National Weather Service in Jackson, behind the 23.3 inches which fell in 1996, and the 26.3 inches in 1994. It also helped make the winter of 2009-10 the second snowiest winter on record with 50.3 inches for the season, the first being the 1995-96 season, which totaled 62.7 inches.



*Photo Courtesy of Breathittonline.com*