

# Climatology of Tornadoes in the British Isles (1980–2012)

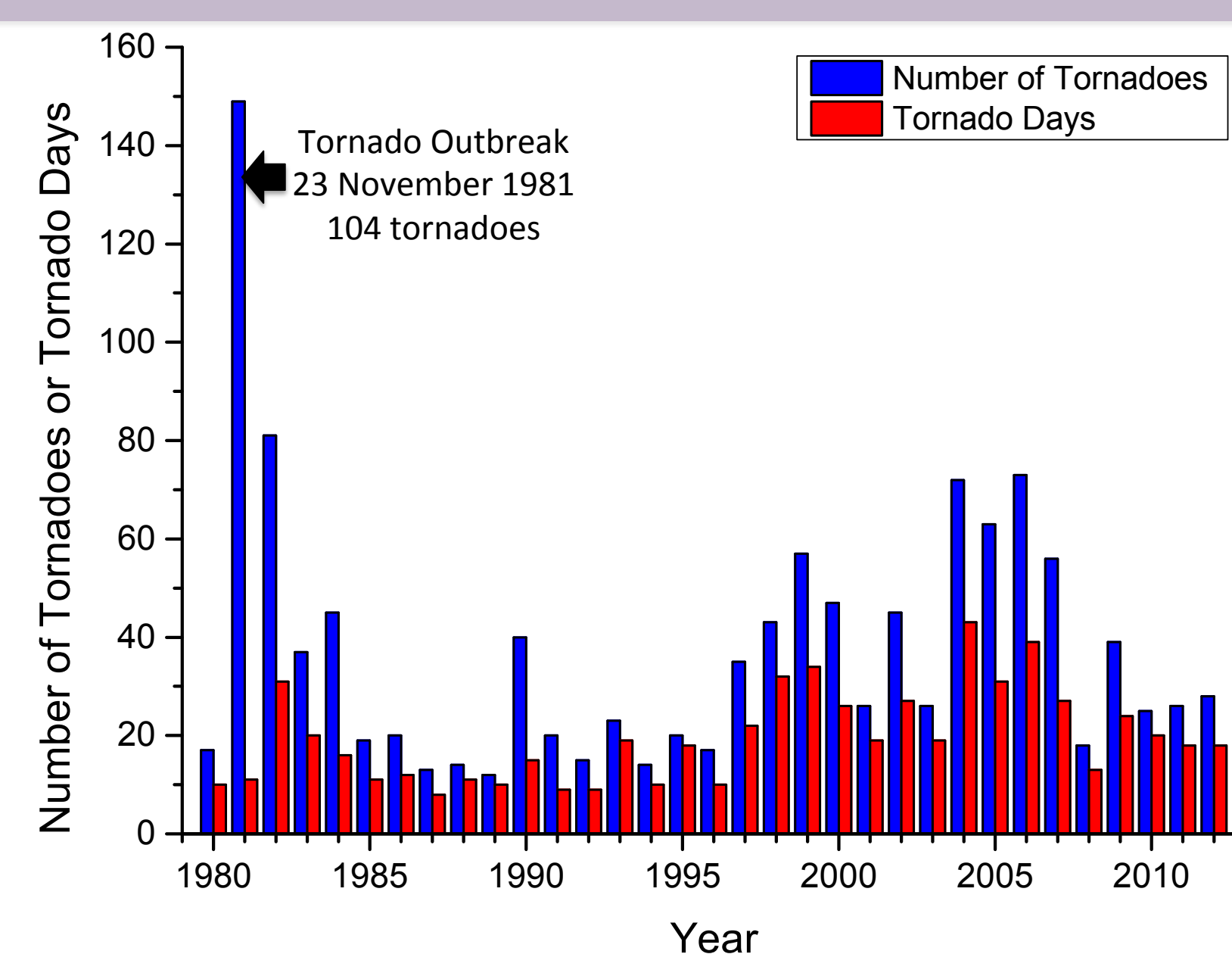
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## Annual Distribution of Tornadoes

1980–2012: Mean of 37 tornadoes and 19.5 tornado days per year

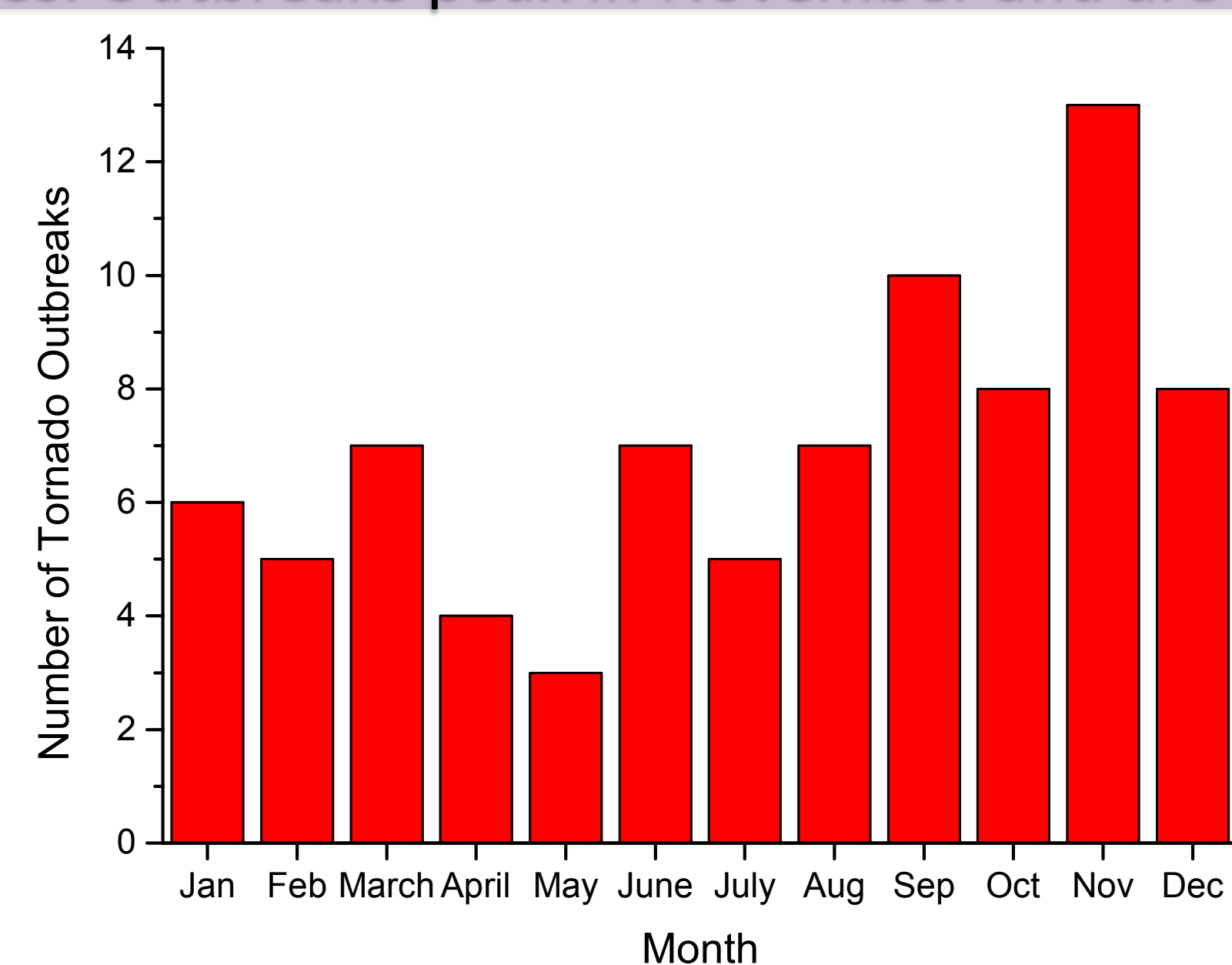
In the past 15 years: Mean of 42 tornadoes and 25.8 tornado days per year



For comparison,  
from 1991–2010,  
the US had a  
mean of 1,253  
tornadoes per  
year

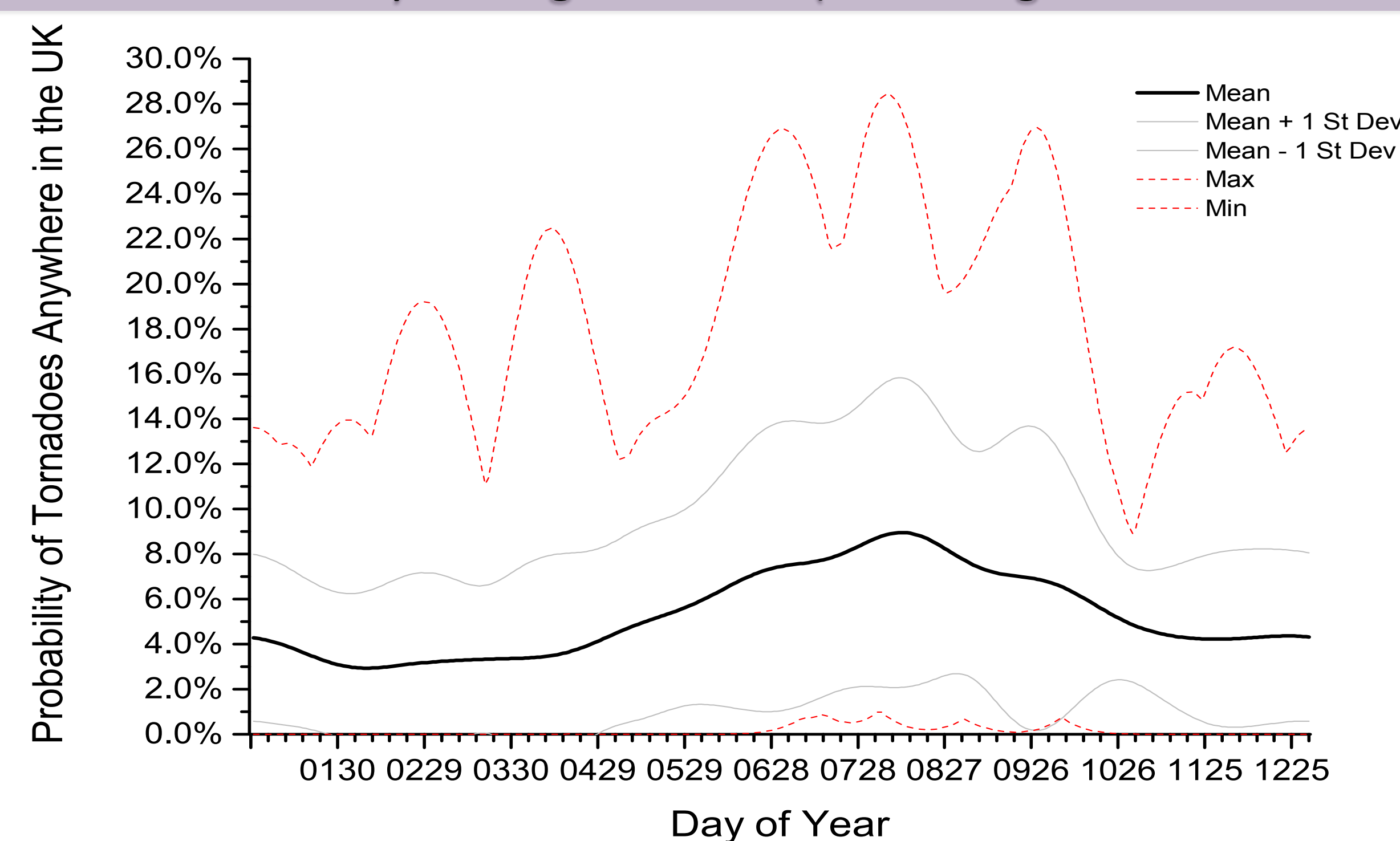
## Monthly Distribution of Tornado Outbreaks

The largest outbreak (3 or more tornadoes in a day) was 104 tornadoes. All other outbreaks are fewer than 30 tornadoes; 90.3% of outbreaks are fewer than 10 tornadoes. Outbreaks peak in November and are minimized in May.



## Daily Probability of Tornado Anywhere in the UK

Smoothing tornado occurrence data temporally, the peak probability of tornadoes anywhere in the British Isles is 12 August with a “tornado season” from May through October (Following Brooks et al. 2003)



With frequent tornadoes, it is important to understand when, where, and why tornadoes occur to protect life and property.

## Did You Know?

Tornadoes in England occur more frequently per area than any country in the world!



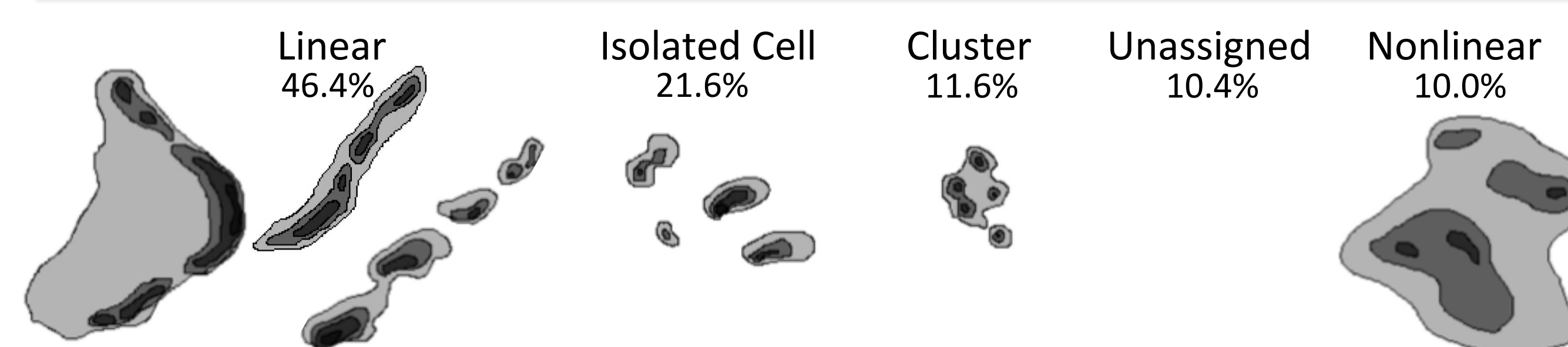
1.28 tornadoes per  
year per 10,000 km<sup>2</sup>  
(3.47 tornadoes per year per  
10,000 km<sup>2</sup> in Oklahoma)



2.25 tornadoes per  
year per 10,000 km<sup>2</sup>

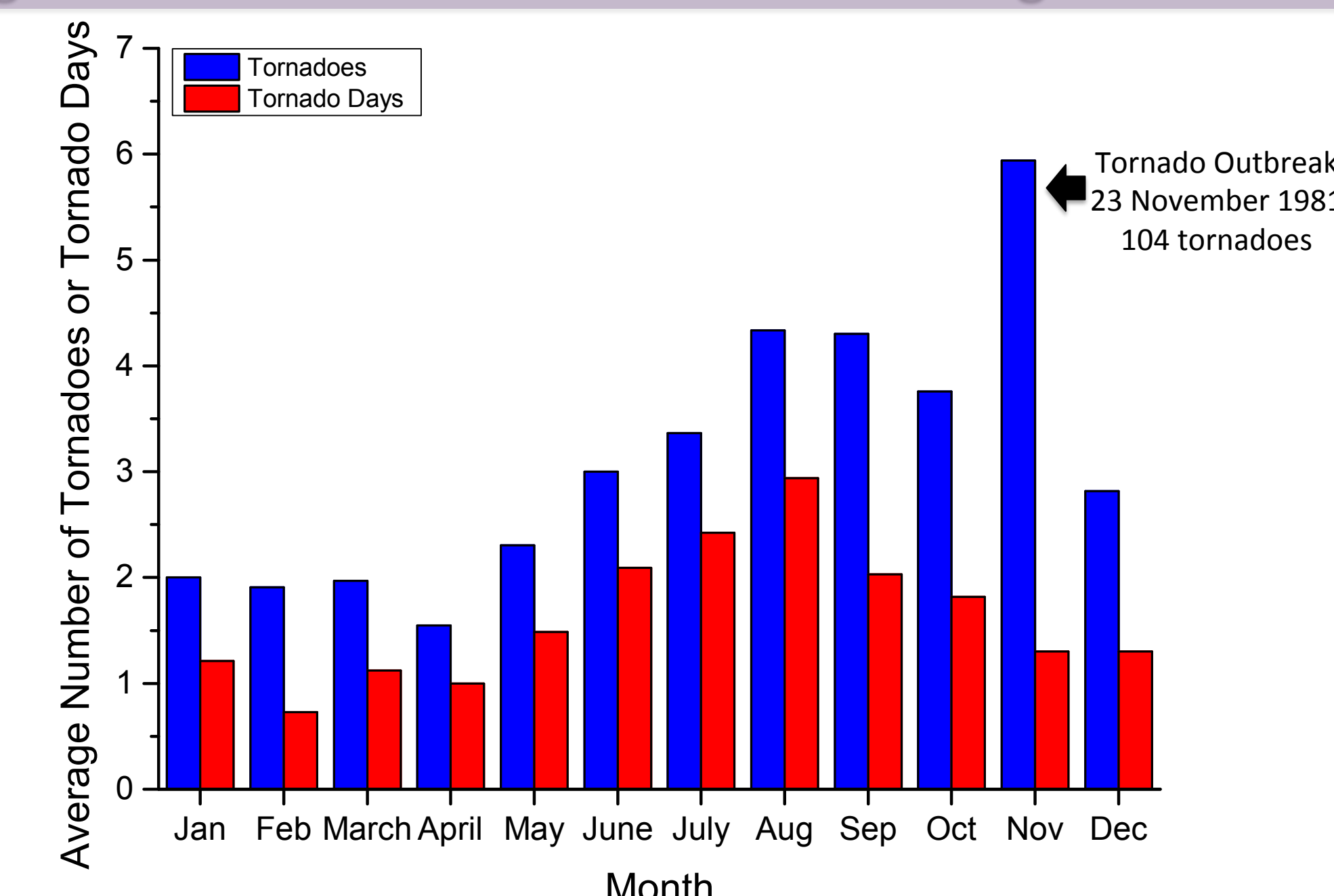
## Parent Storm Type

Most tornadoes in the British Isles come from linear storms. The only time of year linear storms do not dominate tornadogenesis is from April through July when isolated storms generate more tornadoes. (Methods following Gallus et al. 2008)



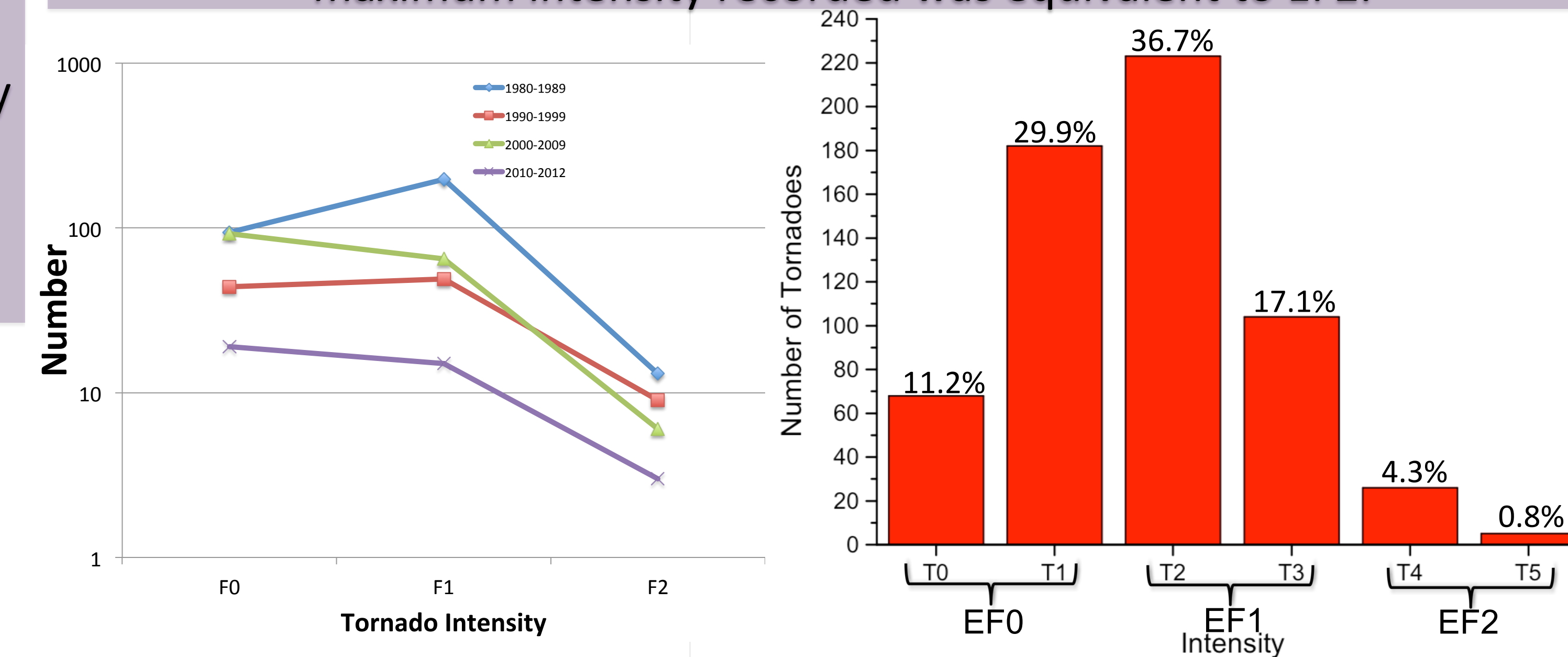
## Monthly Distribution of Tornadoes

Tornado numbers peak between August and November. Tornado days peak June through October and are still common through the rest of the year.



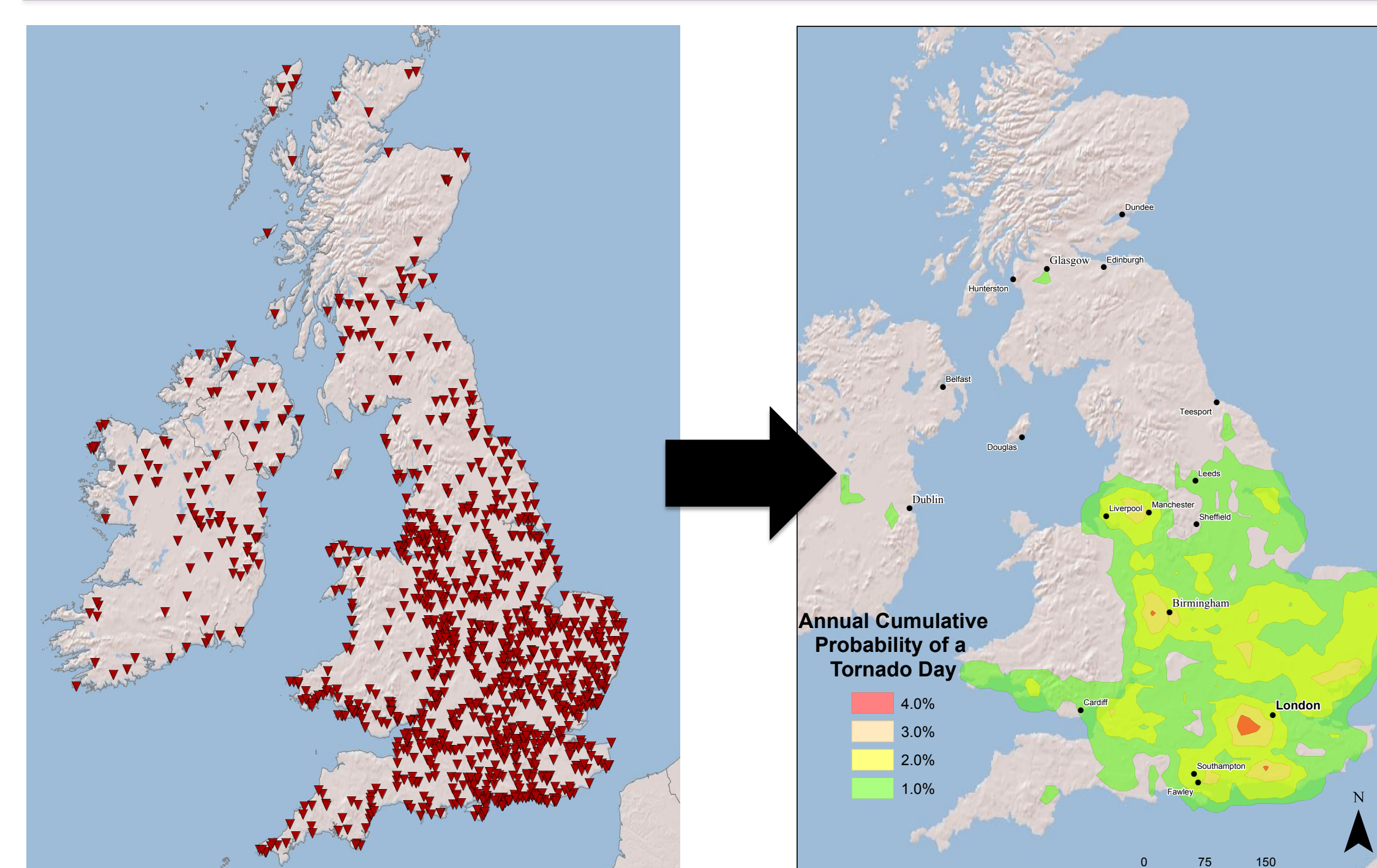
## Tornado Intensity

Compared to US tornadoes, British Isles tornadoes are weaker with the majority of tornadoes leaving EF1 damage. In the period 1980–2012, the maximum intensity recorded was equivalent to EF2.



## Tornado Alley

Looking at tornado probability spatially, tornadoes in the British Isles are most common in England and along the Welsh Coast. (Following Brooks et al. 2003)



Tornado hot spots near city centers suggests population bias.

## Changes in Tornado Alley Throughout the Year

The GIF linked below shows the spatial changes in tornado alley throughout the year. The most stark change is a peak in tornado probability along the south coast of England in October and November. (Following Brooks et al. 2003)



## Future Work

- Determine environmental conditions conducive to tornadogenesis in England
- Model case studies of tornadoes along lines (the most common storm type in the British Isles) and null cases to gain insight into why some storms generate tornadoes

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## References

- Brooks, H. E., C. A. Doswell, M. P. Kay, 2003: Climatological Estimates of Local Daily Tornado Probability for the United States. *Weather and Forecasting*, **18**, 626–640.
- Gallus, W. A., N. A. Snook, and E. V. Johnson, 2008: Spring and Summer Severe Weather Reports over the Midwest as a function of Convective Mode: A Preliminary Study. *Weather and Forecasting*, **23**, 101–113.