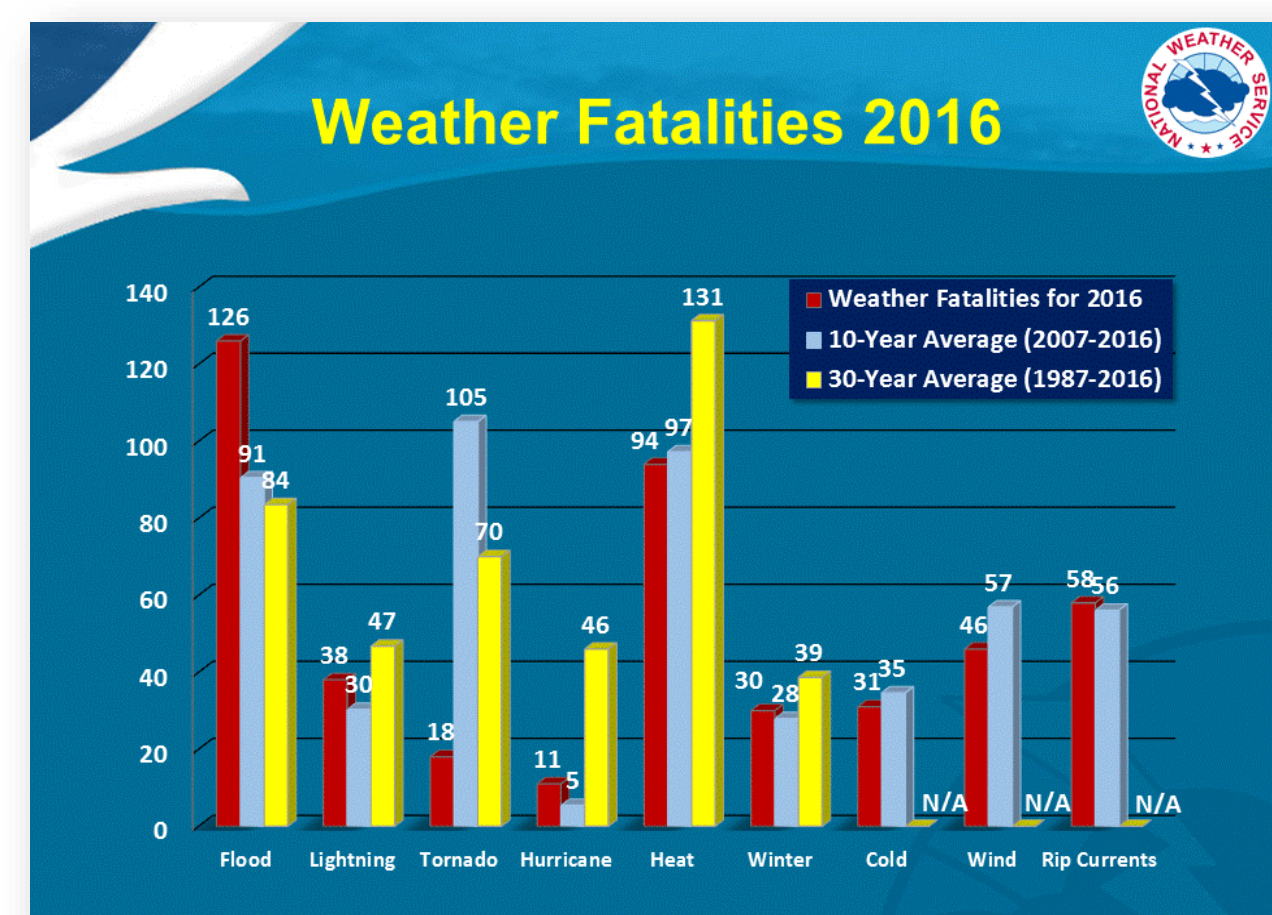


Analysis of Fatal Tornado Events

in Two Different NWS Forecast Regions

BACKGROUND

- The goal of the NWS is protect life and property, primarily through issuing watches, warnings and advisories
- Tornado fatalities are within the top three most common weather fatalities.



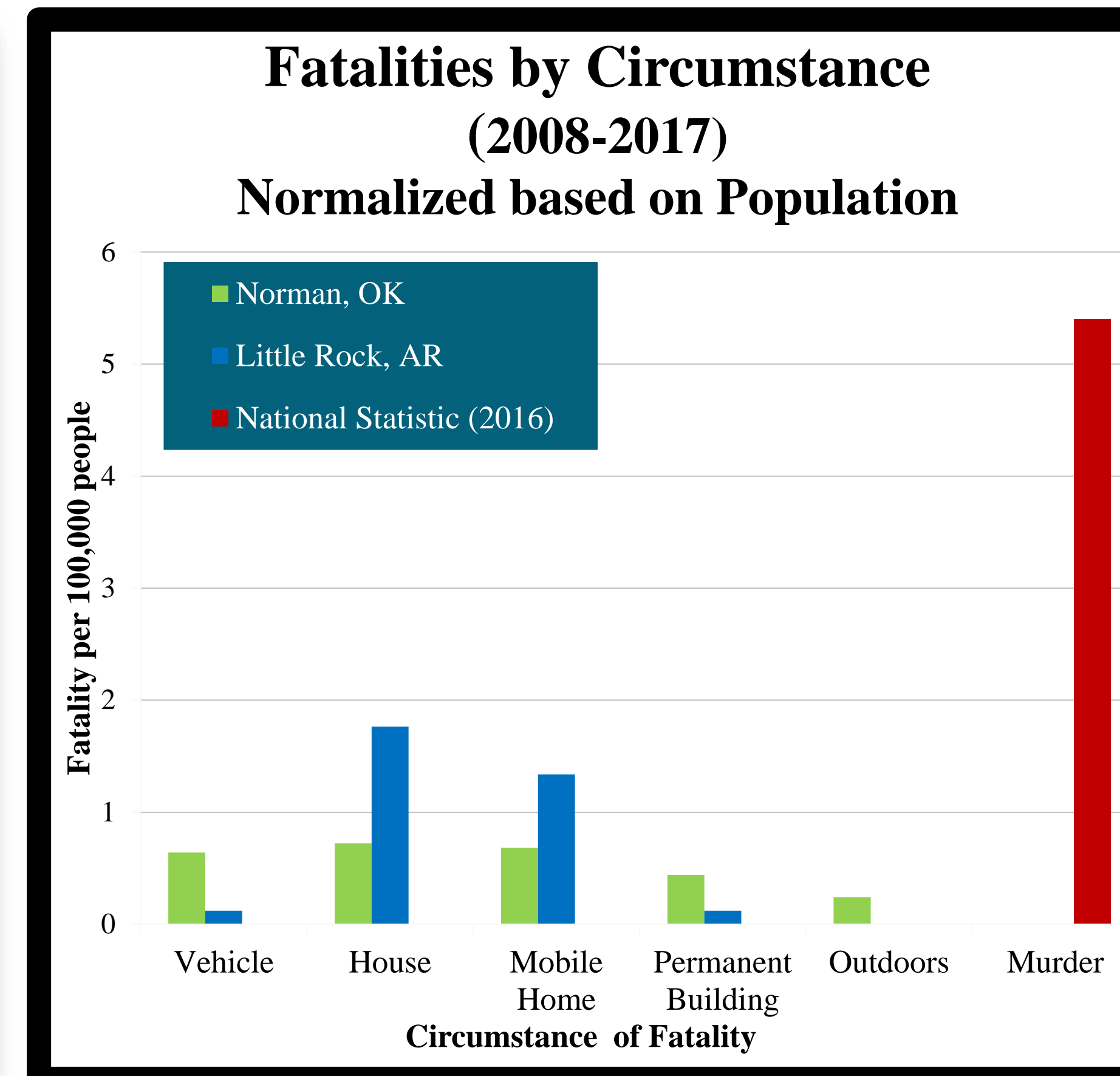
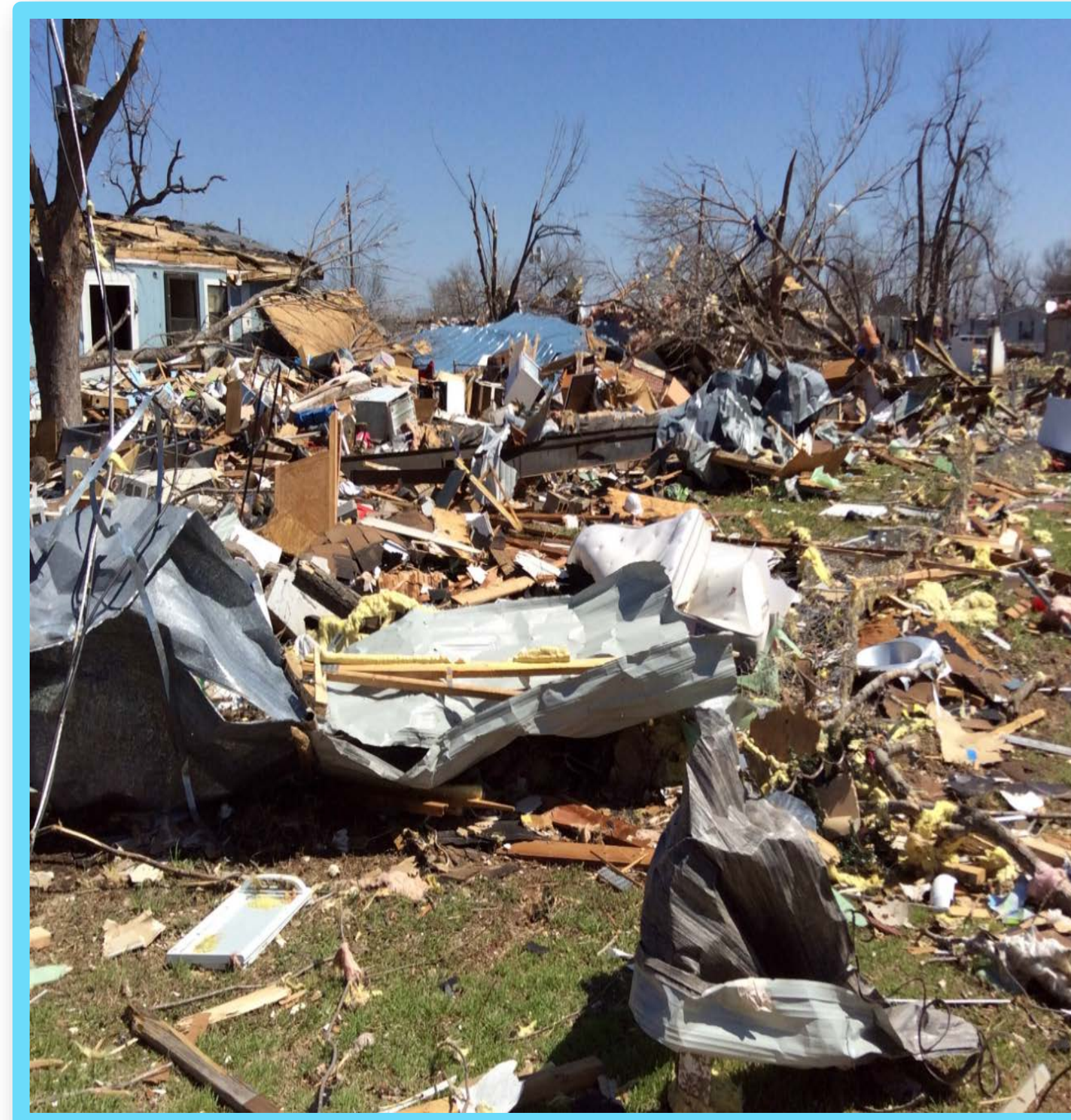
DATA & METHODS



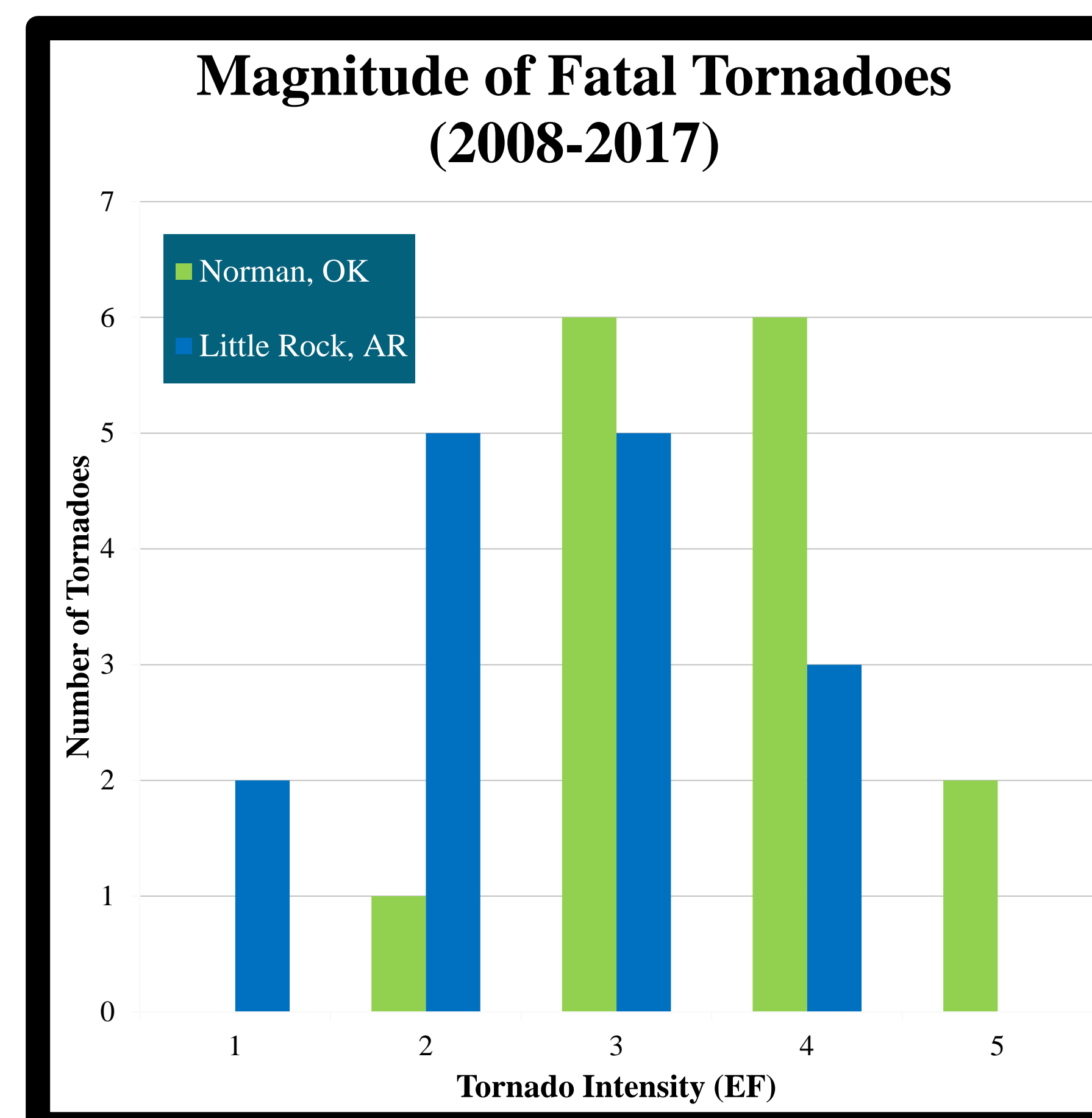
30 killer tornadoes were analyzed from the NWS forecast offices; Norman, OK and Little Rock, AR. An analysis was completed to compare watches and warnings lead times, EF Scales and circumstance of fatality.

- AR and OK (2008-2017) Storm Prediction Center (SPC) Annual U.S. Killer Tornado Statistics.
- Radar data (base reflectivity 0.5° and base radial velocity 0.5°) from the National Centers for Environmental Information (NCEI).
- The times of when conditions were favorable for a tornado were estimated using the radar data on IDV.
- Watches and Warnings were gathered from the Iowa State University archive database.
- Crime Data gathered from FBI: UCR.

RESULTS



“You are almost TWICE as likely to be killed by another person as by a tornado.”



CONCLUSION

Over a ten year period (2008-2017):
 - 68 tornado fatalities within the Norman, OK CWA
 - 55 tornado fatalities within the Little, Rock CWA
 Note: the Norman, OK CWA is larger in both area and population than the Little Rock, AR CWA.

The majority of fatalities occurred when individuals were within **houses** and **mobile homes**.

| FATALITIES | EF1 | EF2 | EF3 | EF4 | EF5 | TOTAL |
|------------------------------|-----|-----|-----|-----|-----|-------|
| Vehicle | 1 | 1 | 9 | 2 | 5 | 18 |
| House | 2 | 1 | 8 | 21 | 15 | 47 |
| Mobile Home | | 7 | 10 | 22 | | 39 |
| Permanent Building/Structure | | | 1 | 1 | 11 | 13 |
| Outdoors | | | 2 | 2 | 2 | 6 |
| TOTAL | 3 | 9 | 30 | 48 | 33 | 123 |

Yellow = 10 or more fatalities
 EF3 and EF4 were the most frequent in Norman, OK.
 EF2 and EF3 were the most frequent in Little Rock, AR.

Both CWA's had a -8 minute lead time for Tornado Warnings, which means a fatality occurred before a Warning was issued.

Tornado Watch and Warning Median Lead Times:
 Norman, OK > Little Rock, AR

| LEAD TIMES | | Average (Minutes) | Median (Minutes) | Maximum (Minutes) | Minimum (Minutes) |
|-----------------|-----------------|-------------------|------------------|-------------------|-------------------|
| Norman, OK | Tornado Watch | 206 | 218 | 372 | 65 |
| | Tornado Warning | 27 | 34 | 65 | -8 |
| Little Rock, AR | Tornado Watch | 193 | 212 | 340 | -8 |
| | Tornado Warning | 46 | 24 | 206 | -8 |

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