

# Antitrust Notice

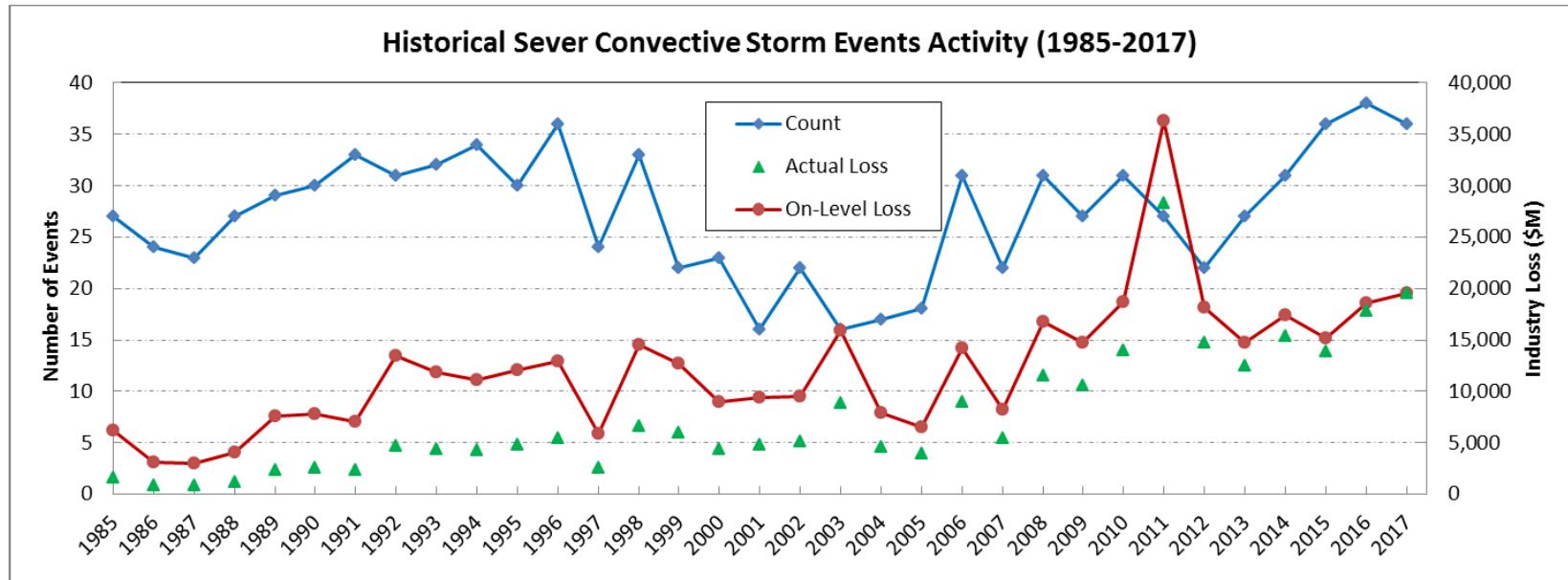
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- The Casualty Actuarial Society is committed to adhering strictly to the letter and spirit of the antitrust laws. Seminars conducted under the auspices of the CAS are designed solely to provide a forum for the expression of various points of view on topics described in the programs or agendas for such meetings.
- Under no circumstances shall CAS seminars be used as a means for competing companies or firms to reach any understanding – expressed or implied – that restricts competition or in any way impairs the ability of members to exercise independent business judgment regarding matters affecting competition.
- It is the responsibility of all seminar participants to be aware of antitrust regulations, to prevent any written or verbal discussions that appear to violate these laws, and to adhere in every respect to the CAS antitrust compliance policy.



# PCS Sever Convective Storm Activity

## Total Event Counts and Industry Loss

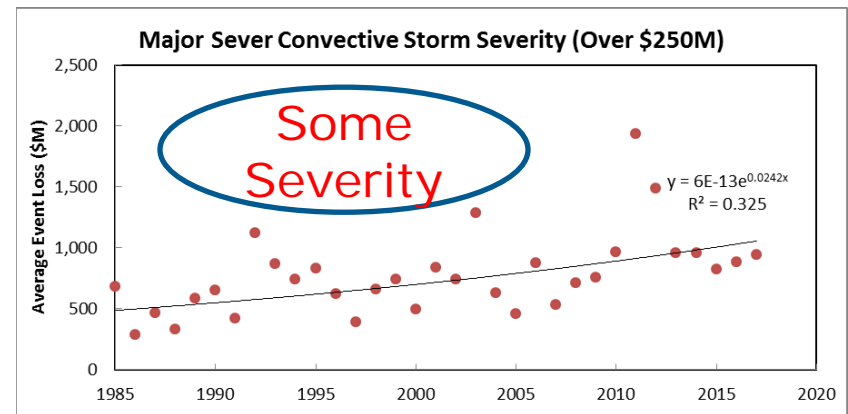
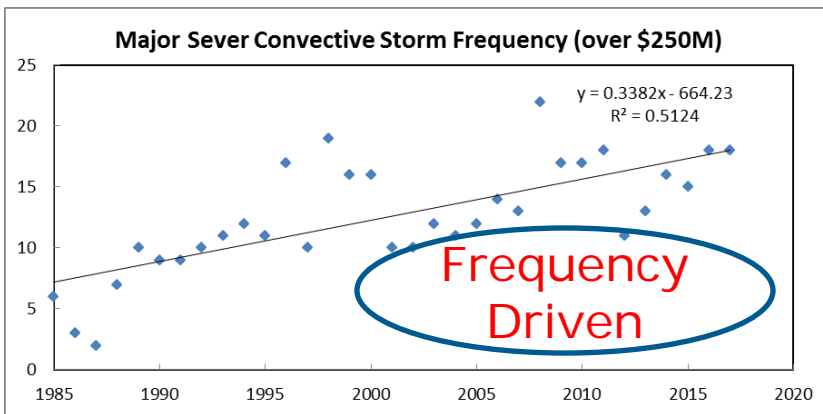
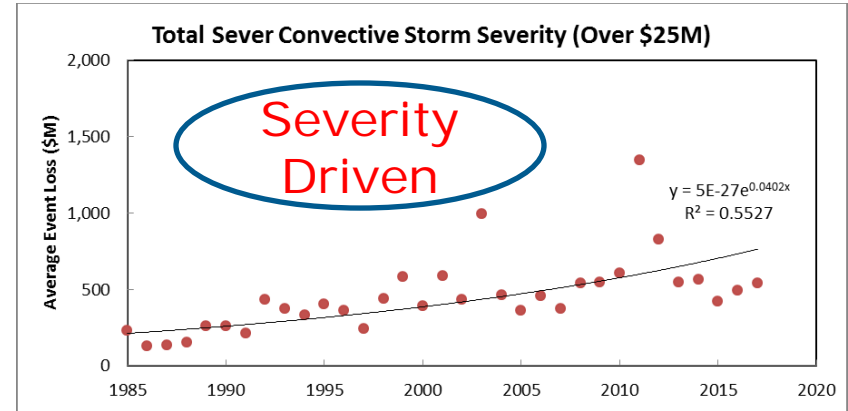
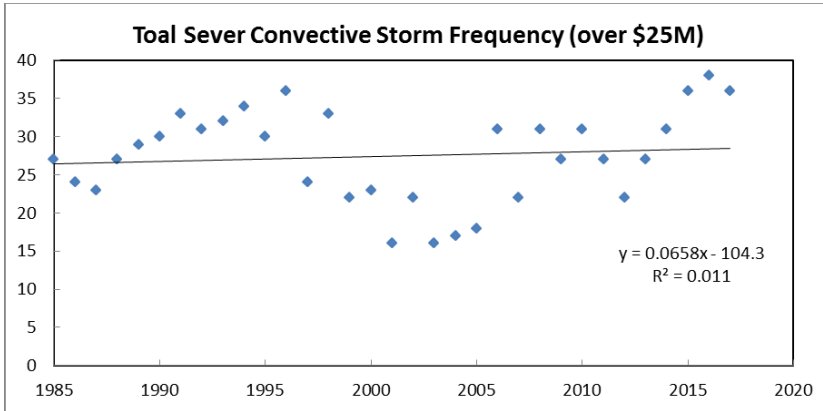


- Data source – Verisk PCS Catastrophe History by Storm Family
- CAT Events – Only Include Events with 2017 On-Level Loss Over 25M
- On-level Factor - Yearly 4.2% = 1% Population Growth + 3.2% CPI
- Any Trend – Frequency? Severity?



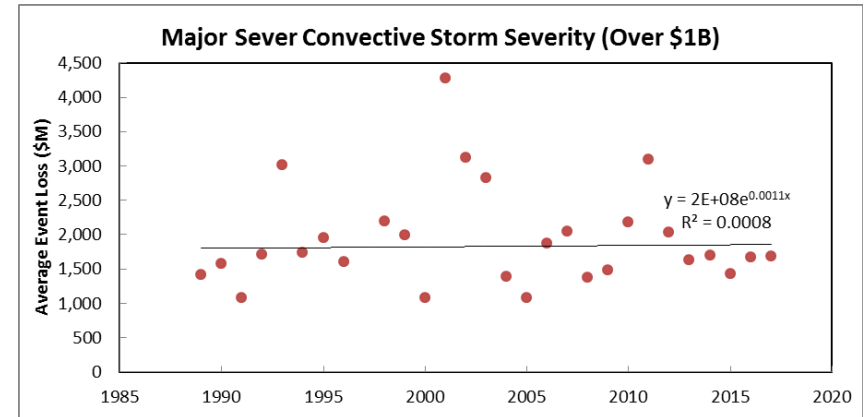
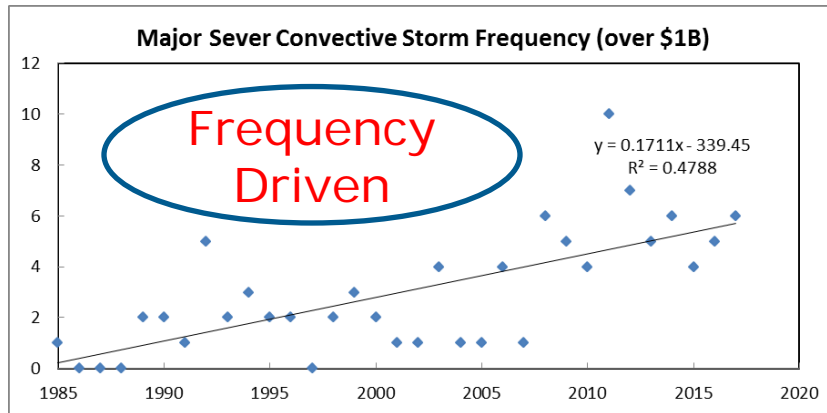
# PCS Sever Convective Storm Activity

## Frequency and Severity Analysis



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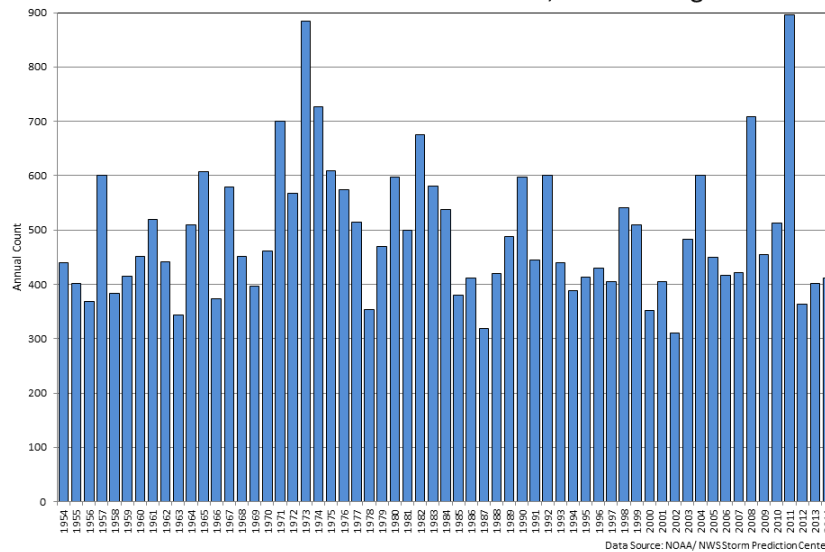
➤ **Different level of event severity, different conclusion**

- ✓ Overall – not much frequency change but more severity in recent years
- ✓ Major events – higher frequency in recent years

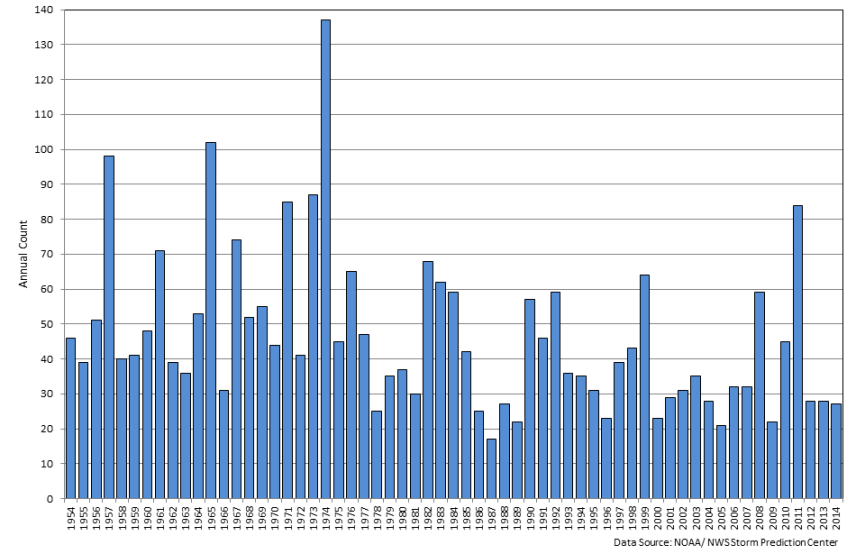
# NOAA –Historical Records and Trends

There has been **little trend** in the frequency of the stronger tornadoes over the past 55 years - <https://www.ncdc.noaa.gov/climate-information/extreme-events/us-tornado-climatology/trends>

U.S. Annual Count of EF-1+ Tornadoes, 1954 through 2014



U.S. Annual Count of Strong to Violent Tornadoes (F3+), 1954 through 2014



**SCALE 3 second Gust (MPH)**

- 0 65 – 85
- 1 86 – 110
- 2 111 – 135
- 3 136 – 165
- 4 166 – 200
- 5 Over 200

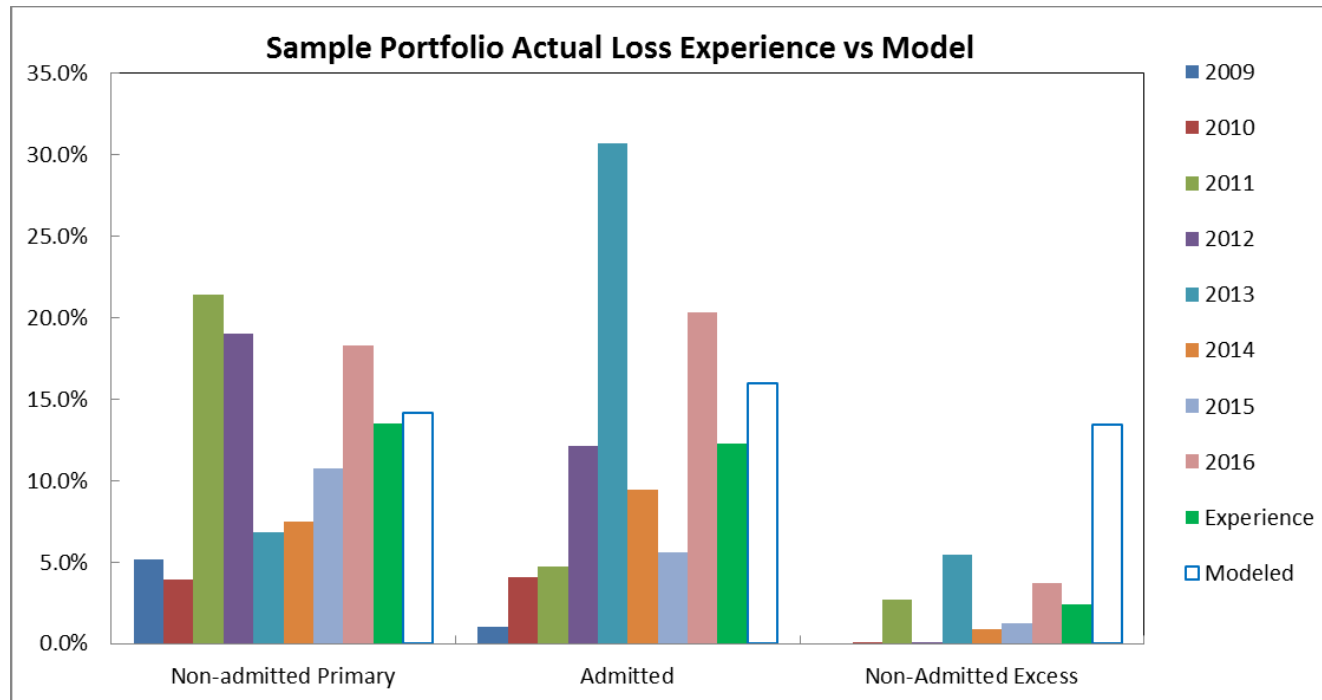
**TYPICAL DAMAGE**

- Light damage. Some damage to chimneys; branches broken off trees; shallow-rooted trees pushed over; sign boards damaged.
- Moderate damage. Peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos blown off roads.
- Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars overturned; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
- Severe damage. Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; heavy cars lifted off the ground and thrown.
- Devastating damage. Well-constructed houses leveled; structures with weak foundations blown away some distance; cars thrown and large missiles generated.
- Incredible damage. Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 meters (109 yds); trees debarked; incredible phenomena will occur.



# Sever Convective Storm Experience vs Model

## Sample Portfolio 2009 - 2016



- Experience matches with model results reasonable well except for the excess portfolio
- Experience vs Model
- Best Practice of Modeling SCS for Pricing and Risk Management
- Meteorology Research on ENSO Impact to SCS Activity

