# Severe Weather and Climate Change

Harold E. Brooks
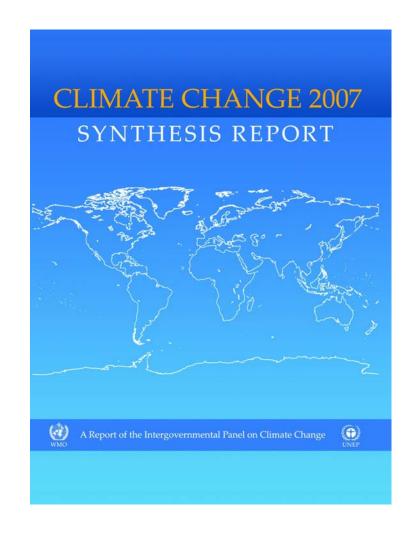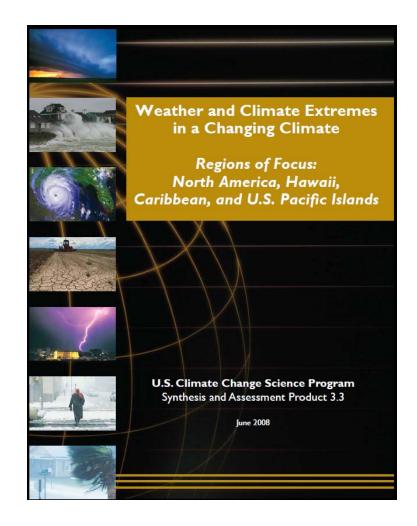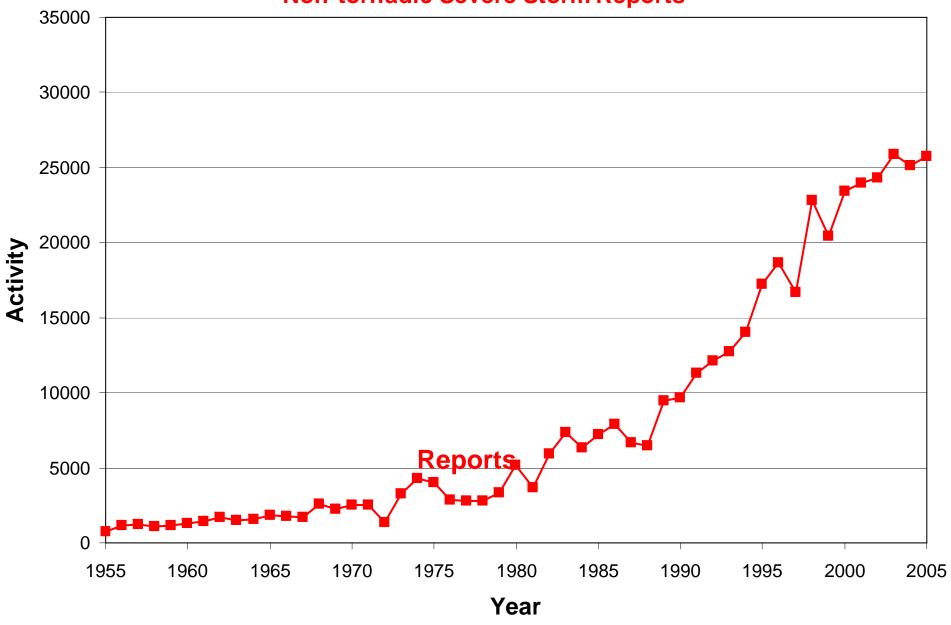Hazardous Weather Forecasts & Warnings

Currently, ~$10B damage in US annually

Can't say anything about observed changes

Can't say much about future changes
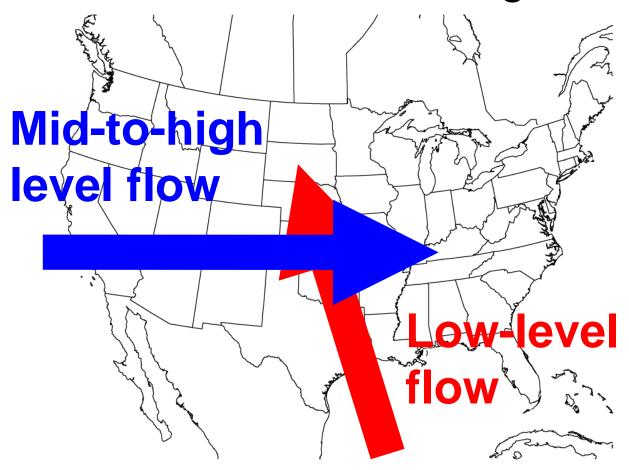
**Non-tornadic Severe Storm Reports**

*Reports*

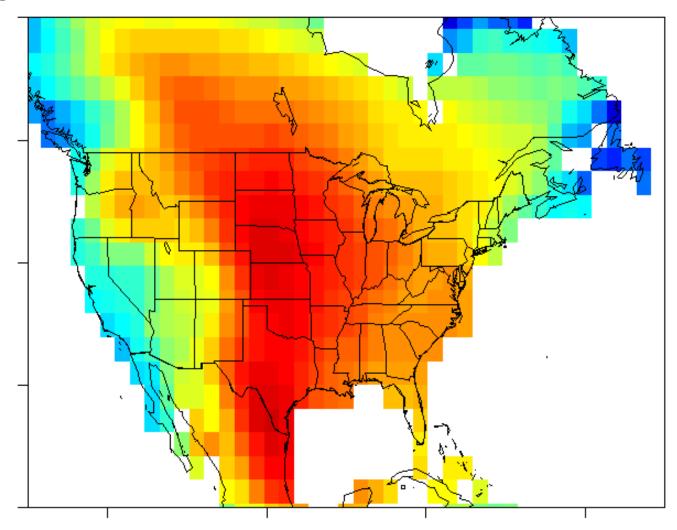Year / Activity

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# Why NSSL?

- Expertise developing…
    - report-based climatologies
    - ingredients-based approaches to forecasting
- Honest broker
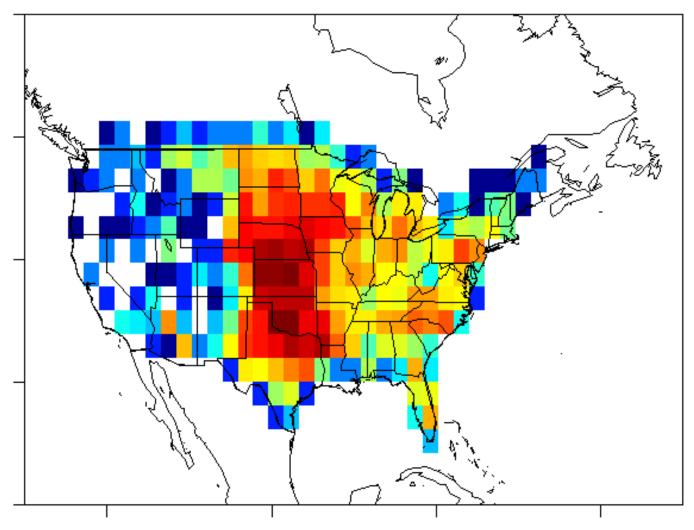
# Apply Forecasting Approach

- Look for ingredients in environments
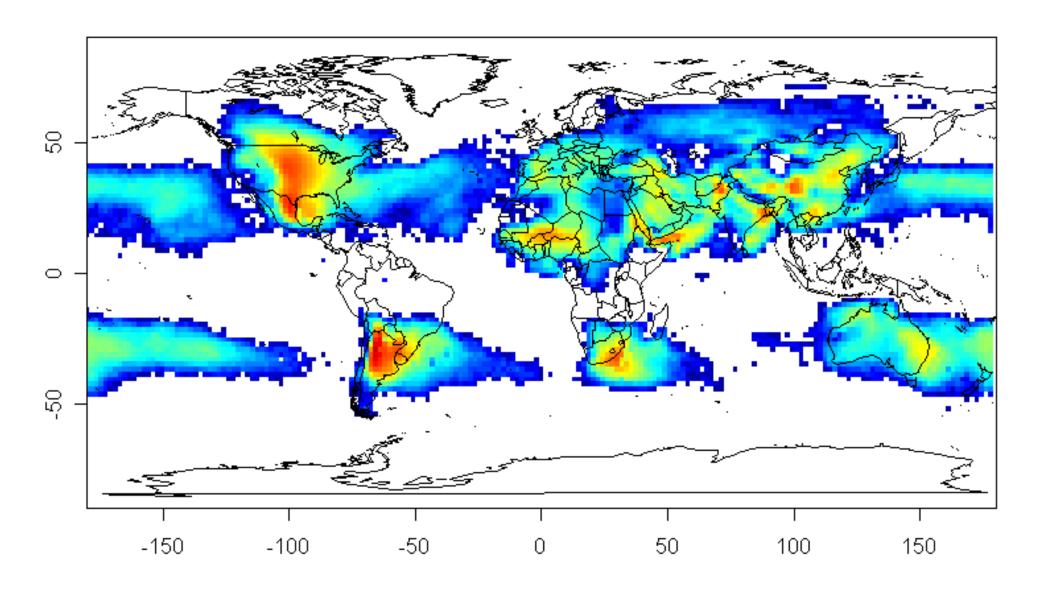- Difficult to observe all ingredients

**Mid-to-high level flow**

**Low-level flow**

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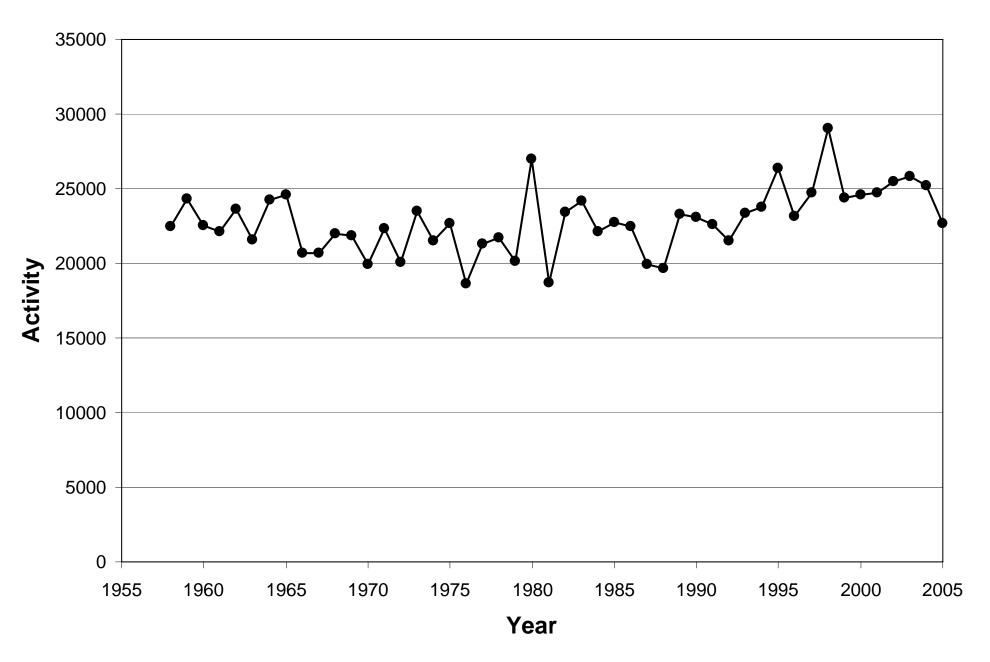# Ingredients Severe Storms Estimate

# Observed Severe Storms Locations
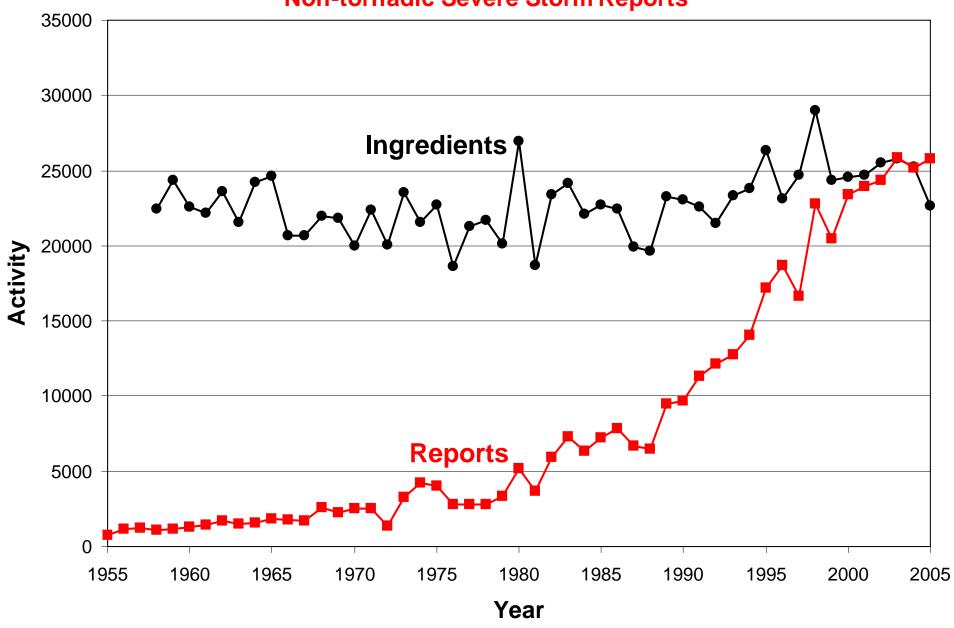
# Ingredients Severe Storms Estimate

**Ingredients Estimate of Severe Storm Reports**

**Ingredients Estimate of Severe Storm Reports**

**Non-tornadic Severe Storm Reports**

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# Severe Storms from Climate Model

1980-1999

**What about initiation?**

2080-2099