NSSL’s Interest

- Understanding how severe storms fit into climate
- Helping SPC put things in context
- Extending forecast horizon
- Reports to look at past tornado changes
- Using environmental conditions to forecast longer
Days Per Year With At Least 1 (E)F1+ Tornado in US
(More Than 30 (E)F1+ Tornadoes)

Brooks, Carbin, and Marsh
(Science, 2014)
Mean Change

Brooks, Marsh, and Carbin
(Proc. Nat. Acad. Sci., in prep.)

95% Confidence

Warm summers-fewer tornadoes
Warm winters-more tornadoes

Monthly Change in Number of (E)F-1+ Tornadoes Per Degree Celsius of Warming

Change in Tornadoes Per Degree Warming

Month and Mean Tornado Count
Long-range forecasting with Climate Forecast System (SPC, Climate Prediction Center, Columbia)

"Why don’t I get seasonal tornado forecasts like I get seasonal hurricane forecasts?"
-B. Obama, 5 March 2012

Each “chiclet” represents one forecast/valid time pair

Forecasts valid same day

Forecasts made same day
Summary and Next

• Variability of tornado occurrence has increased
• Warm winter (summer)-more (fewer) tornadoes

• Have environments changed like tornadoes?
• Continue tool, evaluation work for extended range