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Natural Catastrophes:

Is this the New Norm and other often asked Questions



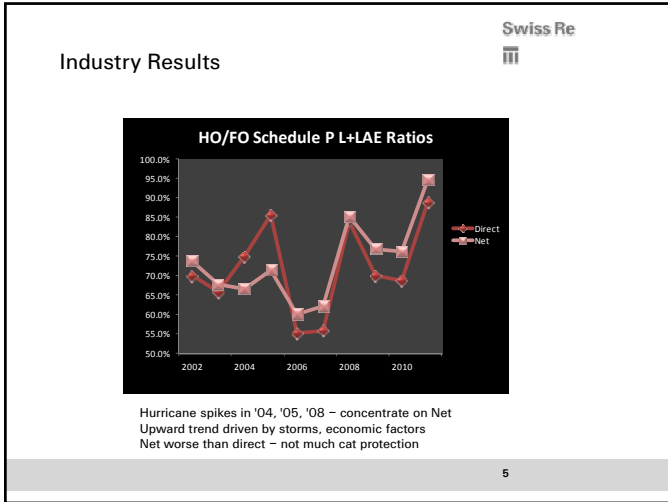
Sean Davlin
CAS Spring Meeting
May 23, 2012



First a quick Look back at 2011

<p>January</p> <p>Record floods swamp Australia's east coast, killing 35 people, shutting rail lines, and causing roads, rail lines and power lines to be cut in several states.</p>	<p>February</p> <p>Cyclone Yasi, one of the largest and most powerful storms ever to hit Australia, devastating sugar and other crops.</p> <p>Massive winter storm hits U.S. causing travel chaos and power outages.</p>	<p>March</p> <p>Japan Tōhoku earthquake and tsunami</p> <table border="1" style="width: 100%; font-size: small;"> <tr><td>Buildings Impacted</td></tr> <tr><td>Coastal</td></tr> <tr><td>Manufacturing</td></tr> <tr><td>Non Coastal</td></tr> <tr><td>Maintenances</td></tr> <tr><td>TOTAL:</td></tr> </table>	Buildings Impacted	Coastal	Manufacturing	Non Coastal	Maintenances	TOTAL:	<p>April</p> <p>Series of tornadoes batter U.S. Southeast, killing an estimated 364 people. One tornado spans 91 miles.</p>				
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<p>May</p> <p>Tornadoes downed over 100 buildings, destroyed 100 homes, and injured 147 people.</p>	<p>June</p> <p>Floods in China's central and southern provinces killed over 100 people. More than half a million are evacuated.</p>	<p>July</p> <p>Protests brought in decades of Aung Mye Thaw in Thailand begins.</p>	<p>August</p> <p>Multiple large fires at least 40 people in the east; United States and jitters. One water flooding in Germany, some states.</p>										
<p>September</p> <p>Worst flooding along the Mekong River since 2000. Many white tigers and other animals are being rescued.</p>	<p>October</p> <p>Unusually early snow storm leads to power outages, power and fuel prices reach \$600 Million.</p>	<p>November</p> <p>Thailand's flood bills reach over \$200 billion as 44 people die. Disrupting food and electronic goods supply chains.</p>	<p>December</p> <table border="1" style="width: 100%; font-size: small;"> <tr><td>Hurricane</td><td>\$ 4.3 Bn</td></tr> <tr><td>Tropical Storm</td><td>\$.8Bn</td></tr> <tr><td>Winter</td><td>\$.5Bn</td></tr> <tr><td>Tornado/Wind</td><td>\$2.6Bn</td></tr> <tr><td>Winter Storm</td><td>\$.2Bn</td></tr> </table> <p>TORNADO WARNING</p>	Hurricane	\$ 4.3 Bn	Tropical Storm	\$.8Bn	Winter	\$.5Bn	Tornado/Wind	\$2.6Bn	Winter Storm	\$.2Bn
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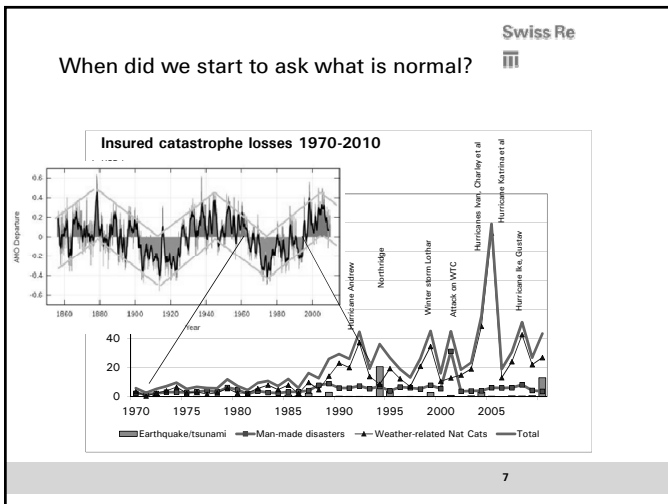


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Before we think about the "New Norm", what is normal anyway?

- How do we judge what is or isn't normal?
 - Recent memory
short memory with long faces
 - Selective memory
name the last 5 Super Bowl losers
 - Historical data and statistics
is there any bias
 - Trends or Normal Variation
objectivity...are all things considered?
 - Cat model opinions
when have they ever been right?
 - Perceptions (ours or others [media])
perceptions become our reality

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My opinion points to the "Real Culprits" – Population, Wealth and Technology

POPULATION CHANGES

Population Change
Population change reflects changes in population between decennial census years. While every census reports population growth, during the twentieth century, the total and final population increased in population.

POPULATION CHANGE SINCE 1990

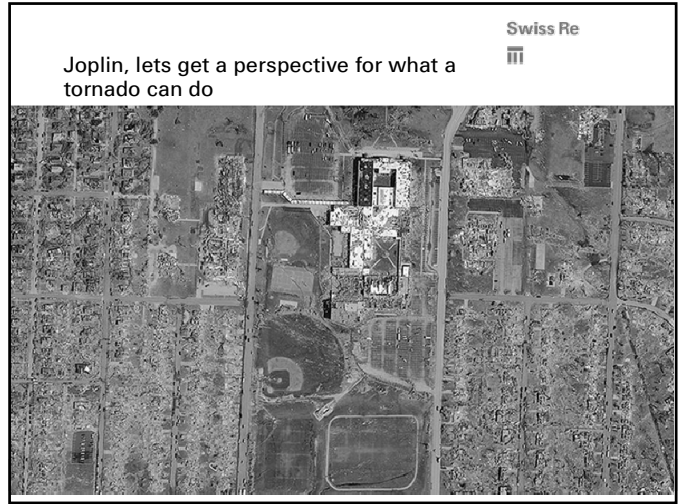
REGIONAL POPULATION GROWTH 2000-2010


A History of Home Values

The US economic index & Dow Jones index of American housing prices going back to 1900. It is based on the US economic index & Dow Jones index of American housing prices going back to 1900. It is based on the US economic index & Dow Jones index of American housing prices going back to 1900.

Technology Then and Now

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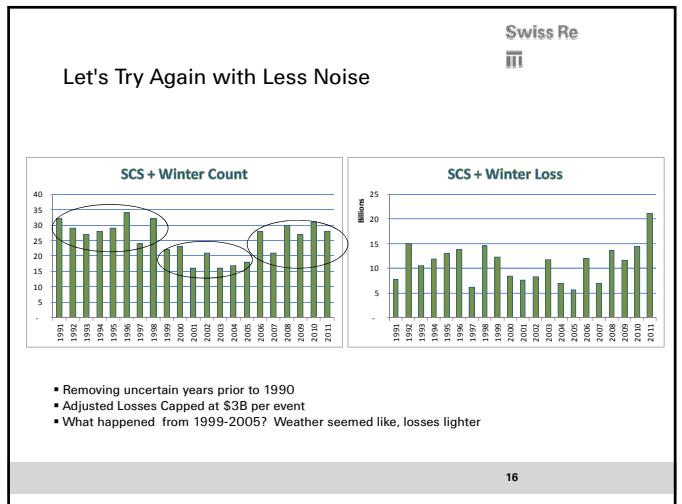
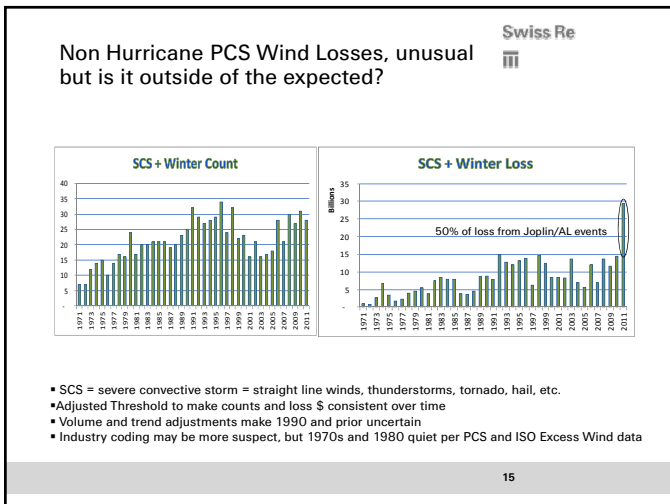
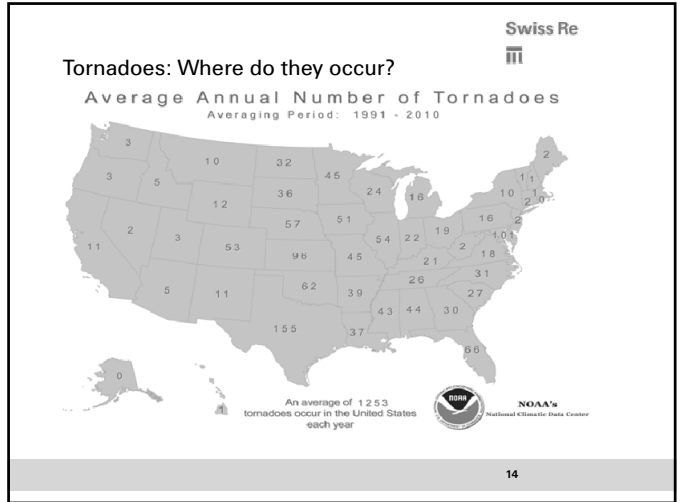
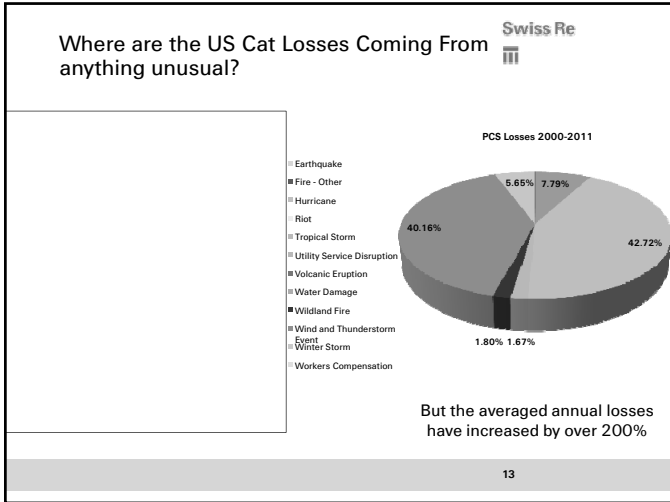
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Records and Near Records

Some Records

- 758 most ever in single month
- 542 previous record 2003
- 162 deaths highest since 1947
- 3rd most active year since 1990
- Large continuous length 80m
- Longest Continuous 1925, 234m
- 128 most ever recorded in AL
- 94 was prior record in 2009

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Are weather events more common?

of Severe Events vs Adj Losses

of TO Events vs Adj Loss

- Severe events of Tornado, Wind and Hail captured by NOAA/SPC
- Little correlation of either # of events to Industry losses

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Why are losses up in recent years?

Avg Loss Per Event Type

- Adjusted SCS/Winter PCS losses/per SPC event regardless where losses came from
- Hitting more populated location?
- Economic driven?

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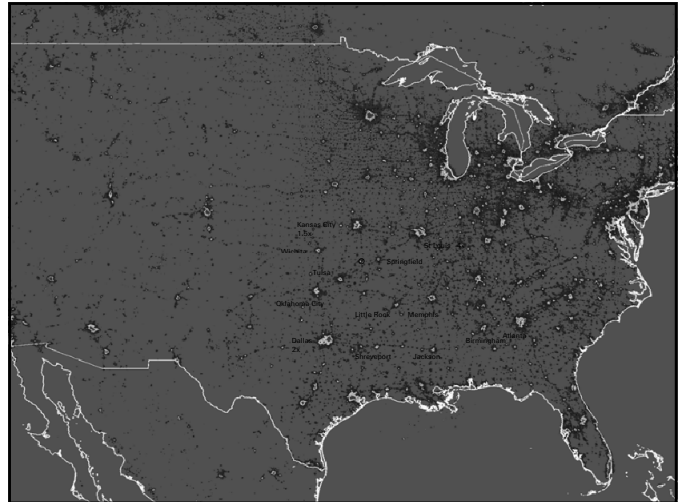
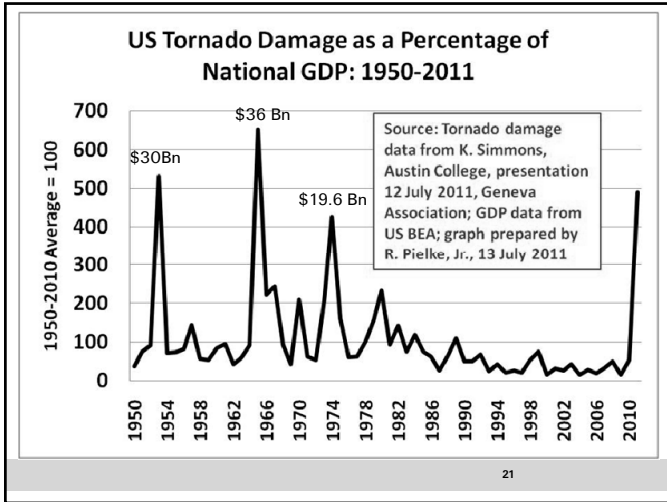
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3 Year MA PCS vs Unemployment Rate

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Tornado Historical Record

Doppler Radar Introduced Standard use of Doppler Radar



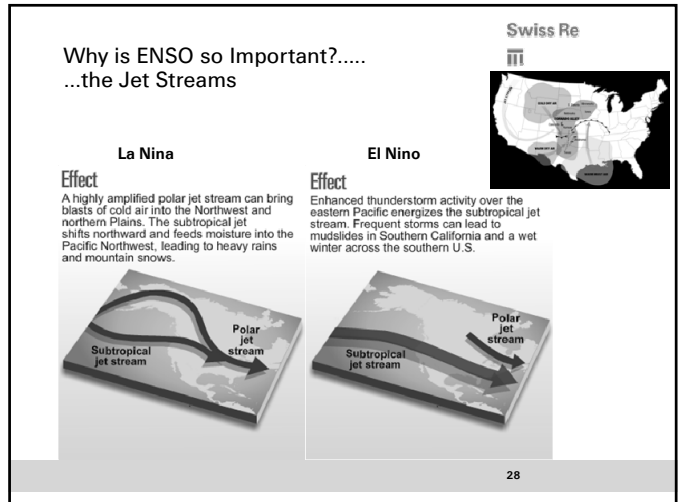
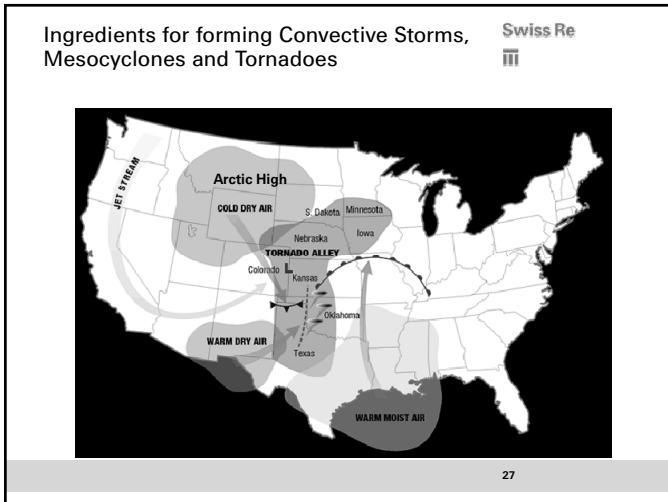
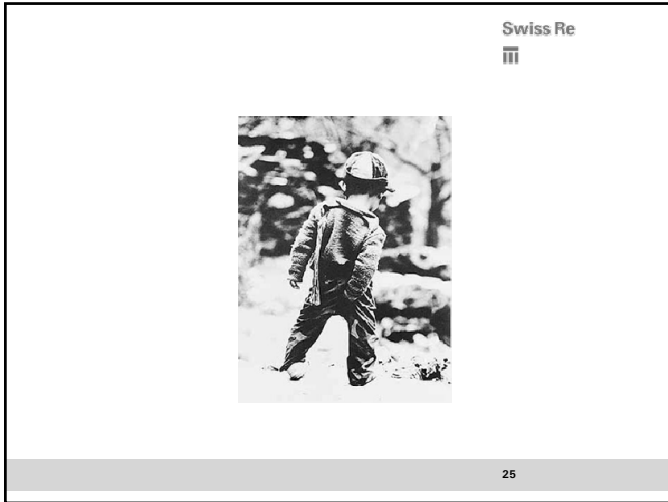
East St Louis is 150% the size of Joplin in population Density

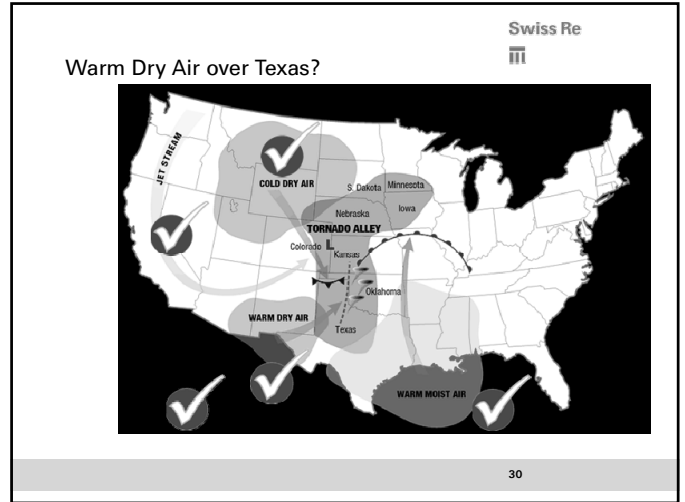
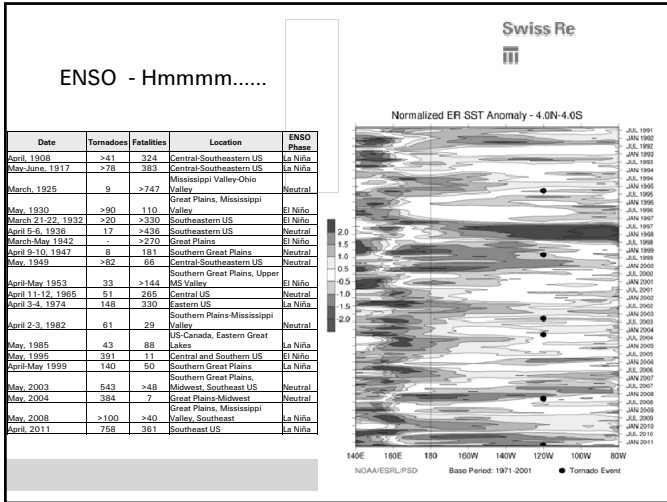
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East St Louis 1896
\$12-13 Bn Normalized to 2011

PHOTO BY STEVEN
JEFFERSON AND ALLAN AYERMAN—This is another view of the massive lower town of the Union Depot Railway Company, showing the extent of the wreck and the destruction of the women's work shops. It is a hard picture to find.







Conclusions – What is the New Norm?

- Greater values at risk expand dollar loss potential
- Thunderstorm and Tornado no longer can be simply considered as an attritional risk
- Combined losses could equal or surpass single large cat event especially to those who avoid high severity hazards
- Slow but equally painful surplus erosion due to increased net retentions
- Historical tornado losses of over \$12Billion normalized have occurred and it is only a matter of time before we see some losses twice to four times that of Joplin
- There will be more surprises ahead...that is one prediction that we can count on!

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