CREF 07

MBA's CREF/MULTIFAMILY HOUSING CONVENTION & EXPO

MANCHESTER GRAND HYATT SAN DIEGO • SAN DIEGO, CALIF.

FEBRUARY 4 · 7 2007

Gone With The Wind Panel

Kathleen Dufraine

Moderator

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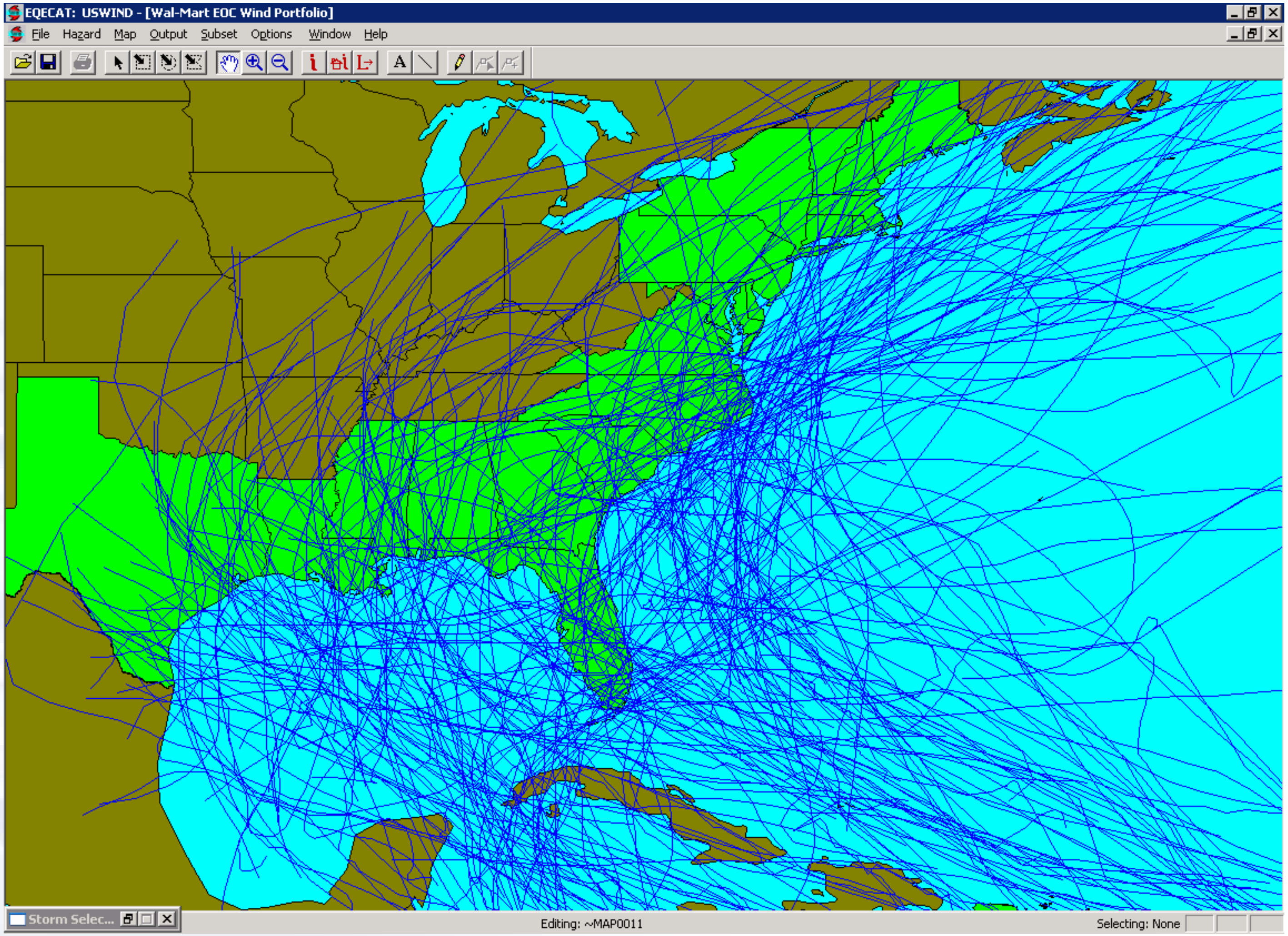
Kenneth A. Travers

Hurricane Risk – A Technical Perspective

Can The Past Predict The Future?

Historical Perspective

- 273 historical hurricane events in the catalog for the period 1851 - 2004 period
- Annual frequency of 1.78 events
- 92 Major hurricane events in the catalog (SSI 3, 4 or 5) for same period (0.60 annual frequency)



Historical Perspective

- Of the top 30 most intense hurricanes 1851 – 2004, 3 have occurred in this current active cycle which began around 1995
- Another 5 events would have made this listing from 2005 season:
  - Katrina
  - Rita
  - Wilma
  - Dennis
  - Emily

Rank	Hurricane	Year	Category (at landfall)	Minimum Pressure (mb)	Minimum Pressure (in)
1	Unnamed (FL Keys)	1935	5	892	26.35
2	Camille (MS, SE LA, VA)	1969	5	909	26.84
3	Andrew (SE FL, SE LA)	1992	5	922	27.23
4	TX (Indianola)	1886	4	925	27.31
5	Unnamed (FL Keys, S TX)	1919	4	927	27.37
6	Unnamed (Lake Okeechobee FL)	1928	4	929	27.43
7	Donna (FL, Eastern U.S.)	1960	4	930	27.46
8	Unnamed (New Orleans LA)	1915	4	931	27.49
8	Carla (N & Cent. TX)	1961	4	931	27.49
10	LA (Last Island)	1856	4	934	27.58
10	Hugo (SC)	1989	4	934	27.58
12	Pensacola FL)	1926	4	935	27.61
13	Unnamed (Galveston TX)	1900	4	936	27.64
14	Unnamed GA/FL (Brunswick, GA)	1898	4	938	27.7
14	Hazel (SC, NC)	1954	4	938	27.7
16	Unnamed (SE FL, SE LA, MS)	1947	4	940	27.76
17	Unnamed (N TX)	1932	4	941	27.79
17	Charley (Eastern U.S.)	2004	4	941	27.79
19	Gloria (Eastern U.S.)	1985	3^a	942	27.82
19	Opal (NW FL, AL)	1995	3^a	942	27.82
21	Unnamed (Central FL)	1888	3	945	27.91
21	Unnamed (E NC)	1899	3	945	27.91
21	Audrey (SW LA, N TX)	1957	4^b	945	27.91
21	Unnamed (Galveston TX)	1915	4^b	945	27.91
21	Celia (S TX)	1970	3	945	27.91
21	Allen (S TX)	1980	3	945	27.91
27	Unnamed (New England)	1938	3	946	27.94
27	Frederic (AL, MS)	1979	3	946	27.94
27	Ivan (AL, NW FL)	2004	3	946	27.94
30	Unnamed (NE U.S.)	1944	3	947	27.97

Source: NOAA – Tropical Prediction Center

Historical Perspective

- **Of the top 30 most intense hurricanes 1851 – 2004, 8 occurred in the previous active cycle 1931 - 1960**

Rank	Hurricane	Year	Category (at landfall)	Minimum Pressure (mb)	Minimum Pressure (in)
1	Unnamed (FL Keys)	1935	5	892	26.35
2	Camille (MS, SE LA, VA)	1969	5	909	26.84
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21	Unnamed (Central FL)	1888	3	945	27.91
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27	Frederic (AL, MS)	1979	3	946	27.94
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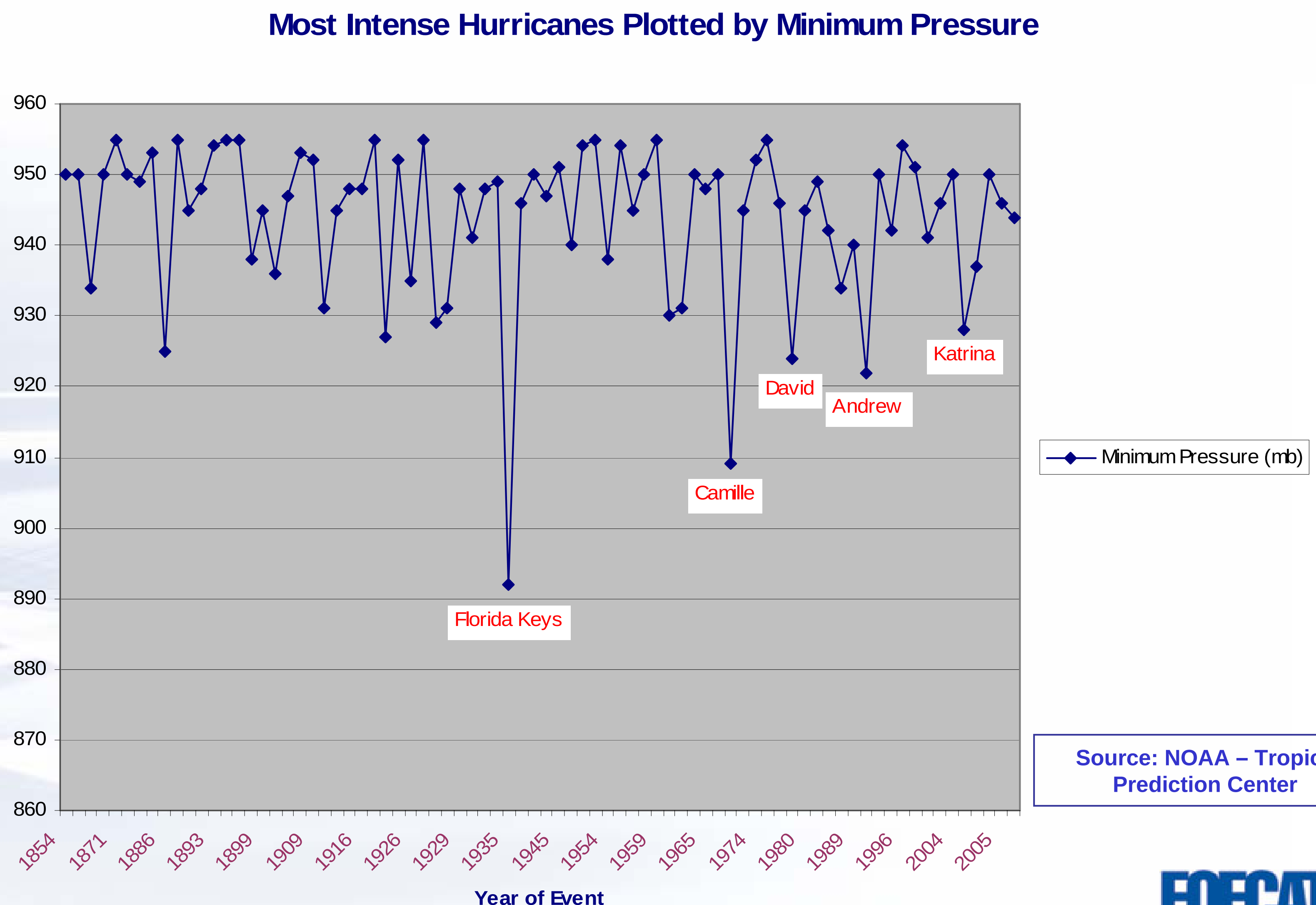
Source: NOAA – Tropical Prediction Center

Historical Perspective



Source: NOAA – Tropical Prediction Center

ABS Corporate Solutions

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Historical Perspective

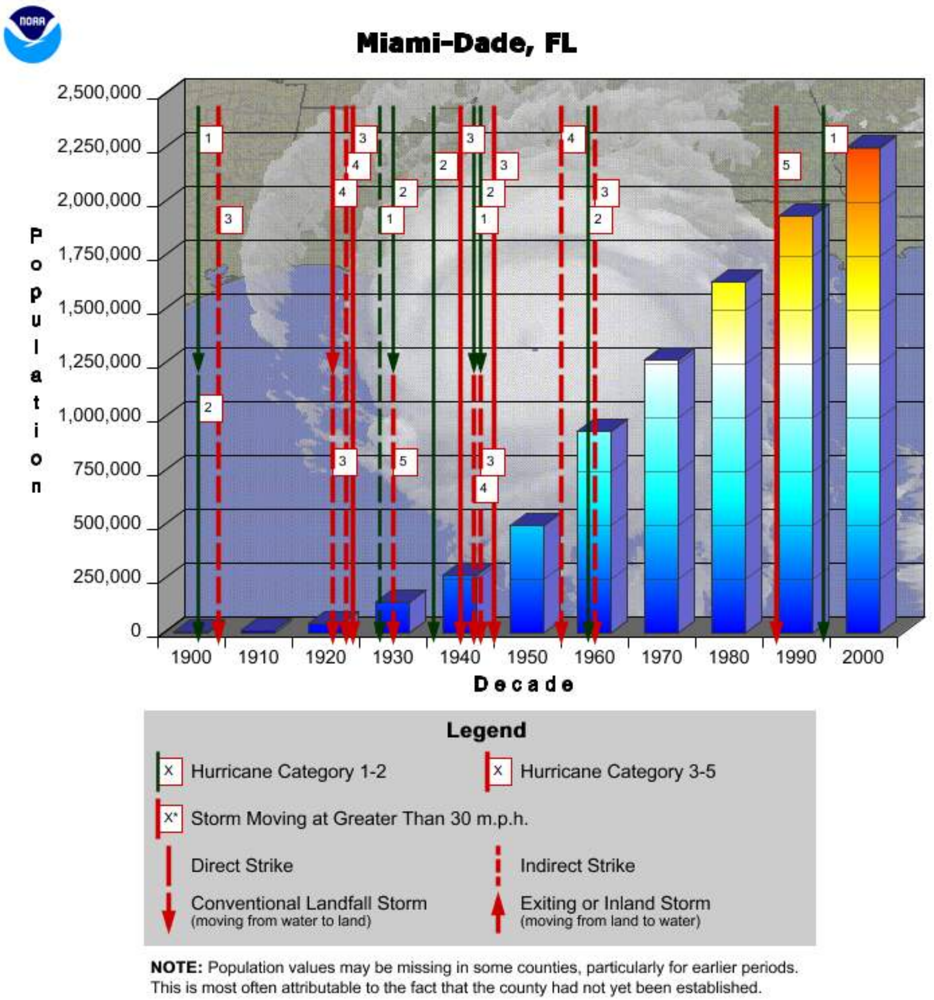
- However, of the top 30 costliest hurricanes 1851 – 2004, almost half (14) have occurred in the current active cycle 1995 – present
- Only 2 in the prior active period made this list
- Why has this now become an issue?
  - Significant growth of exposure along the US coastlines over the past 30 – 40 years
  - Prior active period had much less exposed population and assets at risk

Source: NOAA – Tropical Prediction Center

Rank	Hurricane	Year	Category	Damage
1	Andrew (SE FL, SE LA)	1992	5	26,500,000,000
2	Charley (SW FL)	2004	4	15,000,000,000
3	Ivan (AL/NW FL)	2004	3	14,200,000,000
4	Frances (FL)	2004	2	8,900,000,000
5	Hugo (SC)	1989	4	7,000,000,000
6	Jeanne (FL)	2004	3	6,900,000,000
7	Allison (N TX)	2001	TS*	5,000,000,000
8	Floyd (Mid-Atlantic & NE U.S.)	1999	2	4,500,000,000
9	Isabel (Mid-Atlantic)	2003	2	3,370,000,000
10	Fran (NC)	1996	3	3,200,000,000
11	Opal (NW FL, AL)	1995	3	3,000,000,000
12	Frederic (AL, MS)	1979	3	2,300,000,000
13	Agnes (FL, NE U.S.)	1972	1	2,100,000,000
14	Alicia (N TX)	1983	3	2,000,000,000
15	Bob (NC, NE U.S.)	1991	2	1,500,000,000
16	Juan (LA)	1985	1	1,500,000,000
17	Camille (MS, SE LA, VA)	1969	5	1,420,700,000
18	Betsy (SE FL, SE LA)	1965	3	1,420,500,000
19	Elena (MS, AL, NW FL)	1985	3	1,250,000,000
20	Georges (FL Keys, MS, AL)	1998	2	1,155,000,000
21	Gloria (Eastern US)	1985	3	900,000,000
22	Lili (SC LA)	2002	1	860,000,000
23	Diane (NE U.S.)	1955	1	831,700,000
24	Bonnie (NC, VA)	1998	2	720,000,000
25	Erin (NW FL)	1995	2	700,000,000
26	Allison (N TX)	1989	TS*	500,000,000
27	Alberto (NW FL, GA, AL)	1994	TS*	500,000,000
28	Frances (TX)	1998	TS*	500,000,000
29	Eloise (NW FL)	1975	3	490,000,000
30	Carol (NE U.S.)	1954	3	461,000,000

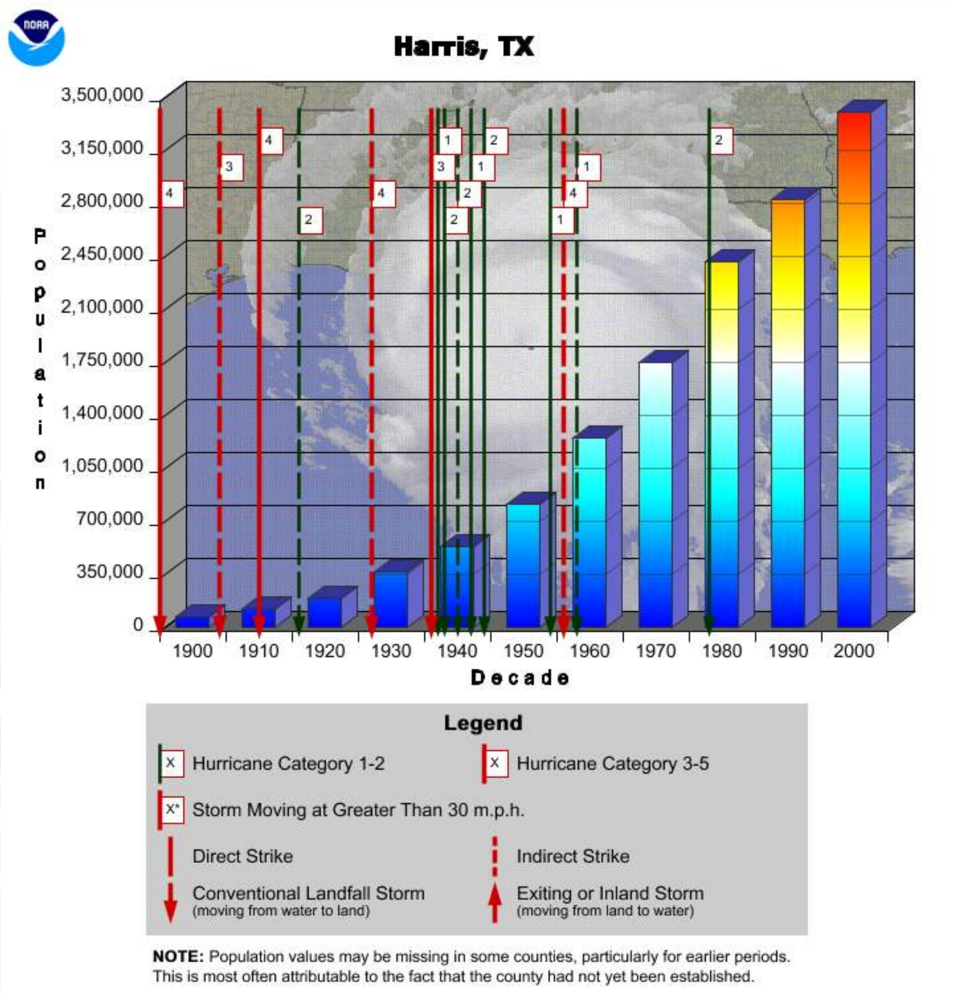
What Is Increasing – Frequency, Exposure or Both?

- Example: Population in Miami-Dade County, Florida has grown almost five-fold since previous active cycle
- Significant growth occurred during relative inactive period of land-falling events in South Florida



Source: NOAA – Tropical Prediction Center

What Is Increasing – Frequency, Exposure or Both?

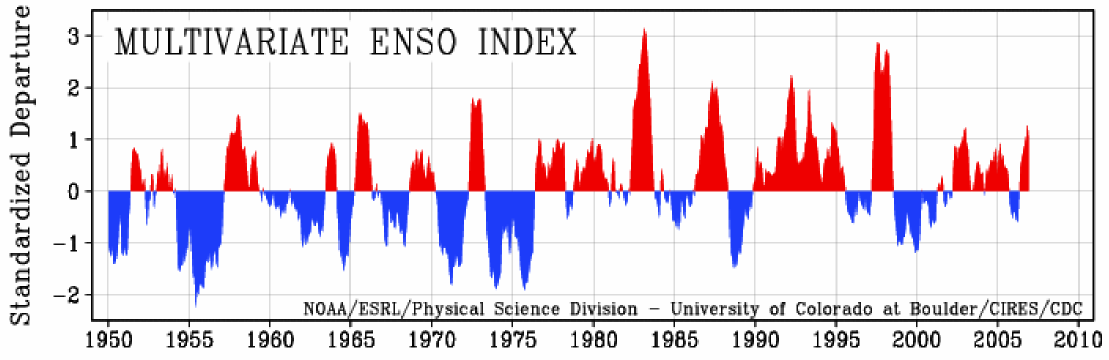


- **One More Example: Population in Harris County, Texas has grown almost five times since previous active cycle**

Source: NOAA – Tropical Prediction Center

Dominant Time Scales for Hurricane Activity in the Atlantic and Gulf Basins

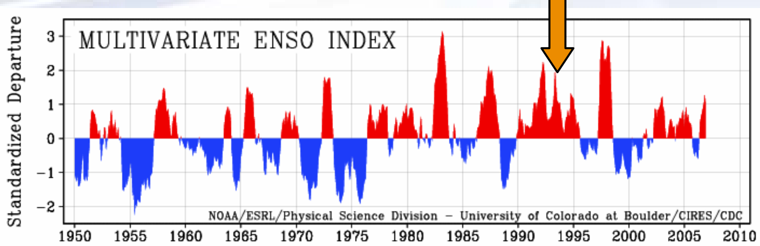
- ENSO
  - El Nino/Southern Oscillation
  - ~ 3 to 7 Year Cycle
- AMO
  - Atlantic Multi-Decadal Oscillation
  - ~ 50 to 70 Year Cycle
- Global Warming
  - On-going impact
  - May be responsible for severity changes?
- Other Factors (NAO, QBO)

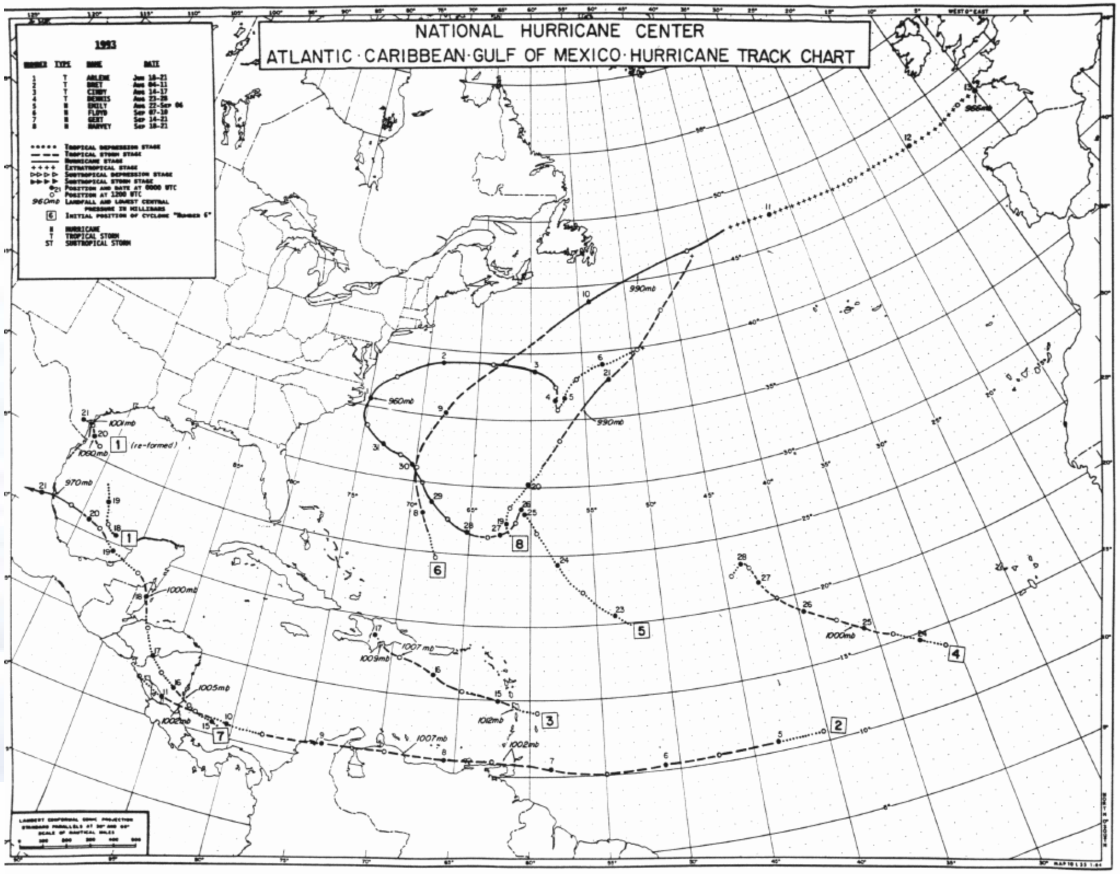


ENSO Cycle Impact

- El Niño is a 4 to 7 year pattern of short-term climate variability in the tropical Pacific
- Tend to suppress hurricane activity in the Atlantic Basin, particularly inhibiting the formation of major hurricanes
- El Niño conditions present in 1993
- Very few hurricanes during the 2003 season
  - 8 Named Storms
  - 4 Hurricanes
  - 1 Landfalling Event - TS

El Niño Year





Hurricane Tracks in Atlantic Basin - 1993

Source: NOAA – Tropical Prediction Center

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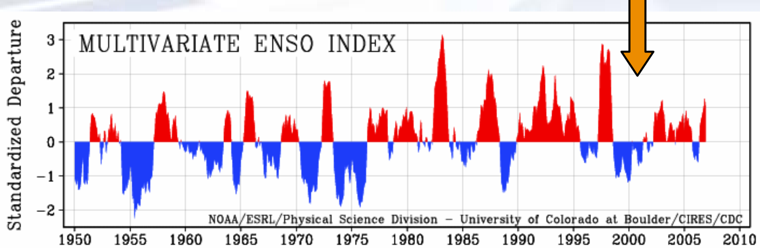
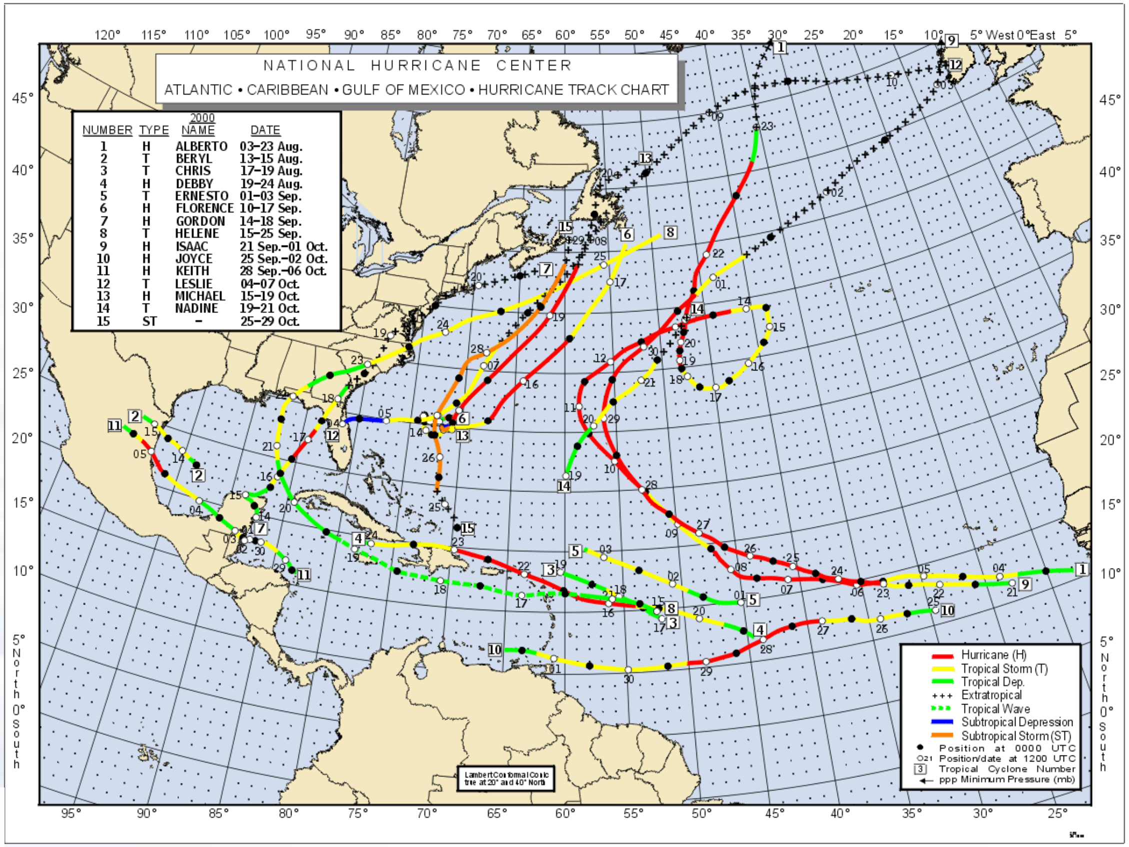
ENSO Cycle Impact

- La Niña is a cold phase pattern which create conditions more favorable for Atlantic Basin hurricanes
- In 1995, the North Atlantic Oscillation cycle favored a return to active hurricane seasons
- La Niña conditions present in the 1999 to 2002 period
- The 2001 season was more active:
  - 15 Named Storms
  - 9 Hurricanes
  - 3 Landfalling Events -

La Niña Year





Hurricane Tracks in Atlantic Basin - 2001

Source: NOAA – Tropical Prediction Center

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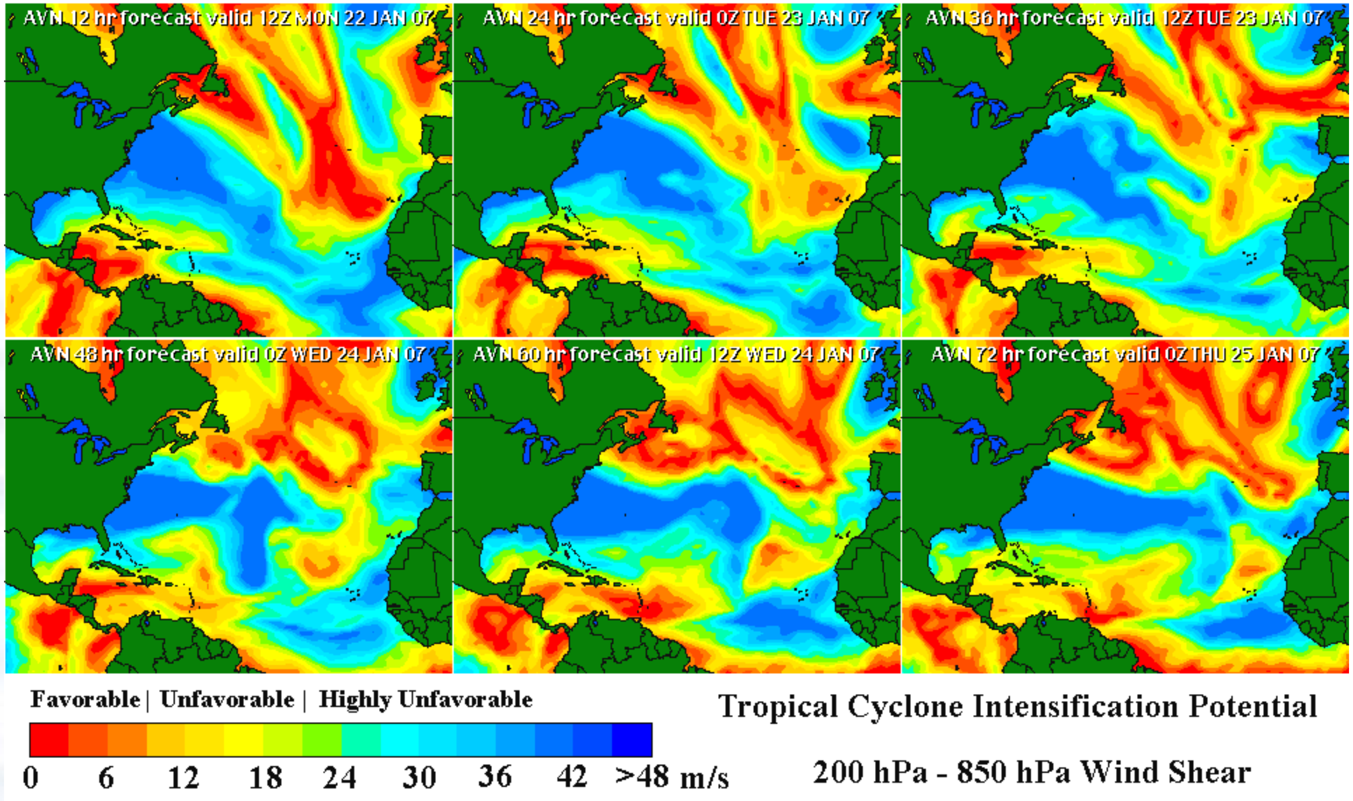
ENSO Cycle Impact

- Weak La Niña conditions late 2005 - early 2006 which may have helped to suppress 2006 activity due to increased wind shear in upper altitudes
- We are currently in El Niño conditions which are expected to last at least into Q1 2007

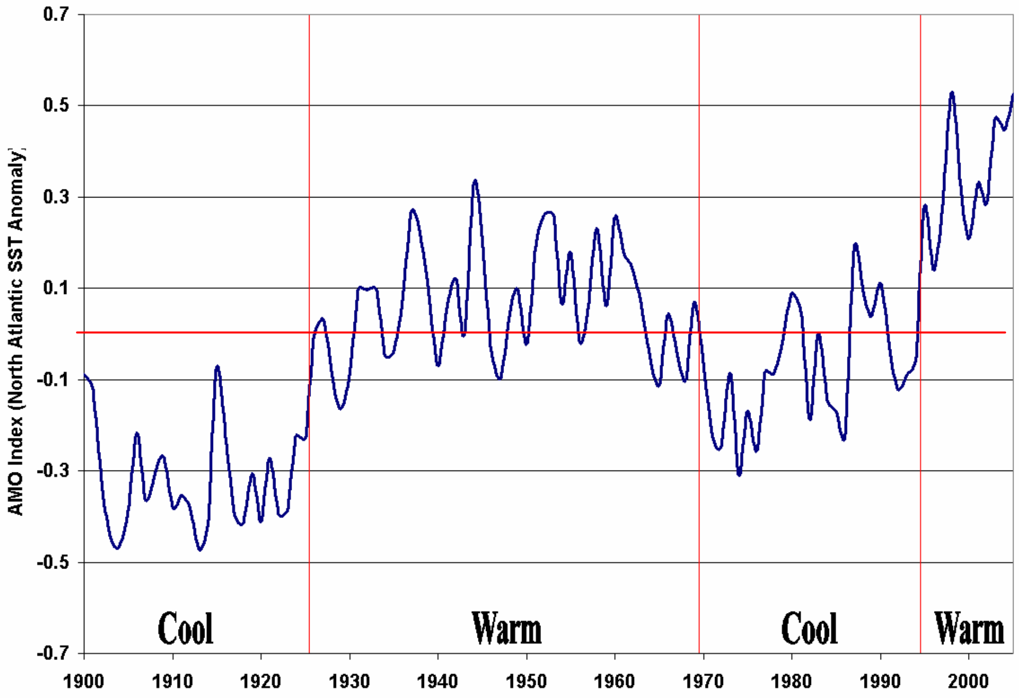


Wind Shear Conditions - El Niño

Source: NOAA – Tropical Prediction Center

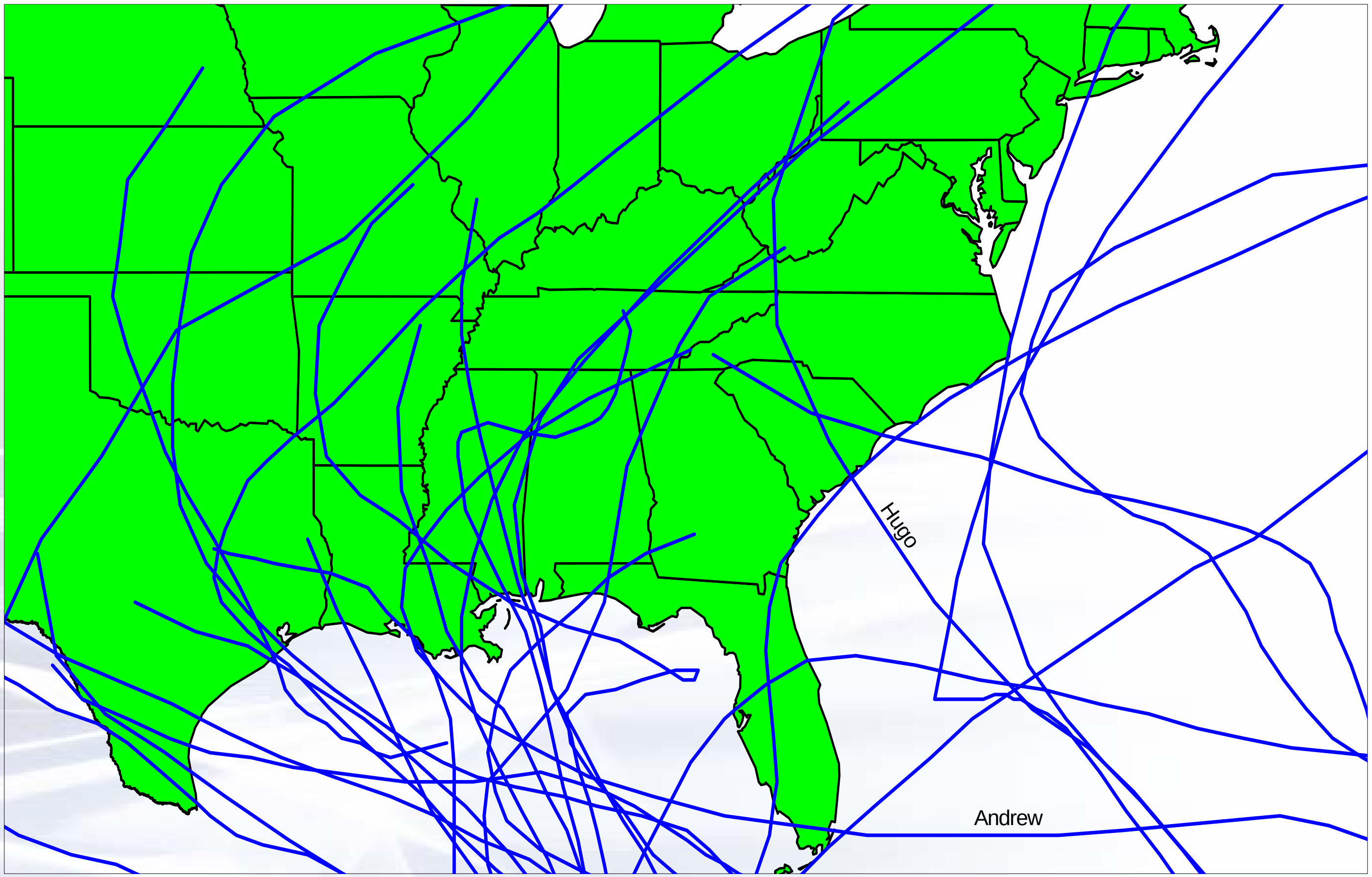
AMO (Multi-decadal Oscillation) Cycle Impact

- COOL Phase
  - Cooler SST's
  - Increased shear above tropical surface easterlies
  - Unfavorable environment for hurricane development
- WARM Phase
  - Warmer SST's
  - Reduced shear above tropical surface easterlies
  - Favorable environment for hurricane development
- Each Modal Period ~ 25-40 Years
  - 1900-1925: COOL - decreased activity
  - 1926-1969: WARM - increased activity
  - 1970-1994: COOL - decreased activity
  - 1995-????: WARM - increased activity



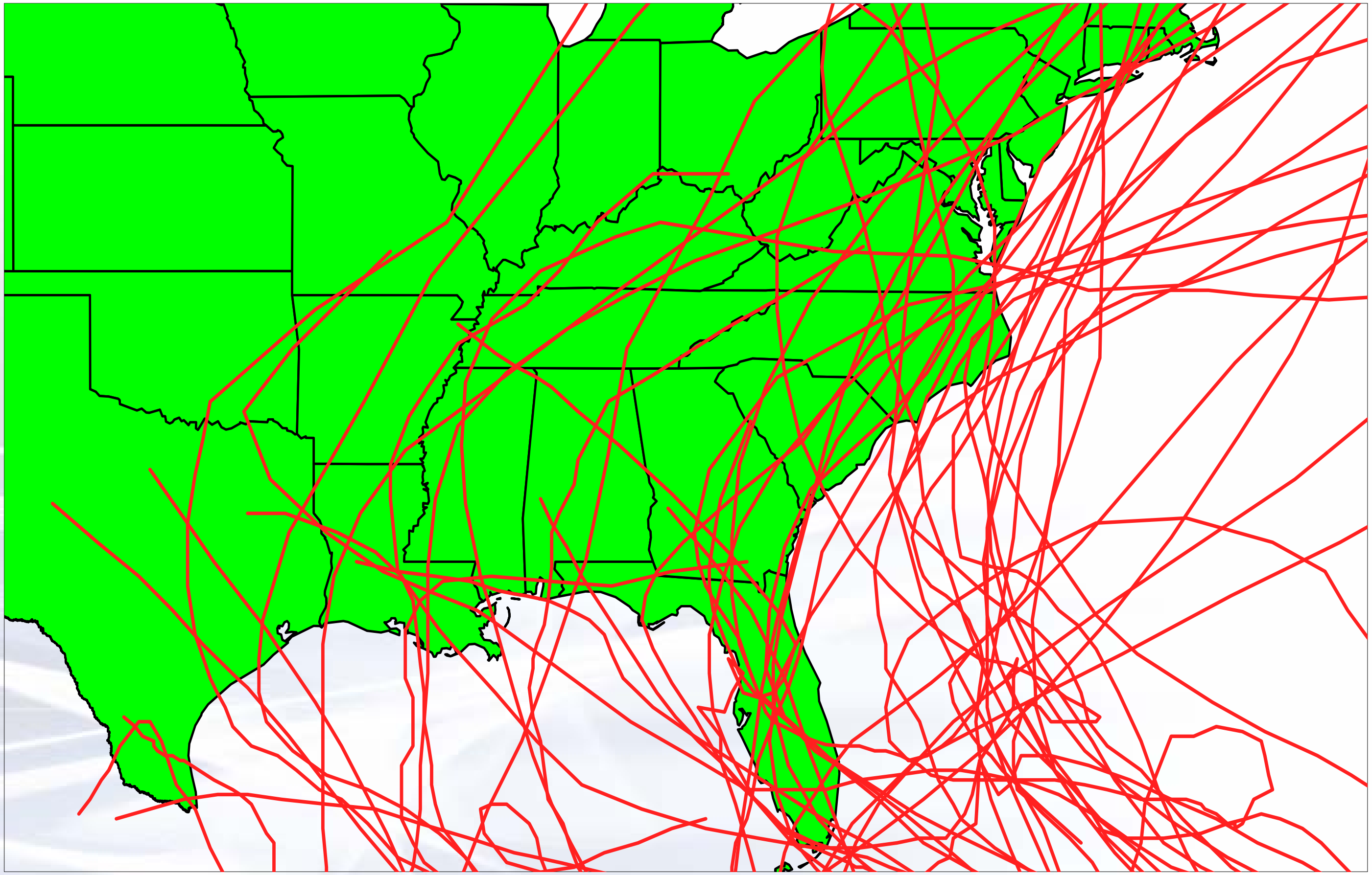
AMO Sea Surface Temperature Index

AMO (Multi-decadal Oscillation) Cycle Impact



- Cool AMO Period SSI 3 and Greater Hurricane Events
- 28 SSI 3+ Events in 51 Years
- Frequency of 0.55 Per Year for Cool AMO
- Average for SSI 3+ = 0.60 Per Year Over 153 Years

AMO (Multi-decadal Oscillation) Cycle Impact

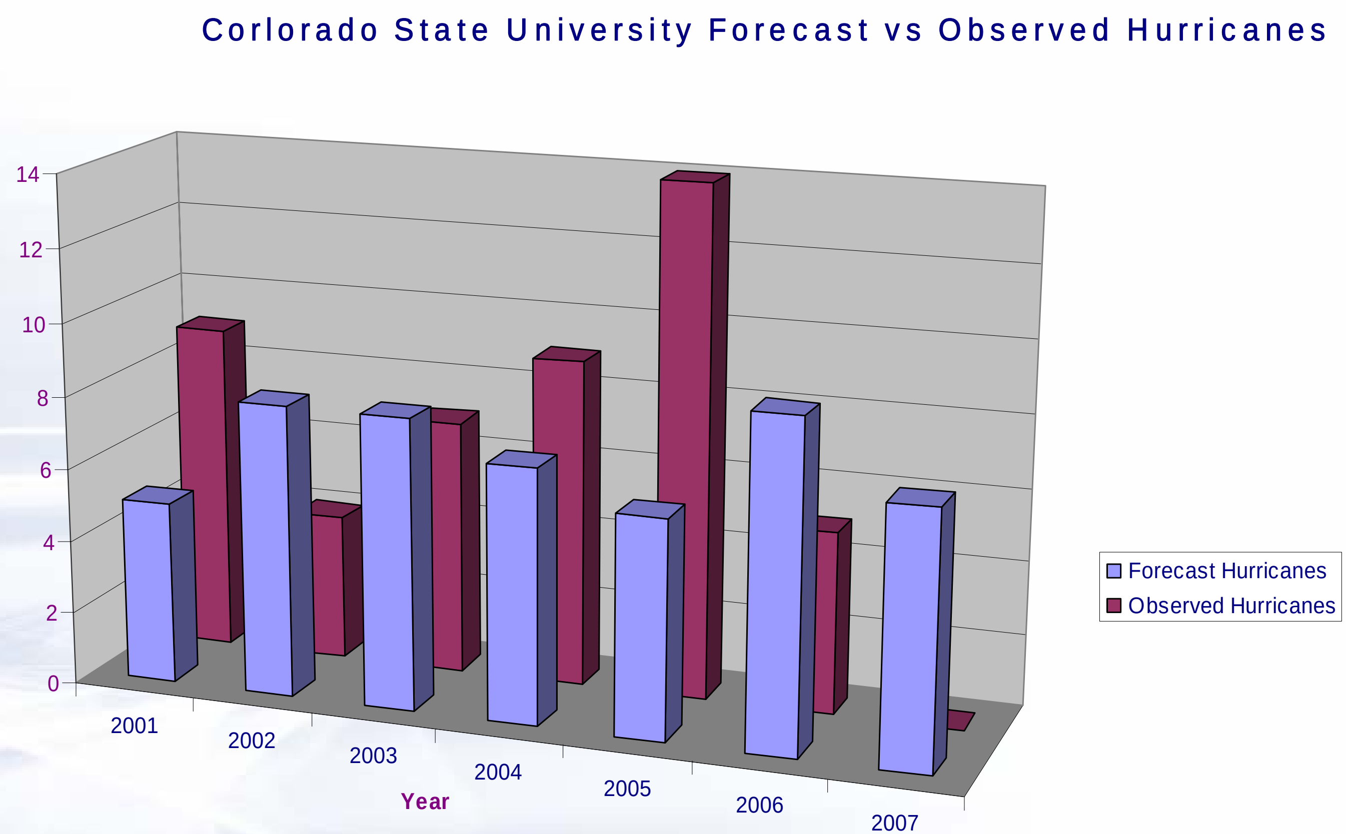


- Warm AMO Period SSI 3 and Greater Hurricane Events
- 49 SSI 3+ Events in 54 Years
- Frequency of 0.91 Per Year
- Average for SSI 3+ = 0.60 Per Year Over 153 Years

What Will Happen During the 2007 Season?

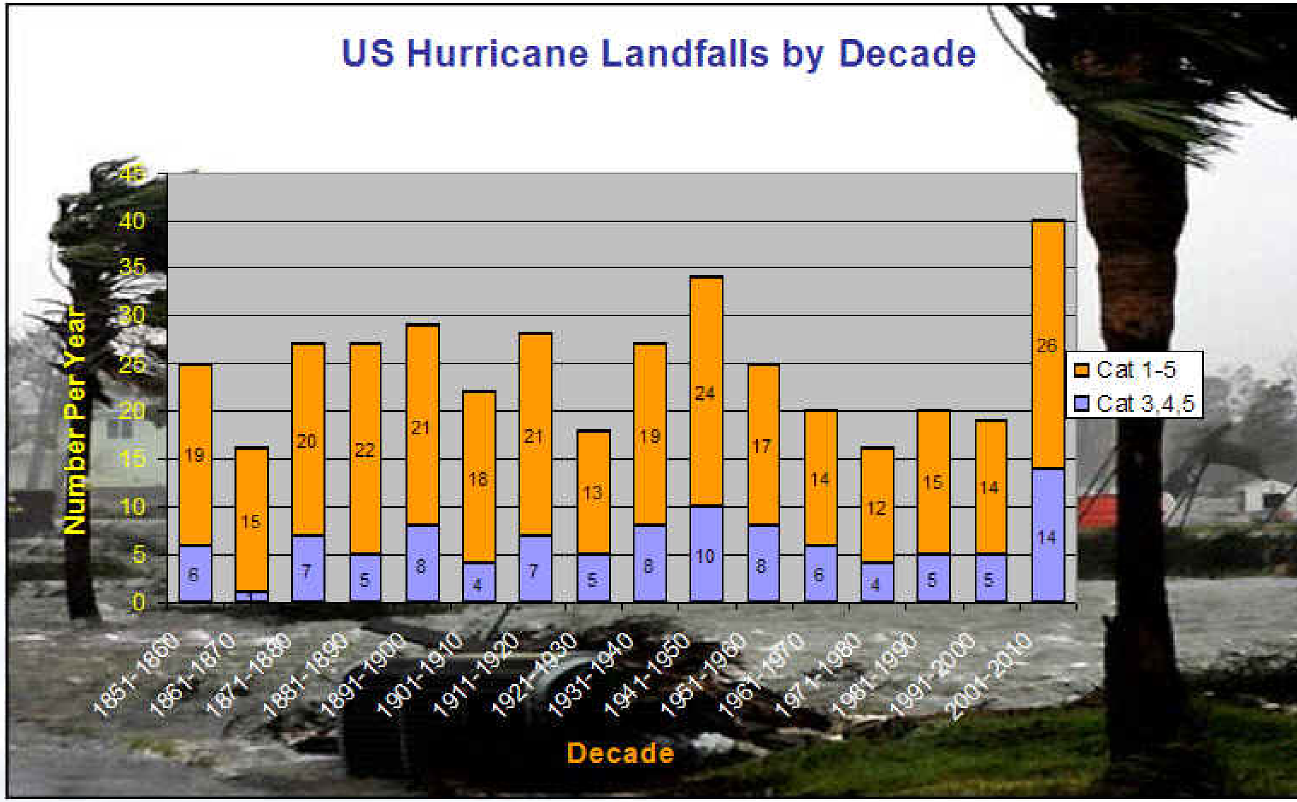
- Colorado State University – Dr. William Gray
  - Seasonal Forecast for 2007
    - Named Storms – 14
    - Hurricanes – 7
    - Major Hurricanes – 3
  - Coastline Landfall Probabilities
    - Entire US Coastline – 64% (μ = 52%)
    - US East Coast (+ Florida Peninsula) – 40% (μ = 31%)
    - Gulf Coast – 40% (μ = 30%)
- Weather Research Center – Jill Hasling
  - OCSI Forecast for 2007
    - Named Storms – 7
    - Hurricanes – 4
    - Major Hurricanes - 2

What Will Happen During the 2007 Season?



Beyond 2007

- Clear cycles of activity are seen in the historical catalog when viewed by decade
  - All Hurricanes
  - Major Hurricanes
- We are in an active cycle (AMO) that is likely to continue for another 10 – 15 years with above average activity
- We can expect more years like the we have seen in the first half of this decade



Source: NOAA – Tropical Prediction Center

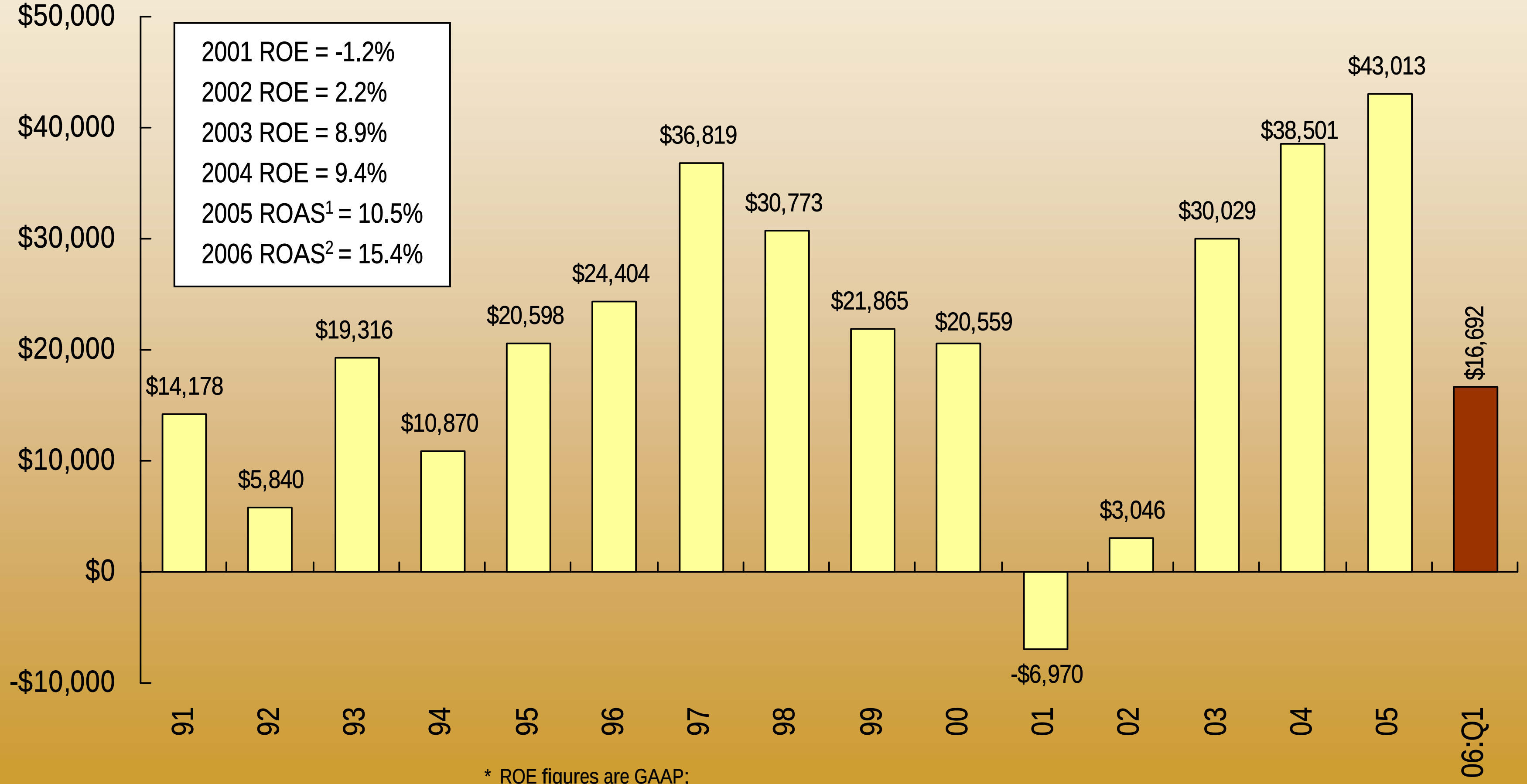
Gone With The Wind Panel

Danny Seagraves

What Does This Mean for Insurance?

P/C Net Income After Taxes

*1991-2006: Q1 ($ Millions)**



* ROE figures are GAAP;

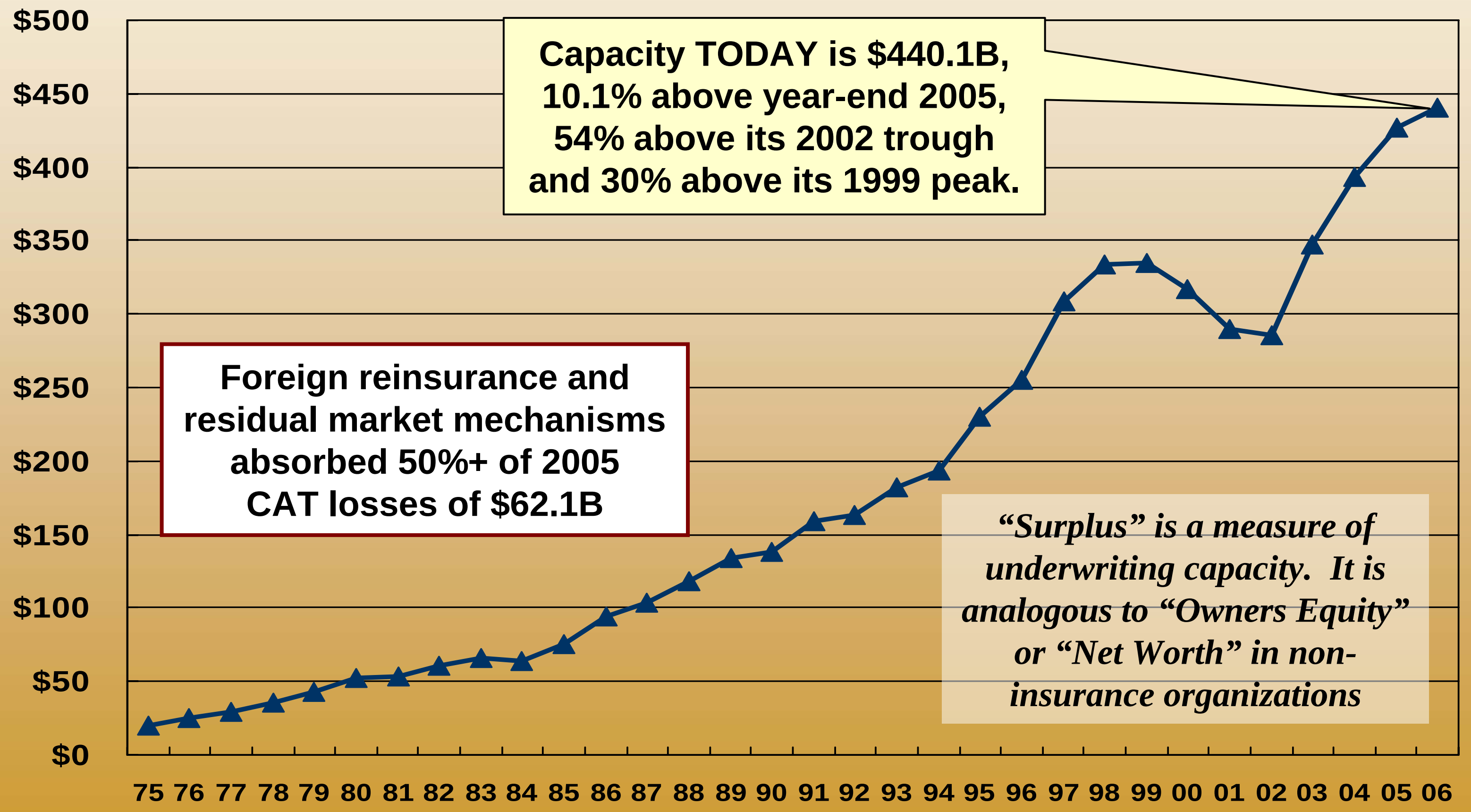
[1] Return on avg. surplus. 2005 ROAS = 9.8% after adj. for one-time special dividend paid by the investment subsidiary of one company.

[2] Based on Q1 results; For 12 months ending 3/31/06, ROAS=10.1%.

Sources: A.M. Best, ISO, Insurance Information Inst.

U.S. Policyholder Surplus

*1975-2006 ($ Billions)**

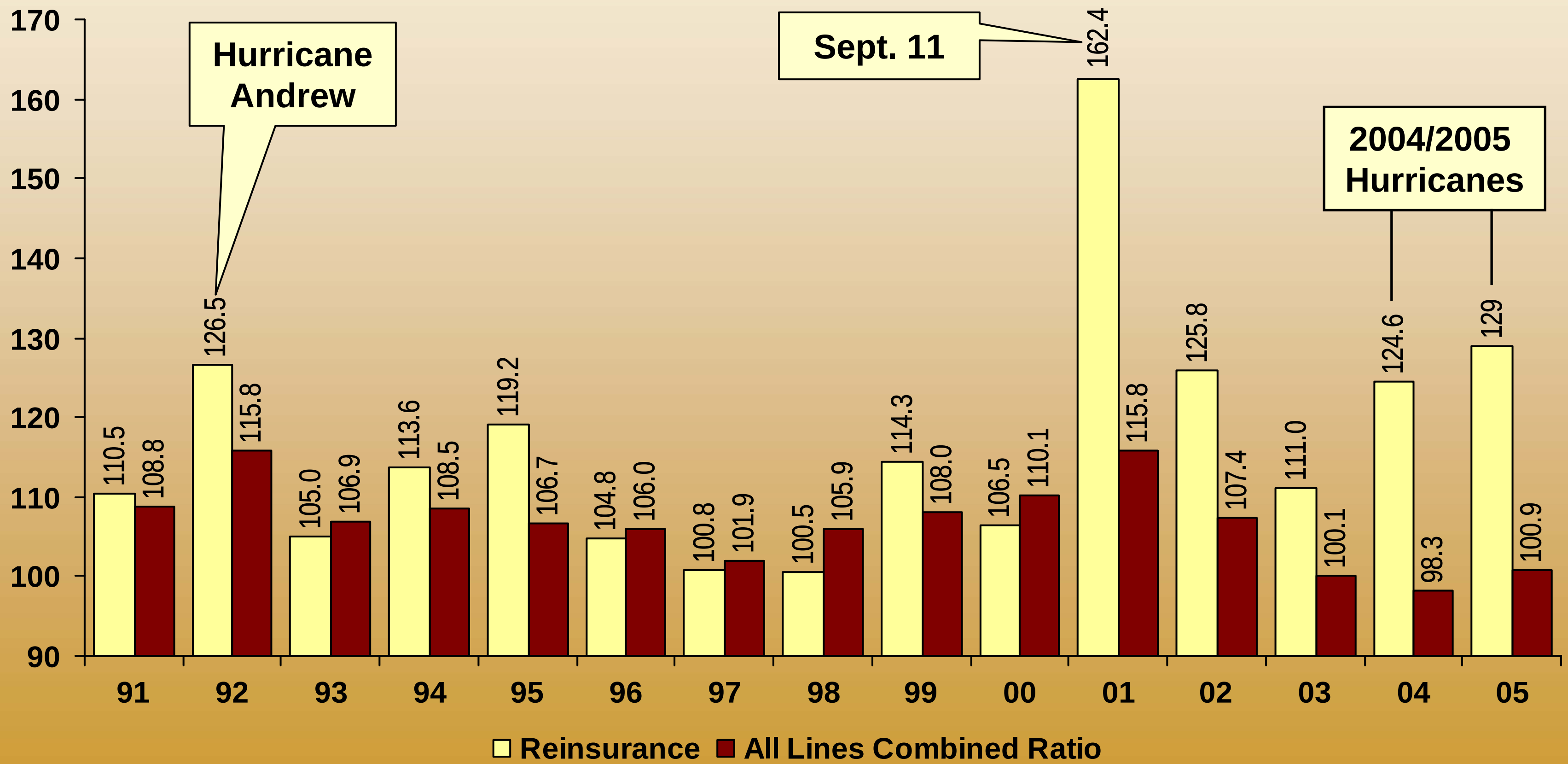


Source: A.M. Best, ISO, Insurance Information Institute

* As of 3/31/06.

Combined Ratio

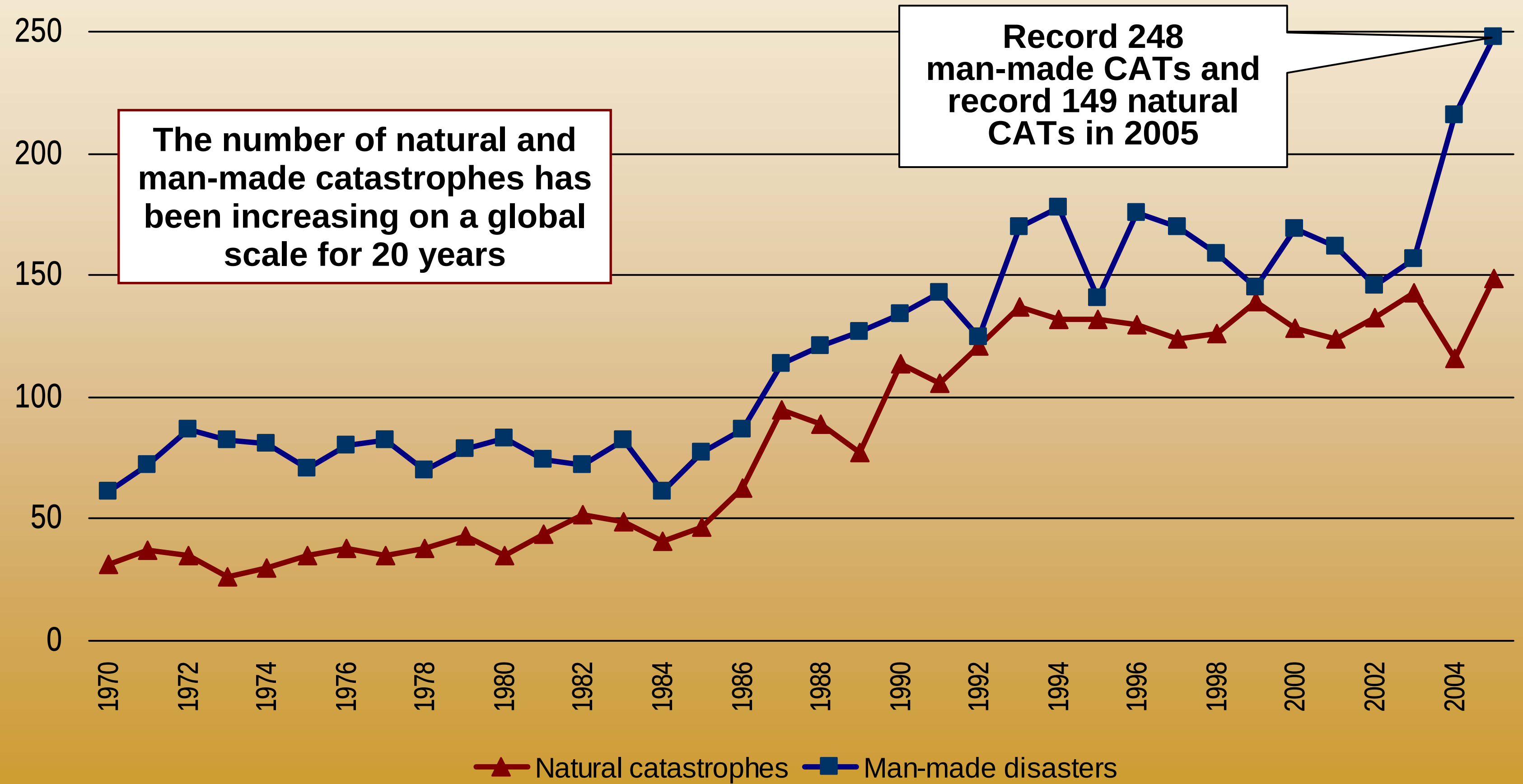
Reinsurance vs. P/C Industry



Source: A.M. Best, ISO, Reinsurance Association of America, Insurance Information Institute

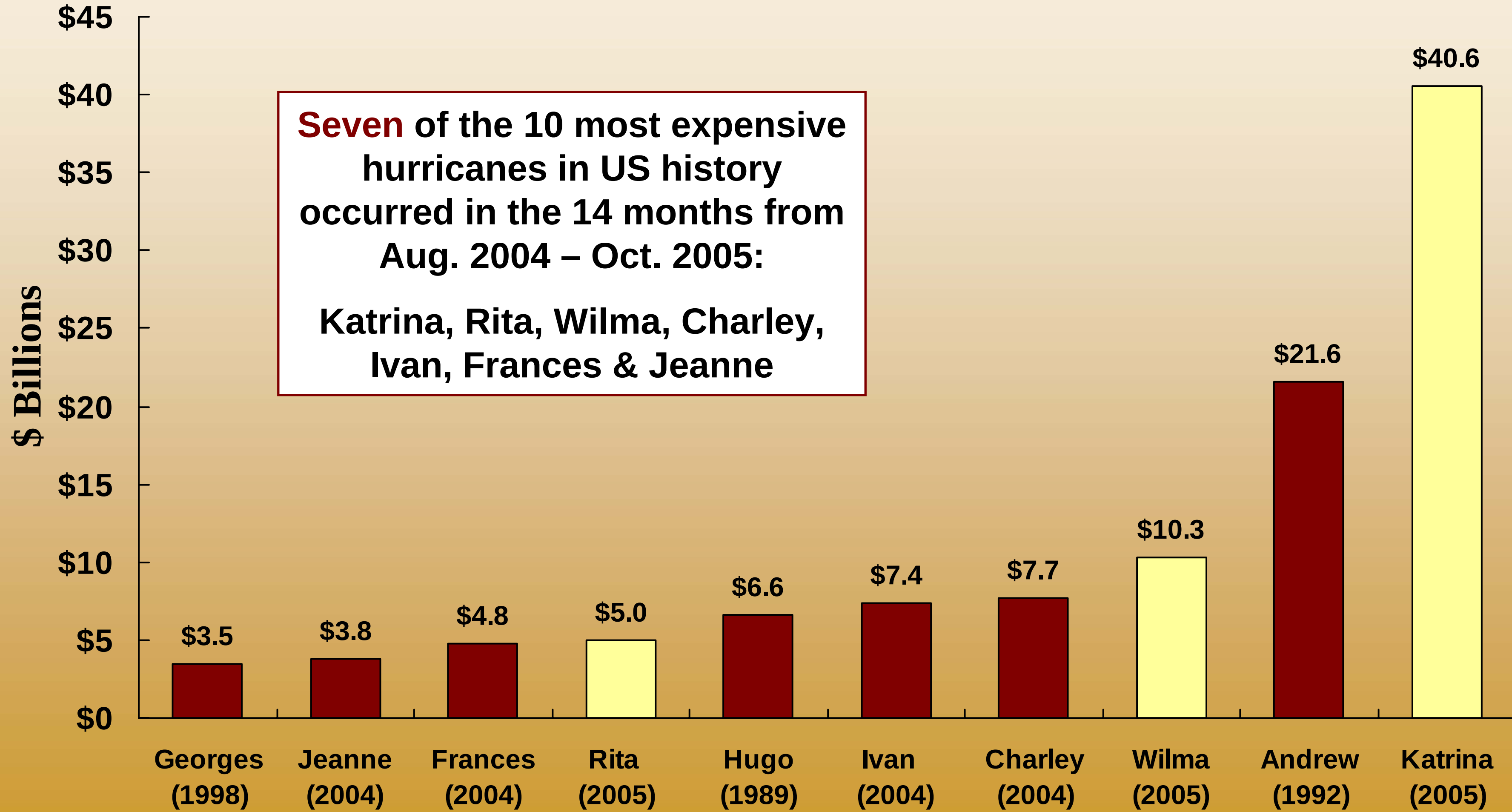
Global Number of Catastrophic Events

1970-2005



Man-made disasters: without road disasters.
Source: Swiss Re, *sigma* No. 1/2005 and 2/2006.

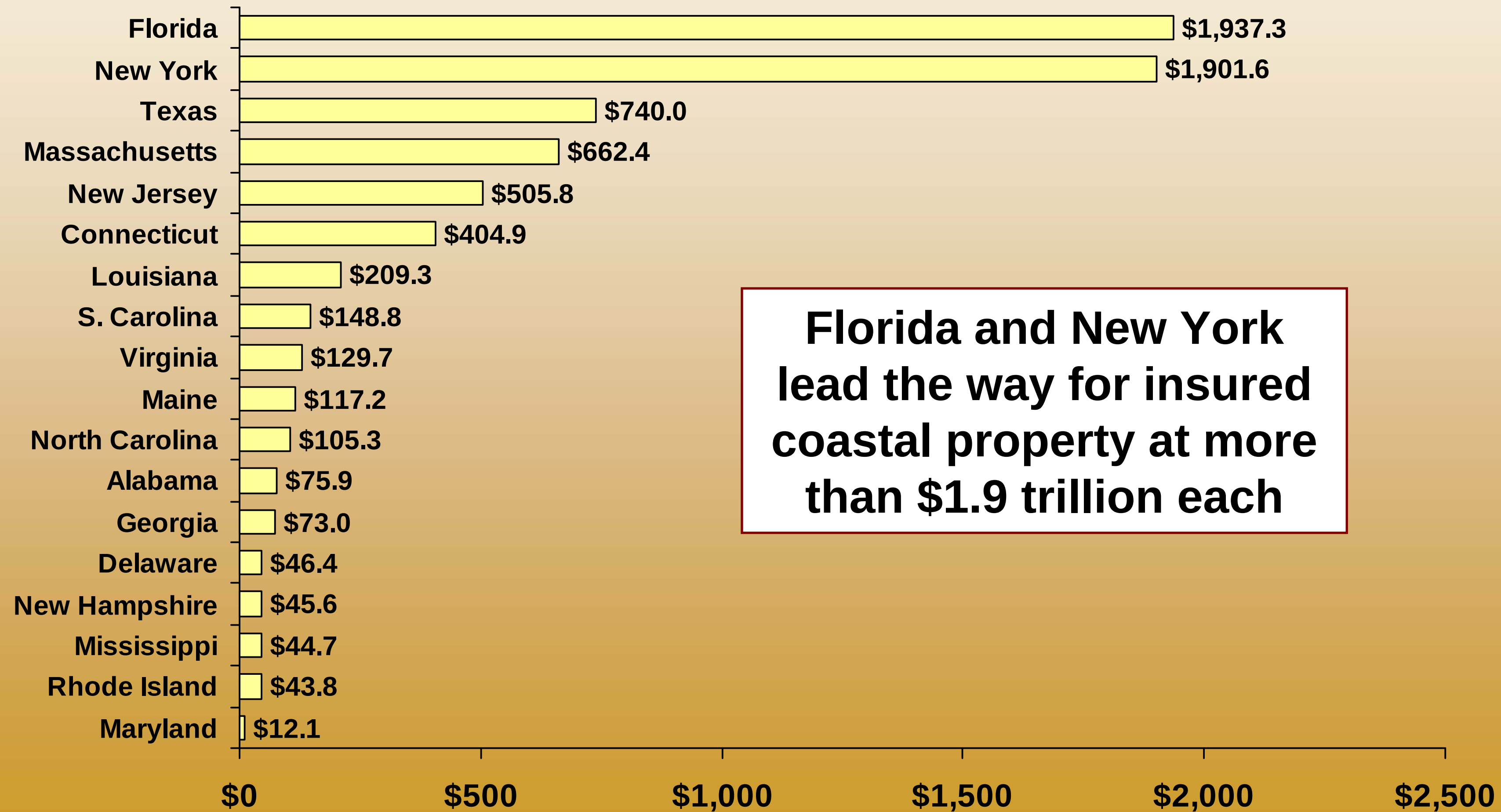
Top 10 Most Costly Hurricanes in US History



Sources: ISO/PCS; Insurance Information Institute.

Total Value of Insured Coastal Exposure

2004 ($ Billions)



Florida and New York lead the way for insured coastal property at more than $1.9 trillion each

Source: AIR Worldwide

Gone With The Wind Panel

Damian Wach, Wendy Maceo Melton

Balance Sheet and CMBS

What Are Lenders Doing Today?

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What are lenders doing today?

- Require windstorm insurance limits to the lesser of 100% of the replacement value or loan value
- Softening insurance rating requirements, allowing self-insurance or captive carriers (I.e. Citizen’s Insurance)
- Structuring insurance with greater deductibles
- In some cases, accepting less than 100% windstorm insurance, with the gap in coverage addressed by:
  - Letter of Credit
  - Additional borrower covenants / guarantees
  - Reserves / loan holdbacks
  - Reduce loan proceeds
  - Windstorm PMLs
- Even if 100% coverage is achieved at loan closing, some lenders are allowing “commercially available” language in the loan documents in anticipation of potential future coverage shortfalls.

What are Lenders Doing Today:
Agency Perspective – Fannie, Freddie and FHA

Issues facing the lending community

- The availability of insurance
- The cost of insurance

In reaction to losses insurance companies have become very creative in finding ways to exclude similar losses before they happen or to minimize their actual losses.

- More and More losses are being excluded from “All Risk” policies, i.e. terrorism, flood, wind, pollution, earthquake, etc.
- Insurance premium increases 50% to 600%
- Deductibles increasing from 3% to 10%
- Property deductibles for Windstorm based on “units” or buildings, (per building instead of occurrence).
- Insurance caps at $5 million in general and named windstorm caps ranging for $2.5 to $10 million

- Fannie Mae
  - »Waivers for coverage in an amount less than 100% replacement costs to cash value, however, not less than the mortgage balance
  - »Increasing deductibles from 5% to 10%
  - »In rare cases, premium financing
  - »Forced place coverage
  - »Captives or state windstorm pools on a case by case basis

- Freddie Mac
  - »Personal Guarantees for the difference in required insurance and obtainable insurance
  - » May consider LOC’s or cash escrows

- HUD
  - »Not much flexibility with HUD requirements
  - »No insurance requirement updates for quite some time (Fast Track and Traditional Application Processing)
  - »Waivers can be obtained for higher deductibles
  - »No guarantees, total non-recourse lending
  - »Maximum flood based on “residential” definition of $250,000 per building (MBA and HUD are considering changing to “commercial” definition, which would increase the max loss per building to $500,000.

Gone With The Wind Panel

Damian Wach, Wendy Maceo Melton, Kenneth A. Travers

What Are Some of the Solutions Out There?

What are some of the long-term solutions?

- Develop an accurate and reliable windstorm probable maximum loss (PML) standard
- Educate lenders on risks of alternative windstorm insurance
- Explore insurance solutions tailored to lender needs (i.e. “third trigger” windstorm insurance)

Long Term Solutions?

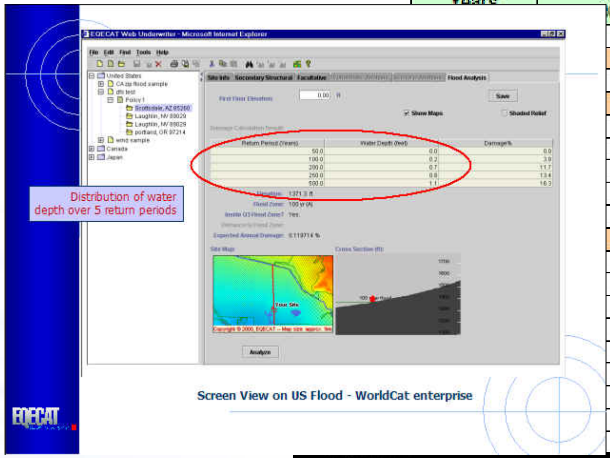
- As insurance companies continue to find ways to minimize their losses they will be creative in writing policies to exclude coverages or minimize losses, not only in high risk areas, but nationally and for various coverages some not related to windstorm
- Look for new insurance companies to be providing coverage in more difficult to insure areas.
- Borrowers will be more likely to diversify their portfolio on a geographic basis to limit their losses in high risk areas.
- Underwriters will have to adjust their underwriting to realistically reflect the actual premiums being paid
- Look for Lenders to begin adjusting their insurance requirements to reflect what is actually available in the market. Properties will be more likely to be adequately insured as opposed to over insured.
- Lenders will be more accepting of captives and/or state sponsored companies, i.e. Citizens.
- Lenders may start accepting personal guarantees, LOC’s or other self-insurance options.
- More Lenders will be likely to accept less than full coverage while still covering the mortgage, along with higher deductibles.
- Legislative reforms are also likely
  - » Stronger building codes
  - » Granting tax breaks to insurance companies writing insurance in high risk areas
  - » Limits on premium increases
  - » Relaxing state laws that require state-run property insurance companies to charge 10% higher rates than private insurers.
- Look for increases in rents
- For affordable housing projects, look for additional subsidies to subsidize insurance costs, where rents are not able to be increased.
- Joint efforts between the insurance industry, lenders, consumers, and public policy makers to address this situation fairly and realistically.

Long Term Solutions

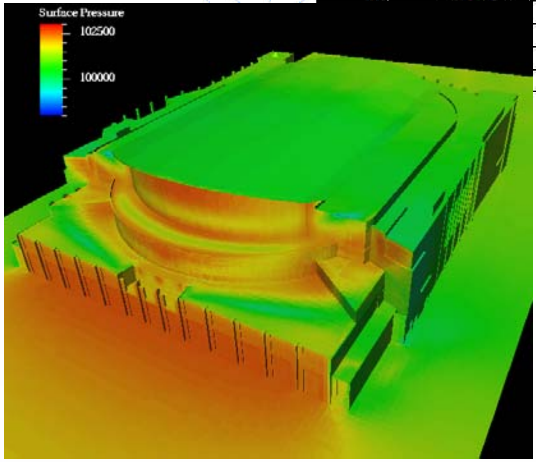
- **More Accurate Assessment of Risk**
  - Value does not equate to risk
  - Move toward a more contemporary view of risk identification (similar to the risk transfer and capital markets)
  - Wind risk assessments using catastrophe models
  - Work with rating agencies to accept PML concept to quantifying risk and support risk transfer protection
- **Physical Risk Improvement and Mitigation**
  - Strengthening/retrofit
  - Performance-based design for specified wind standards

HURRICANE LOSS EXCEEDENCE DISTRIBUTIONS IN $

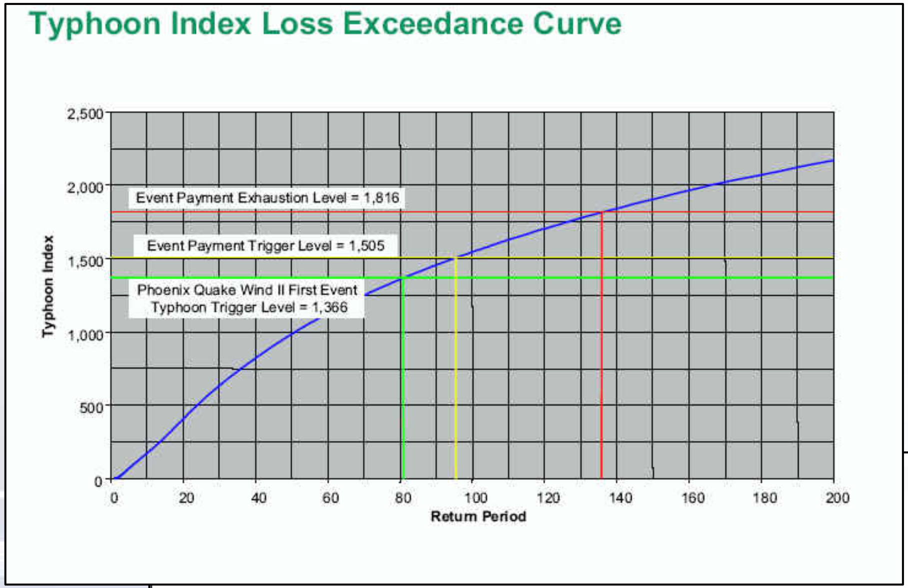
Return Period in Years	Non-Exceedence Probability in %	Per Occurrence	
		Ground-up Damage	Gross Loss
	99.9	99,314,672	67,243,898
	99.8	81,892,633	50,747,363
	99.7	68,210,086	43,322,035
	99.6	58,397,023	34,667,820
	99.5	50,075,137	29,220,740
	99.4	46,684,586	25,614,352
	99.3	42,612,449	22,490,693
	99.2	39,878,398	20,610,053
	99.1	38,142,418	19,512,789
	99	34,033,211	17,967,350
	98	19,838,072	6,887,101
	97	14,687,117	4,084,407
	96	10,843,045	2,132,744
	95	8,732,833	1,411,889
	94	7,167,412	997,689
	93	5,998,278	668,566
	92	5,195,485	447,958
	91	4,420,146	307,369
	90	3,886,297	213,180
			19,731
			839
			-
			-

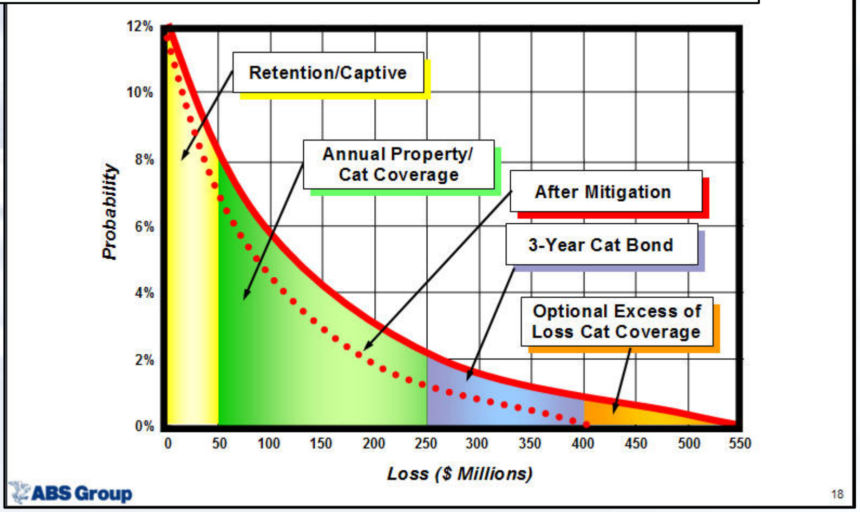


Screen View on US Flood - WorldCat enterprise



Long Term Solutions





- **Securitizing Risk Through Catastrophe Bonds**
  - **Effective alternative to risk transfer in certain markets and for certain portfolios**
  - **Can support a layered risk transfer program whereby risk models are used to optimize the overall risk management program**
  - **Well accepted in the insurance and capital markets**

Long Term Solutions

- PML Risk Assessments for the Hurricane Peril
  - Engineering-based assessment of risk for a specified property
  - Estimates risk to asset based upon key parameters highly correlated with damage and loss to the asset
    - Construction class, elements and features
    - Location
    - Exposure to hazard (frequency and severity)
    - Surrounding environment (ie, nearby roof ballast, signage)
  - Based upon engineering judgment and over 45 years of claims data from real events
  - Utilizes robust and validated hazard and vulnerability models to quantify damage and loss
  - Can be deterministic (scenario) or probabilistic-based
  - Can identify and support cost-benefit analyses for risk improvement options
  - Can differentiate risk between similar and nearby assets based upon unique attributes

Long Term Solutions

- **PML Risk Assessments for the Hurricane Peril**
  - **What is required?**
    - Standard terminology
    - Standard risk metrics
    - Approved risk analysis methodology
    - Robust and validated hazard/vulnerability models
    - Approved or certified hurricane risk assessment resources
    - Acceptance by rating agencies (ie, Moody's, Fitch)
    - Already accepted by the insurance industry
  - **Benefits to the Mortgage Banking Industry**
    - Accepted practice for quantifying risk (apples to apples comparisons)
    - Ability to "screen" hurricane risk on loan properties
    - Basis for managing portfolio risks due to aggregation of exposure
    - Supports acquisition of risk transfer protection

Gone With The Wind

Kathleen Dufraine

Wrap-Up

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