



**NANYANG  
TECHNOLOGICAL  
UNIVERSITY**  
SINGAPORE

**Institute of Catastrophe  
Risk Management**

Tenth International Symposium  
on Catastrophe Risk Management

**TOWARDS VIABLE DISASTER RISK  
FINANCING SOLUTIONS FOR SE ASIA**  
– LEARNING FROM GLOBAL EXPERIENCES, SUCCESSES AND CHALLENGES

1 AUGUST 2019 | SINGAPORE



NatCatDAX Alliance Founding Members:



NatCatDAX Consortium Partners:



Symposium Sponsor:



# PROGRAMME

0830 | **Registration and Arrival**

## SESSION 1: Opening Session

- 0900 | **Welcome Address**  
**Professor Tso-Chien Pan**  
Executive Director,  
Institute of Catastrophe Risk Management  
Nanyang Technological University
- 0910 | **Opening Address**  
**Ms Jacqueline Loh**  
Deputy Managing Director, Markets & Development  
Monetary Authority of Singapore
- 0920 | **Launch of the ASEAN Disaster Risk Financing and Insurance Programme Phase 2 (ADRFI-2) Dual Programme Offices**
- 0930 | **Presentation 1**  
**Insuring the Protection Gap: Vision, Challenges and Opportunities**  
**Mr Jonathan D.A. Paradine**  
Chief Executive, Singapore Branch  
Renaissance Reinsurance Ltd;  
Member, ICRM International Advisory Board
- 0945 | **Presentation 2**  
**Sovereign Disaster Risk Financing and Catastrophe Insurance Pools – Academic Theory and International Case Studies**  
**Professor Shaun Wang**  
FCAS, CERA, Nanyang Business School, NTU

1000 | **Morning Refreshment | Poster Session**

## SESSION 2: Experts' Perspectives of Governments' Needs in Sovereign Disaster Risk Financing

- 1030 | **Presentation 3**  
**Key Enabling Factors for a Successful Disaster Risk Financing Strategy – the Example of Myanmar**  
**Professor Peter Höeppe**  
Munich Climate Insurance Initiative;  
Adjunct Professor, ICRM, NTU
- 1045 | **Presentation 4**  
**Science-based Catastrophe Risk Modelling Informs Risk Management and Prudential Regulations**  
**Ms Madeleine Varkay**  
International Advisor, Government of Canada;  
Member, Asia Pacific Financial Forum sub-working groups on Long-Term Investment and Disaster Risk Finance advising the G-20;  
Former, Principal Private Sector Development Specialist, Asian Development Bank

- 1100 | **Presentation 5**  
**Catastrophe Risk Modelling for Governments to Drive Risk Reduction and Innovative Financing**  
**Dr Robert Muir-Wood**  
Chief Research Officer  
Risk Management Solutions Ltd, London, UK

- 1115 | **Presentation 6**  
**Catastrophe Models for Resilience: Past Experience and Future Innovations**  
**Dr Roger Grenier**  
Senior Vice President  
Global Resilience Practice Leader  
AIR Worldwide, Boston, MA, USA

- 1130 | **Presentation 7**  
**How to Deal with the Consequences of Earthquakes**  
**Mr Bilal Türkmen**  
Deputy Secretary General  
Turkish Catastrophe Insurance Pool, Turkey

- 1145 | **Panel Discussion**  
**Panel Chair:**  
**Professor Shaun Wang**  
FCAS, CERA, Nanyang Business School, NTU
- Panelist:
1. Professor Peter Höeppe, Munich Climate Insurance Initiative; Adjunct Professor, ICRM, NTU
  2. Ms Madeleine Varkay, International Advisor, Government of Canada; Member, Asia Pacific Financial Forum sub-working groups on Long-Term Investment and Disaster Risk Finance advising the G-20; Former, Principal Private Sector Development Specialist, Asian Development Bank
  3. Dr Robert Muir-Wood, Chief Research Officer, Risk Management Solutions Ltd, London, UK
  4. Dr Roger Grenier, Senior Vice President, Global Resilience Practice Leader, AIR Worldwide, Boston, MA, USA
  5. Mr Bilal Türkmen, Deputy Secretary General, Turkish Catastrophe Insurance Pool, Turkey

- 1215 | **Signing Ceremony of Research Collaboration Agreement between ICRM, NTU and Sinotech Engineering Consultants, Inc.**

1230 | **Lunch Break | Poster Session**

## SESSION 3: Insurance Industry Perspectives and Aspirations

- 1330 | **Presentation 8**  
**Cat Risk Financing Options: Pilot Schemes Implemented in the Greater Bay Area of China**  
**Dr Junhua Zhou**  
Head, Catastrophe Research Centre of China Re Group;  
Head, Innovative Business Department of China Re P&C  
China Reinsurance (Group) Corporation

1345 **Presentation 9**  
**The Role of the Public Sector as Enabler of Sustainable Risk Transfer Solutions in SE Asia**  
**Dr Philipp Servatius**  
 Senior Product Manager  
 Public Sector Solutions - Business Development  
 Vice President, Swiss Re

1400 **Presentation 10**  
**Singapore Earthquake Risk Assessment Incorporating Building Height Information**  
**Mr Ken Kawabe**  
 Senior Researcher  
 Risk Assessment Section, Corporate Planning Department  
 MS&AD InterRisk Research & Consulting, Japan

1415 **Presentation 11**  
**Bridging the Protection Gap in Agriculture: How Asian Governments are Mitigating the Climate Apartheid**  
**Dr Natalie Y.N. Lim**  
 Senior Broker, Agriculture  
 Aon Reinsurance Solutions

1430 **Presentation 12**  
**How Climate Change Affects DRFI Demand in Southeast Asia**  
**Mr Augusto Hidalgo**  
 Head of Capital, Science & Policy Practice  
 Southeast Asia  
 Willis Towers Watson

1445 **Panel Discussion**  
**Panel Chair:**  
**Dr Pane Stojanovski**  
 Cat Risk Research, LLC, USA  
 Adjunct Professor, ICRM, NTU

**Panelist:**

1. **Dr Junhua Zhou**, Head, Catastrophe Research Centre of China Re Group; Head, Innovative Business Department of China Re P&C, China Reinsurance (Group) Corporation
2. **Dr Philipp Servatius**, Senior Product Manager, Public Sector Solutions - Business Development, Vice President, Swiss Re
3. **Mr Ken Kawabe**, Senior Researcher, Risk Assessment Section, Corporate Planning Department, MS&AD InterRisk Research & Consulting, Japan
4. **Dr Natalie Y.N. Lim**, Senior Broker, Agriculture, Aon Reinsurance Solutions
5. **Mr Augusto Hidalgo**, Head of Capital, Science & Policy Practice, Southeast Asia, Willis Towers Watson

1515 **Afternoon Refreshment | Poster Session**

## SESSION 4: Strategies, Technologies and Case Studies

1545 **Presentation 13**  
**Monitoring of Land and Built Structures in Japan for Enhanced Risk Assessment**  
**Professor Masayoshi Nakashima**  
 President, Kobori Research Complex Inc;  
 Technical Counsellor, Kajima Corporation;  
 Professor Emeritus, Kyoto University;  
 President, International Association for Earthquake Engineering

1600 **Presentation 14**  
**A Data Fusion Approach to Update Exposure Data based on BIM and Computer Vision**  
**Dr Deng Yichuan**  
 Deputy Director of BIM Centre  
 School of Civil Engineering and Transportation  
 South China University of Technology, Guangzhou, China

1615 **Presentation 15**  
**Assessing & Quantifying Risk for Risk Management – Best Practice**  
**Ms Grace Lim**  
 Senior Treaty Underwriter  
 Allianz SE Reinsurance Branch Asia Pacific

1630 **Presentation 16**  
**Using Building Information, Innovative Financing, and Policy Change for Resilient Housing in Asia**  
**Dr Elizabeth Hausler**  
 Founder and CEO  
 Build Change, USA

1645 **Panel Discussion**  
**Panel Chair:**  
**Professor Edmond Lo**  
 Deputy Director, ICRM, NTU

**Panelist:**

1. **Professor Masayoshi Nakashima**, President, Kobori Research Complex Inc; Technical Counsellor, Kajima Corporation; Professor Emeritus, Kyoto University; President, International Association for Earthquake Engineering
2. **Dr Deng Yichuan**, Deputy Director of BIM Centre, School of Civil Engineering and Transportation, South China University of Technology, Guangzhou, China
3. **Ms Grace Lim**, Senior Treaty Underwriter, Allianz SE Reinsurance Branch Asia Pacific
4. **Dr Elizabeth Hausler**, Founder and CEO, Build Change, USA

1715 **Closing Remarks**  
**Professor Tso-Chien Pan**  
 Executive Director,  
 Institute of Catastrophe Risk Management  
 Nanyang Technological University

1725 **Cocktail Reception**

1900 **End**

## Natural Catastrophe Data Analytic Exchange (NatCatDAX) Initiative: Databases

- 1. Asset Exposure and Capital Stock for Indonesia, Philippines, Taiwan and Thailand**  
Dr Velautham Daksiya, Ms Mansi Kalra and Assoc Prof Edmond Y.M. Lo  
Institute of Catastrophe Risk Management, NTU, Singapore
- 2. Automatic Urban Building Area and Height Extraction using High Resolution Satellite Imagery – Taipei, Jakarta & Bangkok**  
Assoc Prof Edmond Y.M. Lo, Prof Tso-Chien Pan and Dr Velautham Daksiya  
Institute of Catastrophe Risk Management, NTU, Singapore  
Mr Kuo-Shih Shao, Mr En-Kai Lin, Mr Yi-Rung Chuang and Mr Kuan-Yi Lee  
Disaster Prevention Technology Research Center  
Sinotech Engineering Consultants, Inc., Taipei, Taiwan
- 3. Building Attributes Ruleset for Jakarta and Bangkok Building Stock**  
Mr Yi-Rung Chuang, Mr Kuo-Shih Shao, Mr En-Kai Lin and Mr Kuan-Yi Lee  
Disaster Prevention Technology Research Center  
Sinotech Engineering Consultants, Inc., Taipei, Taiwan  
Assoc Prof Edmond Y.M. Lo and Prof Tso-Chien Pan  
Institute of Catastrophe Risk Management, NTU, Singapore
- 4. Capital Stock Methodology – Top-down Approach for Taiwan**  
Ms Mansi Kalra, Adj Prof Pane Stojanovski, Assoc Prof Edmond Y.M. Lo and Prof Tso-Chien Pan  
Institute of Catastrophe Risk Management, NTU, Singapore
- 5. Relevant Sentence Selection for Harvesting Loss and Damage Information of Disasters from Online News**  
Assoc Prof Kezhi Mao  
School of Electrical & Electronic Engineering, NTU, Singapore  
Mr Qi Li  
Institute of Catastrophe Risk Management, NTU, Singapore

## Nat Cat Risk Studies in Asian Cities

- 6. Assessing Linkages between Urban Growth and Road Infrastructure for Major Southeast Asian Cities**  
Mr Shankar Acharya K, Assoc Prof Edmond Y.M. Lo and Dr Pradeep Mandapaka  
Institute of Catastrophe Risk Management, NTU, Singapore  
Assoc Prof Kevin Xiao Gaoxi  
School of Electrical & Electronic Engineering, NTU, Singapore
- 7. Changes in Rainfall Extremes in Southeast Asian Cities: Implications for Flood Risk Assessment**  
Dr Pradeep Mandapaka, Dr Velautham Daksiya and Assoc Prof Edmond Y.M. Lo  
Institute of Catastrophe Risk Management, NTU, Singapore
- 8. Estimation of Shallow S-Wave Velocity Structure of Singapore based on Microtremor Array Recordings**  
Dr Meya Yanger Walling and Prof Tso-Chien Pan  
Institute of Catastrophe Risk Management, NTU, Singapore
- 9. Evaluation of Natural Catastrophe Impact on the Pearl River Delta (PRD) Region – Earthquake Hazard**  
Prof Tso-Chien Pan, Assoc Prof Edmond Y.M. Lo and Dr Wenqi Du  
Institute of Catastrophe Risk Management, NTU, Singapore  
Prof Cheng Su, Dr Heqing Mu and Dr Yichuan Deng  
South China University of Technology, Guangzhou, China  
Dr Huiqiang Zuo  
China Re, Beijing, China
- 10. Evaluation of Natural Catastrophe Impact on the Pearl River Delta (PRD) Region – Flood Risk**  
Prof Tso-Chien Pan, Assoc Prof Edmond Y.M. Lo and Dr Wei Jian  
Institute of Catastrophe Risk Management, NTU, Singapore  
Assoc Prof Adam Douglas Switzer  
Asian School of the Environment, NTU, Singapore  
Prof Cheng Su, Prof Xiangju Cheng, Assoc Prof Zhaoli Wang and Dr Chengguang Lai  
South China University of Technology, Guangzhou, China  
Dr Huiqiang Zuo  
China Re, Beijing, China
- 11. Pearl River Delta (PRD) Intercity Risk Study: Economic Interdependency Using Input-Output Modelling**  
Ms Tinger Zhu  
School of Civil and Environmental Engineering, NTU, Singapore  
Ms Gizem Mestav Sarica and Prof Tso-Chien Pan  
Institute of Catastrophe Risk Management, NTU, Singapore
- 12. Probabilistic Seismic Hazard Assessment for SE Asia**  
Dr Chung-Han Chan  
Earth Observatory of Singapore, NTU, Singapore
- 13. Using Macro-Level Exposure Indicators for Future Disaster Risk Assessment in Megacities**  
Ms Gizem Mestav Sarica and Prof Tso-Chien Pan  
Institute of Catastrophe Risk Management, NTU, Singapore