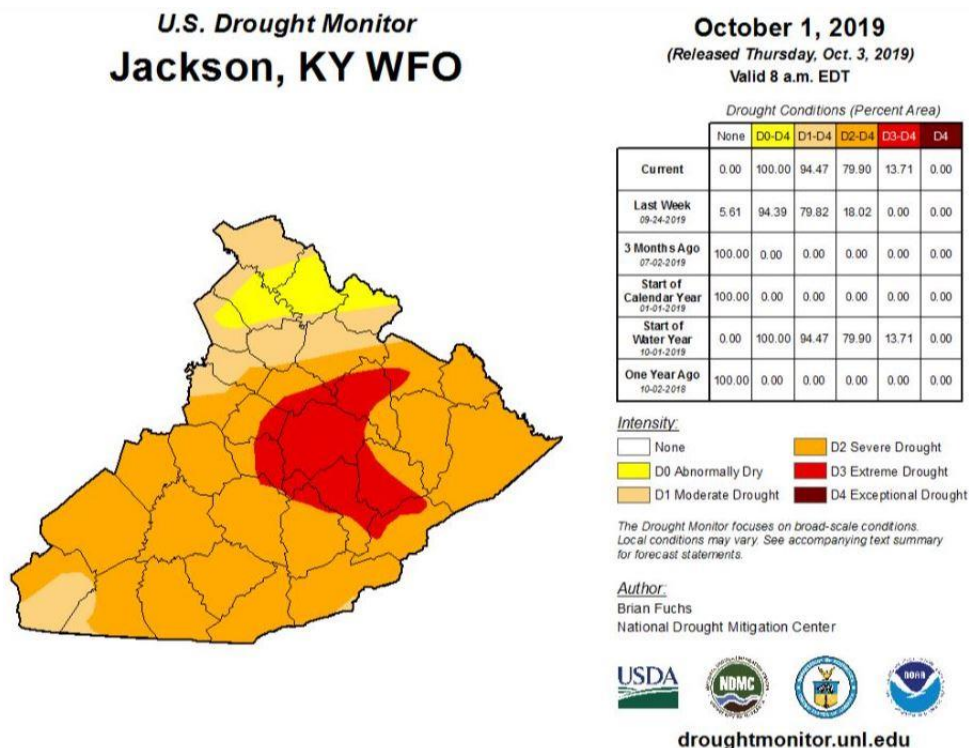


As we usher in another year, the staff of the National Weather Service (NWS) Office in Jackson took a look at the weather events of 2019. This is a list of what we consider to be the Top 5 Weather Events of 2019:

1. The Autumn Flash Drought:

Late summer and early fall heat combined with persistent dry weather led to increasing drought intensity across eastern Kentucky. Large rainfall deficits created high evapotranspiration rates and soil moisture losses, resulting in escalated drought impacts throughout the month. Level 1 through 3 drought declarations were issued on October 3rd for much of eastern Kentucky.

At the beginning of the month, extreme drought (D3) extended roughly from areas east of the Daniel Boone National Forest, along Mountain Parkway and southward to the Letcher County line. Severe drought (D2) generally remained south of the Interstate 64 corridor, while shrinking with extent through the month due to sufficient enough rainfall.

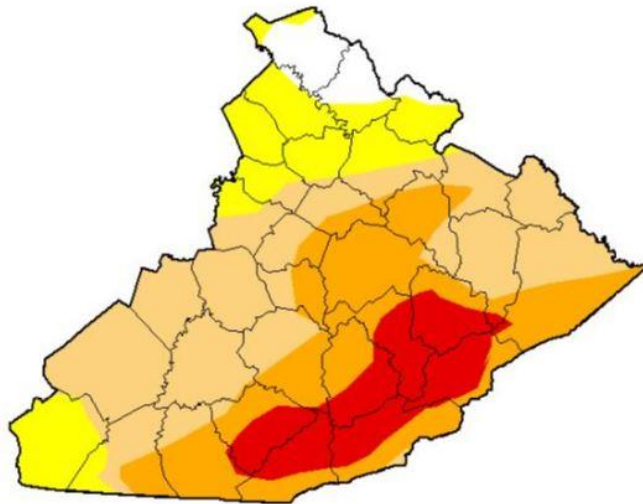


After a 37 day streak without measurable rain at the Jackson, Kentucky NWS office, a heavy rain event that occurred primarily on October 7th brought significant amounts of precipitation to many locations across eastern Kentucky. However, there was a sharp cutoff to this heavy rainfall, with much of the far southeast portion of the state only seeing around a half of an inch of total accumulation as opposed to 2 inches or more toward the Bluegrass Region.

This led to the expansion of Extreme Drought (D3) across a majority of southeast Kentucky, especially closer to the Virginia border. This rainfall that fell across eastern Kentucky was quickly absorbed by the dry soils, not offering much relief to the top soils or streams and rivers.

**U.S. Drought Monitor
Jackson, KY WFO**

October 15, 2019
(Released Thursday, Oct. 17, 2019)
Valid 8 a.m. EDT



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	4.68	95.32	78.64	40.64	13.80	0.00
Last Week 10-08-2019	0.00	100.00	80.22	40.64	3.71	0.00
3 Months Ago 07-16-2019	100.00	0.00	0.00	0.00	0.00	0.00
Start of Calendar Year 01-01-2019	100.00	0.00	0.00	0.00	0.00	0.00
Start of Water Year 10-01-2018	0.00	100.00	94.47	79.90	13.71	0.00
One Year Ago 10-16-2018	100.00	0.00	0.00	0.00	0.00	0.00

Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:

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NCEI/NOAA



droughtmonitor.unl.edu

Burn bans were in effect for most counties in eastern Kentucky at the beginning of the month, with many of these being lifted into the second week of October. According to the United States Forest Service, wildfire danger was very high throughout the drought region. The United States Forest Service also implemented fire restrictions in the Daniel Boone National Forest.



Sky Bridge Fire in Red River Gorge
Courtesy of WYMT

Soil moisture remained very low compared to normal. In addition, crop moisture was excessively dry with yield prospects reduced. Pasture and hay conditions were also poor. Many farmers were supplementing feed for livestock well in advance of the winter months. This all led to 15 counties across eastern Kentucky being declared as primary disaster areas by the U.S. Department of Agriculture. Forage specialists said that at this time of year, regrowth would only be minimal, but the Agricultural Weather Center at the University of Kentucky reported that the widespread early-mid month rains likely promoted pasture growth and at least somewhat replenished ponds. Streams across eastern Kentucky ran near to below normal in early October, before running near normal by mid-month.

In Harlan County, the community of Benham experienced a water shortage as the mountain streams that normally provide the town's water had seen substantially lower flows. After dry conditions resulted in this low flow of water into the town, the town got approval to begin pumping water from the nearby Cumberland River. However, upon hooking up to the river, pressures within the pipe lines increased to a level that they could not handle, resulting in multiple line breaks and loss of water to the city once again. Several closures, including a local elementary school, resulted because of the lack of water. This appeared to be the only water shortage impact in the region from the drought.

This dry period contributed to a 7 day stretch of temperatures in the 90s from September 27th through October 3rd. This was the first time temperatures climbed into the 90s in the month of October since records began at Jackson.

September 2019			
Jackson (1981 – present)		London (1954 – present)	
27 th	92 Degrees	27 th	91 Degrees
28 th	94 Degrees	28 th	91 Degrees
29 th	95 Degrees	29 th	92 Degrees
30 th	94 Degrees	30 th	92 Degrees
October 2019			
Jackson (1981 to present)		London (1954 – present)	
1 st	97 Degrees	1 st	94 Degrees
2 nd	95 Degrees	2 nd	94 Degrees
3 rd	95 Degrees	3 rd	94 Degrees

**** Red denotes a new record high for the site****

For more info: [Autumn Drought of 2019](#)

2. **May 29th Wind Event in Prestonsburg and Far Eastern Kentucky:**

The combination of an upper level disturbance and southward sagging frontal boundary out of the Ohio Valley brought a line of strong to severe thunderstorms across eastern Kentucky during the late morning and afternoon of May 29, 2019. The most intense of these storms moved through far eastern Kentucky, including Prestonsburg where a 70-80 mph downburst blew half the roof off of a hock shop building.

A man driving on West Court Street was crushed by this roof, resulting in his death. Damage stretched for about 1 mile through the city. Severe winds blew out a few of the windows of a 2 story building on West Court Street, while a large healthy poplar tree was uprooted.

Elsewhere, from West Liberty and Jackson eastward through Pike County, mainly tree damage was sustained. In Letcher County, a rotating supercell produced quarter to golf ball sized hail near Jenkins, while Somerset experienced isolated damage from a thunderstorm wind gust on the southwest flank of the line of storms.



A portion of the roof of the Hock Shop on West Court Street



Approximately golf ball sized hail in Jenkins.
Courtesy of Rob Elkins

For more info.: [May 29th Damaging Winds](#)

3. February 20th – 24th Flooding:

Periods of rain worked back into eastern Kentucky early on February 20 as a warm frontal boundary lifted north across the Commonwealth. A cold front brought additional rainfall through the afternoon and evening, before drier conditions worked into eastern Kentucky during the morning of February 21st.

Rain quickly spread back north that evening into the 22nd with southeastern Kentucky continuing to see prolonged light rain into the afternoon of the 23rd. A cold front brought additional rain to much of eastern Kentucky late on the 23rd.

A spike in moisture ahead of this front resulted in additional moderate to heavy rain and high rainfall rates across portions of eastern Kentucky late on the 23rd. The convection ahead of the cold front that evening resulted in the majority of the flooding and flash flooding issues across eastern Kentucky. Showers and thunderstorms capable of heavy rainfall trained over parts of Wayne, Pulaski, Rockcastle, and other counties along the I-75 corridor, resulting in deadly flash flooding and river flooding along the



Flooding in Rockcastle County.
Courtesy of Jordan Smith

Cumberland River. Later in the evening, the bulk of the rainfall shifted north to counties along the Mountain Parkway. Flash flooding and river flooding occurred in Powell, Wolfe, Breathitt, Magoffin, and Johnson Counties. Lighter rainfall continued into the night as flooding issues remained widespread into the 24th.

Rainfall amounts from this event ranged from near 2 inches in portions of the Bluegrass Region and northeast Kentucky, to greater than 4 inches across locations in southern and southeast Kentucky.

This additional water on top of saturated ground continued to promote mud and rock slides across eastern Kentucky, complete with power outages from fallen debris and trees. Pikeville experienced a massive rockslide early on

February 22nd, resulting in several cars and a building being damaged. Other impacts included countless roads being inundated with standing water, pavement and water pipes breaking, water threatening homes, roads and bridges being washed away, and rising lake levels.



Pikeville in Pike County, KY
Courtesy of WYMT

Of the 33 counties across eastern Kentucky, at least 27 were forced to declare State of Emergencies due to rainfall during and before this event. This included Knott County due to over \$150,000 in county road damages. Beattyville, Clay City, Harlan, Hazard, Jenkins, Monticello, Paintsville, Pikeville, Salyersville, Stanton, West Liberty, and Whitesburg also declared State of Emergencies. Additionally, the Kentucky Governor declared a State of Emergency across the entire Commonwealth.

The persistent rainfall of the winter season and the amount of rainfall from this event led to Lake Cumberland reporting their highest lake level of 756.52 feet on February 26th, breaking the old record of 751.69 feet dating back to May 1984. As a result, Wolf Creek Dam had to release at a record discharge level of 59,880 cubic feet per second. Cave Run Lake also rose to within 6 feet of their record pool elevation. Buckhorn Lake came within 10 feet of their all-time record, partially resulting in Kentucky Highway 257 near Confluence having flood waters cover the highway isolating 40 to 50 families for numerous days following the end of the flooding rains.

For more info.: [February 20th - 24th Flood](#)

4. June 21st, 23rd, – 24th Wind Damage:

A Series of Mesoscale Convective Systems (MCS) tracked across eastern Kentucky on June 21st, 23rd, and 24th, producing damaging wind gusts. The result of these 3 rounds of storms were many power outages and lots of tree damage. The event on the 24th saw many trees landing on residences, causing some damage to buildings. Fortunately, no injuries were reported during all 3 events.



June 21st collapsed firework tent in Monticello
Courtesy of WYMT



June 23rd East Bernstadt wind damage
Courtesy of East Bernstadt Fire & Rescue



June 24th A tree and power lines blown onto a home in Island City.
Courtesy of WKYT

For more info.: [June 21st, 23rd, and 24th Wind Damage](#)

5. June 5th Significant Hail and Damaging Winds:

Severe thunderstorms developed across eastern Kentucky during the evening hours of June 5th, 2019. These thunderstorms developed ahead of an approaching frontal boundary and upper level disturbance. The main threat early on was large hail as storms were initially discrete. An organized line of showers and storms then moved in from the north, producing localized wind damage.

Significant hail up to 2 inches in diameter was reported in Wolfe County with the early evening storms. There were also numerous trees blown down in areas, generally along and north of the Mountain Parkway.



2 inch hail near Hazel Green
Courtesy of Chasity Prater



Golf ball size hail in Polkville
Courtesy of Michael Staton

For more info.: [June 5th significant hail and damaging winds](#)

Honorable Mention:

Although this event did not make the Top 5, we decided it was worth an honorable mention:

November 27th Strong Winds:

A strong cold front crossed Kentucky on Wednesday, November 27th, producing damaging wind gusts starting around 10 a.m., and continuing through the early evening hours. The strongest wind gusts were observed between 11 a.m. and 1 p.m. Numerous power outages were reported across eastern Kentucky, along with a few reports of trees down and some localized damage. During the peak of the high winds, more than 7,000 customers were without power.

Wind Reports

...Highest Wind Gusts Wednesday, November 27th...

	Wnd Spd	Time	Elev
Pikeville 13 S (KY Meso)	57 MPH	0125 PM	2774
NWS Jackson	54 MPH	1110 AM	1405
Morehead Airport	51 MPH	1155 AM	963
Big Sandy RAWS	49 MPH	1209 PM	1180
London-Corbin Airport	49 MPH	0104 PM	1166
West Liberty 2 SW (KY Meso)	47 MPH	1130 AM	1071
Black Mountain (KY Meso)	46 MPH	1115 AM	4031
Mount Sterling Airport	46 MPH	1135 AM	1001
Triangle Mtn RAWS	46 MPH	1202 PM	1359
Hindman 5 N (KY Meso)	46 MPH	1240 PM	1556
Jackson Apt RAWS	45 MPH	1215 PM	1388
Big Sandy Airport	45 MPH	1115 AM	1167
Monticello Airport	44 MPH	1140 AM	1091
Somerset Airport	43 MPH	1115 AM	921
Owingsville 4 S (KY Meso)	43 MPH	1220 PM	829
Morehead 4 NE (KY Meso)	42 MPH	1115 AM	851
Somerset RAWS	42 MPH	1101 AM	920
Harlan Airport	40 MPH	1235 PM	1578
Koomer Ridge	40 MPH	0209 PM	1299
Jackson 3 SE (KY Meso)	38 MPH	0120 PM	688
Booneville 2 S (KY Meso)	37 MPH	1030 AM	784
Irvine	37 MPH	1002 AM	850

Wind Reports (continued)

...Highest Wind Gusts Wednesday, November 27th...

	Wnd Spd	Time	Elev
Pike County Airport	37 MPH	1255 PM	1042
Barbourville 3 E (KY Meso)	36 MPH	1220 PM	1016
Whitley City 3 N (KY Meso)	36 MPH	1215 PM	1312
Williamsburg	35 MPH	1115 AM	1192
Clio 1.5 S (NWS/FAA)	35 MPH	1115 AM	1165
Farmers 3 N	35 MPH	1115 AM	933
McKee 5 S (KY Meso)	35 MPH	1040 AM	1319
Peabody	32 MPH	1101 AM	1464
Corbin	32 MPH	1010 AM	1138
Manchester	30 MPH	1045 AM	869
Yellow Creek RAWS	29 MPH	0126 PM	1089
Mt Sterling	28 MPH	1248 PM	1031
Hazard	28 MPH	1131 AM	1000
Whitesburg 2 NW (KY Meso)	28 MPH	1110 AM	1152
Paintsville 4 W (KY Meso)	27 MPH	1120 AM	755
London 2 NW	25 MPH	1130 AM	1214
Middlesboro Airport	24 MPH	1255 PM	1140

Observations are collected from a variety of sources with varying equipment and exposures. We thank all volunteer weather observers for their dedication. Not all data listed are considered official.

For more info.: [November 27th Strong Winds](#)