

Institute of Catastrophe Risk Management Eighth International Symposium on Catastrophe Risk Management

MANAGING RISK & RESILIENCE

- Nat Cat Data (Exposure and Loss)

3 - 4 August 2017, Singapore



NatCatDAX Alliance Founding Members:



Symposium Sponsors:



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Welcome Message from Prof Haresh SHAH, Chairman, International Advisory Board, ICRM



On behalf of NTU's Institute of Catastrophe Risk Management (ICRM), it is my great pleasure to welcome you to the Eighth International Symposium on Catastrophe Risk Management, being held at Grand Copthorne Waterfront Hotel, Singapore. I am delighted to welcome our Guest of Honour Mr Ravi Menon, Managing Director, Monetary Authority of Singapore.

This year's Symposium will feature a theme of "Managing Risk & Resilience – Nat Cat Data (Exposure and Loss)".

The Symposium will evolve along several overlapping and interacting subthemes addressing Risk Management and Resilience Building, as well as Industry Experiences and Aspirations. It will also include some early insights into the NatCatDAX project just initiated at ICRM. We believe that the Symposium with your wonderful input would be an important step toward achieving success for the NatCatDAX project. We therefore renew our welcome, particularly to those who have had to travel far to join us, and wish you all a fruitful Symposium and a most enjoyable stay in Singapore.

Welcome Message from Prof Tso-Chien PAN, Executive Director, ICRM



I take great pleasure and deep honour in inviting you to the Eighth International Symposium on Catastrophe Risk Management. We are most honoured to have Mr Ravi Menon, Managing Director, Monetary Authority of Singapore (MAS), as our Guest of Honour.

The ICRM Symposium series has been a forum for sharing the latest ideas and research in the continuously evolving risks of natural catastrophe, and this Eighth Symposium focuses on the role of Nat Cat Data in Managing Risk & Resilience. The Sessions will elaborate on robust and reliable Nat Cat data as being a necessary foundation for both conventional and innovative risk management (including re/insurance risk transfer) as well as resilience building against NatCat's for public and private sectors in Asia.

We at ICRM would like to thank our key supporters of the Natural Catastrophe Data Analytics Exchange (NatCatDAX) project, and specifically the NatCatDAX Founding Members of Aon, China Re, MSIG, Renaissance Re and RMS for their generous support. Of course, we are most grateful to MAS for their strong support and necessary core funding of the NatCatDAX project.

We also thank our continuing Symposium sponsors, MAIPARK and Sinotech Engineering Consultants as well as the many individuals and organizations who have contributed to making the symposium series possible. Special thanks go to our invited speakers and the participants. Outside of the Symposium, we encourage you to seize the ample opportunities to explore Singapore a most vibrant city of Asia.

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Synopsis

The Institute of Catastrophe Risk Management (ICRM) was launched by the Nanyang Technological University, Singapore, in January 2010 with a vision to become Asia's leading research institute in catastrophe risk modelling and management. ICRM has conducted seven annual international symposia on important topics including public-private partnership in managing catastrophe events, food and water security and climate change, black swan events, extreme events in Asia Pacific, financing natural catastrophes in Asia, mega-cities of Asia and their evolving risks, and most recently plugging the natural catastrophe data gap in Southeast Asia through the Natural Catastrophe Data Analytics Exchange (NatCatDAX) initiative.

This Eighth ICRM International Symposium will build on the insights and conclusions from the Seventh Symposium in 2016. One of the conclusions from that symposium was that robust data about the assets exposed to natural catastrophes (NatCat's) in Asia and in particular Southeast Asia will be very useful. The public sector (the governments) and the private sector (the re/insurance industry) need such data in their efforts to find sustainable solutions, as well as to build viable partnerships in managing the NatCat risk. Both need quality data across their respective enterprises. Governments need data to understand and relate to their NatCat risk policies, including transfer solutions through re/insurance as shock absorber for the fiscal burden of NatCat's. The Industry needs robust, objective and independent data to offer innovative products (loss based and parametric) to traditional markets, open new markets with the governments, enhance risk assessment, and be able to carry out reliable benchmarking against the market.

Following on these conclusions a regional data platform Natural Catastrophe Data Analytics Exchange – NatCatDAX is being developed under the umbrella of the NatCatDAX Alliance with stakeholders from the public sector, industry, academia, and service providers to the Industry. The NatCatDAX “production” is in the early stages of operationalization. Therefore, the theme of the 8th Symposium is:

“Managing Risk & Resilience - Nat Cat Data (Exposure and Loss)”

The Symposium will evolve along several overlapping and interacting subthemes addressing the use, quality, or lack of Nat Cat data from city, country, and insurance industry perspectives. It will also include some early insights into the NatCatDAX development. These themes will facilitate the debate between the public sector and the insurance industry intended to bridge the “coverage gaps” in Asia on a sustainable and viable foundation. Prominent speakers from the public sector and insurance industry are being invited to spearhead the debate. Symposium sessions will provide a side-by-side stage for speakers from the public and private sectors to address the Nat Cat data and their relevance to managing the risk and building the resilience of major cities with particular focus on Bangkok, Jakarta, Manila and Taipei.

The sub-themes are:

1. Nat Cat exposure and loss data – Industry experiences and aspirations
2. Nat Cat data supporting risk management and building Nat Cat resilience of the cities
3. Insurer's aspirations from NatCatDAX Data
4. Risk modelling and model validation aspirations with NatCatDAX data
5. NatCatDAX Developments (including exposure disaggregation, attribute extraction out of remote sensing imagery, enhanced Insured Exposure Data)

We hope that this Symposium will further promote the principles of mutual NatCatDAX benefits for the public and private sectors, and that the invited speakers and participants will embrace this principle in their Symposium contributions.

Opening Session			
0830	Registration and Arrival		
0900	Welcome Greetings Prof Tso-Chien Pan Executive Director, Institute of Catastrophe Risk Management, Nanyang Technological University (NTU) Singapore		Panelists: 1. Mr Bill Churney , President, AIR Worldwide 2. Mr George Attard , International Head, Aon Benfield Analytics Aon Benfield, Singapore 3. Mr Jonathan Paradine , Chief Executive, Renaissance Reinsurance Ltd, Singapore Branch 4. Dr Zuo Huiqiang , Director, International Business of China Re Group; Deputy General Manager, China Re P&C; General Manager, China Nuclear Insurance Pool
0910	Opening Address Prof Bertil Andersson President, Nanyang Technological University, Singapore	1250	Lunch
0920	Opening Address by Guest-of-Honour Mr Ravi Menon Managing Director, Monetary Authority of Singapore, Singapore	Session 2: Nat Cat Data: Industry Experiences and Aspirations I	
0930	Thank You Ceremony and Presentation of Mementos by Prof Bertil Andersson Mementos presented to NatCatDAX Founders & Consortium Partners	1350	Presentation 7 Insurance Development Forum (IDF) – Latest Developments Mr Rowan Douglas CBE ICRM International Advisory Board; CEO Capital, Science & Policy Practice, Willis Towers Watson; Chair, IDF Implementation Group
0950	Presentation 1 Toward a Regional Approach for Disaster Risk Finance in Asia Dr Olivier Mahul Global Lead, Disaster Risk Finance, World Bank Program Manager, Disaster Risk Financing and Insurance Program, World Bank	1410	Presentation 8 NatCatSERVICE: New Online Nat Cat Loss Analysis Tool - New Insights on Trends derived from Normalized Losses Prof Peter Höeppe Head, Geo Risks Research/Corporate Climate Centre, Munich Re, Germany
1010	Presentation 2 A Liveable and Sustainable City is a Resilient City Mr Khoo Teng Chye Executive Director, Centre for Liveable Cities, Ministry of National Development (MND), Singapore	1430	Presentation 9 Confronting the Challenges of Disaster Risk Reduction and Resilience in Taiwan Dr Tseng Sheng-Bao Chairman, Sinotech Engineering Consultants Inc, Taiwan
1030	Morning Refreshment	1450	Presentation 10 Data - the Cornerstone of Risk Management & Resilience Mr Hemant Nagpal Director, Model Product Management, RMS, Singapore
Session 1: Risk Management and Resilience Building - Data Needs		1510	Panel Discussion 2: Panel Chairman: Mr Michael Gourlay Chief Executive Officer, Mitsui Sumitomo Insurance Group, Singapore (Pte) Ltd Panelists: 1. Mr Rowan Douglas CBE , ICRM International Advisory Board; CEO Capital, Science & Policy Practice, Willis Towers Watson; Chair, IDF Implementation Group 2. Prof Peter Höeppe , Head, Geo Risks Research/Corporate Climate Centre, Munich Re, Germany 3. Dr Tseng Sheng-Bao , Chairman, Sinotech Engineering Consultants Inc, Taiwan 4. Mr Hemant Nagpal , Director, Model Product Management, RMS, Singapore
1100	Presentation 3 How Insurance-Linked Securities Can Support the Asia-Pacific Region: Role of Catastrophe Models, Exposure and Loss Data Mr Bill Churney President, AIR Worldwide	1540	Afternoon Refreshment
1120	Presentation 4 Innovation, Agility and Resilience Mr George Attard International Head, Aon Benfield Analytics, Aon Benfield, Singapore	Session 3: Nat Cat Data: Industry Experiences and Aspirations II	
1140	Presentation 5 Certainty in an Uncertain World Mr Jonathan Paradine Chief Executive, Renaissance Reinsurance Ltd, Singapore Branch	1610	Presentation 11 Regulators, Climate Change and Natural Disaster Losses Dr Ryan Crompton Director, Modelling and Research Solutions, Risk Frontiers, NSW, Australia
1200	Presentation 6 China CAT Insurance Programs and Cat Bond Practice Dr Zuo Huiqiang Director, International Business of China Re Group Deputy General Manager, China Re P&C General Manager, China Nuclear Insurance Pool	1630	Presentation 12 Data Perspectives for Assessing Nat Cat Risk Dr Nigel Winspear Head of Model Development and Evaluation, SCOR Global P&C, Singapore
1220	Panel Discussion 1: Panel Chairman: Prof Tso-Chien Pan Executive Director, Institute of Catastrophe Risk Management, NTU, Singapore		

Day 01 | 3rd August 2017

1650 **Presentation 13**
Use Cases of Industry Data
 Mr Iain Reynolds
 Director, Head of Analytics,
 Peak Reinsurance Company Ltd, Hong Kong

1710 **Presentation 14**
AIG Exposure Analytics
 Mr Shitalkumar R Khandar
 Regional Catastrophe Management Leader – Asia
 Pacific & Catastrophe Manager – Global Construction,
 AIG Singapore

1730 **Panel Discussion 3**
 Panel Chairman: Dr Pane Stojanovski
 Adjunct Professor, ICRM, NTU, Singapore
 Founder, Cat Risk Research, USA

Panelists:

1. **Dr Ryan Crompton**, Director, Modelling and Research Solutions, Risk Frontiers, NSW, Australia
2. **Dr Nigel Winspear**, Head of Model Development and Evaluation, SCOR Global P&C, Singapore
3. **Mr Iain Reynolds**, Director, Head of Analytics, Peak Reinsurance Company Ltd, Hong Kong
4. **Mr Shitalkumar R Khandar**, Regional Catastrophe Management Leader – Asia Pacific & Catastrophe Manager – Global Construction, AIG Singapore

1800 Cocktail Reception (Veranda Ballroom I)

Day 02 | 4th August 2017

Session 4: Exposure and Loss Data Development – Regional Experiences

0830 Registration and Arrival

0850 **Presentation 15**
Developing a Regional Disaster Loss Database for ASEAN: Challenges and Opportunities
 Dr Marqueza L. Reyes
 Team Leader, ASEAN Disaster Risk Financing and Insurance Programme, Indonesia

0910 **Presentation 16**
INARISK- Indonesia Disaster Risk Assessment Portal and Tools for Monitoring Disaster Risk Reduction Activities
 Mr Lilik Kurniawan
 Director for Disaster Risk Reduction, National Disaster Management Agency, Indonesia

0930 **Presentation 17**
Cat Data Acquisition and Innovative Product Creation: Indonesia Insurance Industry Perspectives
 Mr Fiza Wira Atmaja
 Group Head of Research, Development and Innovation, PT Reasuransi MAIPARK, Indonesia

0950 **Presentation 18**
PERILS Experience in Australia
 Mr Darryl Pidcock
 Head of PERILS Asia-Pacific, Australia

1010 **Panel Discussion 4:**
 Panel Chairman: Dr Olivier Mahul
 Global Lead, Disaster Risk Finance, World Bank
 Program Manager, Disaster Risk Financing and Insurance Program, World Bank

Panelists:

1. **Dr Marqueza L. Reyes**, Team Leader, ASEAN Disaster Risk Financing and Insurance Programme, Indonesia
2. **Mr Lilik Kurniawan**, Director for Disaster Risk Reduction, National Disaster Management Agency, Indonesia
3. **Mr Fiza Wira Atmaja**, Group Head of Research, Development and Innovation, PT Reasuransi MAIPARK, Indonesia
4. **Mr Darryl Pidcock**, Head of PERILS Asia-Pacific, Australia

1040 Morning Refreshments

Session 5: Hazard Assessment and Data Needs

1100 **Presentation 19**
Towards an Integrated Assessment of Coastal Flood Risk in Southern China
 Prof Adam Switzer
 Associate Professor, Associate Chair,
 Asian School of the Environment,
 Nanyang Technological University, Singapore

1120 **Presentation 20**
Projected Changes in Rainfall Extremes in Southeast Asian Cities: Implications for Flood Risk Assessment
 Dr Pradeep Mandapaka
 Senior Research Fellow,
 Institute of Catastrophe Risk Management,
 Nanyang Technological University, Singapore

1140 **Presentation 21**
Future Projections of Intensity of Tropical Cyclones Making Landfall in South China
 Prof Johnny Chan
 Chair Professor of Atmospheric Science
 Director, Guy Carpenter Asia-Pacific Climate Impact Centre, City University of Hong Kong

1200 **Presentation 22**
Agricultural Losses Report on Taiwan Natural Disaster
 Prof Shu-Ling Chen
 Associate Professor, Dept of Finance and Cooperative Management, National Taipei University
 Deputy Director, Socio-Economic Dept, APEC Research Center for Typhoon & Society, Taiwan

1220 **Panel Discussion 5:**
 Panel Chairman: Assoc Prof Edmond Lo
 Deputy Director, Institute of Catastrophe Risk Management, NTU, Singapore

Panelists:

1. **Prof Adam Switzer**, Associate Professor, Associate Chair, Asian School of the Environment, Nanyang Technological University, Singapore
2. **Dr Pradeep Mandapaka**, Senior Research Fellow, Institute of Catastrophe Risk Management, Nanyang Technological University, Singapore
3. **Prof Johnny Chan**, Chair Professor of Atmospheric Science; Director, Guy Carpenter Asia-Pacific Climate Impact Centre, City University of Hong Kong
4. **Prof Shu-Ling Chen**, Associate Professor, Dept of Finance and Cooperative Management, National Taipei University
 Deputy Director, Socio-Economic Dept, APEC Research Center for Typhoon & Society, Taiwan

1250 Lunch

Session 6: NatCatDAX Developments - Exposure & Loss Attributes

1350 **Presentation 23**
Extracting Economic Exposure Data for Insurance Industry in Urban Area by Using High-Resolution Satellite Imagery Technology
 Dr Thomas Cheng
 Deputy Director,
 Disaster Prevention Technology,
 Sinotech Engineering Consultants Inc, Taiwan

1410	<p>Presentation 24 Towards 3-D Building Model Reconstruction from HRSI data Prof Jiann-Yeou Rau Associate Professor, Department of Geomatics, National Cheng Kung University, Taiwan</p>
1430	<p>Presentation 25 Automated Harvesting of Loss and Damage Information from Open Sources Dr Mao Kezhi Associate Professor School of Electrical and Electronic Engineering Nanyang Technological University, Singapore</p>
1450	<p>Presentation 26 Improved Insights on Cat Risk using NatCatDAX Data Mr Sastry Dhara Programme Manager - NatCatDAX, Institute of Catastrophe Risk Management, Nanyang Technological University, Singapore</p>
1510	<p>Presentation 27 Improved Seismic Loss Estimates using High Resolution NatCatDAX Data Dr Wenqi Du Senior Research Fellow, Institute of Catastrophe Risk Management, Nanyang Technological University, Singapore</p>
1530	<p>Panel Discussion 6: Panel Chairman: Mr Hemant Nagpal, Director, Model Product Management, RMS, Singapore</p> <p>Panelists:</p> <ol style="list-style-type: none"> 1. Dr Thomas Cheng, Deputy Director, Disaster Prevention Technology, Sinotech Engineering Consultants Inc, Taiwan 2. Prof Jiann-Yeou Rau, Associate Professor, Department of Geomatics, National Cheng Kung University, Taiwan 3. Dr Mao Kezhi, Associate Professor, School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore 4. Mr Sastry Dhara, Programme Manager - NatCatDAX, Institute of Catastrophe Risk Management, Nanyang Technological University, Singapore 5. Dr Wenqi Du, Senior Research Fellow, Institute of Catastrophe Risk Management, Nanyang Technological University, Singapore
1600	<p>Closing Remarks Prof Tso-Chien Pan Executive Director, Institute of Catastrophe Risk Management, Nanyang Technological University, Singapore</p>
1610	Afternoon Refreshment
1630	End

