**Cat Risk Management 2020:**
*Forward Looking Catastrophe Risk Management*  
*Loews Portofino Bay Hotel, Orlando, FL, February 24-27, 2020*

**WORKING AGENDA**

**MONDAY, FEBRUARY 24, 2020**

3:00 p.m.   Registration – *Tuscan Foyer*

3:30 p.m. -  ISCM Pre-Conference Refresher Sessions – *Ligurian II & III*

5:30 p.m.   The Exposure Food Chain  
*Nick DiMuzio, CCRMP, AXA XL & ISCM Immediate Past President*  
*Jon Ward, CCRMP, RLI & ISCM Treasurer*

Exposure data is the fuel that feeds catastrophe models and data quality is important when attempting to adequately assess CAT risk. This session will revisit the Exposure food chain from insurance application forms provided by insurance agents to insurer data verification to broker enhanced checking to reinsurer use. The old adage “garbage in, garbage out” is very applicable when assessing Cat Model results as examples of data quality issues will be explored and discussed.

**Model Completeness**  
*Shari Zola, CCRMP, Munich Re & ISCM Vice President*  
*David Keeton, CCRMP, Avoca Underwriting & ISCM President*

Catastrophe models have become an essential tool to evaluate the potential for large losses of insurance portfolios. Since their early development, these models have continuously evolved in an attempt to include more components that have been proven to contribute to actual losses. Despite this continuing evolution, it is not reasonable to expect these models to include every possible component that might contribute to actual losses. As such, and until the models include everything, Cat Risk Managers need to understand how best to use and augment models to complete the assessment of risk to any given portfolio. This session will include short presentations of select examples defining the impact on losses and the challenges of modeling these elements followed by a brief discussion of alternative solutions.

**TUESDAY, FEBRUARY 25, 2020**

7:00 a.m.   Cat Risk Management Registration – *Tuscan Foyer*

**Breakfast – Tuscan I & II – sponsored by**

8:30 a.m.   General Session – *Tuscan III & IV*

**Welcome and Introduction**  
*Frank Nutter, President, Reinsurance Association of America*  
*Carl Hedde, Principal, CGH Consulting, LLC*
9:00 a.m. State of the Market Panel

Moderator: Frank Nutter, Reinsurance Association of America
Panelist: V.J. Dowling, Managing Director, Dowling & Partners
            John Welch, Chief Executive Officer, North America Reinsurance, AXA XL
            Richie Whitt, Co-Chief Executive Officer, Markel

Topics include:
- State of the insurance marketplace;
- Important issues that are driving market conditions;
- Market Perspectives - Insurer vs Reinsurer perspectives;
- What’s on the horizon;

10:00 a.m. Networking Break – Tuscan Foyer – sponsored by CAPE ANALYTICS

10:30 a.m. General Session – Tuscan III & IV

Geoscientist Panel

Moderator: Mark Bove, CCRPM, Natural Catastrophe Solutions Manager, Munich Re
Panelists: Josh Darr, Head of North America Peril Advisory & Meteorologist, Guy Carpenter
          Ioana Dima-West, Executive Director – Head of Model Research and Evaluation, Willis Re
          Kelly Hereid, Assistant Vice President, Senior Research Scientist, Chubb

Geoscientists who work for insurers, reinsurers and brokers assist their organization (and their clients) to understand the impacts of natural catastrophes on their business. Extreme events continually provide new lessons and insights to help better understand these perils and financial impacts. A panel of industry experts will share some of the lessons they’ve learned over the past year. The panel will focus on tropical cyclones, including Hurricane Dorian in the Bahamas, the recent typhoons in Japan, and what we know – and what we don’t – about how climate change is affecting these powerful storms.

Noon Lunch – Tuscan I & II – sponsored by K&CO

Reinsurance Association of America
Reinsurance Education Institute
1:30 p.m. General Session – Tuscan III & IV

Climate Influences on Hurricane Risk, Today and Tomorrow
Suzana J. Camargo, Marie Tharp Lamont Research Professor, Lamont-Doherty Earth Observatory, Columbia University

Climate change alters the backdrop for every extreme event but measuring climates impact on hurricane risk is complicated by high natural variability, the rarity of the most extreme events, and the difficulty in modeling complex weather systems. However, hurricane risk has an outsized influence on the insurance industry, so it is crucial to understand how the hazard may change going forward. This discussion identifies detectable climate impacts on tropical cyclone risk in the current environment, and how those impacts might change in a warming world.

2:30 p.m. Networking Break – Tuscan Foyer – sponsored by KCOVRR

3:00 p.m. Breakout Sessions

Session I – Venetian I & II

Change Ahead (Repeated 2/27 at 8:15 a.m.) 20-minute presentation
Andrew Siffert, Vice President/Senior Meteorologist Catastrophe Analytics, BMS

Three things are certain in life: death, taxes and changing catastrophe risk models. New claims data from new catastrophic events provide enough motivation for model vendors to update existing catastrophe peril models. In some cases, regulation requires catastrophe peril models to be updated. This session will explore how to work with catastrophe model changes. In some cases, adjustments to model output might be required based on your own view of risk, but what are the best practices to making these adjustments? Lastly, the session will explore whether the tools are keeping up to help understand model change and adjustment.

Do We Understand Japan Typhoon Tail Risk? (Repeated 2/27 at 8:15 a.m.) 20-minute presentation
Dail Rowe, Senior Scientist and Regional Manager, WeatherPredict Consulting

Viewing recent typhoons against the twin backdrops of history and climate change suggests that our industry may underestimate typhoon risk in Japan. In this session, we will apply lessons learned from recent typhoons onto some notable historical events and consider implications for risk modelers.
3:00 p.m. Breakout Sessions (continued)

**Session II – Venetian III**

**What are the Attributes of a Best in Class Tropical Cyclone Model/Tools to Quantify Flood? (Repeated 2/26 at 2:00 p.m.)**

*Jeffrey Gall, Head of Hazard Research, Validus*

The last major U.S. hurricane model enhancement came in the form of hydrodynamic storm surge modeling nearly a decade ago. Subsequent to this, there had only been peripheral model updates. This session highlights a number of data and/or scientific attributes which represent areas for future model improvement. Specific components to be discussed include:

- The use of 10-meter USGS ground elevation for improved storm surge risk assessment;
- The inclusion of tropical storms in the event set and a larger number of stochastic events;
- Numerically-modeling U.S. hurricane intensity;
- Exposure data quality adjustments;
- Lessons learned on vulnerability from recent U.S. hurricane events;
- Explicit capture and handling of flood sub-limits.

**Session III – Venetian IV**

**Earthquake Surprises 101 (Repeated 2/26 at 2:00 p.m.) 20-minute presentation**

*Kelly Hereid, Ph.D., Assistant Vice President, Senior Research Scientist, Chubb*

All well-modeled earthquakes are alike; each poorly-modeled earthquake is a surprise in its own way. This session for earthquake beginners will cover the surprising aspects of major historical earthquakes, and how those surprises have impacted earthquake catastrophe models today. A look at some earthquake “gray swans” will highlight where surprises might lurk in future events.

**Wind/Tropical Cyclone/Severe Convective Storms 101 (Repeated 2/26 at 2:00 p.m.) 20-minute presentation**

*Steve Bowen, Director & Meteorologist, Aon Impact Forecasting*

The primary drivers of catastrophe payouts for re/insurers are from tropical cyclones and severe convective storms. This session will help new entrants to the industry gain a better understanding of the significance of each peril, and also more clearly recognize the different datasets and tools that are used to better prepare for future events.
3:00 p.m. Breakout Sessions (continued)

**Session IV – Venetian V**

**The Influence of Uncertainty in the New Madrid Seismic Zone**  
(Repeated 2/26 at 11:30 a.m.) 20-minute presentation  
*Dr. Susan Hough, Seismologist, United States Geological Survey*

In July 2019, the Missouri Department of Insurance issued a report arguing that the New Madrid fault area is on the verge of an insurance market collapse. This complex market response reflects an industry grappling with considerable uncertainty in regional seismic risk. In this session, the USGS will address new science in New Madrid seismic risk assessment, what is reasonably confident, and where the outstanding questions lie.

**Triumphs, Conundrums, and Debates in Global Earthquake Forecasting and Seismic Hazards**  
(Repeated 2/26 at 11:30 a.m.) 20-minute presentation  
*Ross Stein, Co-Founder and Chief Executive Officer, Temblor*

What are the challenges and benefits of building a global earthquake model? Beyond the ability to balance globally distributed exposures is a deeper benefit—no national hazard model (such as California or Japan) can be tested in less than a millennium because the largest quakes in each have 1,000-year inter-event times. But the globe has 1,000 times the area of California or Japan. So, a global model can be tested in a matter of years—time is traded for space. The principal weakness of fault-based global models is the non-uniform data. In 2018, the USGS built a model for South America, and in 2019, the GEM Foundation (Global Earthquake Model) published a mosaiced model for the world. In 2020, Temblor harnessed GEAR (Global Earthquake Activity Rate) to build a single, globally consistent model. This session will highlight the strengths and weaknesses, similarities and differences among these models and approaches.

**Session V – Tuscan III & IV**

**Cat Bonds for Pandemics**  
*Michael S. Bennett, Head, Derivatives & Structured Finance, Capital Markets Treasury*
3:00 p.m.  Breakout Sessions (continued)

Session VI – Ligurian II & III

Reinsurance Cyber Modeling: The Path to Quantifying Cyber Exposure with Limited Data
Shalom Bublil, Chief Risk Officer, Kovrr
A significant part of global insured cyber risk is transferred to reinsurance carriers. The challenge for reinsurers in quantifying and pricing their aggregated cyber exposure stems from the limited data available about the portfolio composition and coverage offered within the treaties. Kovrr will discuss strategies to deliver accurate modeling for both affirmative and silent cyber exposure of the reinsurers portfolio.

3:45 p.m.  Session Change Break

4:00 p.m.  Breakout Sessions

Session I – Tuscan III & IV

Reducing Uncertainty in Seismic Risk: Innovative Research and Lessons from Recent Events (Repeated 2/26 at 2:00 p.m.)
Christine Goulet, Ph.D., Executive Director for Applied Science, Southern California Earthquake Center (SCEC), University of Southern California
Uncertainty at different stages of the risk assessment (hazard, exposure, vulnerability) gets propagated through the risk framework which can lead to very large distributions of damage cost, reducing our ability to predict the most likely outcome. This results in poorly constrained decisions in seismic design and in insurance rate setting. The reduction of uncertainty can be addressed by improving our understanding of the phenomena we are trying to model. This usually involves the collection of additional data and the improvement of existing models into more robust ones. The SCEC is addressing this issue at the seismic hazard assessment level. Dr. Goulet will present ongoing innovative research aimed at uncertainty reduction, highlighting key research efforts that will effectively change how we quantify hazard in the next several years. She will also present lessons learned from recent earthquake events, including the California Ridgecrest Earthquake Sequence for which she was part of field reconnaissance teams.

Session II – Venetian I & II

Extreme Tail Risk & Corresponding Uncertainty (Repeated 2/27 at 8:15 a.m.)
Maryam Haji, Assistant Vice President, Senior Research Analyst, TransRe
This session will explore how little changes in experience could dramatically impact the view of tail risk and appropriateness of cat models.
4:00 p.m.  Breakout Sessions (continued)

**Session III – Venetian III**

*Cyber – Challenges for Underwriting and Risk Management: A View from the London Market (Repeated 2/27 at 8:15 a.m.)*

David Singh, Head of Exposure & Portfolio Management, MS Amlin
Emma Watkins, Head of Exposure Management, Risk Aggregation, Lloyds

Exposure-based catastrophe models lend themselves well to cat perils with limited loss history. But what if the hazard, vulnerability and exposure are constantly changing as with the cyber peril? Lloyds has a significant share of the global cyber market and its market participants have pioneered this insurance for their clients. However, with the threat and conditions constantly evolving, Lloyds has responded by ensuring that coverage is clear for policy holders and re/insurers. The silent / affirmative / blended coverage question remains pertinent for multi-class, multi-jurisdiction (re)insurers and the implications of the assumptions and consequences of this peril can be highly material. Lloyds is developing its exposure management approach to monitor the market’s exposure and issuing new cyber scenarios. Cyber has an impact not just on aggregations but also on risk transfer calculations and setting appropriate risk appetites, and the need to work closely with regulators and underwriters to manage cyber as a peril is as important as ever.

This session describes the process and challenges associated with a scenario-based approach, as well as hinting what the market can expect from Lloyds new cyber scenarios and the complexities associated with fulfilling internal and regulatory exposure management requirements for cyber as a peril.

**Session IV – Venetian IV**

*Severe Convective Storm Model Sophistication for Various Geographic Regions (Repeated 2/26 at 11:30 a.m.)*

20-minute presentation
Dr. Dave Bachiochi, Raleigh Regional Manager/Senior Scientist, Meteorologist, WeatherPredict Consulting

As other perils dominate the focus of the catastrophic reinsurance business, severe convective storm modeling continues to evolve. Industry demands are dictating change in modeling the risk. This discussion presents current state of modeling the risk for key severe convective storm regions across the globe. Modeling has evolved to utilize more advanced methodologies as the amount and quality of data continue to improve and physical modeling continues to advance in speed and towards the scale of the peril.
4:00 p.m. Breakout Sessions (continued)

Session IV – Venetian IV

Interpretable Deep Learning for Analysis of Extreme Weather Risk (Repeated 2/26 at 11:30 a.m.) 20-minute presentation
David John Gagne, Scientist, NCAR

Each hailstorm and hurricane present a different kind of risk depending on its internal structure and location. Given a large dataset of storms, how can we quantify the risk posed by different types? Deep learning is a subset of machine learning that can transform spatio-temporal data into high-level representations more amenable to prediction. Deep learning models have produced improved estimates of hail size and hurricane intensity. By combining deep learning with visualization of the meaning of internal nodes, we have built automated detectors of different storm types and quantified their severities. This session will explain the methods and show the storm structures most associated with large hail and rapid intensification and where they have occurred.

Session V – Venetian V

National Flood Insurance Program Update Risk Rating 2.0 (Repeated 2/26 at 11:30 a.m.) 20-minute presentation
Andy Neal, Branch Chief of Actuarial and Catastrophic Modeling, DHS/FEMA

In 2019, FEMA announced it was developing Risk Rating 2.0 as the basis for assessing risk for each property with flood exposure in the US. FEMA plans to release and implement the program in 2021. This session will update the status of Risk Rating 2.0 and provide insights about the factors being utilized and lessons learned on setting rates using flood models.

Florida Commission Update (Repeated 2/26 at 11:30 a.m.) 20-minute presentation
Minchong Mao, FCAS, MAAA, CCRMP, Managing Director, Reinsurance Solutions, AON

This session will explore experiences and views about Florida Modeling commission work and model regulations from different perspectives - as a user of the model, a Florida Modeling commission member, a reinsurance broker and a modeling vendor.
4:00 p.m. Breakout Sessions (continued)

Session VI – Ligurian II & III

Location Data Management – Putting Location Data in Its Place
Mike Hofert, Managing Director of Insurance Solutions, Pitney Bowes
Mike Smajstrla, Manager of Catastrophe Modeling and Exposure Management, Progressive Home

An old joke is that data scientists spend 80% of their time cleaning data and 20% of their time complaining about cleaning data. Join this discussion, as we explore the challenges, opportunities and techniques associated with building a future proof “model ready” dataset of location information, enabling greater model accuracy and improved analyst productivity.

5:00 p.m. Reception – Citrus Piazza – sponsored by CoreLogic

6:30 p.m.

WEDNESDAY, FEBRUARY 26, 2020

7:00 a.m. Breakfast – Tuscan I & II – sponsored by AIR

8:30 a.m. General Session – Tuscan III & IV

International Society of Catastrophe Managers Update
David G. Keeton, CCRMP, Executive Vice President, Avoca Risk Underwriting Services

8:45 a.m. Storms, Wildfire, and Climate: How Homes (and Insurers) Survive
Roy Wright, President and CEO, IBHS

Storms that linger. Fire seasons that persist. Designing a home to mitigate against storm loss goes beyond surviving a peak wind. A changing climate has led to more storms memorable for prolonged wind and torrential rains that erode a structure’s ability to resist damage over the duration of the event. Likewise, wildfires have grown into a larger, longer-lasting threat for communities, and one that challenges the principles of traditional home design and newer drought-resistant landscaping trends. Roy Wright, President and CEO of the Insurance Institute for Business & Home Safety, leads a team dedicated to helping insurers develop strategies to confront these challenges. He will share the latest research findings to mitigate against these growing threats.
WEDNESDAY, FEBRUARY 26, 2020 (CONTINUED)

9:45 a.m.  Networking Break – Tuscan Foyer – sponsored by GfK

10:15 a.m.  General Session – Tuscan III & IV

Wildfire: The Present, The Future, and What Needs to Be Done?
John Phipps, Deputy Director, U.S. Forest Service
The last few years have witnessed some large-scale wildfires that have produced unprecedented insured, economic, and societal losses. In this session, the USFS will provide their view on why the severity and frequency of wildfire is, or is perceived to be, increasing, their expectations for the future, and the drivers behind this crisis. Can this hazard be reduced, and if so, what needs to be done? What is the USFS doing to help and ways the insurance industry can work with the USFS—to include the sharing of data, models, and insurance backed resiliency bonds.

11:15 a.m. Session Change Break

11:30 a.m. Breakout Sessions

Session I – Venetian I & II

Is It Better to be Good than Lucky - or Lucky than Good? Evaluating Cat Risk Management Approaches in the London Market
(Repeated 2/27 at 8:15 a.m.)
Kirsten Mitchell Wallace, CCRMP, Head of Risk Aggregation, Lloyd’s
In years with no catastrophes, every organization can tout great cat underwriters and superb cat risk management capability. But how can you tell lucky from good? What features instill confidence in cat risk management? Should these soft factors be used to modify the risk? Lloyds asked these questions and worked closely with their market to define a best practice framework for cat risk to inform decision-making. This is the story of that project, with a little taste of what we're up to in 2020.

Session II – Venetian III

The Influence of Uncertainty in the New Madrid Seismic Zone 20-minute presentation
Dr. Susan Hough, Seismologist, U.S. Geological Survey
In July 2019, the Missouri Department of Insurance issued a report arguing that the New Madrid fault area is on the verge of an insurance market collapse. This complex market response reflects an industry grappling with considerable uncertainty in regional seismic risk. In this session, the USGS will address new science in New Madrid seismic risk assessment, what is reasonably confident, and where the outstanding questions lie.
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11:30 a.m. Breakout Sessions (continued)

**Session IV – Venetian V**

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11:30 a.m.  Breakout Sessions (continued)

Session V – Tuscan III & IV

Wildfire Behavior (repeated 2/26 @ 2:00 pm)
William Mahoney, Director, Research Applications Laboratory, National Center for Atmospheric Research (NCAR)
Extreme wildland fire behavior is caused by the interaction of dry and abundant fuels, wind, and low humidity. Two-way interactions between the heat and moisture released from the wildfire and atmosphere can result in localized extreme weather conditions that drive dangerous fire conditions. This talk will describe a new wildland fire behavior prediction system that is designed to capture this fire-weather interaction.

Session VI – Ligurian II & III

Open Exposure and Results Standards - Driving Efficiency and Choice
Dickie Whitaker, Chief Executive Officer, Oasis Loss Modeling Framework LLP
Matt Jones, Head of ModEx Product, NASDAQ
Don Parkes, Senior Vice President, Corporate Cat Solutions, Chubb
This session will focus on key industry open exposure and results standards OED and ORD and how they will help drive efficiency and costs. This session will also explain how Oasis is helping with other standards and in model choice. A short case study will also be provided.

12:15 p.m.  Lunch – Tuscan I & II – sponsored by

Impact Forecasting
Powered by Aon
2:00 p.m. Breakout Sessions

Session I – Venetian I & II

Trends and Drivers of Wildfire Activity and Structure Loss in California
Alexandra Dunya Syphard, Chief Scientist, Sage Insurance Holdings LLC
(repeated 2/27 at 8:15 a.m.) 20-minute presentation
Recent fire seasons in California and Australia have led to a state of alarm over the increasing impacts of wildfires, with many fearing that recent record-breaking losses have become the “new normal.” Whether or not these have been back-to-back one-in-a-hundred-year events, or if the trend has crossed some kind of tipping point, remains to be seen. But, key to anticipating future losses in this era of rapid global change is an understanding of how, where, and why fire patterns are changing, and which factors are most strongly associated with structure loss. Dr. Syphard will present recent research documenting the relative importance of climatic and human variables for explaining changes in wildfire activity across California and other fire-prone ecosystems. She will also summarize research findings on which factors may be most effective at preventing future structure loss.

Drought / Extreme Heat / Wildfires (Repeated 2/27 at 8:15 a.m.) 20-minute presentation
Kim Roberts, Senior Vice President, Guy Carpenter
Periods of extreme heat and drought are expected to intensify in the coming decade across the globe, as climate change causes changes in precipitation and temperature patterns. The impact of such changes will be widespread; from issues of water storage and availability, to the possibility of larger, more frequent and more damaging wildfires. This session will explore emerging risks facing the insurance industry and highlight some of the innovative mitigation techniques being employed to build resiliency to these perils.
2:00 p.m.  Breakout Sessions (continued)

Session II – Venetian III

What are the Attributes of a Best in Class Tropical Cyclone Model/Tools to Quantify Flood?
Jeff Gall, Head of Hazard Research, Validus
The last major U.S. hurricane model enhancement came in the form of hydrodynamic storm surge modeling nearly a decade ago. Subsequent to this, there had only been peripheral model updates. This session highlights a number of data and/or scientific attributes which represent areas for future model improvement. Specific components to be discussed include:
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- The inclusion of tropical storms in the event set and a larger number of stochastic events;
- Numerically-modeling U.S. hurricane intensity;
- Exposure data quality adjustments;
- Lessons learned on vulnerability from recent U.S. hurricane events;
- Explicit capture and handling of flood sub-limits.

Session III – Venetian IV

Earthquake Surprises 101 20-minute presentation
Kelly Hereid, Ph.D., Assistant Vice President, Senior Research Scientist, Chubb
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2:00 p.m.  Breakout Sessions (continued)

Session IV – Tuscan III & IV

Reducing Uncertainty in Seismic Risk: Innovative Research and Lessons from Recent Events
Christine Goulet, Ph.D., Executive Director for Applied Science, Southern California Earthquake Center (SCEC), University of Southern California

Uncertainty at different stages of the risk assessment (hazard, exposure, vulnerability) gets propagated through the risk framework which can lead to very large distributions of damage cost, reducing our ability to predict the most likely outcome. This results in poorly constrained decisions in seismic design and in insurance rate setting. The reduction of uncertainty can be addressed by improving our understanding of the phenomena we are trying to model. This usually involves the collection of additional data and the improvement of existing models into more robust ones. The SCEC is addressing this issue at the seismic hazard assessment level. Dr. Goulet will present ongoing innovative research aimed at uncertainty reduction, highlighting key research efforts that will effectively change how we quantify hazard in the next several years. She will also present lessons learned from recent earthquake events, including the California Ridgecrest Earthquake Sequence for which she was part of field reconnaissance teams.

Session V – Venetian V

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William Mahoney, Director, Research Applications Laboratory, National Center for Atmospheric Research (NCAR)

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2:00 p.m.   Breakout Sessions (continued)

**Session VI – Ligurian II & III**

**Using Aerial Property Insights to Enhance Rate Segmentation, Loss Modeling, and Portfolio Benchmarking**

*Kevin Van Leer, Sr. Manager, Customer Success, Cape Analytics*

Building on initial predictive loss signals from geospatially derived property data, Cape Analytics has aligned new condition and maintenance-related attributes to (re)insurance use cases that enable both carriers and reinsurers to better segment individual locations as well as portfolios. This session will focus on the use of Cape Analytics data during the 2019 reinsurance treaty renewals and how carriers have incorporated predictive data, such as roof condition, into their rate filings. We will also provide an update on the latest property data advancements, including yard debris and vegetation coverage, and how the availability of such novel data, at scale, enables the benchmarking of individual locations as well as entire cedant portfolios.

2:45 p.m.   Networking Break – *Tuscan Foyer* – sponsored by

3:15 p.m.   Breakout Sessions

**Session I – Venetian I & II**

**Modeling the Risks of Climate Change, Yesterday, Today, and Tomorrow**

*Peter Sousounis, Ph.D., Vice President and Director of Climate Change Research, AIR Worldwide*

In this session, Dr. Sousounis will discuss how catastrophe models can better account for climate change and describe some of the expected impacts of climate change on extreme weather such as hurricanes, floods, severe convective storms, winter storms, and wildfire. He will share evidence from his latest research on the current impacts of climate change and how to account for trends by preferentially weighting more recent data when using historical information to build cat models. Dr. Sousounis will describe a variety of techniques that can be implemented, using a blend of historical data and climate model output to better account for climate change in catastrophe models depending on whether the time horizon of interest is now or some later time this century.
3:15 p.m. Breakout Sessions (continued)

**Session II – Venetian III**

**Wildfire Risk Management in 2020**

*David Smith, Sr. Leader, Science & Analytics, CoreLogic*
*Howard Kunst, CCRMP, Chief Actuary, CoreLogic*
*Shelly Yerkes, Sr. Professional, Product Management, CoreLogic*

Catastrophic wildfires in California over the last few years have highlighted the inadequacy of using historic losses to project future losses for capital adequacy. Climate, weather, terrain, and risk mitigation add challenges to this peril. Join us as we introduce key aspects of granular risk modeling for wildfire, underwriting solutions for insurers, and attributes of portfolio risk for wildfire.

**Session III – Venetian IV**

**Recent Advances in Impact Forecasting’s U.S. Hurricane and Earthquake Models**

*Steven Drews, Director and Meteorologist, Aon Impact Forecasting*
*Farhad Sedaghati, Ph.D., Model Developer, Aon Impact Forecasting*
*Yajie Lee, Director, Catastrophe Model Development, ImageCat, Inc.*

Re/insurers continue to investigate cat modeling alternatives. This session will highlight Impact Forecasting’s recent model releases for the peak U.S. perils of hurricane and earthquake. For hurricane, attendees will learn how the use of environmental and atmospheric variables, such as wind shear and sea surface temperatures, enhances hurricane modeling. For earthquake, the model was developed in conjunction with the renowned earthquake risk assessment firm ImageCat. It includes unique methods for quantifying uncertainty and features many new capabilities for underwriting and pricing earthquake risk.

**Session IV – Venetian V**

**Modeling and Managing Wildfire Risk**

*Daniel Ward, Ph.D., Senior Atmospheric Scientist, Karen Clark & Company*

Wildfire losses are increasing. This session will address the specific reasons for the increasing frequency and severity of events along with how insurers can better manage these trends. The session will include a deep dive into KCC’s new wildfire model and demonstrate how the KCC model captures the effects of climate change on current and future losses.
3:15 p.m. Breakout Sessions (continued)

Session V – Tuscan III & IV

Grid-Based Flood Rating Plans – A Case Study in North Carolina
Brandon Katz, Executive Vice President, Member, KatRisk LLC

Until recently, private insurers have been reluctant to enter the flood insurance market for a variety of reasons including regulatory barriers, poor availability of accurate flood catastrophe models, and the lack of an admitted product in the market. KatRisk has released high quality flood catastrophe risk models over the last five years and this year congress lifted many of the regulatory barriers that existed. This environment laid the groundwork for the formation of a new relationship between KatRisk, Milliman, ISO, and the North Carolina Rate Bureau that has led to the most sophisticated and high-resolution rating plans ever developed for a property rating plan. Instead of using lower resolution administrative boundaries for generating a rating plan, KatRisk, in close conjunction with our partners, have developed a rating plan based on 30 meter by 30-meter grid cells for the entire state of North Carolina, approximately 140 million grid boxes in all. This talk will provide an overview of the rating plan and some details on how it was developed including information on what made the KatRisk model uniquely suited for this study (fully coupled inland flood and storm surge models including tropical storm induced inland flooding etc.), as well as any status updates as the rating plan proceeds through the North Carolina Department of Insurance on its way toward becoming an admitted product available to all NCRB member companies. Further, KatRisk will demonstrate how its products may be used after successful acquisition of a portfolio of business to manage this new book using various analytical tools such as accumulation analysis and marginal impact studies.

Session VI – Ligurian II & III

Modeling Cyber Risk in a Changing Environment
Derek Blum, Sr. Director Product Management, Emerging Risks, RMS

The nature of cyber risk has evolved over the last nearly two decades and continues to do so. Changes in technology, threat actors, business practices, and regulations have required the insurance market to be nimble in their approach to cyber risk. Models must also evolve in response to these dimensions of changes. Learn how RMS’ approach to data enrichment, modeled cyber loss processes, and support of both affirmative and silent cyber coverage are helping the industry capitalize on the cyber growth opportunity.

4:00 p.m. Session Change Break
4:15 p.m.  Breakout Sessions

**Session I – Venetian I & II**

**Streamlining Your Risk Analytics from Account Underwriting to Reinsurance Portfolio Management**

*Katie Ward, Manager, AIR Worldwide  
Bill Walker, Senior Product Manager, Air Worldwide*

Risk underwriting and portfolio analysis require a significant amount of time for manually importing data, analyzing, and exporting reports from catastrophe risk modeling applications. An extensive manual effort can result in errors, poor data quality, and demanding training requirements—all of which can hinder (re)insurers from gaining a competitive edge.

That’s why so many companies are automating and integrating exposure and loss analytics within their risk management workflows. Join AIR experts to learn about the latest solutions available to help reduce processing times, cut down on errors, and ease training requirements, while improving the quality of the risk information companies rely on for making decisions.

**Session II – Venetian III**

**Modeling and Managing Earthquake Risk**

*David Gregory, Sr. Professional, Product Management, CoreLogic  
Trey Apel, Principal, Science & Analytics, CoreLogic*

Earthquakes remain one of the largest challenges to insurance finance. With a very low frequency and a high potential loss severity, risk managers can’t rely on historic loss observations to anticipate the loss potential of the next earthquake. Using the USGS Haywired scenario that includes a sequence of damaging aftershocks, shake, fire and sprinkler leakage losses. The Oasis loss modeling framework promises a new level of interoperability between risk models, and a comparison of outputs between RQE and Oasis highlight the characteristics of this new modeling framework. Vigilance in risk management includes incorporating the latest risk science, and the CoreLogic roadmap vision for earthquake risk is reviewed.
4:15 p.m. Breakout Sessions (continued)

Session III – Venetian IV

Using Flexible Loss Modeling Platforms to Develop Unique Terrorism Risk Management Tools
Martin Kadlec, Flood Model Developer, Aon Impact Forecasting
Cristina Arango, Catastrophe Risk Specialist, Aon Impact Forecasting

Faced with the challenge of developing a new high-resolution Computational Fluid Dynamic (CFD) blast model that could run on multiple modeling platforms, the Impact Forecasting team developed an elegant solution: first, develop the model in the Oasis model definition format and second, implement it in Impact Forecasting’s ELEMENTS platform with the flexibility of running it in any other Oasis-supported loss modeling platform. End-user underwriters and risk managers can now control both their view of risk and their modeling technology, leading to improved risk pricing and accumulation management. Join the session to review the process and experience how the ELEMENTS loss modeling platform offers model developers flexibility and choice.

Session IV – Venetian V

Modeling Inland Flooding
Daniel Ward, Ph.D., Senior Atmospheric Scientist, Karen Clark & Company

Inland floods are among the most challenging perils to model. There are multiple types and sources of floods and geography plays a key role in assessing the likely frequency and severity of flooding at specific locations. This session will discuss in detail the methodologies underlying the new KCC inland flood model, including why alternative methods were rejected. Flood risk provides growth and new product opportunities for insurers who have models that provide transparent and credible loss estimates in which they can have confidence.
WEDNESDAY, FEBRUARY 26, 2020 (CONTINUED)

4:15 p.m. Breakout Sessions (continued)

**Session V – Tuscan III & IV**

Globally Consistent Probabilistic High-Resolution Wind, Inland Flood, Storm Surge and Earthquake Models

*Dr. Dag Lohmann, Chief Executive Officer, KatRisk LLC*

*Ross Stein, Ph.D., Co-Founder and Chief Executive Officer, Temblor*

This session will present concepts and results for global high resolution probabilistic tropical cyclone wind, inland flood, storm surge and earthquake models. All these models are implemented using the KatRisk SpatialKat platform using the FMKat financial model. We will present results from our new Europe Flood Model and its correlation to US modeled losses. We will also analyze the KatRisk global tropical cyclone wind models and updates to our storm surge coverage. Key modeling concepts and their implications on losses from climate variability, regional hazards, climate change, uncertainty correlation, loss sampling and financial model details will be explained in detail from the location level to global coverage.

The value of a global earthquake model is to diversify exposure and to provide coverage wherever there is demand. Furthermore, only global models can be tested in a matter of years rather than millennia. Temblor has built a stochastic event set based on the Global Earthquake Activity Rate (GEAR) model, which in independent blind prospective tests outperformed its competitors. From earthquake occurrence, to shaking, to damage and loss, we work to minimize bias, judgment, and expert opinion, relying instead on algorithmic, consistent and reproducible results.

**Session VI – Ligurian II & III**

Using Big Compute Techniques to Manage Wildfire, Flood and Climate Change

*Micahel Young, Vice President, RMS*

*Holly Widen, Ph.D., Product Manager, RMS*

Wildfire, floods, and climate change are risks that are hyper-local yet spatially correlated; non-stationary yet temporally correlated. Regulators and (re)insurers struggle with how to deal with these changing and emerging risks. This session will explore why these perils must be managed with sophisticated catastrophe model techniques as we move to ‘new normals.’

5:00 p.m. Reception – Citrus Piazza – sponsored by

6:30 p.m.
WEDNESDAY, FEBRUARY 26, 2020 (CONTINUED)

9:00 p.m. ISCM Night Owl Reception / Karaoke – Bar American
11:00 p.m.

THURSDAY, FEBRUARY 27, 2020

7:00 a.m. Breakfast – Tuscan I & II – sponsored by pitney bowes
8:15 a.m. Breakout sessions

Session I – Venetian I & II

Change Ahead 20-minute presentation
Andrew Siffert, Vice President/Senior Meteorologist Catastrophe Analytics, BMS
Three things are certain in life: death, taxes and changing catastrophe risk models. New claims data from new catastrophic events provide enough motivation for model vendors to update existing catastrophe peril models. In some cases, regulation requires catastrophe perils models to be updated. This session will explore how to work with catastrophe model changes. In some cases, adjustments to model output might be required based on your own view of risk, but what are the best practices to making these adjustments? Lastly, the session will explore whether the tools are keeping up to help understand model change and adjustment.

Do We Understand Japan Typhoon Tail Risk? 20-minute presentation
Dail Rowe, Senior Scientist and Regional Manager, Weather Predict
Viewing recent typhoons against the twin backdrops of history and climate change suggests that our industry may underestimate typhoon risk in Japan. In this session, we will apply lessons learned from recent typhoons onto some notable historical events and consider implications for risk modelers.
8:15 a.m.  Breakout sessions (continued)

Session II – Venetian III

Trends and Drivers of Wildfire Activity and Structure Loss in California
20-minute presentation
Alexandra Dunya Syphard, Chief Scientist, Sage Insurance Holdings LLC
Recent fire seasons in California and Australia have led to a state of alarm over the increasing impacts of wildfires, with many fearing that recent record-breaking losses have become the “new normal.” Whether or not these have been back-to-back one-in-a-hundred-year events, or if the trend has crossed some kind of tipping point, remains to be seen. But, key to anticipating future losses in this era of rapid global change is an understanding of how, where, and why fire patterns are changing, and which factors are most strongly associated with structure loss. Dr. Syphard will present recent research documenting the relative importance of climatic and human variables for explaining changes in wildfire activity across California and other fire-prone ecosystems. She will also summarize research findings on which factors may be most effective at preventing future structure loss.

Drought / Extreme Heat / Wildfires 20-minute presentation
Kim Roberts, Senior Vice President, Guy Carpenter
Periods of extreme heat and drought are expected to intensify in the coming decade across the globe, as climate change causes changes in precipitation and temperature patterns. The impact of such changes will be widespread; from issues of water storage and availability, to the possibility of larger, more frequent and more damaging wildfires. This session will explore emerging risks facing the insurance industry and highlight some of the innovative mitigation techniques being employed to build resiliency to these perils.

Session III – Venetian IV

Extreme Tail Risk & Corresponding Uncertainty
Maryam Haji, Assistant Vice President, Senior Research Analyst, TransRe
This session will explore how little changes in experience could dramatically impact the view of tail risk and appropriateness of cat models.
THURSDAY, FEBRUARY 27, 2020 (CONTINUED)

8:15 a.m.  Breakout sessions (continued)

Session IV – Venetian V

Challenges for Underwriting and Risk Management: A View from the London Market

David Singh, Head of Exposure & Portfolio Management, MS Amlin
Emma Watkins, Head of Exposure Management, Risk Aggregation, Lloyds

Exposure-based catastrophe models lend themselves well to cat perils with limited loss history. But what if the hazard, vulnerability and exposure are constantly changing as with the cyber peril? Lloyds has a significant share of the global cyber market and its market participants have pioneered this insurance for their clients. However, with the threat and conditions constantly evolving, Lloyds has responded by ensuring that coverage is clear for policy holders and re/insurers. The silent / affirmative / blended coverage question remains pertinent for multi-class, multi-jurisdiction (re)insurers and the implications of the assumptions and consequences of this peril can be highly material. Lloyds is developing its exposure management approach to monitor the market’s exposure and issuing new cyber scenarios. Cyber has an impact not just on aggregations but also on risk transfer calculations and setting appropriate risk appetites, and the need to work closely with regulators and underwriters to manage cyber as a peril is as important as ever.

This session describes the process and challenges associated with a scenario-based approach, as well as hinting what the market can expect from Lloyds new cyber scenarios and the complexities associated with fulfilling internal and regulatory exposure management requirements for cyber as a peril.

Session V – Ligurian II & III

Is It Better to be Good than Lucky - or Lucky than Good? Evaluating Cat Risk Management Approaches in the London Market

Kirsten Mitchell Wallace, CCRMP, Head of Risk Aggregation, Lloyds

In years with no catastrophes, every organization can tout great cat underwriters and superb cat risk management capability. But how can you tell lucky from good? What features instill confidence in cat risk management? Should these soft factors be used to modify the risk? Lloyds asked these questions and worked closely with their market to define a best practice framework for cat risk to inform decision-making. This is the story of that project, with a little taste of what we're up to in 2020.

9:00 a.m.  Session Change Break
THURSDAY, FEBRUARY 27, 2020 (CONTINUED)

9:15 a.m. General Session – Tuscan III & IV

Crisis Management - Response to Large Events
Craig Fugate, Former Administrator FEMA, Chief Emergency Management Officer, One Concern
Chad Trosper, Catastrophe Claims Director, Tower Hill Insurance

10:15 a.m. Networking/Hotel Check-out Break – Tuscan Foyer – sponsored by

11:00 a.m. General Session – Tuscan III & IV

Chief Innovation Officers Panel – A Look into the Future of Catastrophe Modeling
The session will explore the future of catastrophe risk modelling: straightforward and transparent customization, the use of new or emerging technology, necessary skill sets for both model developers and risk analysts, new or underutilized (at present) data sources.

Moderator: Hjörur Thrainsson, Modeling Expert, Munich Re
Panelists: Glen Daraskevich, Senior Vice President, Karen Clark & Company
Dr. Jayanta Guin, Executive Vice President and Chief Research Officer, AIR Worldwide
Thomas Larsen, Principal, Industry Solutions, CoreLogic
Dr. Dag Lohmann, Chief Executive Officer & Co-Founder, KatRisk
Robert Muir-Wood, Executive Vice President & Chief Research Officer, RMS
Adam Podlaha, Head of Impact Forecasting, Aon Impact Forecasting

1:00 p.m. Wrap Up