GUY CARPENTER

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REI - 1

Reinsurance
State of the Market

John Tedeschi
New York City

Aphorism # 1

The More things Change,

the More they Remain the Same

Aphorism # 1

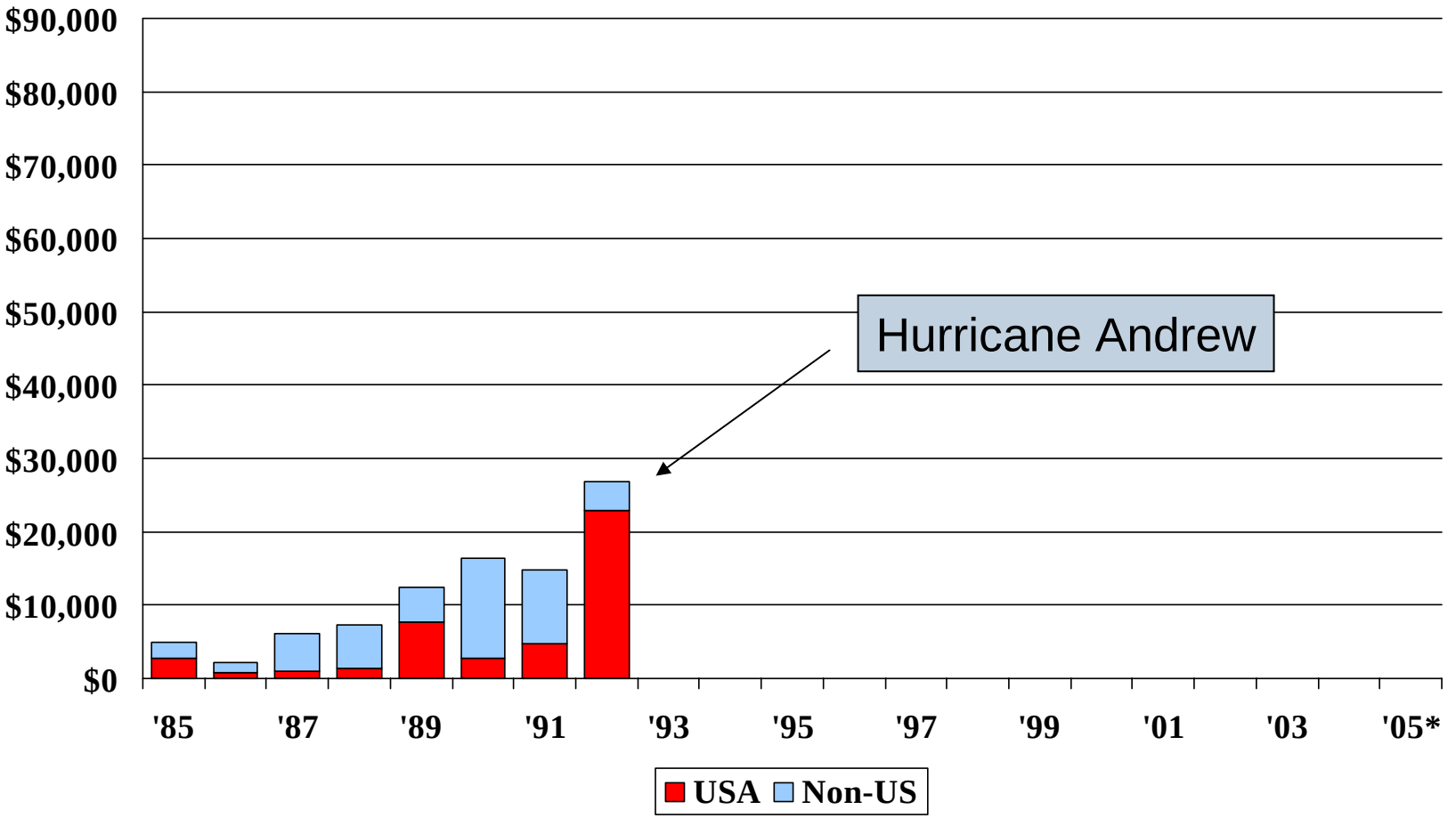
The More things Change,

the More they Remain the Same

Or

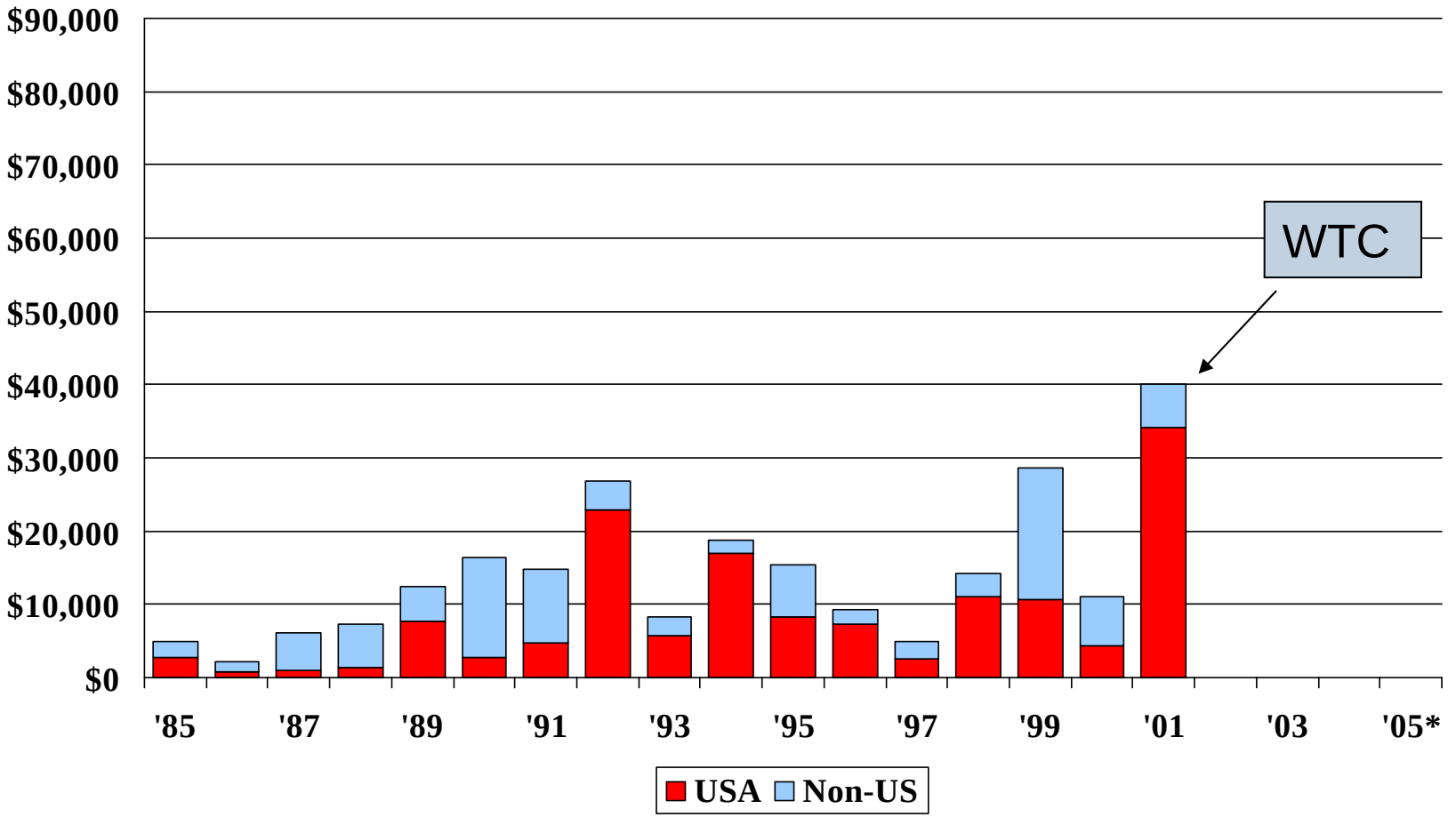
Is it different this time

Worldwide Property Catastrophe Insured Losses



** Preliminary estimate. Source: Swiss Re Sigma*

Worldwide Property Catastrophe Insured Losses



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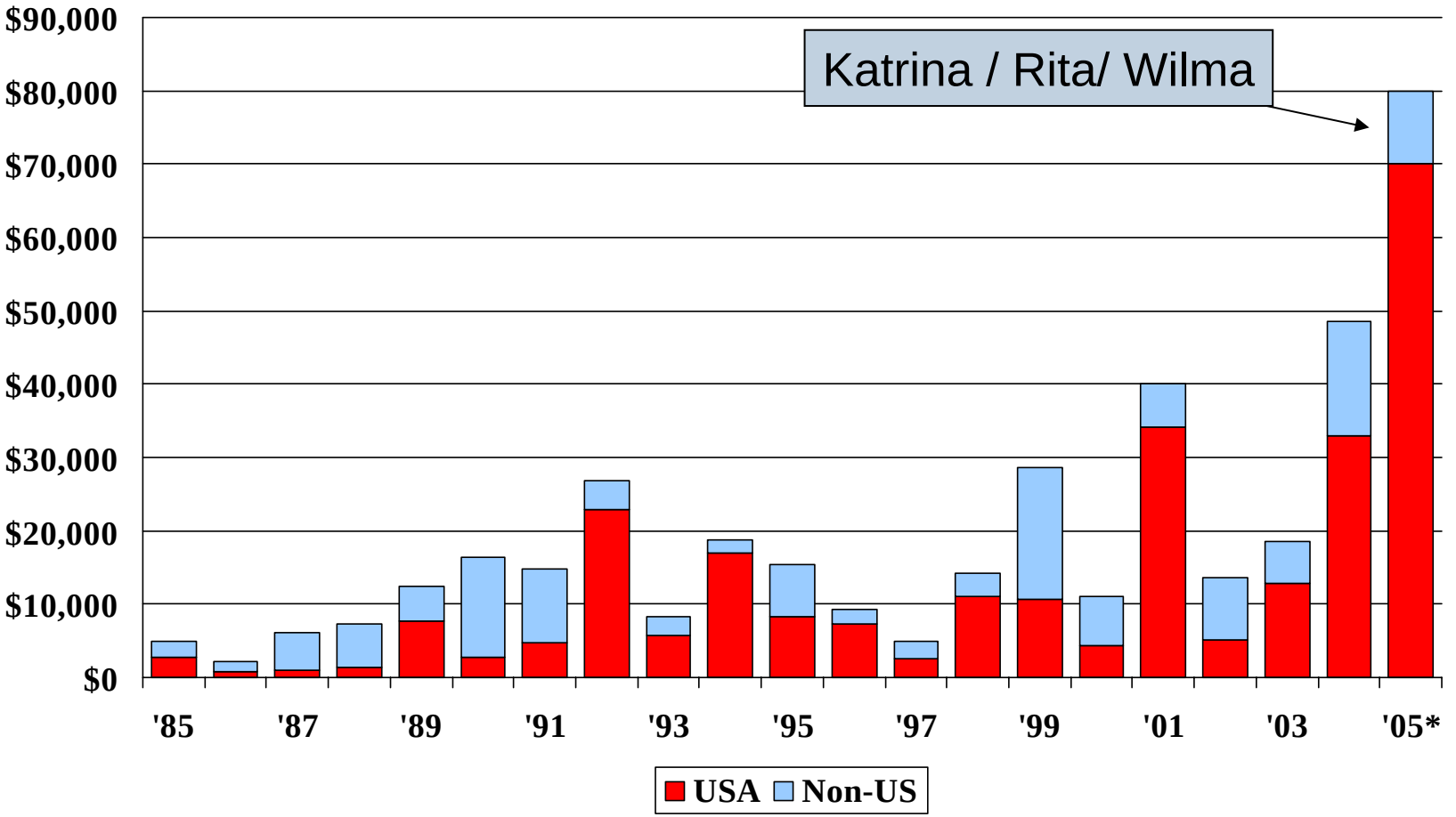
Worldwide Property Catastrophe Insured Losses

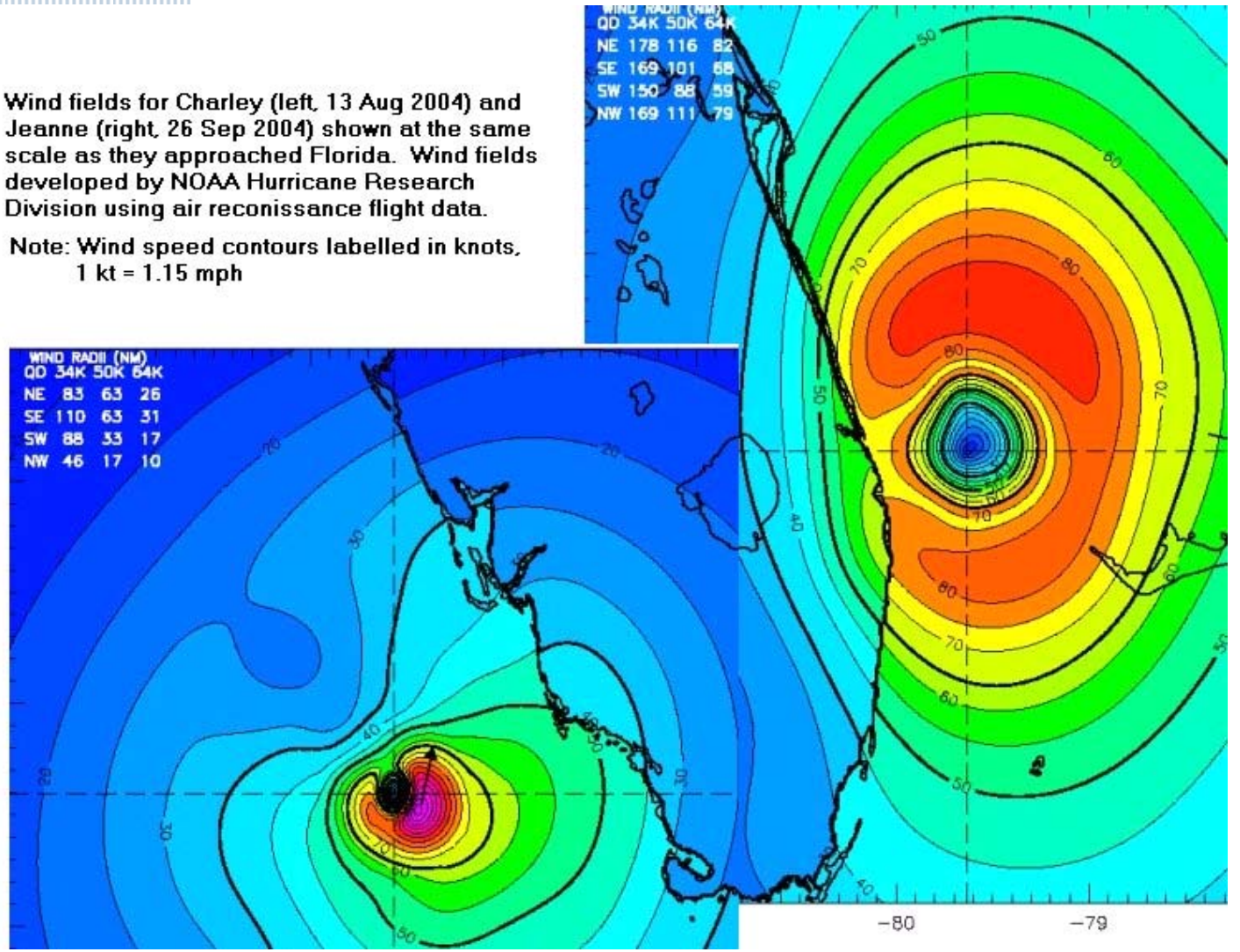


** Preliminary estimate. Source: Swiss Re Sigma*

Chaotic Events – size of storms

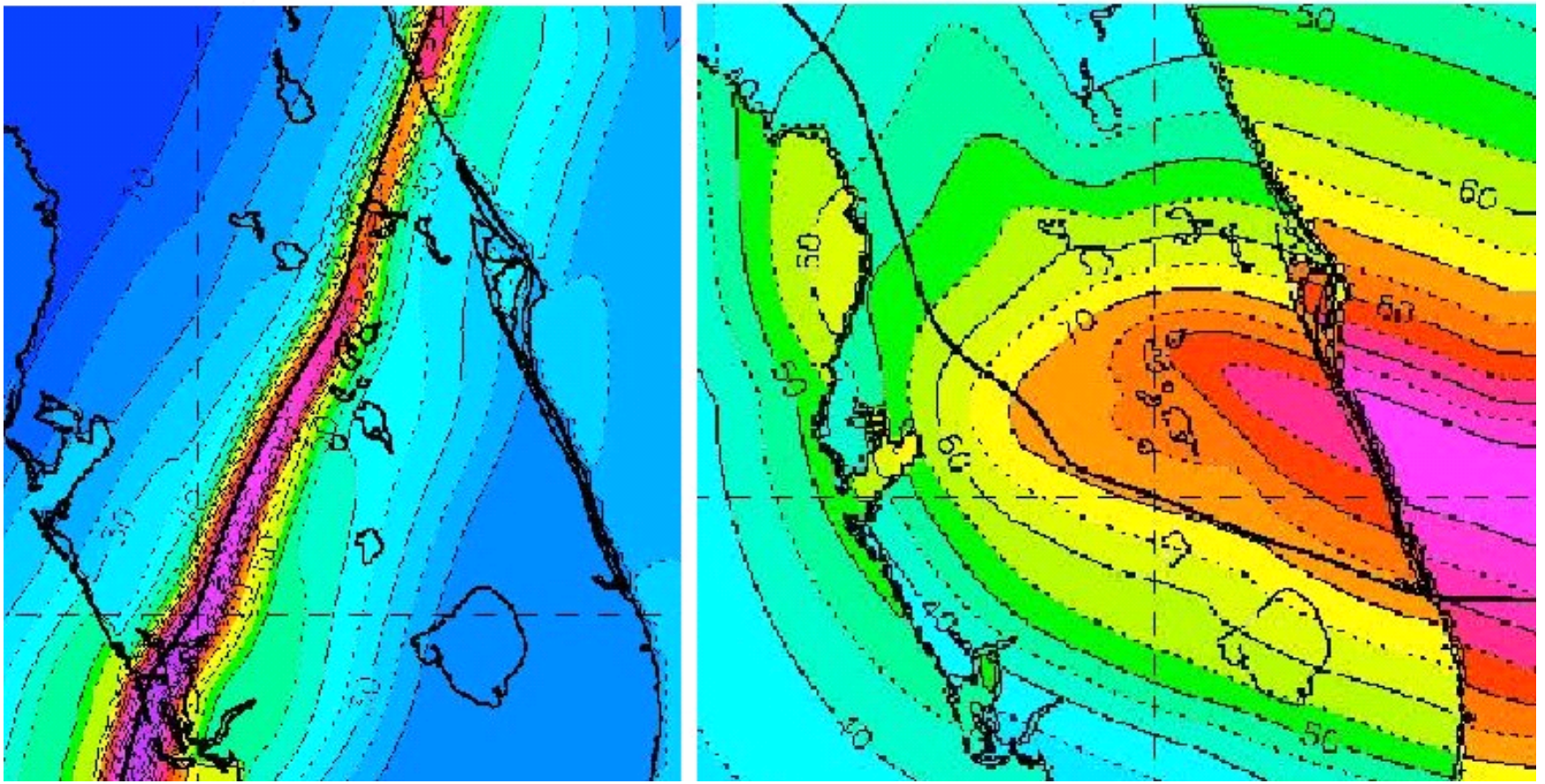
Wind fields for Charley (left, 13 Aug 2004) and Jeanne (right, 26 Sep 2004) shown at the same scale as they approached Florida. Wind fields developed by NOAA Hurricane Research Division using air reconissance flight data.

Note: Wind speed contours labelled in knots,
1 kt = 1.15 mph

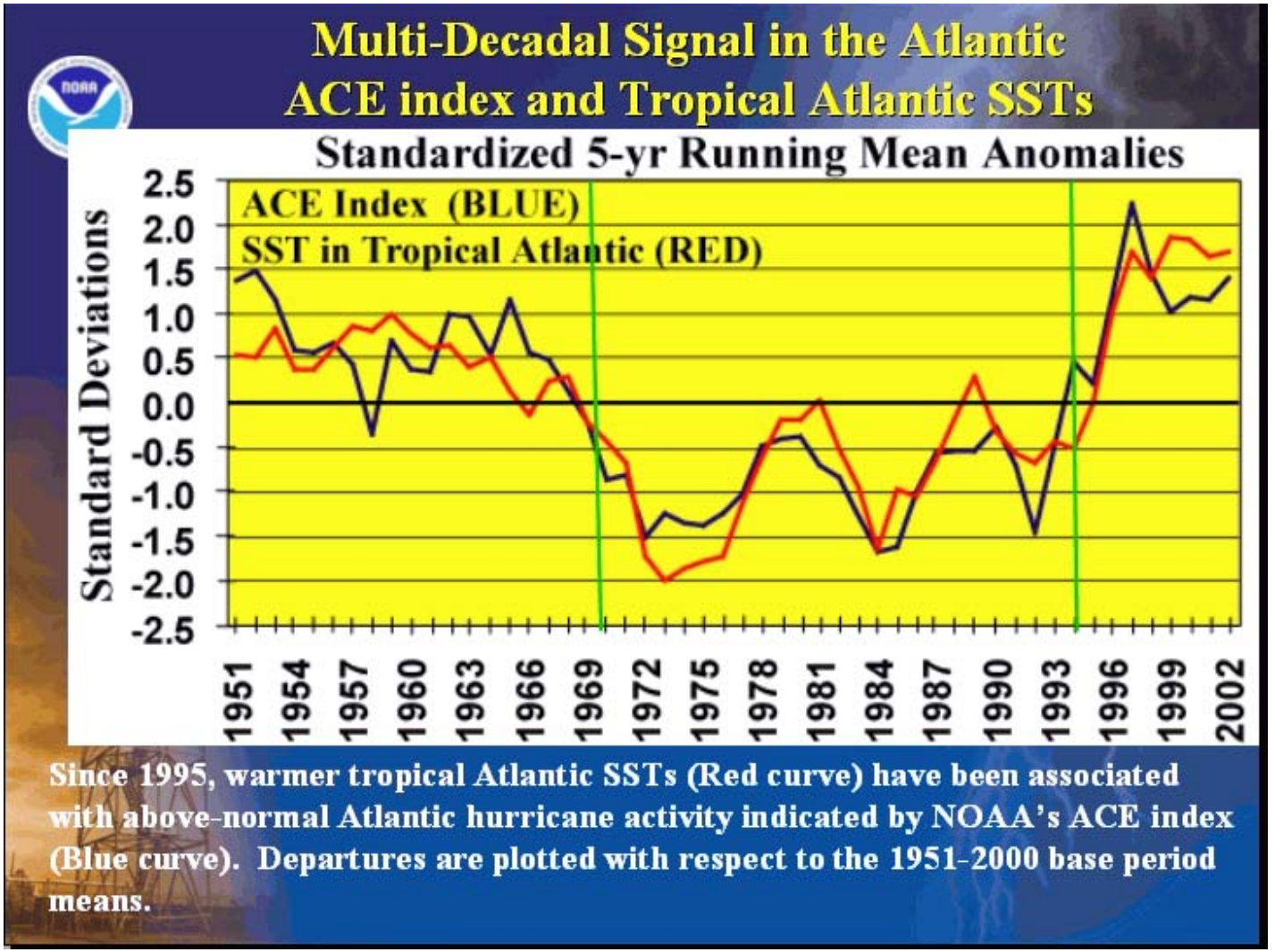


Chaotic Events – complex wind patterns

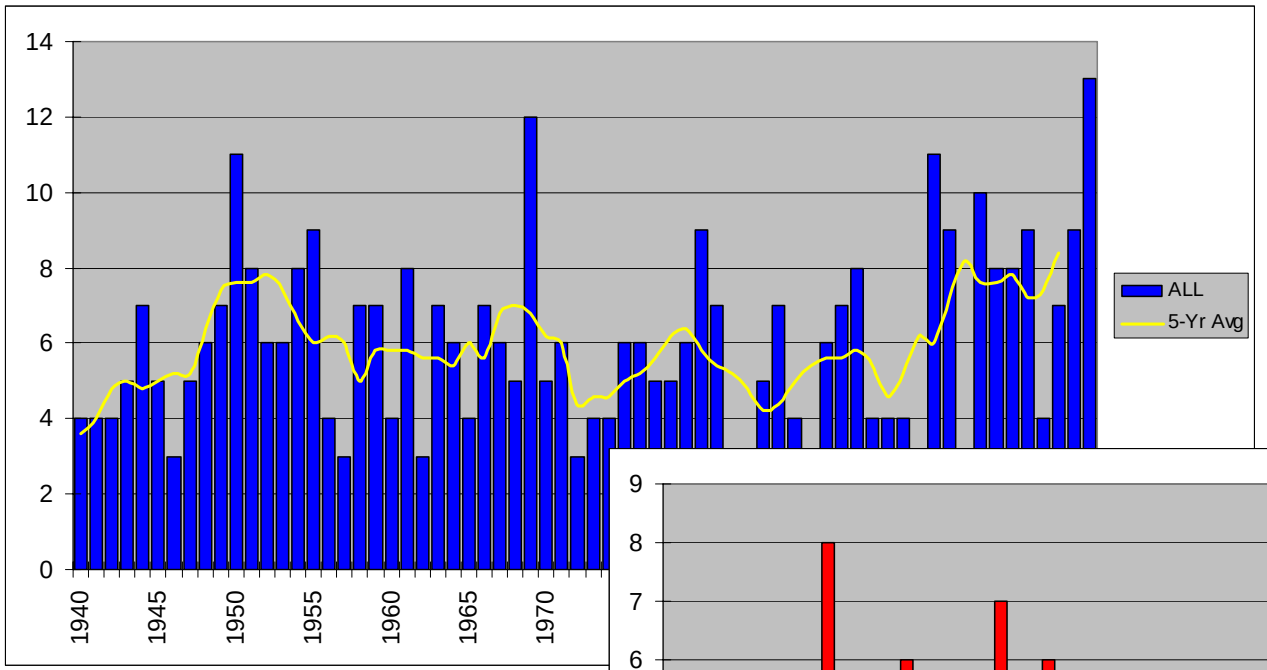
Comparison of wind swath "footprints" for the passage of hurricane Charley (left) and Jeanne (right) over Florida. Analysis by NOAA Hurricane Research Division. Wind speed contours shown in miles per hour.

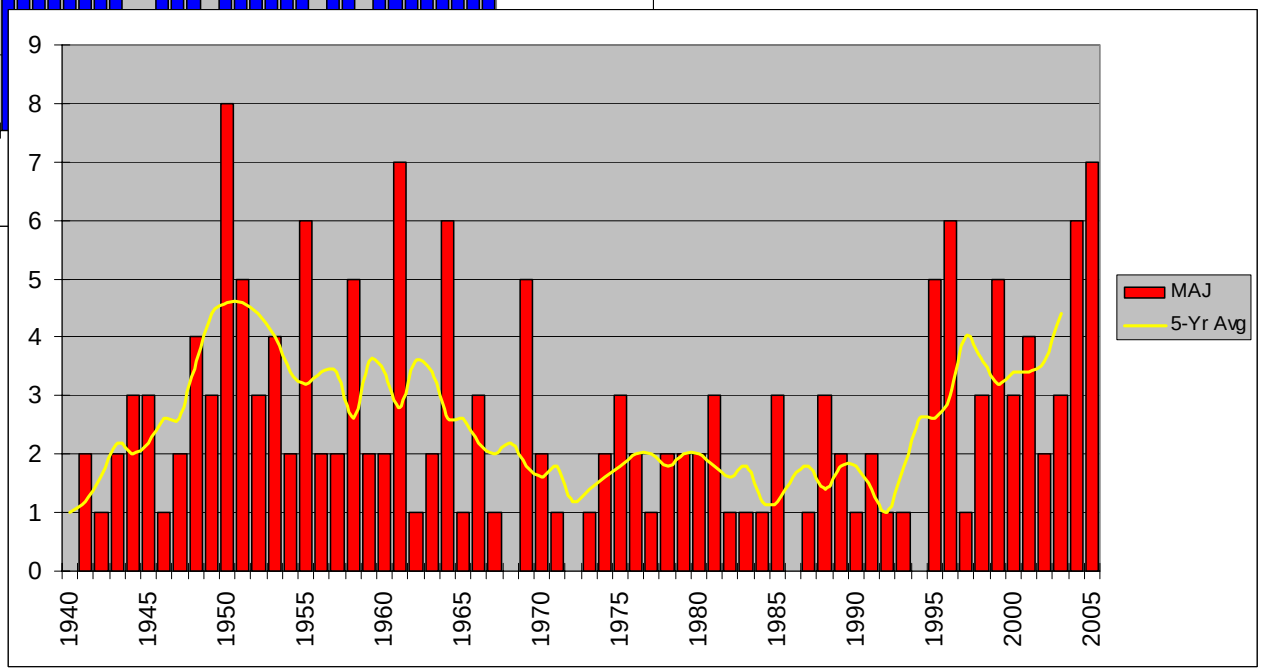


Are there cycles?

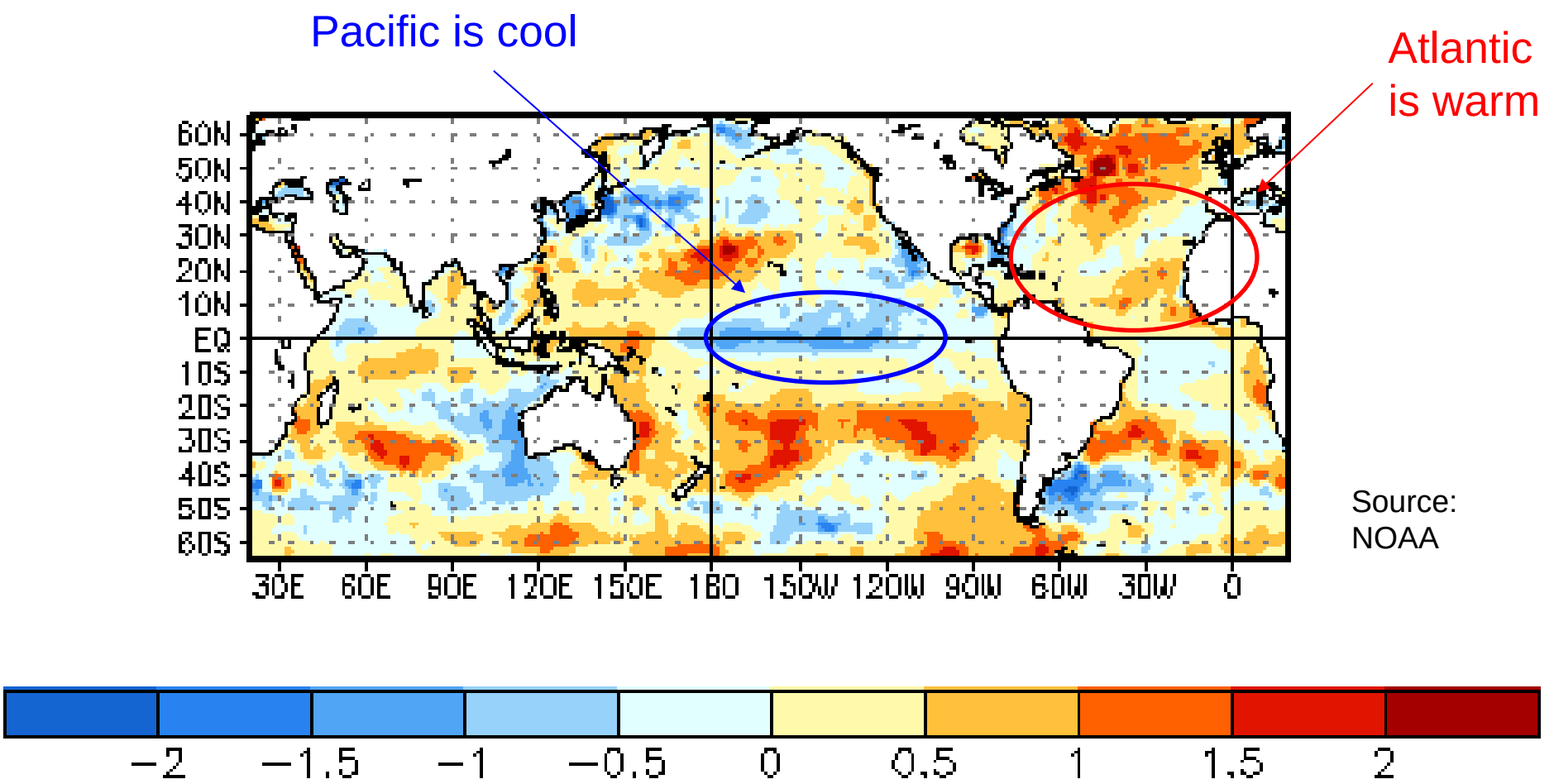


Historical Frequency of events





Current Sea Surface Temperature Conditions



Source: NOAA

Key: Temperature Departure from Average

Average Hurricane Frequency per Year
All Hurricanes Making Landfall (data since 1944)

		Atlantic SST		
		Cold	Warm	Total
Pacific ENSO	Cold	1.20	**2.90**	2.33
	Neutral	1.36	1.67	1.53
	Warm	1.00	1.67	1.40
	Total	1.24	2.00	1.69

- Current conditions, warm Atlantic – cold Pacific, are shown by the intersection of the red and blue boxes, above.
- Note that the expected frequency of landfalls (2.90 per year) compares with the long term average over all conditions of 1.69 – a 72% increase in frequency

Average Hurricane Frequency per Year
Major Hurricanes Making Landfall (data since 1944)

		Atlantic SST		
		Cold	Warm	Total
Pacific ENSO	Cold	0.40	**1.50**	1.13
	Neutral	0.71	0.56	0.63
	Warm	0.00	0.67	0.40
	Total	0.48	0.84	0.69

- Current conditions, warm Atlantic – cold Pacific, are shown by the intersection of the red and blue boxes, above.
- Note that the expected frequency of ***major*** landfalls (1.50 per year) compares with the long term average over all conditions of 0.69 – a **117%** increase in frequency
- Note that when the Atlantic is cold and the Pacific is warm, there have been no major landfalls since 1944. This has occurred only six times, all between 1972 and 1991.

Summary of Current Conditions

- The current combination of conditions imply an increased hurricane frequency in comparison to the long term average.
  - Current frequencies seem all the more pronounced, given the recent relative calm
  - Current cat models generally reflect only the long term average, but this is changing

- The current combination of conditions also imply an increased hurricane severity in comparison to the long term average

- All of the major modeling firms are updating their hurricane frequency models based on the new information learned from the 2005 storm season.

Changing Frequency Models for Hurricanes
Models will incorporate the short term view

- Model A
  - Event rates will represent risk over a 5-year horizon
  - Rates will be updated as often as annually
  - Rates will vary by storm type and region
- Model B
  - Will continue to offer the long term view of frequency (100+ years)
  - Will continue to offer a weather forecasting model (1 year)
  - Adding an alternative term view (5-10 years) to reflect current cycle
- Model C
  - 2004 hurricanes will be included in next release yielding increased frequency

Aphorism # 2

It is always earthquake season

What about severity?

- Lessons from Hurricane Katrina (and the other storms leading up to her)
  - Demand surge exists
  - Who covers flood?
  - Complex coverage issues impacted ALL lines of business
  - Insurance-to-value shortfalls
  - Who pays when the “credible commitment” of government fails?

“Early Warning” Model Update C

- Frequency and Severity
  - Event Rates will represent risk over a 5 year horizon going forward
  - These will be updated each as often as annually
  - Rates will vary by storm type and region
  - Loss estimates in 100 – 500 year return periods expected to increase 10% - 30%
  - User will still have the option to use the long term analysis
  - Marketplace implications
- Changes in Wind Vulnerability Modeling
  - Occupancy to play a greater role in vulnerability
  - Vulnerability of older structures will increase significantly
  - Personal lines to change mainly due to year built
  - Commercial lines to be significantly impacted

“Early Warning” Model Update – Model A

- Changes in Modeling of Uncertainty and Correlation
  - Uncertainty is currently underestimated
  - Correlation between losses for different accounts is greater than currently modeled
  - Account level gross loss results will not change significantly for single location 100% ITV policies unless deductibles are high
  - Gross account loss estimates may increase significantly for excess policies with high attachment points
  - Changes in portfolio level gross results primarily driven by changes in loss estimates to underlying accounts
- Other Changes
  - Storm Surge
  - Loss Amplification (as in Katrina)

“Early Warning” Model Update – Model B

- Frequency and Severity
  - Will continue to represent long term view (100+ years)
  - Offering an alternate near term view (5 -10 years) in 2006 to reflect current cycle of increases hurricane activity
- Personal Lines Vulnerability
  - Newer construction in FL performed much better than old buildings
- Commercial Lines Vulnerability
  - Modifying damage ratios for certain constructions and occupancies
    - Light metal construction performed poorly
    - Hotel exteriors susceptible as well as roofs of chains and fast food restaurants
  - New occupancies added

“Early Warning” Model Update – Model B

- Storm Surge
  - more intense storms in 2006 storm database yield increases in surge levels
  - enhanced modeling of bays and estuaries
  - Enhanced damage functions reflects variations in construction and occupancy
- Data Quality
  - Company data quality a major contributor to mis-estimation

Guy Carpenter Cat Model Adjustment Tool

- Tool created to assist Instrat analysts, brokers and clients in understanding the potential impact on current model output
- Not intended to be a substitute for future model changes but provide a proxy
- Tool adjusts current model event sets for a coarse approximation for
  - Short term increases in hurricane frequency
  - Short term increases in hurricane severity
  - Higher levels of demand surge
- Model also applies factors for
  - Loss adjustment expense
  - Exposure growth

Guy Carpenter Cat Model Adjustment Tool

		Frequency Changes							
		Orig		**20%**		**40%**		**60%**	
		Loss on Line	**Increase over Orig**	**Loss on Line**	**Increase over Orig**	**Loss on Line**	**Increase over Orig**	**Loss on Line**	**Increase over Orig**
Severity Changes	Orig	**0.720%**	0.0%	0.864%	20.0%	1.008%	40.0%	1.152%	60.0%
	10%	**0.877%**	21.8%	1.053%	46.2%	1.228%	70.5%	1.404%	94.9%
	20%	**1.035%**	43.8%	1.242%	72.5%	1.449%	101.3%	1.657%	130.0%
	30%	**1.192%**	65.5%	1.430%	98.6%	1.668%	131.7%	1.907%	164.7%
	40%	**1.345%**	86.8%	1.614%	124.1%	1.883%	161.5%	2.152%	198.8%
	50%	**1.495%**	107.6%	1.794%	149.1%	2.093%	190.6%	2.392%	232.1%
Prob Exhaust			0.500%	**Exhausts at 250 Year**					
Prob Attach			1.000%	**Attaches at 100 Year**					

- The expected loss on line (0.72%) is for a layer that attaches at 1.00% probability (100 year attachment point) and exhausts at 0.5% probability (250 year exhaustion point).
- If frequency were to increase from the current model by 20% and severity by 20%, the loss on line to that same layer of reinsurance goes to 1.242% or a 72.5% increase in expected loss to the layer.

Aphorism # 3

God created cat modelers

in order

to make actuaries look good

GUY CARPENTER

New Capacity

Class of 2005
New Capacity

Reinsurer Name	Best Rating	S&P Rating	Expected Initial Capitalization	Capital Status	Ownership
Amlin Bermuda	A-	A	**$1B**	*Completed*	Wholly owned subsidiary of Amlin plc.
Ariel Re	A-		**$1B**	*Completed*	Blackstone, Texas Pacific, TH Lee, others
Arrow Capital Re			**$102M**	*Completed*	Wholly owned by Goldman Sachs Group
Blue Ocean Re			**$300M**	*Completed*	Managed by Montpelier. Outside investor owners
Flagstone Re	A-		**$530M**	*Completed*	West End Capital
Greenlight Capital Re			**$214M**	*Completed*	Greenlight Capital LP
Harbor Point Re	A	A-	**$1.3B**	*Completed*	Chubb, Stone Point Capital, other investors
Hiscox Ins. Co. (Bermuda)	A-		**$500M**	*Completed*	Wholly owned subsidiary of Hiscox plc
Lancashire Ins. Co.	A-		**$1B**	*Completed*	IPO, Cypress and Capital Z
New Castle Re	A-		**$500M**	*Completed*	Wholly owned by Citadel Insurance Group
Omega Specialty			**$170M**	*Pending*	To be wholly owned by Omega U/W Holdings
Validus Re	A-		**$981M**	*Completed*	Aquiline Capital, Goldman Sachs LP, others

Note: Cyrus Re ($500M), Flatiron Re ($400M), and Rockridge Re ($100M), providing sidecar capacity to XL Re, Arch Re, & Montpelier Re respectively, which are not expected to write third-party business, are included in the total capital amount

Total new market anticipated capital: $8.5 billion

GUY CARPENTER

Rating Agency Update

Rating Agency Update

- **Rating methodology changing**
  - **reinsurers and insurers**
  - **Increased capital requirements to maintain existing ratings**
- **AM Best, S&P and Fitch announced changes, Moody's has not**
- **Briefing available on www.guycarp.com**

Rating Agency Update
AM Best – Published BCAR

- **Surplus is currently adjusted for:**
  - **1 natural cat event**
    - **1/100 wind or tornado hail or**
    - **1/250 earthquake**
  - **Net of reinsurance / including co participations and reinstatements**
- **"Published" BCAR change to increase catastrophe PMLs to include:**
  - **WC, Auto/motor PD, Energy, Crop, Inland & Ocean marine**
  - **Assumed reinsurance, vol and invol pools/associations and assessments**
  - **Demand surge, flood, storm surge, secondary uncertainty**
  - **Cat model enhancements**
    - **Estimate based on the increases modelers are discussing 30%-50%-100%**

Rating Agency Update
AM Best – Natural Cat Stress Test

- **Step 1**

  - make capital adjustments relating to 1st event:

  – increase net retained loss reserves

  – reduce surplus accordingly

  – increase reinsurance recoverables

  – increase credit risk charge by

    - **assuming reinsurers' ratings downgraded one level**

  – potentially increase the reinsurance dependence factor

Rating Agency Update
AM Best – Natural Cat Stress Test

- **Step 2**
  - **Reduce surplus for 2nd event**
  - **2nd event was 1/50 wind and 1/100 quake**
  - **Increased 2nd event natural catastrophe stress test greatest of:**
    - **1/100 wind or tornado hail**
    - **1/250 earthquake if different quake area than the first**
    - **1/100 earthquake if same area as the first**
- **Step 3**
  - **Compare published BCAR to stressed BCAR**
  - **Allow one rating level drop**

Rating Agency Update
AM Best, New Stress Tests

- **Added terrorism stress test**
  - **1st event is terror loss pre TRIA**
    - **Largest 5 ton truck bomb deterministic modeled scenario, or**
    - **75% of the largest area of aggregate exposure**
  - **Second event is 2nd natural cat event**
  - **# of concentration areas > 20% of surplus**
  - **# of rating level drops allowed based on # of concentrations**
- **Added financial leverage test**
  - **Debt to equity review**
  - **As if replenished funds were all debt**

Rating Agency Update
S&P

- **S&P**
  - **Added natural catastrophe capital charge for primary companies**
    - **Property focused**
    - **Aggregate loss curve**
  - **Added A&E dispute charge of 20% of balance**
  - **New ERM evaluation**

Rating Agency Update
Fitch and Moodys

- **Fitch**
  - **Added natural catastrophe capital charge for primary companies and reinsurers**
    - **Property focused**
    - **Tvar on aggregate loss curve**
- **Moodys**
  - **No change in methodology**

Rating Agency Update
Impact and Actions

- **Impact**
  - **Best doesn't expect significant number of rating decreases:**
    - **raise capital and buy more reinsurance**
    - **Reinsurers will reduce writings**
  - **S&P and Fitch do not expect widespread rating decreases, but there will be some**