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Welcome to the 2017 Property Insights Conference!

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Welcoming Remarks

Jeffrey Cohen
EVP & Global Business Development
Advisen

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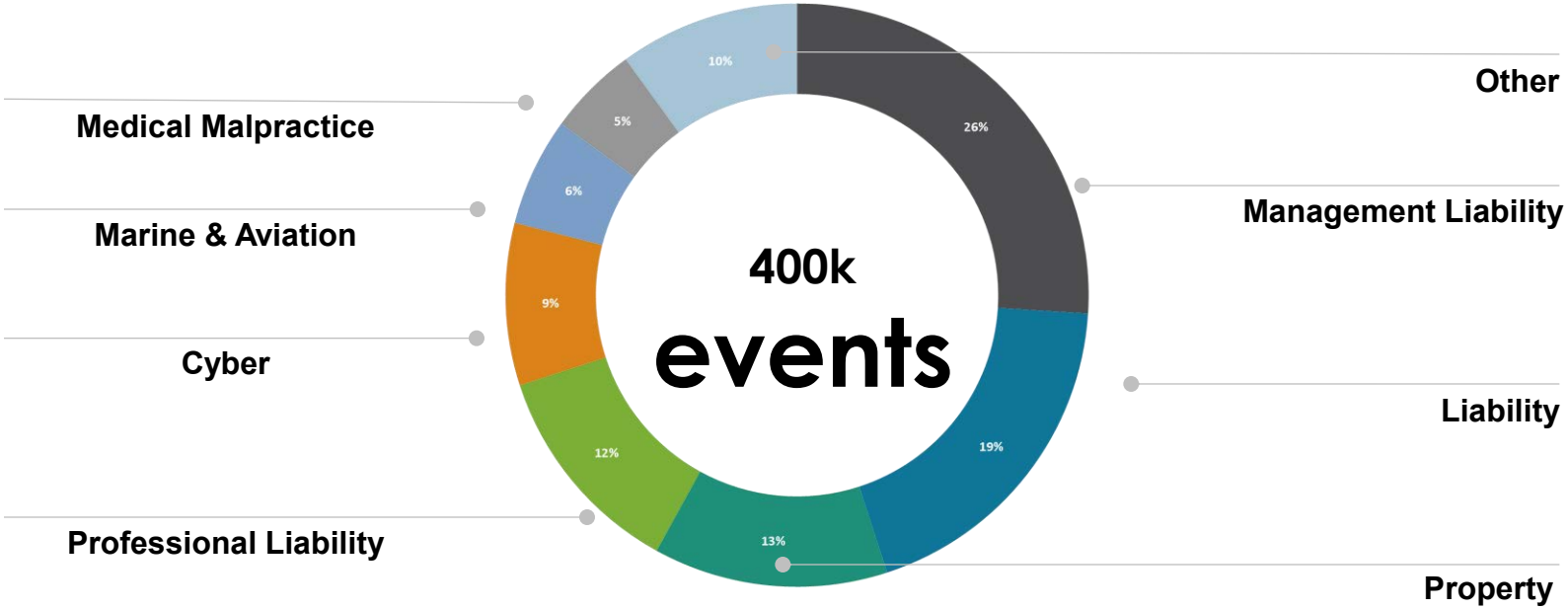
Loss Data Overview



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Thank you to our Advisory Board

Brenda (Ballard) Austenfeld, RT Specialty
Laureen Coyne, Westfield World Trade Center [2017 Conference Co-Chair]
Duncan Ellis, Marsh
Lou Frascotti, AIG
Richard Friedl, Liberty Mutual
Richard Miller, Aon
Richard Montminy, Zurich
Shari Natovitz, Silverstein Properties
Peter Pettinicchio, FM Global
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2017 Conference Co-Chairs

Laureen Coyne
Manager Risk Management
Westfield World Trade Center

Michele Sansone
President of Property and Engineering
XL Catlin

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Morning Keynote Address

Michael Millette
Managing Partner
Hudson Structured Capital Management

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The Risk Manager's Perspective

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The Risk Manager's Perspective

Richard Miller
Managing Director,
U.S. Property Practice Leader
Aon
Moderator

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The Risk Manager's Perspective

- **Richard Miller,** Managing Director, U.S. Property Practice Leader, Aon (Moderator)
- **Mayra Berlanga,** Associate Risk Manager, Marsh & McLennan Companies
- **Shari Natovitz,** SVP & Director of Risk Management, Silverstein Properties
- **Steve Truono,** Executive Director, Global Risk & Insurance Management, Avon Products, Inc.

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The Risk Manager's Perspective

Richard Miller
Aon

Mayra Berlanga
Marsh & McLennan Companies

Shari Natovitz
Silverstein Properties

Steve Truono
Avon Products, Inc.

Morning Break

Coming up next…

Terrorism: How to Integrate into Programs

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Terrorism: How to Integrate into Programs

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Terrorism: How to Integrate into Programs

Tarique Nageer
Senior Vice President
Marsh

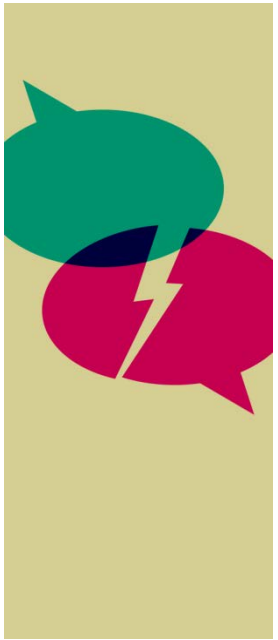
Ben Tucker
Head of US Terrorism & Political Violence,
Crisis Management
XL Catlin

Evolving risk dynamics

•Frequency/Severity of events is evolving

•Increased probability of:

- Smaller scale attacks – high human impact – Under/Un-insured Time Element
- Increased reaction by Federal/State/Local law enforcement to threats
- Increase in “copycat” events – or modified mode
- Increased potential for Chemical Biological Radiological Nuclear (CBRN) - ISIL “Blowback” and Middle East/European weakening borders
- First party Cyber



Terrorism – traditional view

Terrorism – A CAT cover mentality

- Location
- Occupancy/Type of Business
- Coverage
- Terrorism targets within a blast zone based on Insured location
- Account level target analysis based on pre-identified Terrorism targets

Account Summary

Account Name	Total Risks
National Hospitality	97

Terrorism Target Summary

Attack Type	Radius (meters)	# Risks Affected
Bomb - 2 Ton	1,600	38
Bomb - 5 or 10 Ton	1,900	42
Aircraft Impact (Low Rise)	538	22
Aircraft Impact (Mid Rise)	760	29
Aircraft Impact (High Rise)	1,054	32
Aircraft Impact (Skyscraper)	1,500	37
Dirty Bomb - Small	2,500	50

International Terrorism & Political Violence

- US Companies with global exposures:
  - Direct and contingent exposures
  - Terrorism is limited peril – Political Violence - a broader solution
  - Property programs typically exclude – check your policy

- Political Violence
  - Perils – War – Revolution – Coup D'Etat – Insurrection
  - Address country level events
  - Direct and contingent cover

- Global exposures – Terror/PV Perils – coverage gaps/options
  - Standalone Global – Terrorism and Political Violence
  - Property Program – Extended perils – Incl Terrorism/Political Violence
  - XL Catlin Platinum Property - Option for International Terrorism and Political Violence

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Data and Analytics: Practical Implications for Buyers

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Data and Analytics: Practical Implications for Buyers

Aaron Davis
Managing Director – Business Development,
National Sales Leader
Aon

Katherine Klosowski
Vice President, Manager – Special Projects
FM Global

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Data and Analytics:
Practical Implications for Buyers

Katherine Klosowski
Vice President and Manager – Special Projects
FM Global

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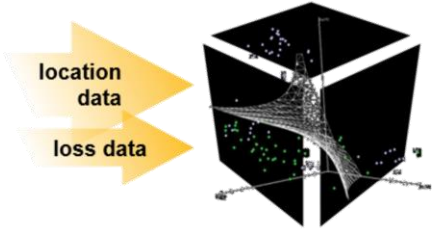
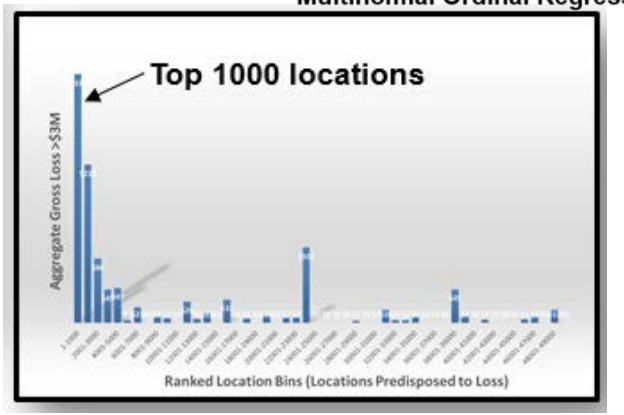
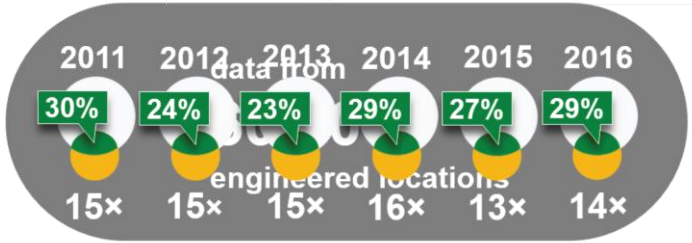
$$ln\left(\frac{p_i}{1-p_i}\right) = \alpha_i + X\beta \Rightarrow p_i = \frac{e^{(\alpha_i + X\beta)}}{1 + e^{(\alpha_i + X\beta)}}$$

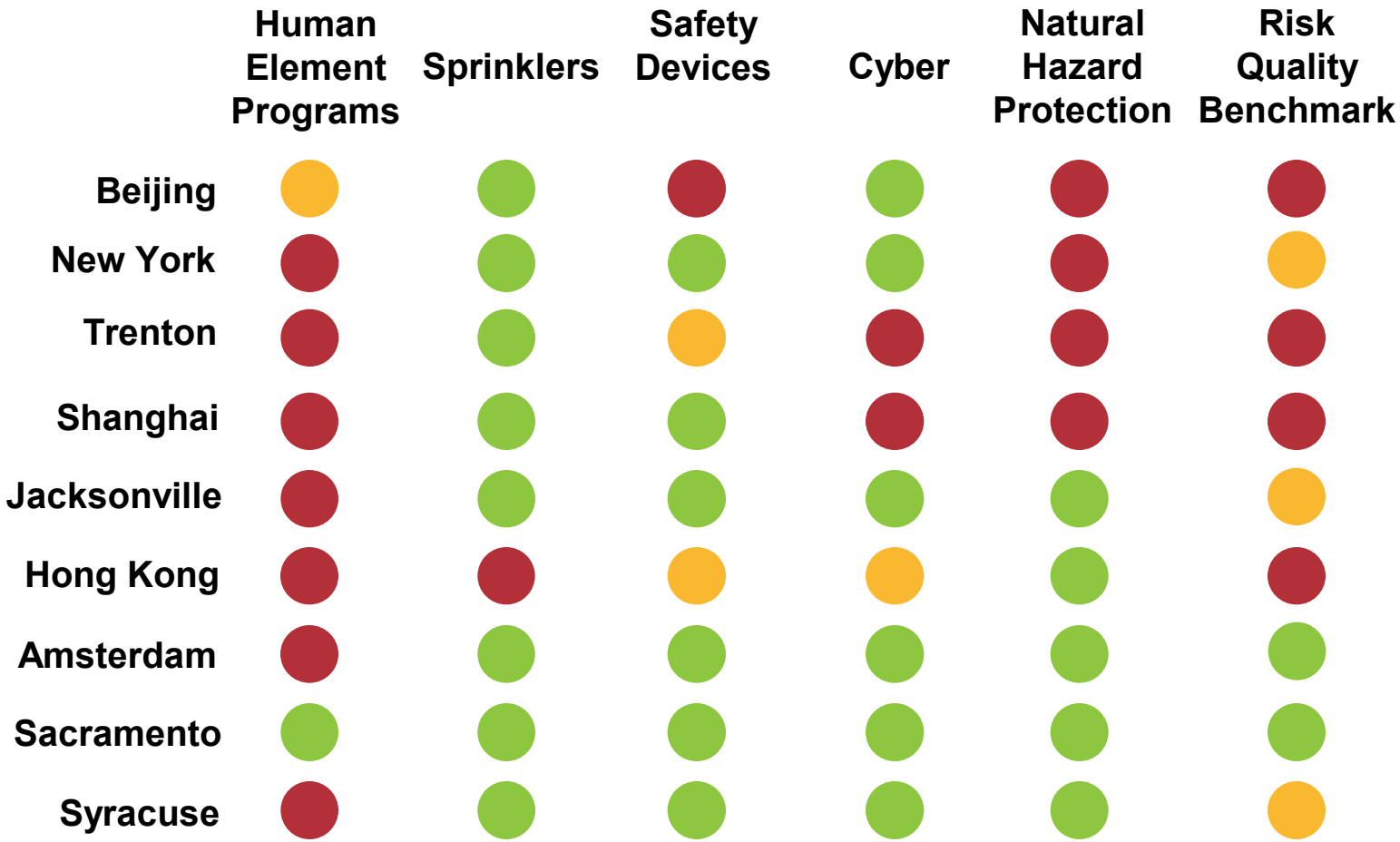


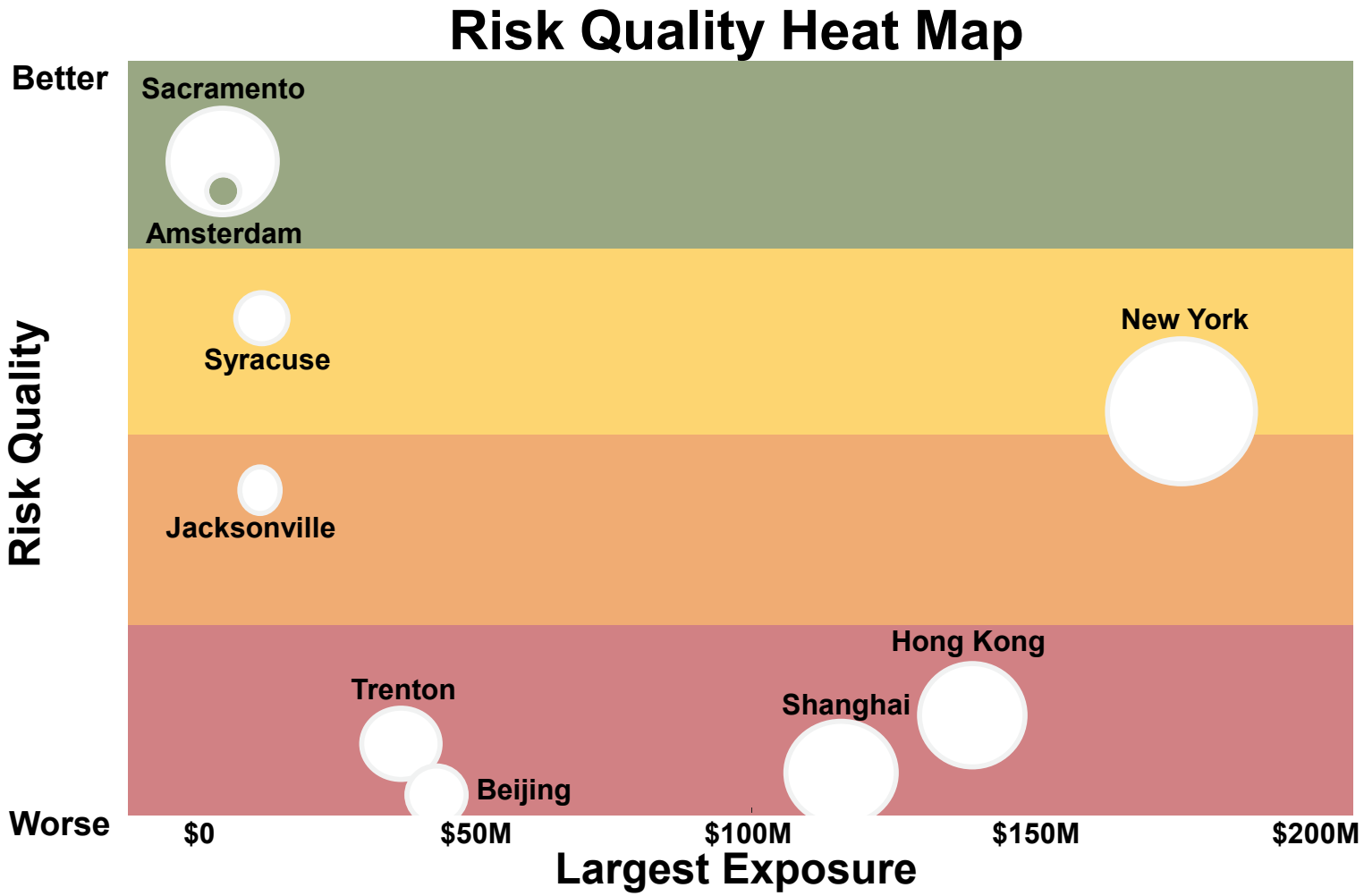
Multinomial Ordinal Regression Model





Percentage of losses >$3M captured within the top 1,000 locations


Human Element Programs
Sprinklers
Safety Devices
Cyber
Natural Hazard Protection
Risk Quality Benchmark
Beijing
New York
Trenton
Shanghai
Jacksonville
Hong Kong
Amsterdam
Sacramento
Syracuse


Risk Quality Heat Map
Better
Worse
Risk Quality
Sacramento
Amsterdam
Syracuse
New York
Jacksonville
Hong Kong
Trenton
Shanghai
Beijing
$0
$50M
$100M
$150M
$200M
Largest Exposure

Predictive analytics is taking the guesswork out of risk management.

Advisen – Data & Analytics: Practical Implications for Buyers

Aaron F. Davis – Managing Director – Business Development & National Sales Leader

June 8th, 2017

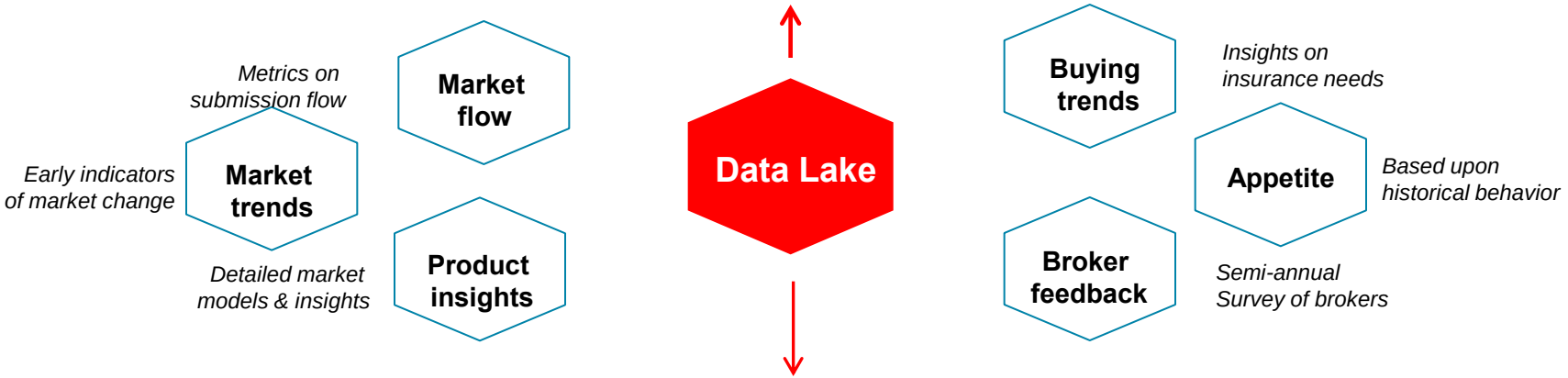
Prepared by Aon Risk Solutions
Aon Broking | National Property

Aon
Empower Results®

Aon's data lake

A vast amount of data underpins Aon's risk insights. Captured from permitted Aon internal and external public sources, data is ingested to our data lake – a highly flexible repository that hold large amounts of data in its native format, allowing it to quickly configured for any specified view or query.

Powerful and **secure** infrastructure, auto scaling to **maximize utilization** of **data**



A single, consistent source of **data**

How does data help clients, carriers and brokers?

Helps with:

Clients	Analyze buying behaviors of peers by product, limit & deductible	Quantify risk and identify the most appropriate insurer(s) to meet specific priorities	Gain transparency around financial security of insurers & their subsidiaries
Carriers	Better understand their appetite within broker's portfolio	Model changes to see how they may impact their market presence	Execute on this knowledge within the broker book of business (or other distribution sources)
Brokers	Keep informed of recent marketplace developments at a glance	Identify potential enhancements to client programs based upon peer results	Indicate pricing trends, positioning broker to negotiate placements

Flood Mapping

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Flood Mapping

Louis Gritzo
Research Manager
FM Global

Ryan Volker
SVP, Property Placement Leader
Willis Towers Watson

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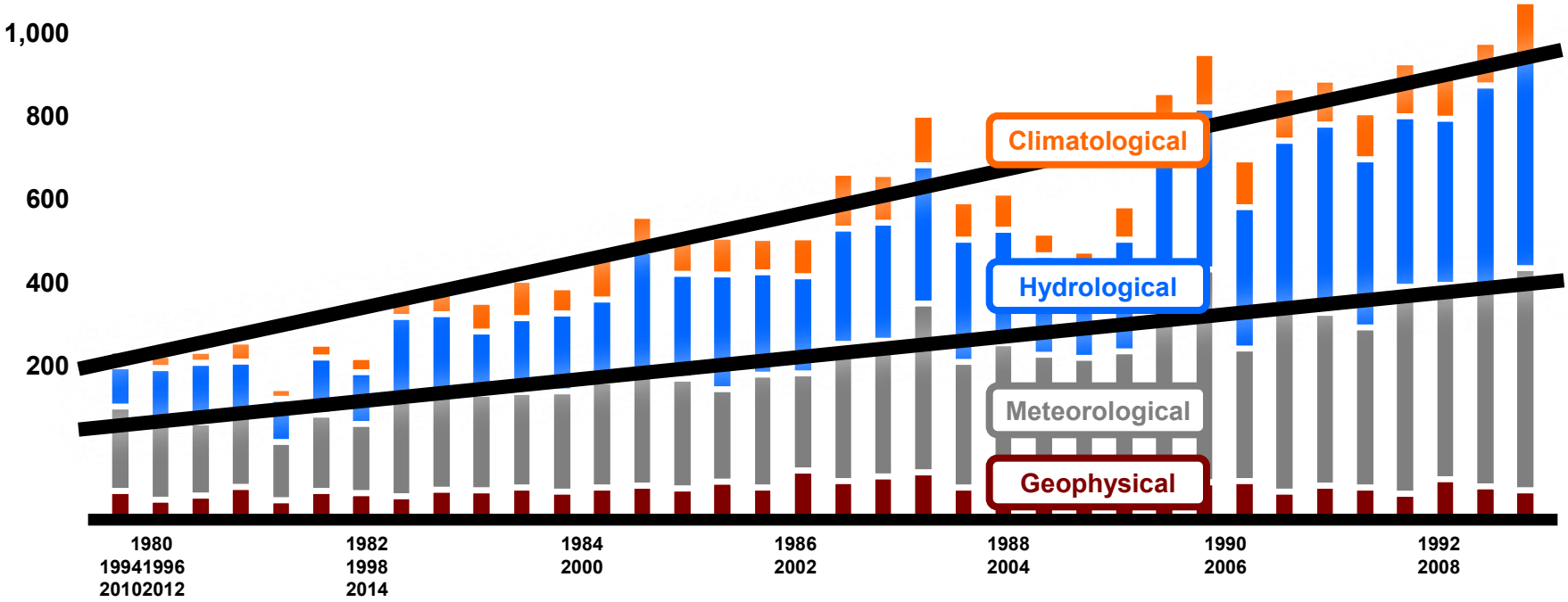
Global Flood Risk

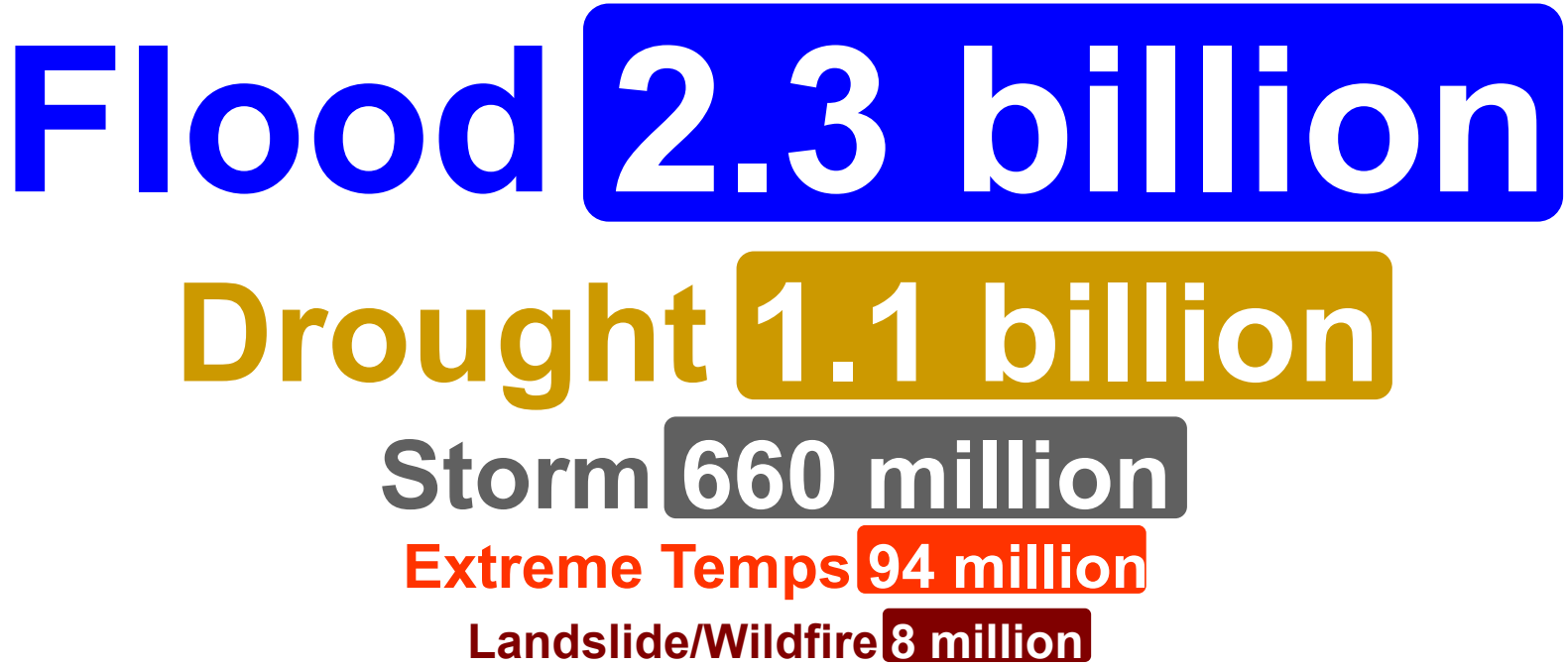
Dr. Louis Gritzo
Research, FM Global

World Natural Catastrophe Events 1980-2015



Source: © 2016 Munich Re, Geo Risks Research, NatCatSERVICE. As of January 2016.

Numbers of People Affected by Weather Related Disasters (1995-2015)



NB: deaths are excluded from the total affected.

The majority of natural hazard loss is preventable.

The Flood Challenge

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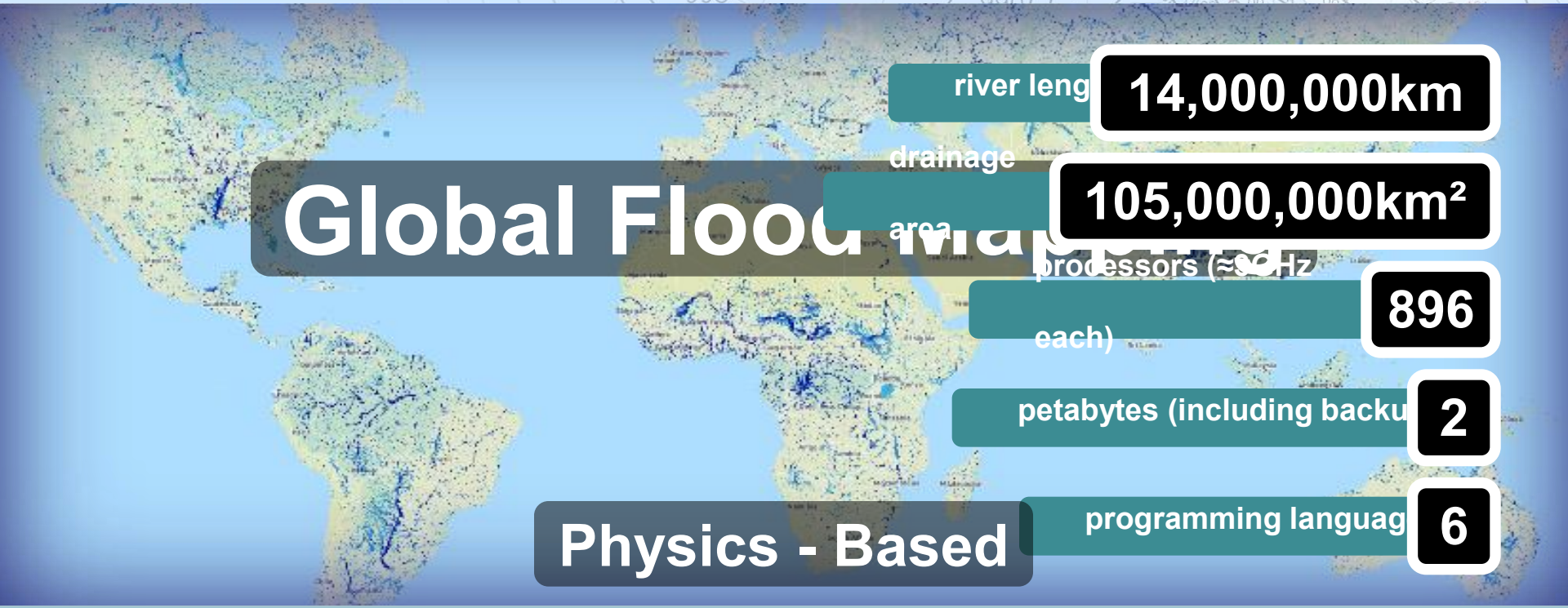
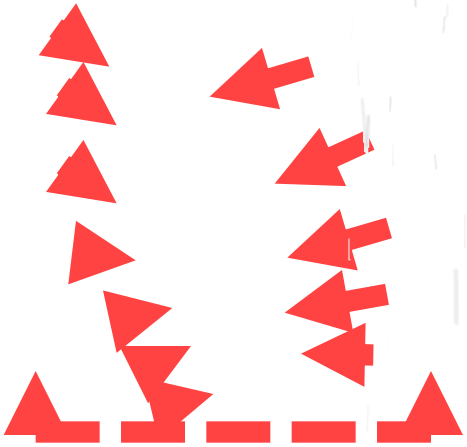
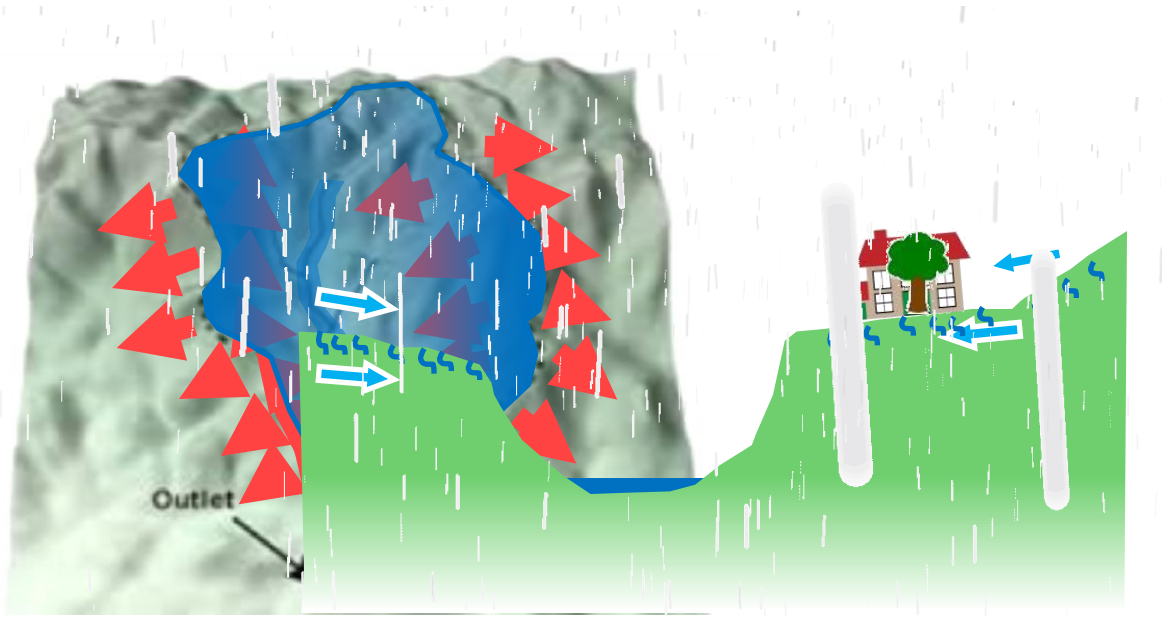
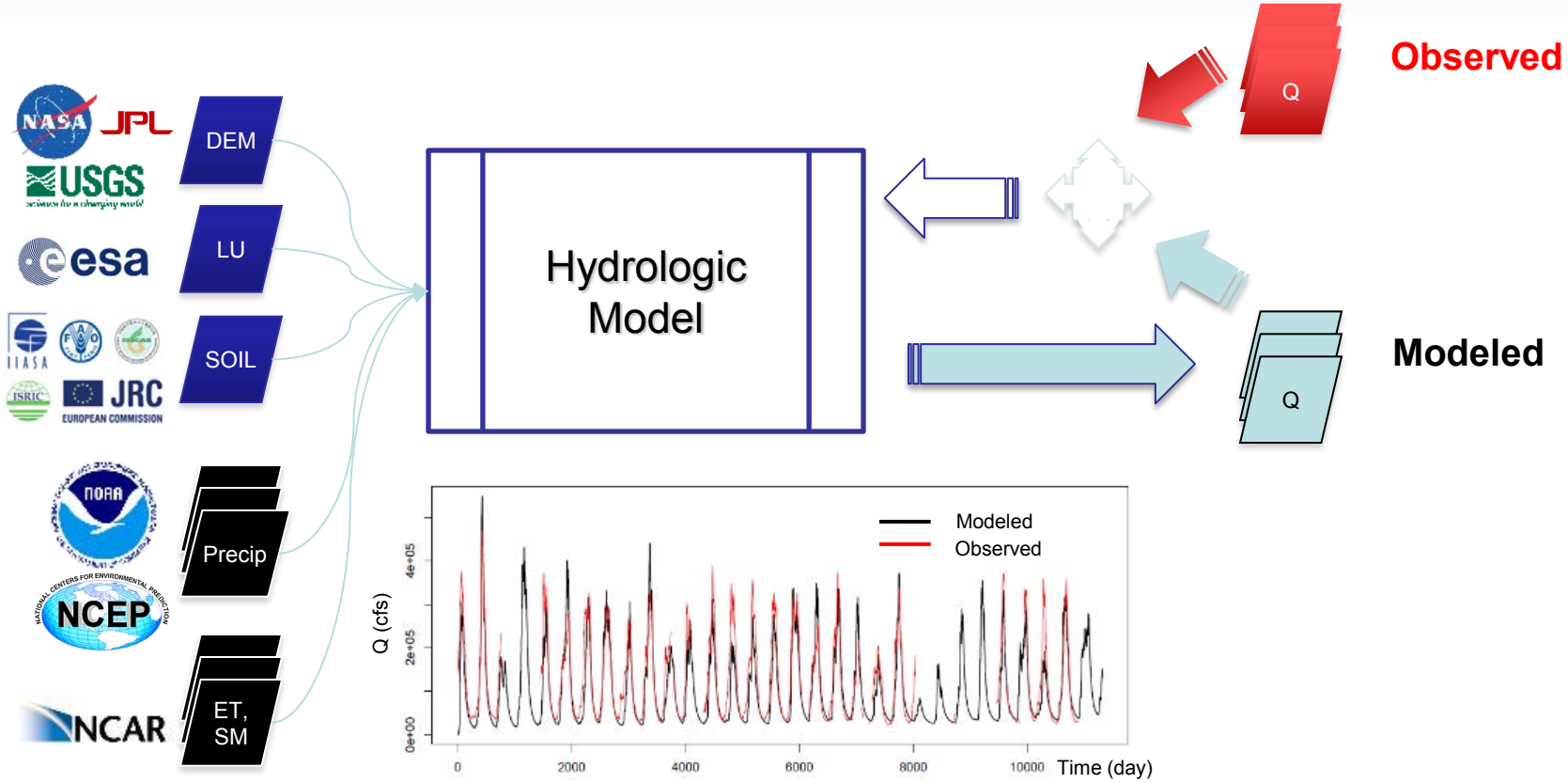


Hydrology

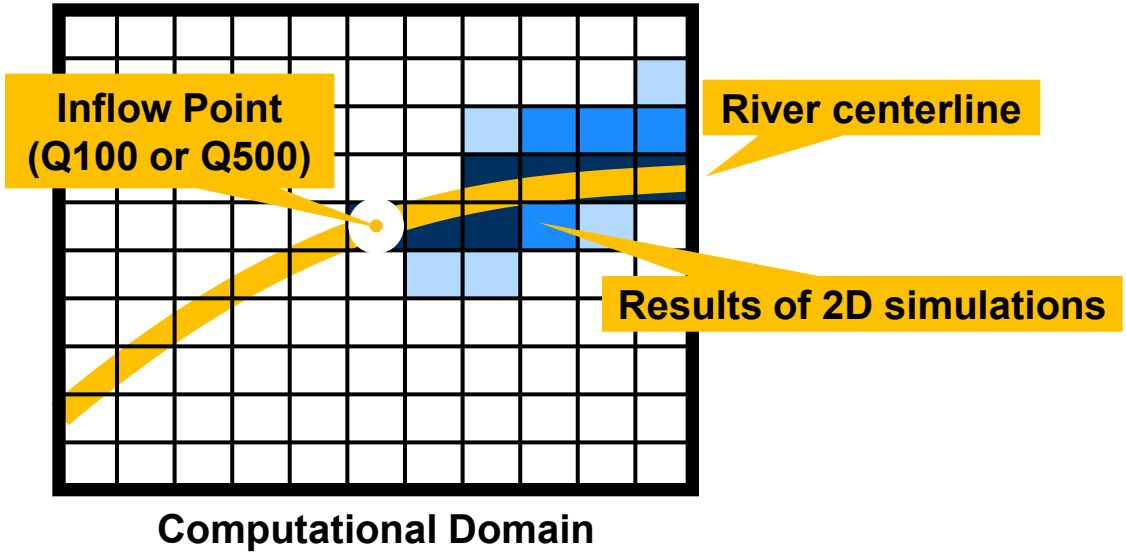




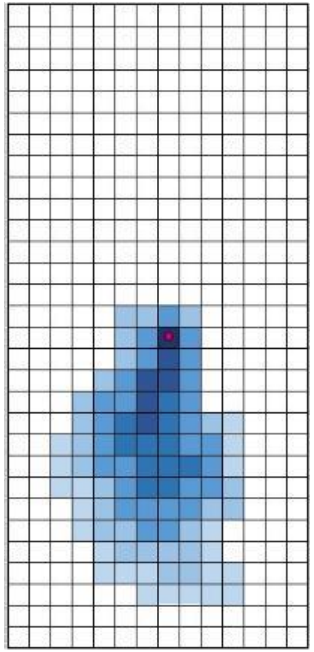
River Flow, Physically-Based Hydrology



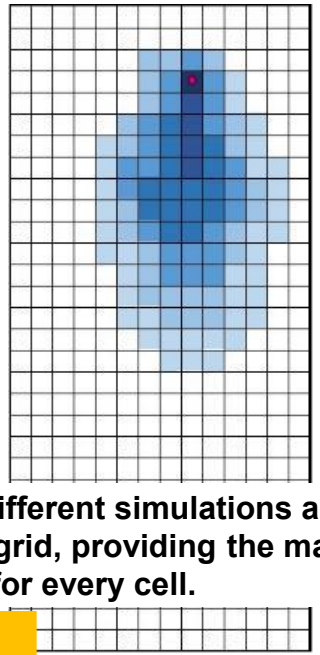
Flood Extent/Depth, 2D Hydraulics

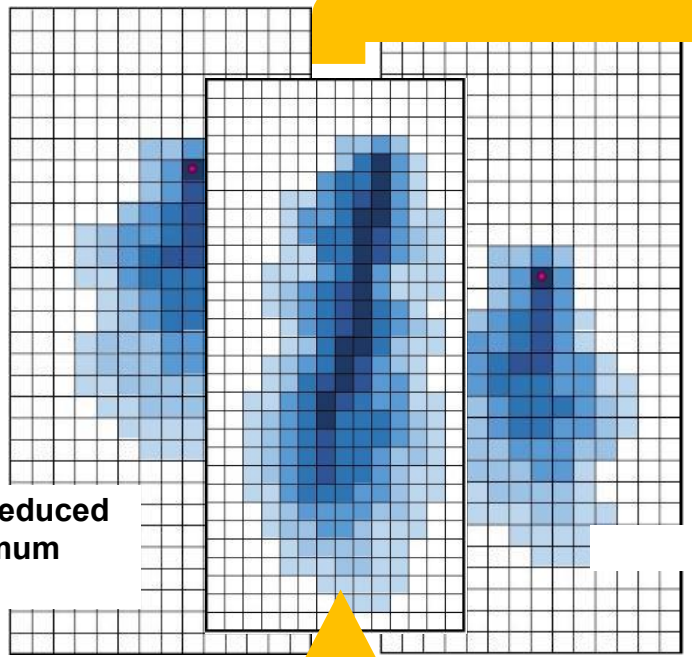


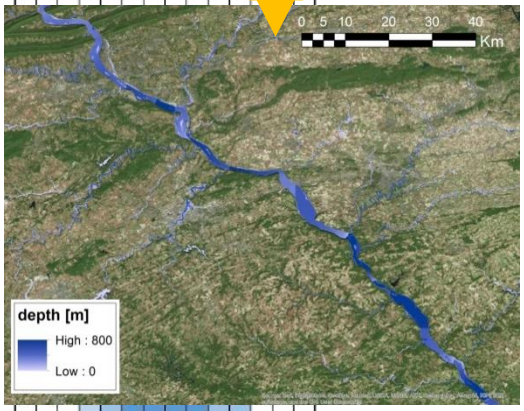
The hydraulic model simulates water propagation within the domain.



Other simulations are run for different overflow points along the river network in the catchment







Outputs of different simulations are reduced to the same grid, providing the maximum flood depth for every cell.

Repeat for each catchment

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100-year Map

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Core Team:

- Dr. Yasir Kaheil (Team Leader)
- Dr. Lorenzo Begnudelli
- Dr. Jeff McCollum
- Dr. Zhao Liu
- Dr. Andreas Muehlbauer
- Dr. Hosam Ali (VP, Nat Haz)

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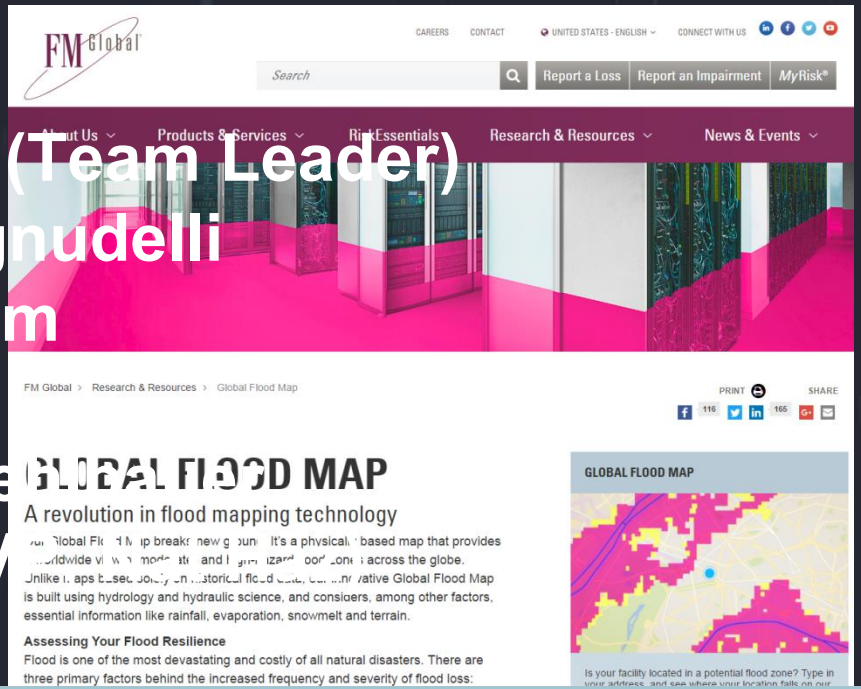
- Dr. Andreas Mue
- Dr. Hosam Ali (V

www.fmglobal.com/GlobalFloodMap



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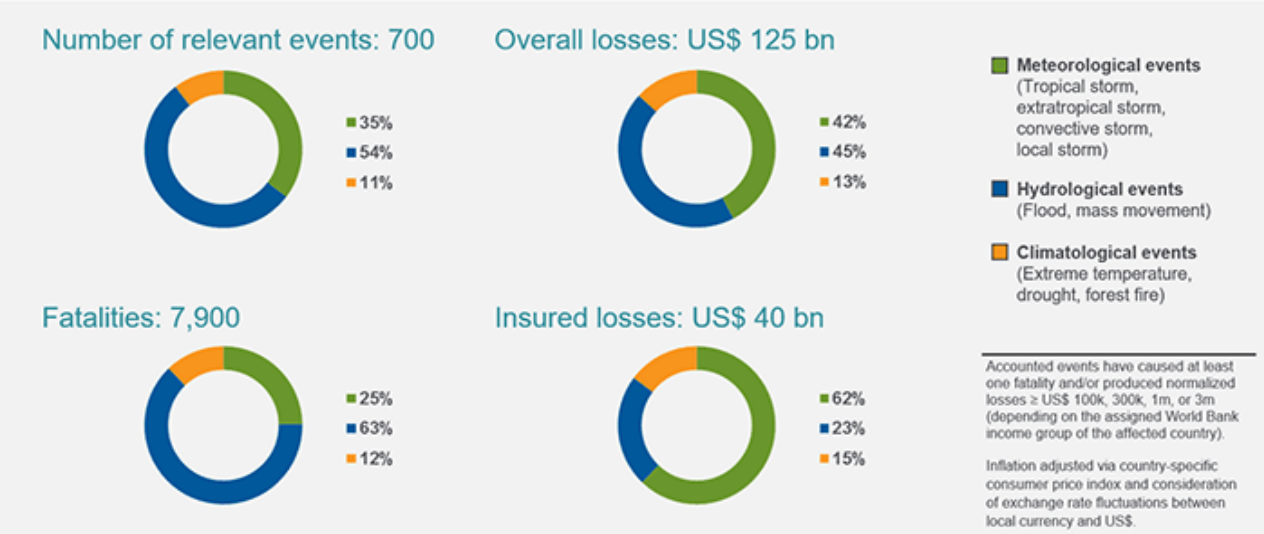
Flood Discussion

From the Eyes of the Broker

Why flood is on everyone's mind?



Source: © 2017 Munich Re, Geo Risks Research, NatCatSERVICE. As of February 2017.

Client/Broker Challenges with Flood

- Continuously changing exposure profile
- Varying modeling tools to measure the amount of risk present
- Lack of expertise to analyze modeling results and provide coverage clarification
- International risk identification and coverage certainty lacking
- Lending requirements forcing clients to purchase poor products
- Policy wording & flood zone definition inconsistencies

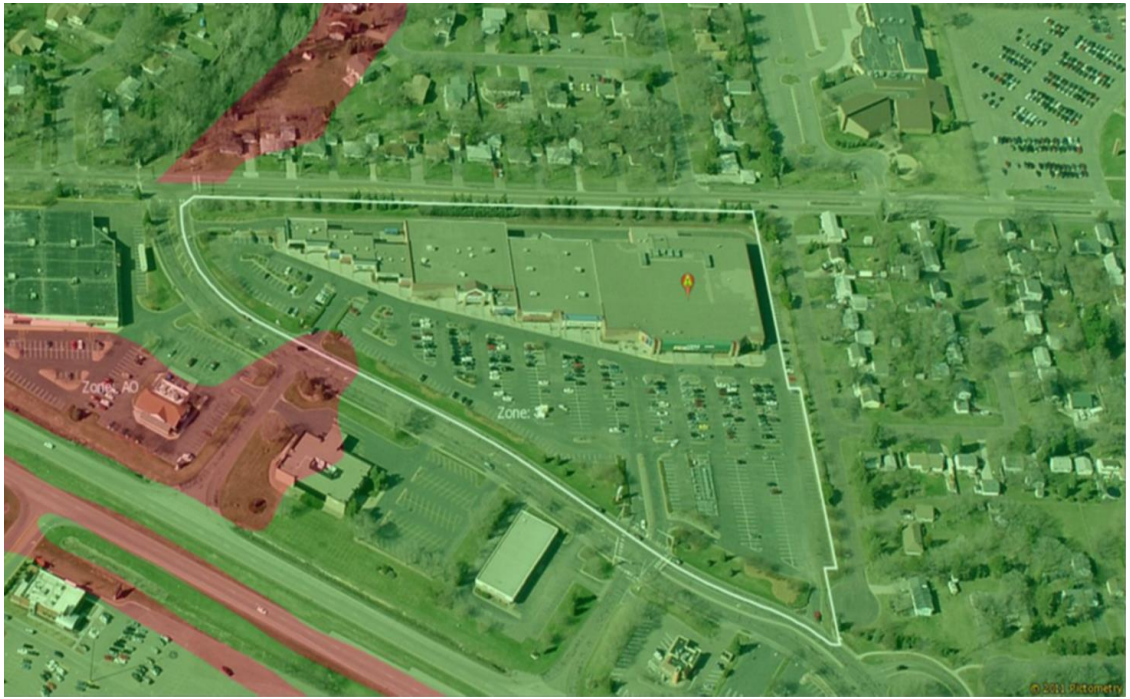
Wholly or Partially

Tools of the Trade

SpatialKey

CatNet®

NATHAN


Zone: AO
Zone:

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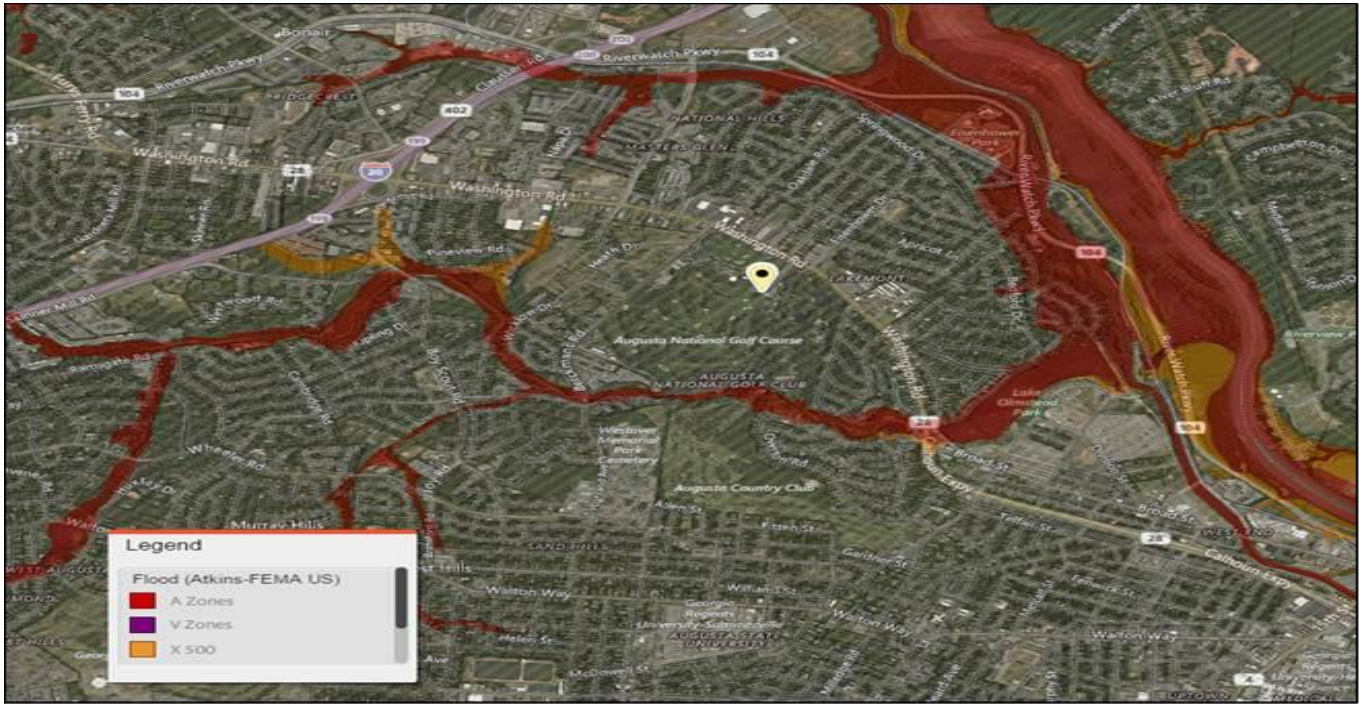

Steps Towards better Flood Awareness

Step 1:	Geocoding -	Get your raw data as accurate as possible Street level or parcel for each location is critical
Step 2:	Determine Zones -	These vary depending on tools used They don't matter unless carrier agrees Focus on distance from HH Zones
Step 3:	Time to Map -	Run mapping tools to see where the HH flood zones are in relation to location Determines wholly and/or partially & Ingress/Egress exposures for the location

In an Ideal World……

- Consistent raw data template to maximize client terms, sublimits and pricing
- Utilization of a uniform modeling system
- Continued clarification of international flood zones & policy definitions
- Improved coverage option for lender driven flood deductible buydowns

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Conference Luncheon

Coming up next…

Afternoon Keynote Address by:

Patrick G. Ryan, Ryan Specialty Group

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Afternoon Keynote Address

Patrick G. Ryan
Chairman and CEO
Ryan Specialty Group, LLC

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Cyber and the Internet of Things

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Cyber and the Internet of Things

Duncan Ellis
US Property Practice Leader
Marsh
Moderator

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Cyber and the Internet of Things

- **Duncan Ellis,** US Property Practice Leader, Marsh (Moderator)
- **Jamie Bouloux,** Chief Executive Officer, EmergIn Risk
- **John Coletti,** Senior Vice President and Chief Underwriting Officer, XL Catlin
- **Erica Davis,** Senior Vice President, Head of Specialty Products E&O, Zurich
- **Daniel McElvany,** Head of US Broker Property, Swiss Re

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Cyber and the Internet of Things

Duncan Ellis
Marsh

Jamie Bouloux
EmergIn Risk

John Coletti
XL Catlin

Erica Davis
Zurich

Daniel McElvany
Swiss Re

Afternoon Break

Coming up next…

Outlook for the 2017 Atlantic Hurricane Season

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Outlook for the 2017 Atlantic Hurricane Season

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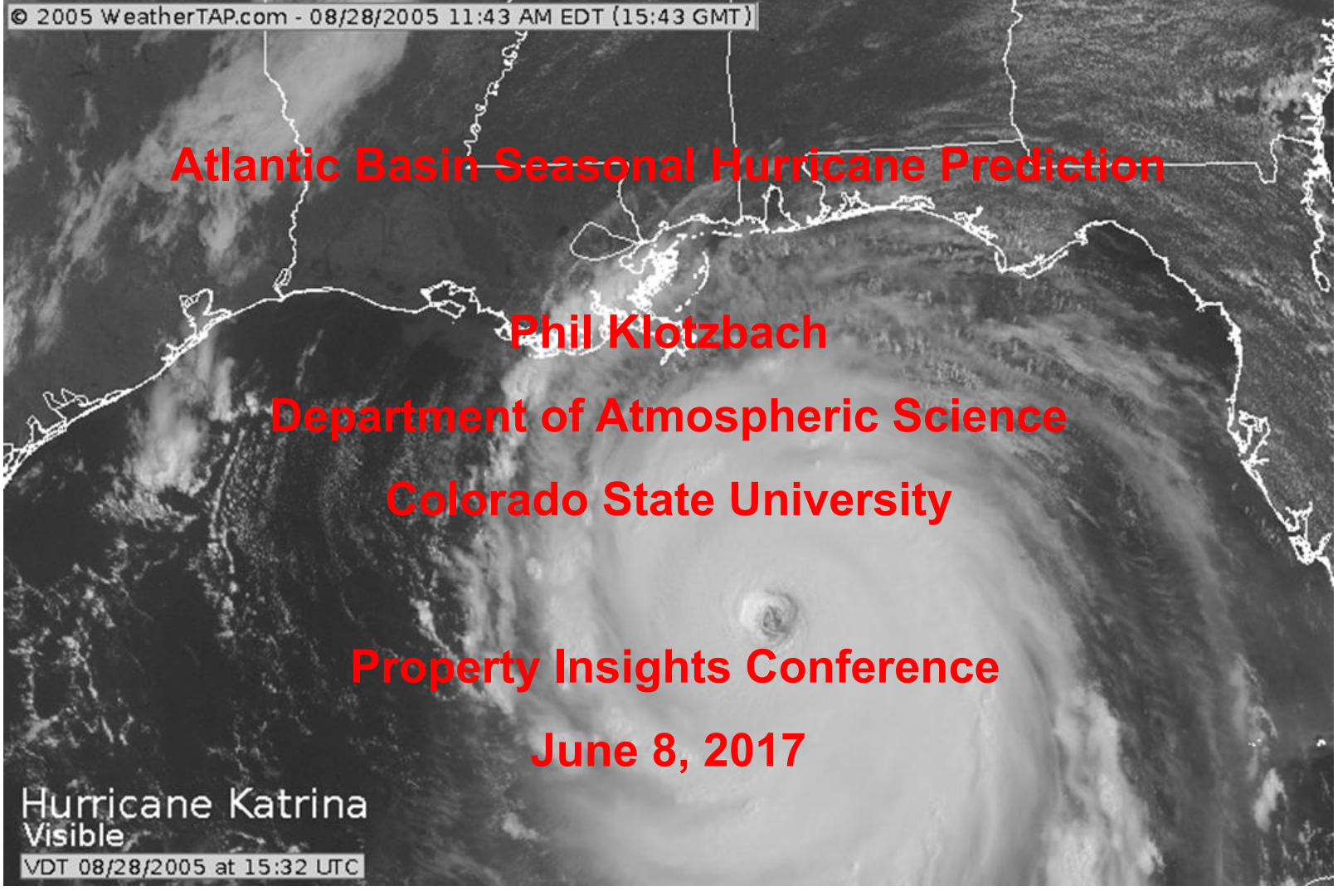
Outlook for the 2017 Atlantic Hurricane Season

Phil Klotzbach
Research Scientist,
Department of Atmospheric Science
Colorado State University



Atlantic Basin Seasonal Hurricane Prediction

Phil Klotzbach

Department of Atmospheric Science

Colorado State University

Property Insights Conference

June 8, 2017

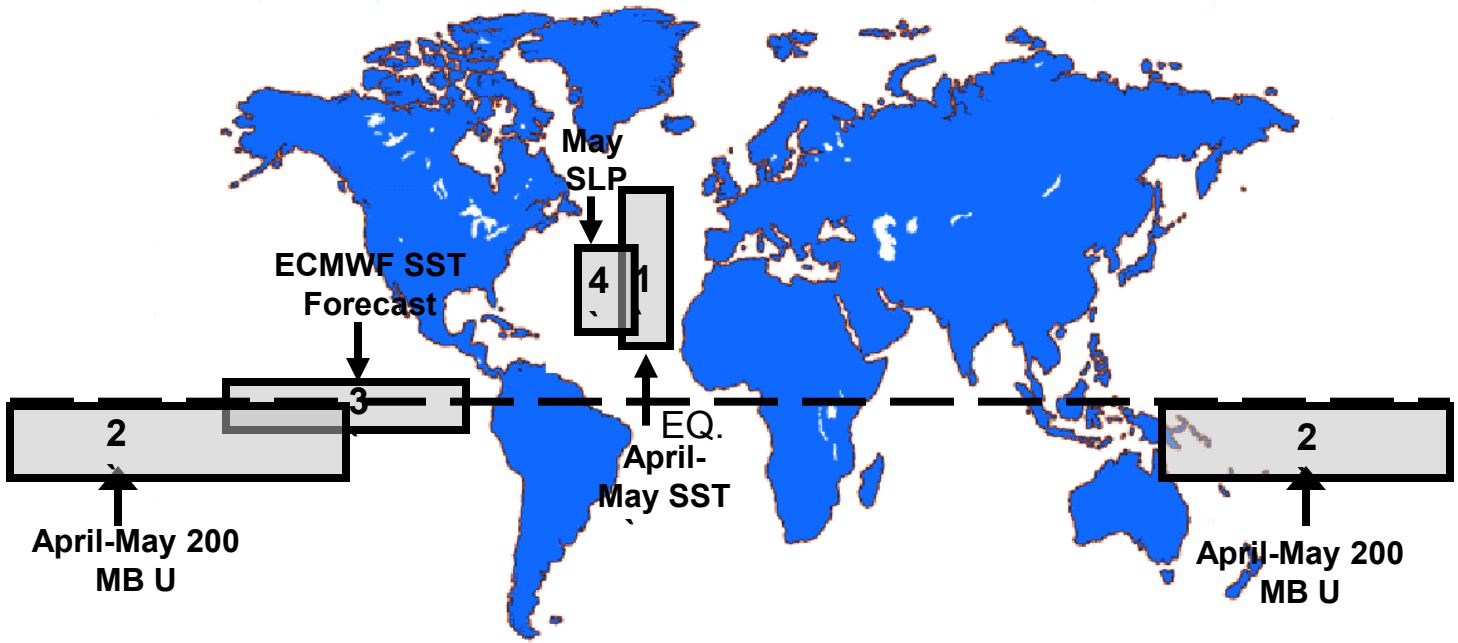
In Memory of Bill Gray (1929-2016)

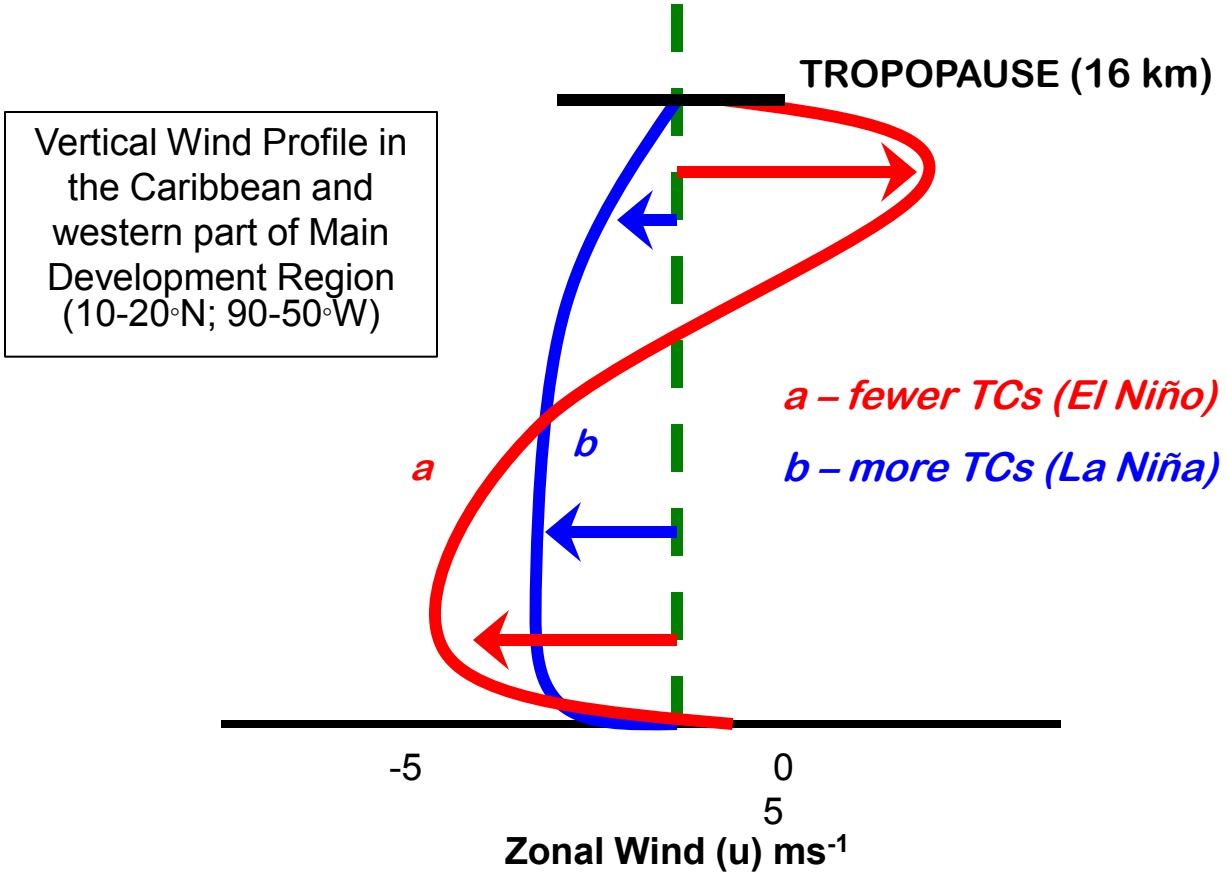
Seasonal Forecasting is more than this!

2017 FORECAST AS OF 1 JUNE 2017

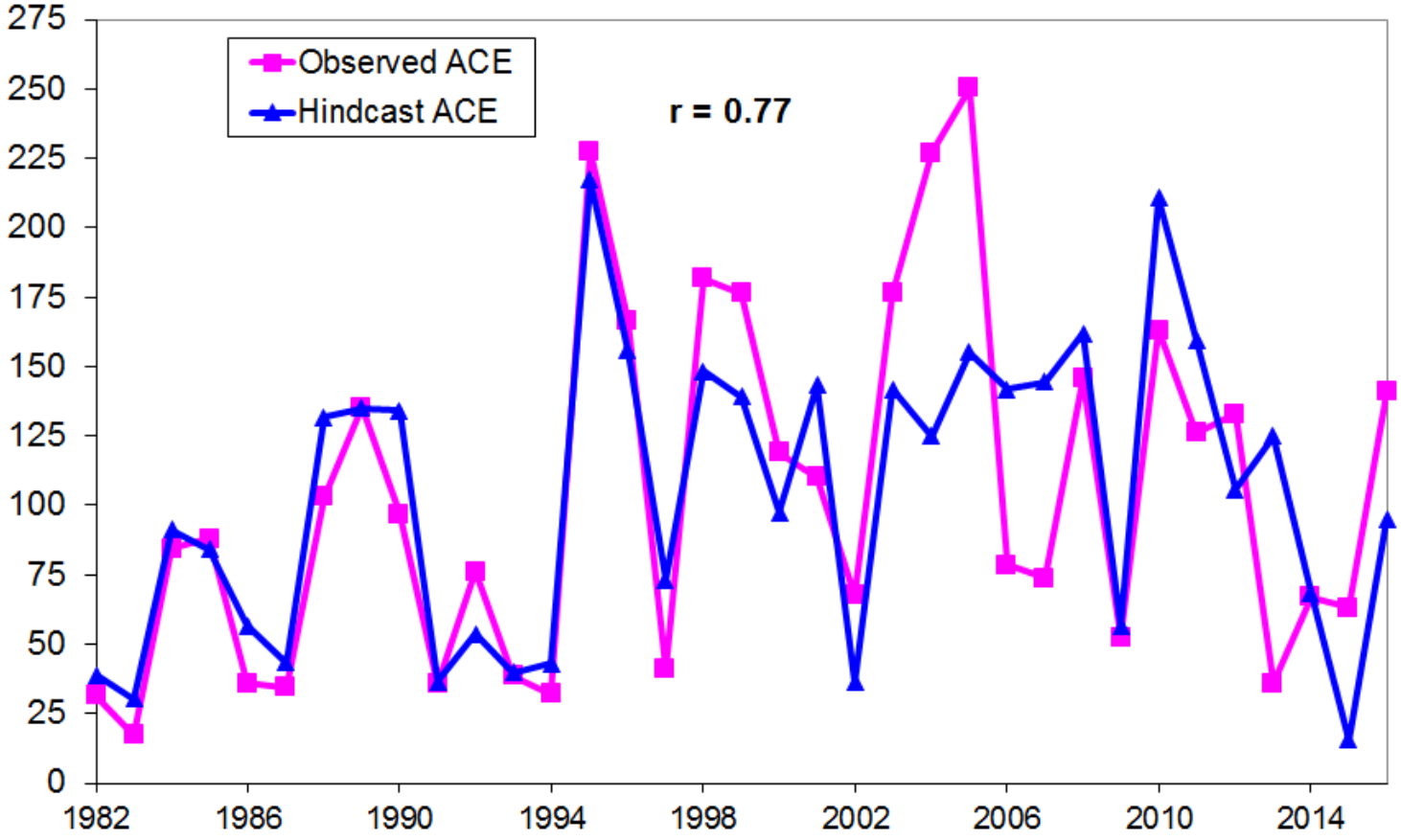
Forecast Parameter	Statistical Forecast	**Final Forecast (Including Arlene)**	1981-2010 Median
Named Storms (NS)	11.2	**14**	12.0
Named Storm Days (NSD)	56.5	**60**	60.1
Hurricanes (H)	6.5	**6**	6.5
Hurricane Days (HD)	25.9	**25**	21.3
Major Hurricanes (MH)	2.8	**2**	2.0
Major Hurricane Days (MHD)	6.8	**5**	3.9
Accumulated Cyclone Energy (ACE)	108	**100**	92
Net Tropical Cyclone Activity (NTC)	117	**110**	103

June Forecast Predictors



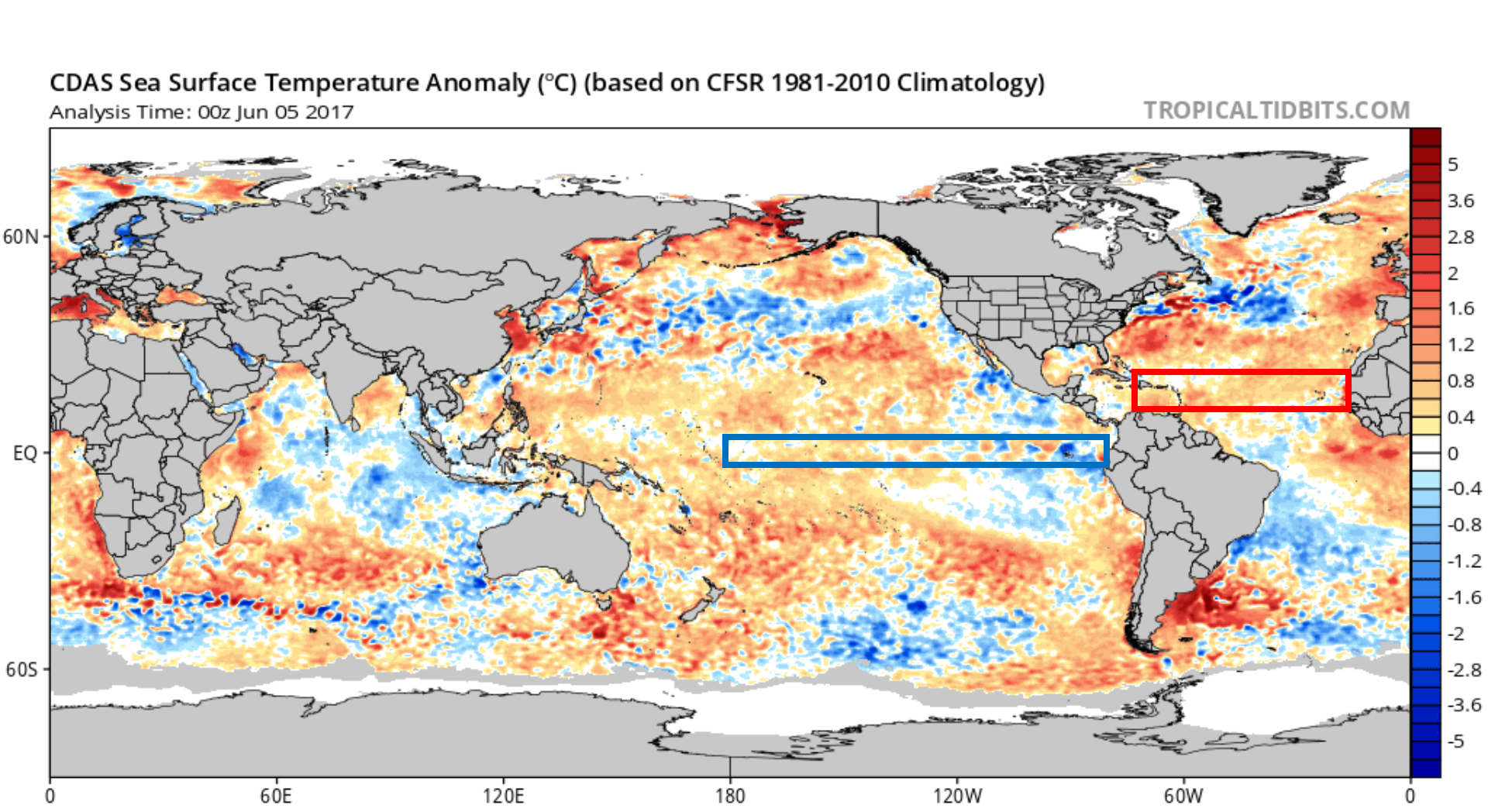

Vertical Wind Profile in the Caribbean and western part of Main Development Region (10-20°N; 90-50°W)
TROPOPAUSE (16 km)
a – fewer TCs (El Niño)
b – more TCs (La Niña)
a
b
-5
0
5
Zonal Wind (u) ms-1

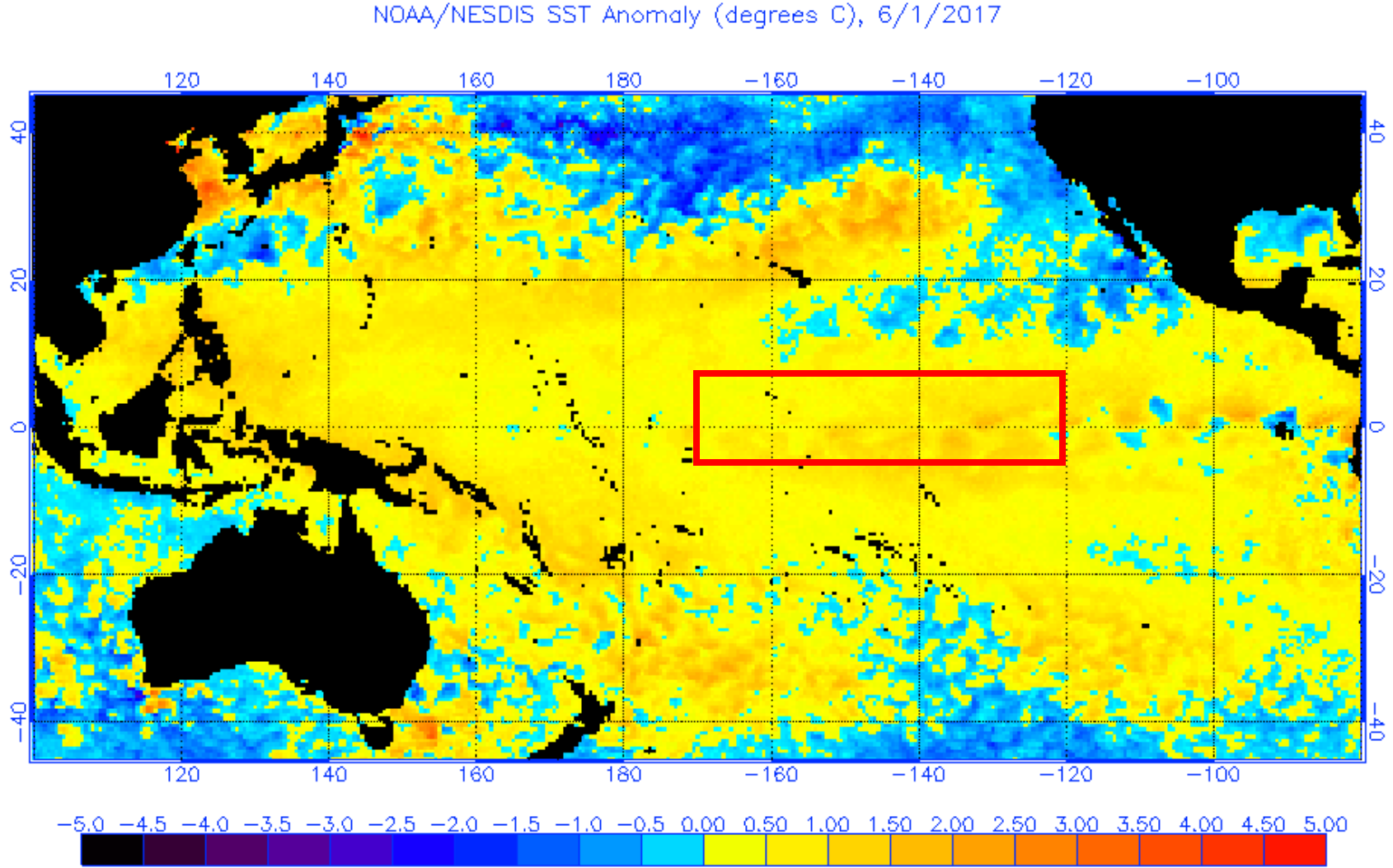
Observed vs. June Model Hindcast ACE

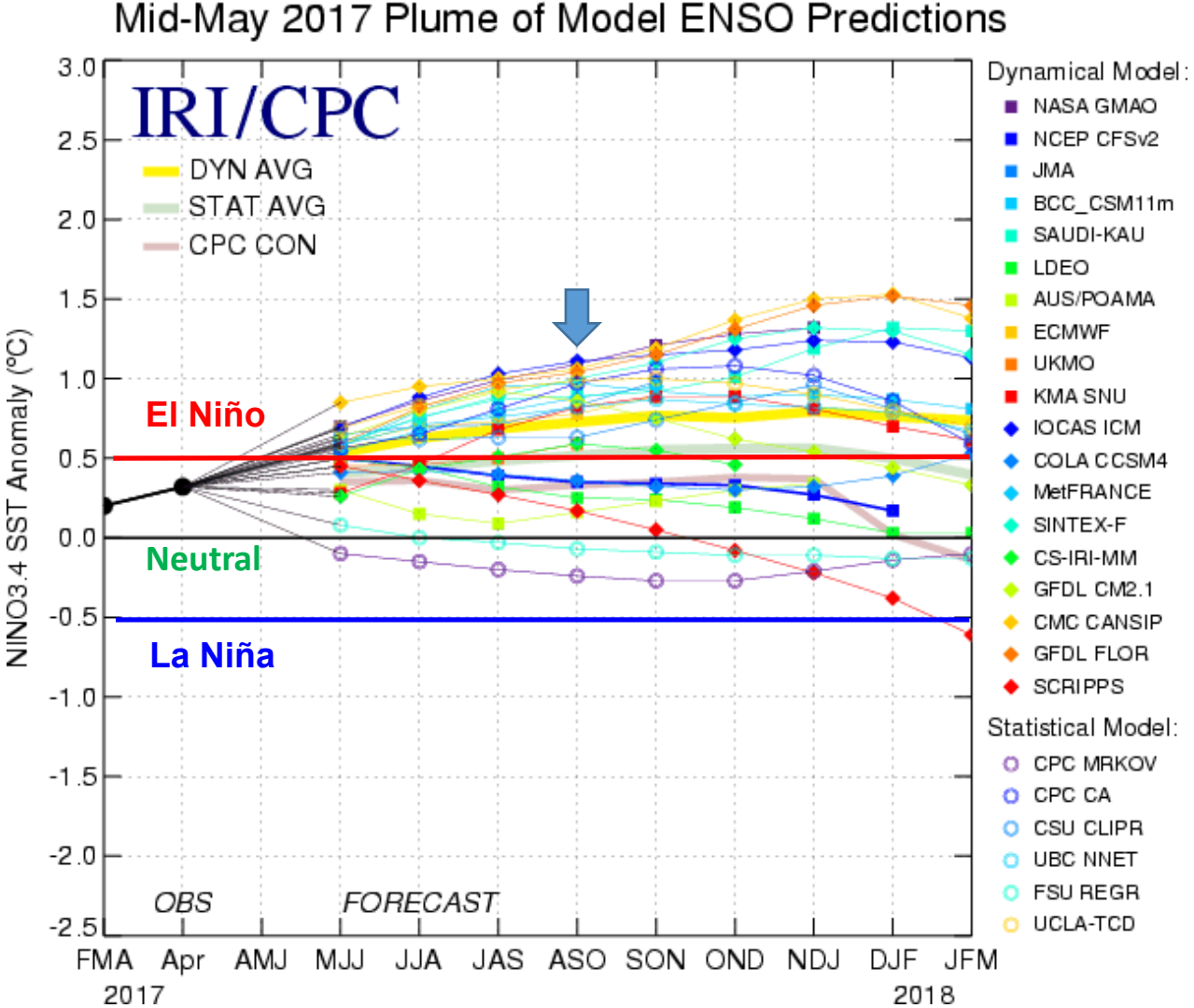


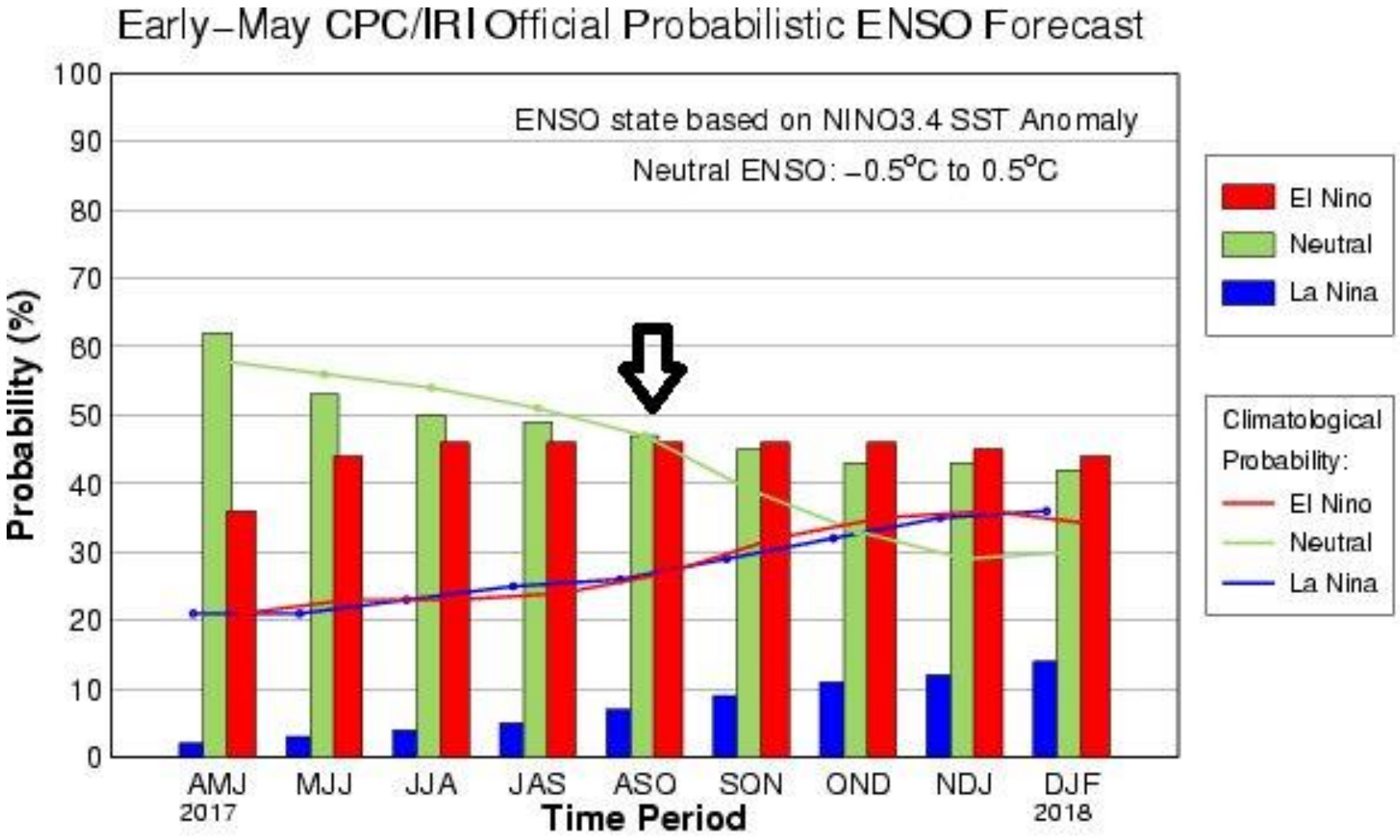
BEST ANALOG YEARS FOR 2017 (JUNE FORECAST)

	NS	NSD	H	HD	MH	MHD	ACE	NTC
1957	8	41.25	3	21.00	2	3.75	79	78
1969	18	92.25	12	40.25	5	6.50	166	182
1979	9	45.75	6	21.75	2	5.75	93	97
2006	10	52.75	5	21.25	2	2.00	79	85
MEAN	*11.3*	*58.0*	*6.5*	*26.1*	*2.8*	*4.5*	*104*	*110*
2017 Forecast	14	60	6	25	2	5	100	110

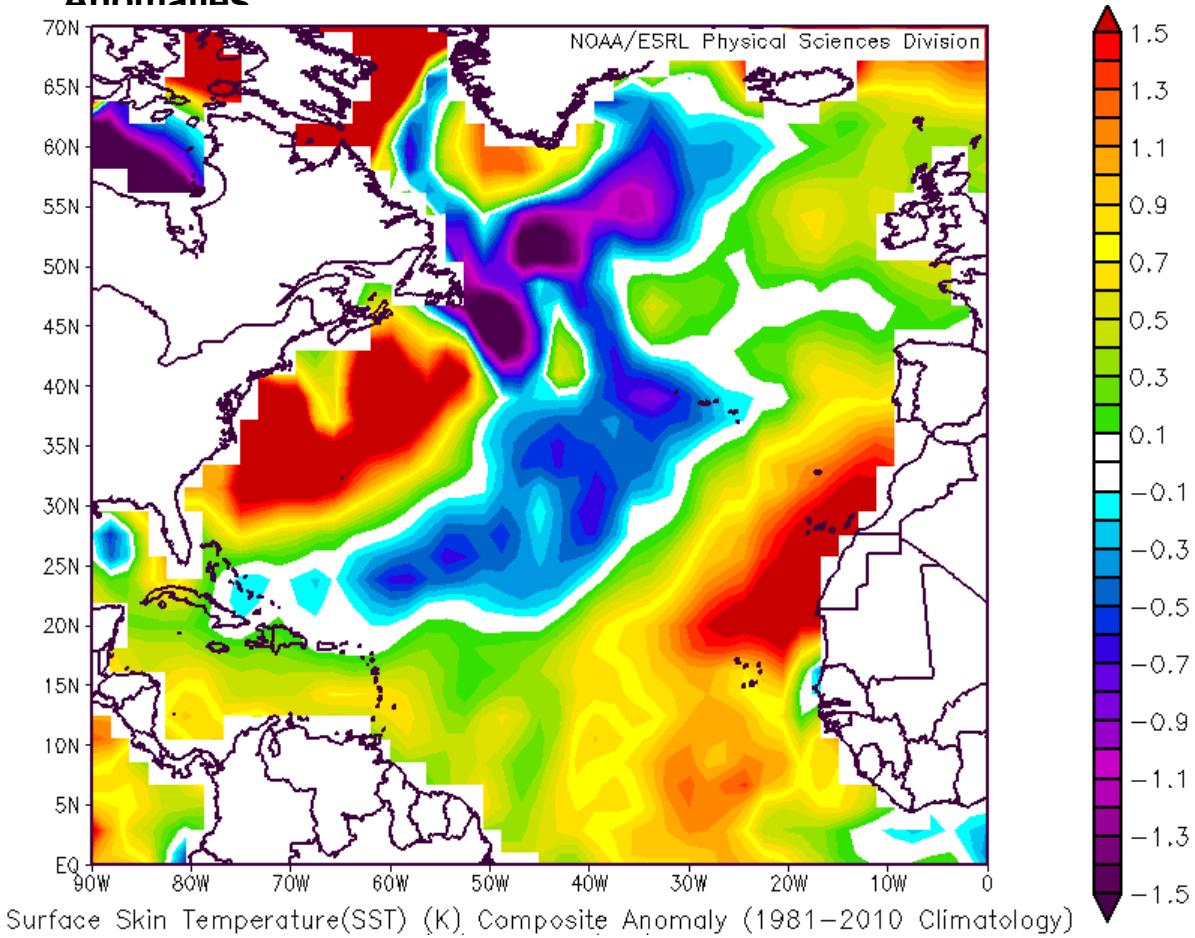

CDAS Sea Surface Temperature Anomaly (°C) (based on CFSR 1981-2010 Climatology)
Analysis Time: 00z Jun 05 2017
TROPICALTIDBITS.COM
60N
EQ
60S
0
60E
120E
180
120W
60W
0
5
3.6
2.8
2
1.6
1.2
0.8
0.4
0
-0.4
-0.8
-1.2
-1.6
-2
-2.8
-3.6
-5


NOAA/NESDIS SST Anomaly (degrees C), 6/1/2017
120
140
160
180
−160
−140
−120
−100
40
20
0
−20
−40
−5.0 −4.5 −4.0 −3.5 −3.0 −2.5 −2.0 −1.5 −1.0 −0.5 0.00 0.50 1.00 1.50 2.00 2.50 3.00 3.50 4.00 4.50 5.00

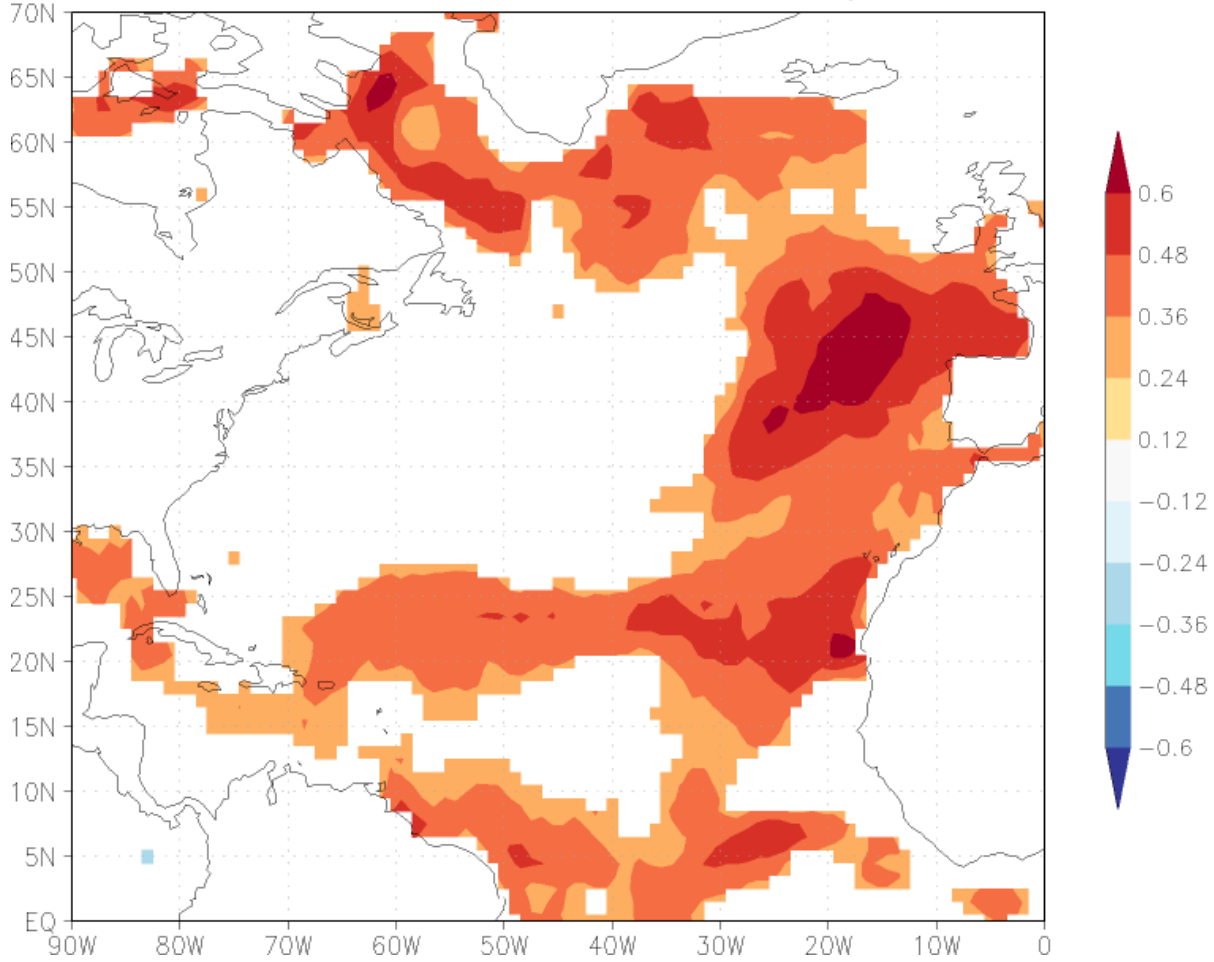

Mid-May 2017 Plume of Model ENSO Predictions
IRI/CPC
DYN AVG
STAT AVG
CPC CON
El Niño
Neutral
La Niña
NINO3.4 SST Anomaly (ºC)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
OBS
FORECAST
FMA
Apr
AMJ
MJJ
JJA
JAS
ASO
SON
OND
NDJ
DJF
JFM
2017
2018
Dynamical Model:
NASA GMAO
NCEP CFSv2
JMA
BCC_CSM11m
SAUDI-KAU
LDEO
AUS/POAMA
ECMWF
UKMO
KMA SNU
IOCAS ICM
COLA CCSM4
MetFRANCE
SINTEX-F
CS-IRI-MM
GFDL CM2.1
CMC CANSIP
GFDL FLOR
SCRIPPS
Statistical Model:
CPC MRKOV
CPC CA
CSU CLIPR
UBC NNET
FSU REGR
UCLA-TCD


Early–May CPC/IRI Official Probabilistic ENSO Forecast
ENSO state based on NINO3.4 SST Anomaly
Neutral ENSO: –0.5°C to 0.5°C
Probability (%)
100
90
80
70
60
50
40
30
20
10
0
AMJ
2017
MJJ
JJA
JAS
ASO
SON
OND
NDJ
DJF
2018
Time Period
El Nino
Neutral
La Nina
Climatological Probability:
El Nino
Neutral
La Nina

Early June 2017 Sea Surface Temperature Anomalies



Correlation between June Sea Surface Temperatures and Atlantic Accumulated Cyclone Energy (1982-2016)



2017 PROBABILITIES FOR AT LEAST ONE MAJOR (CATEGORY 3-4-5) HURRICANE LANDFALL IN EACH OF THE FOLLOWING AREAS (20th CENTURY PROBABILITIES IN PARENTHESES)

1) Entire U.S. coastline – 55% (52%)
2) U.S. East Coast including Peninsula Florida – 33% (31%)
3) Gulf Coast from the Florida Panhandle westward to Brownsville – 32% (30%)
4) Caribbean (10-20° N, 60-88° W) – 44% (42%)

Landfalling Hurricane Web Application

Currently Available at the following URL:

http://www.e-transit.org/hurricane

In partnership with the GeoGraphics Laboratory – Bridgewater State University, Bridgewater MA

2017 Probabilities (20th Century Probabilities in Parentheses)

State	Hurricane Impact Prob.	MH Impact Prob.
Florida	54% (51%)	22% (21%)
Louisiana	32% (30%)	13% (12%)
Massachusetts	7% (7%)	2% (2%)
Mississippi	11% (11%)	5% (4%)
New York	8% (8%)	3% (3%)
North Carolina	30% (28%)	8% (8%)
Texas	35% (33%)	13% (12%)

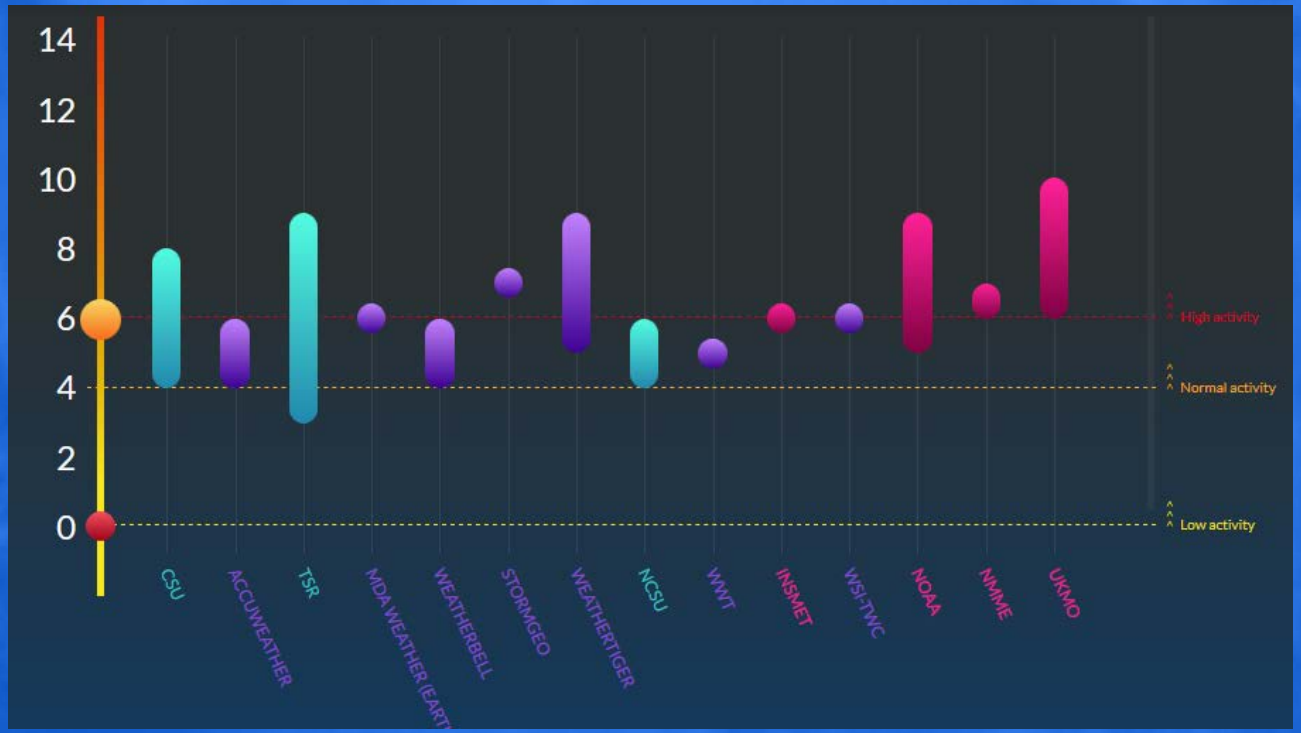
2017
Forecast Schedule

Date	6 April	1 June	3 July	4 Aug
Seasonal Forecast	X	X	X	X

New Products

Seasonal Hurricane Forecast Compilation Website

http://seasonalhurricanepredictions.org



Arago's Admonition:

"Never, no matter what may be the progress of science, will honest scientific men who have regard for their reputations venture to predict the weather."

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Global Property Market Trends

Megan E. Lee
Managing Principal
Integro Insurance Brokers

Michael Nardiello
Senior Vice President – Property Leader
Sompo International

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Property Market Trends

- Alternative capital/non-traditional approaches to risk
- Pressure on market fundamentals
- Data and analytics – how much is too much?
- Evolution of the Broker/Carrier

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A View from the Top: The Underwriter's Perspective

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A View from the Top

Gary Marchitello
Head of Property Broking
Willis Towers Watson
Moderator

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A View from the Top

- **Gary Marchitello,** Head of Property Broking, Willis Towers Watson (Moderator)
- **Richard Friedl,** VP and NE Division Underwriting Manager, Liberty Mutual
- **Erik Nikodem,** Senior Vice President, Head of Property, Everest Insurance
- **Bob Quane,** Head of Property, Commercial, AIG

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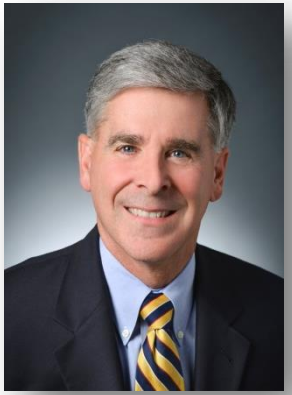
A View from the Top

Gary Marchitello
Willis Towers Watson



Richard Friedl
Liberty Mutual

Erik Nikodem
Everest Insurance

Bob Quane
AIG

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FM Global

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Swiss Re

ZURICH®

Nationwide®

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