

Facts of the December 10-11, 2021 Tornado Outbreak

Outbreak Duration: 14 hours and 36 minutes, with the intense portion of the outbreak occurring during the evening of December 10th into the early morning of December 11th.

Highest SPC Risk Issued: Moderate Risk (15% tornado probabilities)

Outbreak Type: Corridor

A memorable advection fog event preceded the outbreak by 18-24 hours

This outbreak is without reservation the greatest December tornadic event of the modern age.

Trough Type: Positively tilted with trough tilt backing with increasing height, encompassing the width of the continental United States

Height Falls: Moderate

Pressure Falls: Strong
-Surface low took IAMO track (Iowa/Missouri)

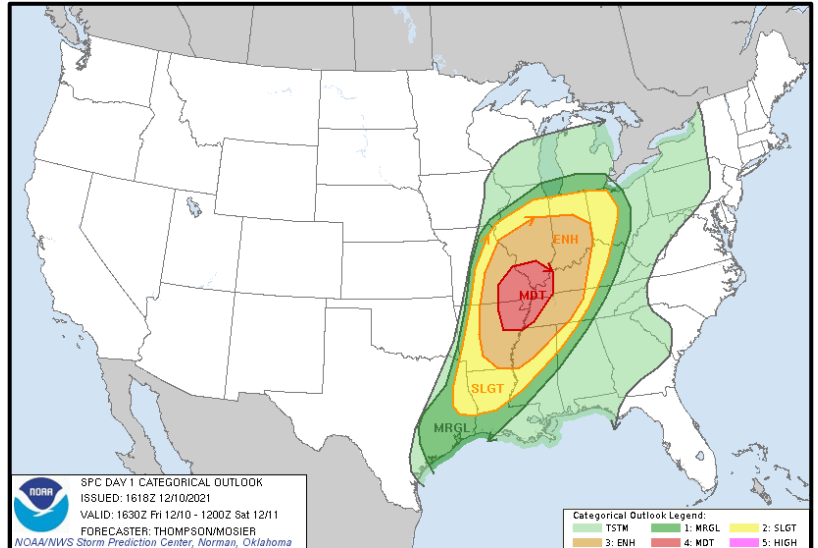
Upper Jet Type: Glancing/overrunning

Number of Tornadoes: 70

Tornado Related Fatalities: 89

Tornado Related Injuries: 672

Monetary Damage: 3.9 billion (2021 USD)



1630 UTC 10 December 2021 Day 1 NOAA SPC Convective Outlook

EF0 & EF1 Tornadoes: 46 (16 EF0 and 30 EF1)
-1 tornado was rated EFU (undetermined)

EF2 & EF3 Tornadoes: 21 (15 EF2 and 6 EF3)

Tornado path lengths in Kentucky alone totaled more than 325 miles.

EF4 Tornadoes: 2
-Both violent tornadoes occurred on the evening of December 10

74 of the 89 fatalities occurred in Kentucky

Strongest Tornado: Mayfield, KY EF4 (190 mph wind)

Longest Track Tornado: Mayfield, KY EF4 (165.6 miles)
-9th longest tornado track on record

Widest Tornado: Mayfield, KY EF4 (1.47 miles)
-According to NCEI, the tornado was widest in Hickman County, KY

Deadliest Tornado: Mayfield, KY EF4 (57 deaths)

Unfortunately, the National Weather Service in Paducah lost power that evening causing NOAA Weather Radio to cease operation.

Longest Track Supercell: Saline County, Arkansas to Adams County, Ohio (~545 miles) - was responsible for producing both EF4 tornadoes of the event

Data sources:
NOAA NCEI
and NOAA SPC

Supercell Type: Classic, high precipitation, and classic-high precipitation hybrid

Storm Motion: Average supercell forward speed was 57 mph, with a few obtaining average speeds of greater than 60 mph. Direction of travel was primarily out of 240 degrees (15 degrees west of due northeast); however, later in the event, cells on the southern and eastern extent of the outbreak moved out of 250 degrees at about 50 mph within the more balanced and symmetric vertical wind profile.