

(Updated 29 August 2003. Comments to [Harold Brooks](#))



## Severe Thunderstorm Climatology

*Where and when do  
severe thunderstorms occur?*

**Total Threat | Animations | Annual Cycles | Miscellaneous | Data Processing**

### Introduction

At NOAA's [National Severe Storms Laboratory](#), we have begun a project to estimate the likelihood of severe weather hazards in the United States. (Severe thunderstorms are defined in the United States as having either tornadoes, gusts at least 58 mph, or hail at least 3/4 inch in diameter.) The figures are of three primary kinds:

1. The average number of days per year with the event occurring within 25 miles of any point ([Total Threat](#)).
2. Animated loops of the probability of severe weather occurring within 25 miles of any point on a particular day with images once per week through the year ([Animated Loops](#)).
3. Graphs showing the annual cycle of the probability of severe weather occurring within 25 miles at any point you select ([Annual Cycles at Points \[Clickable Maps\]](#)).

For more information on the raw data that went into the figures and how it was processed, click [here](#).  
Conference paper on [climatology of strong and violent tornadoes in the US](#) by Concannon, Brooks, and Doswell.

### [Total Threat](#)

### [Animated Loops](#)

### [Annual Cycles at Points \[Clickable Maps\]](#)

### [Miscellaneous Climatological Information](#)

### [Data Processing](#)

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<http://www.nssl.noaa.gov/hazard/>



**Total Threat | Animations | Annual Cycles | Miscellaneous | Data Processing**

What is the total annual threat of severe thunderstorms in the United States?

### Total Threat

The mean number of days per year with one or more events within 25 miles of a point is shown here. The fill interval for tornadoes is 0.2, with the purple starting at 0.2 days. For the nontornadic threats, the fill interval is 1, with the purple starting at 1. For the significant (violent), it's 5 days per century (millenium)

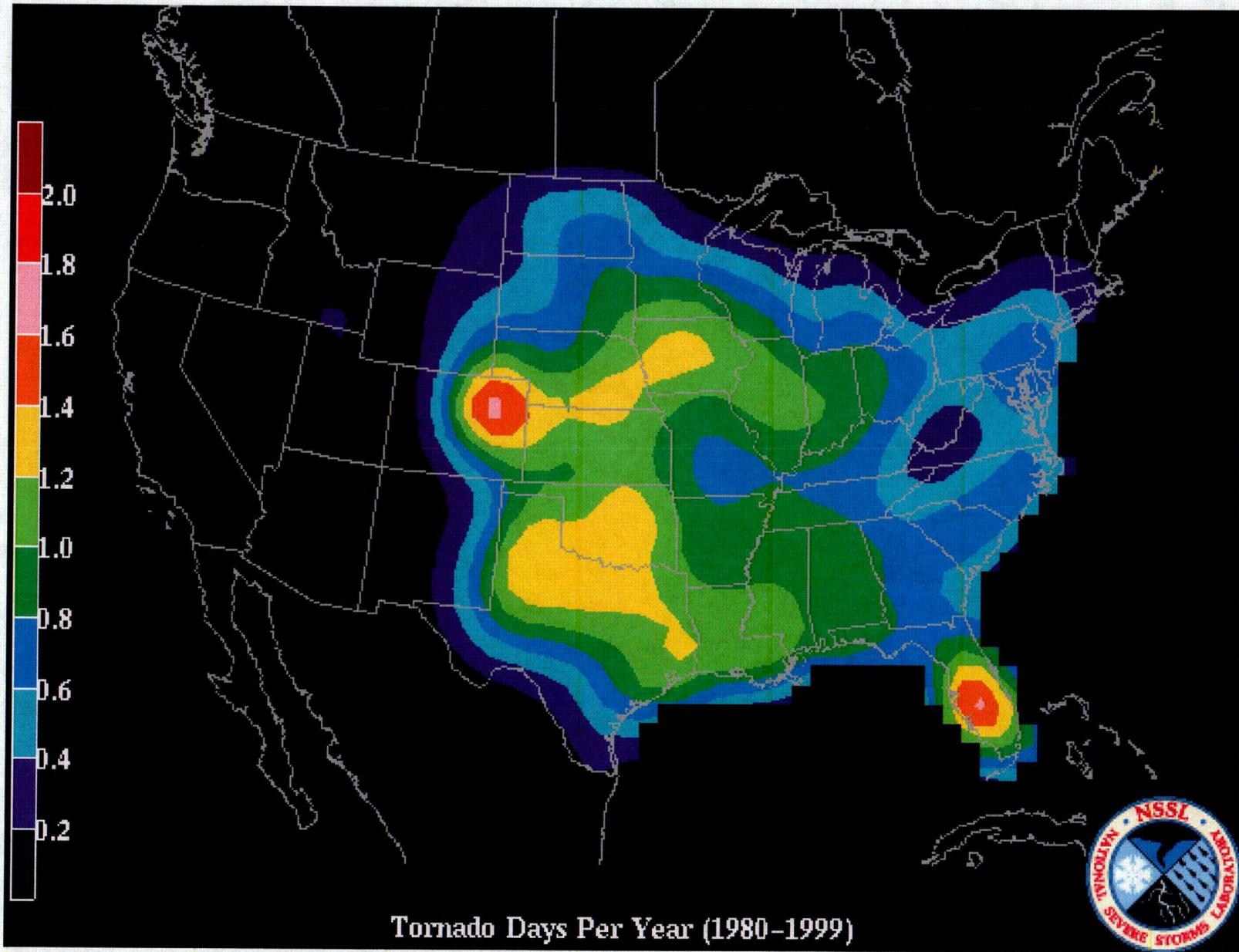
### All Severe Weather

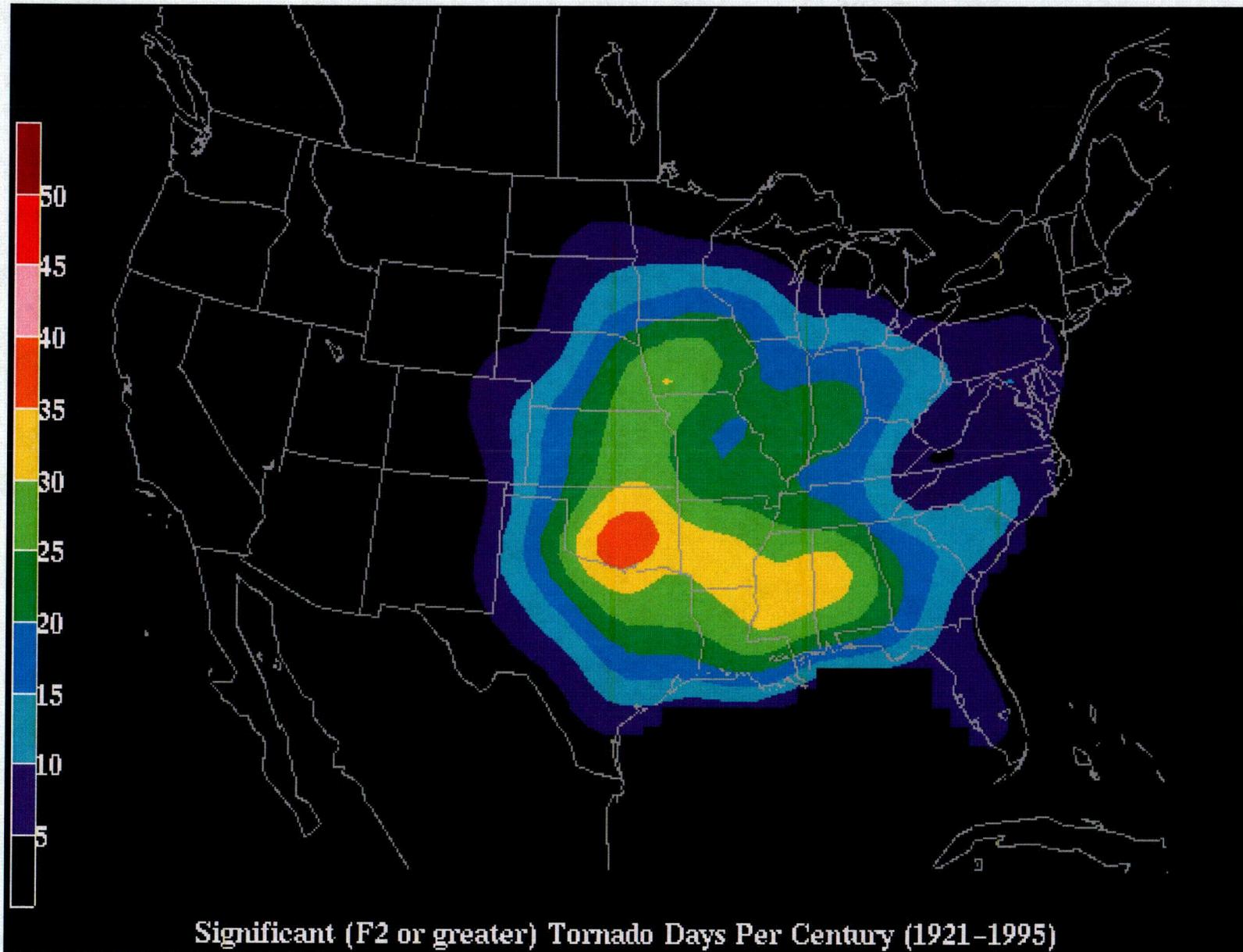
Period	Any Tornado	Thunderstorm winds (50 kts or greater or damaging)	Hail (3/4 inch diam. or greater or damaging)
1980-1999	<a href="#">gif</a>	<a href="#">gif</a>	<a href="#">gif</a>
1980-1984	<a href="#">gif</a>	<a href="#">gif</a>	<a href="#">gif</a>
1985-1989	<a href="#">gif</a>	<a href="#">gif</a>	<a href="#">gif</a>
1990-1994	<a href="#">gif</a>	<a href="#">gif</a>	<a href="#">gif</a>
1995-1999	<a href="#">gif</a>	<a href="#">gif</a>	<a href="#">gif</a>

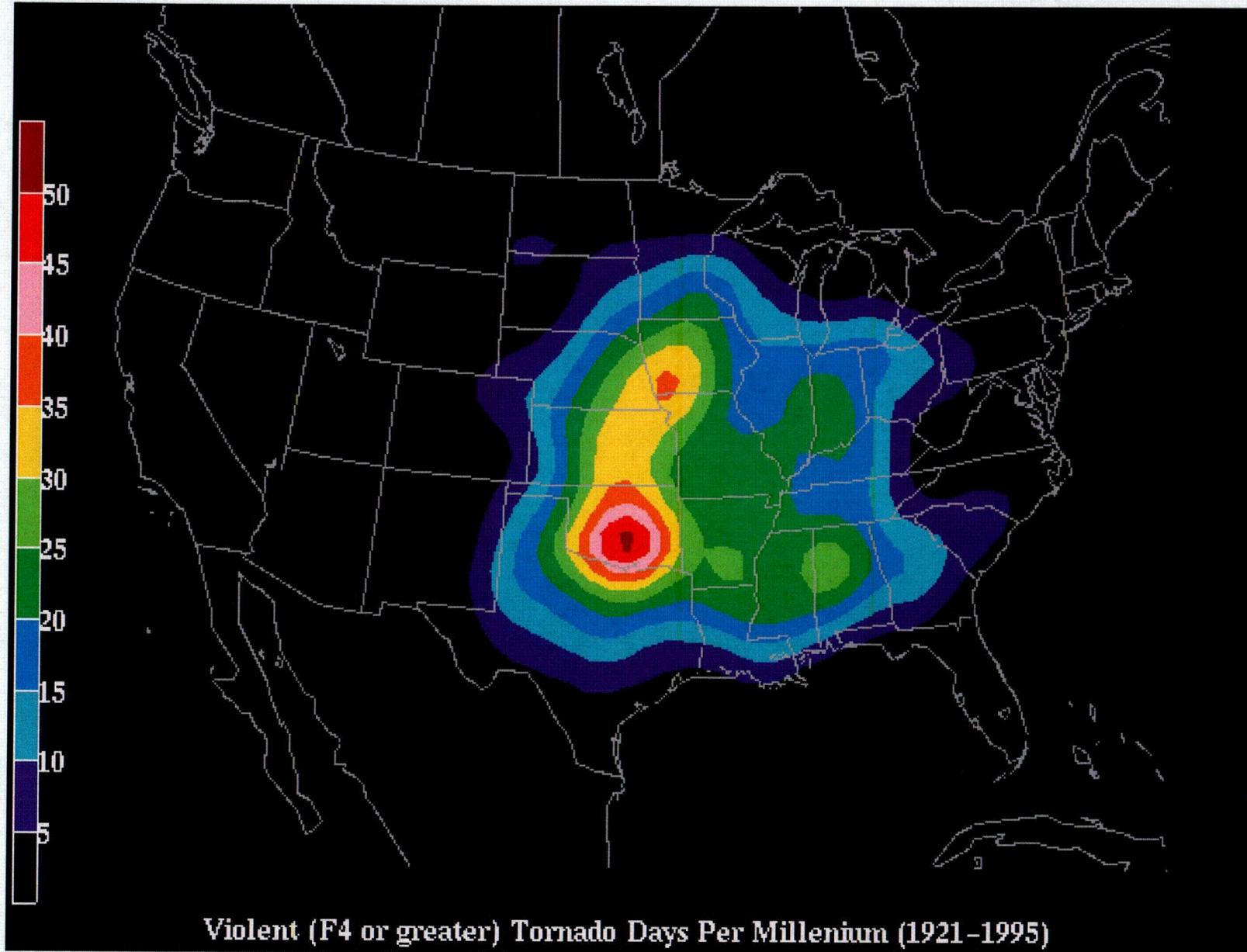
### "High-End" Severe Weather

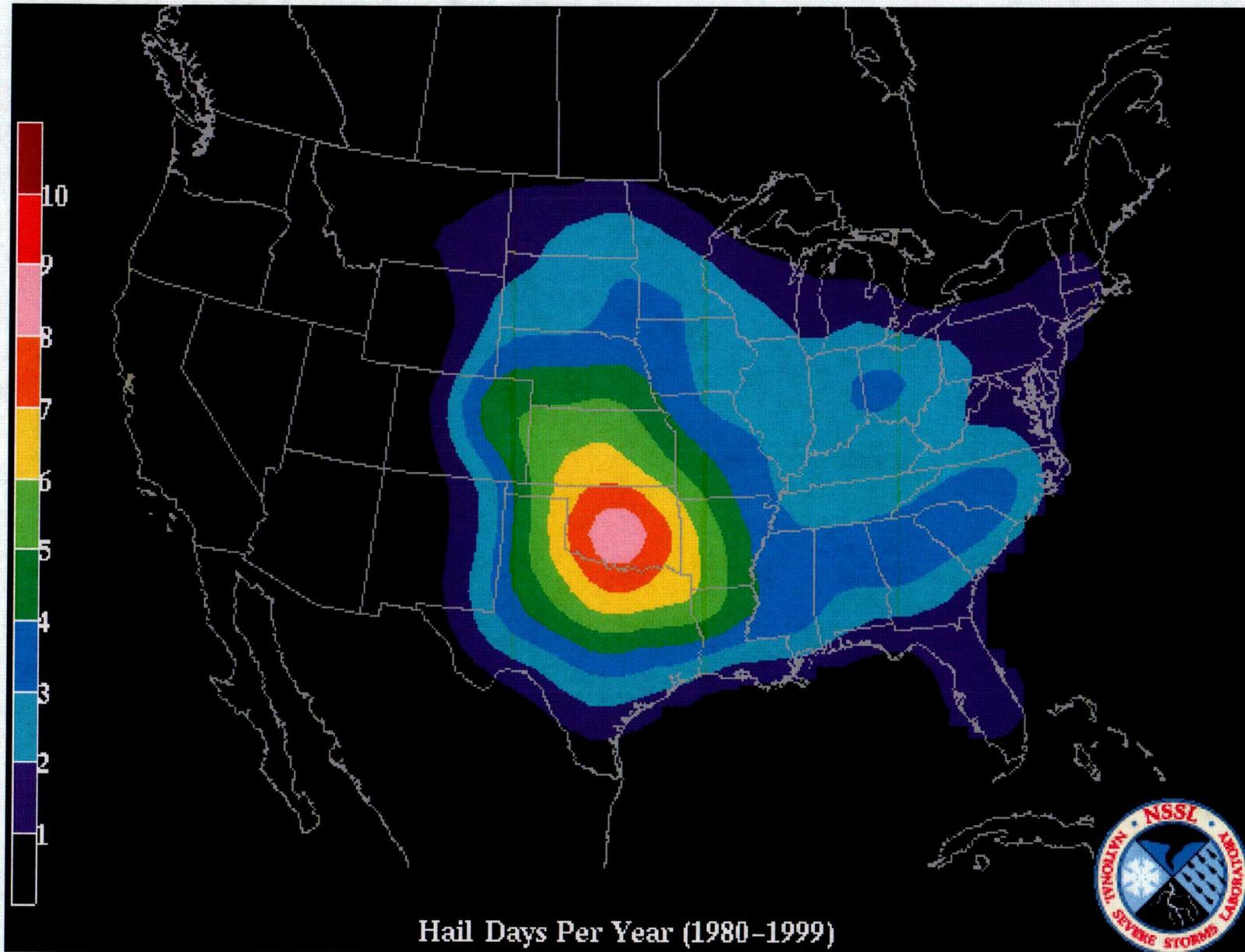
Period	Significant Tornado (F2 or greater)	Violent Tornado (F4 or greater)	Thunderstorm winds (65 kts or greater)	Hail (2 inch diam. or greater)
1921-1995	<a href="#">gif</a>	<a href="#">gif</a>		
1980-1994			<a href="#">gif</a>	<a href="#">gif</a>

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Hail Days Per Year (1980-1999)

