

# **New Dimensions for Natural Hazards in Asia: An AOGS-EGU Joint Conference**

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Event location: **Tagaytay, Philippines**

**Abstract Submission Deadline: 31 Aug 2017**

**Author Registration Deadline: 23 Nov 2017**

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*View from conference venue of Taal Volcano*

# New Dimensions for Natural Hazards in Asia: An AOGS-EGU Joint Conference

- This international conference brings together **students, early career** and **established scientists** from all areas of the globe.
- The aim is to discuss **current advances** in knowledge and **new perspectives** relevant to natural hazards in the Asian region.
- **Fieldtrip excursions** planned.
- This joint conference will be held at **Taal Vista Hotel** in Tagaytay <<http://nathazards.org/public.asp?page=venue.htm>>, which is renowned for its cool weather and its spectacular view overseeing the Taal Lake and the Taal Volcano.
- We particularly invite those interested in these themes:
  - **Natural hazards in the megacity.** A megacity is often defined as a metropolitan area of greater than 10 million people, with 23 of the 37 current global megacities located in Asia. Many current large metropolitan areas less than 10 million people will soon be megacities. In this theme, we examine the physical and physical-social complexities of natural hazards in megacities, with natural hazards ranging from the everyday background of physical processes to low-probability extreme events. The physical aspects of natural hazards in the megacity are numerous and include early warning, monitoring, modelling, scenarios, case studies, and precursors. The physical-social complexities include the complex interaction of humans, their construction of physical infrastructure, the social institutions and the natural environment. We encourage contributions ranging from case studies to modelling pertaining to natural hazards for current megacities and for perceived growth to megacities in the future.
  - **Transient and long-term effects of catastrophic perturbations.** Natural disasters are often seen as short-lived events associated with perturbations such as earthquakes, volcanic eruptions or floods. But these perturbations may have a legacy, which entails a transient or permanent change of the conditions in the affected area. Landslide rates can remain higher than normal for months to years after a shallow, large earthquake, soil erosion rates are changed due to wildfires, and volcanic ash cover may affect the vegetation and ground water quality. Also, natural disasters can spawn health crises for example through food shortage, introduction of toxins or adverse sanitary conditions. Such legacies should be taken into account in planning, disaster management and communications. We aim to assemble studies and prompt discussion of triggered processes and knock-on effects of catastrophic perturbations in the environment and human

systems, exploring their mechanisms, impacts and costs, and facilitating their inclusion in the disaster management cycle.

- **Hazard development under a changing climate.** As global temperatures increase due to natural variability or anthropogenic climate change, sea level rises, and shifts can occur in insolation, rainfall patterns and extremes. These changes can then affect flood magnitudes and frequencies along rivers and coasts, mass wasting and sediment transport in uplands, wildfires and aerosol emissions in dry lands. These changes can also impact biodiversity and bi-productivity, thus human health over and beyond the effects of variability inherent in a steady climate. Changes will have beneficial as well as adverse effects, with varied distributions across our planet. Anticipating local and regional changes of geohazards due to global climate change, both natural and anthropogenic, is a major challenge for our times. Addressing this challenge requires precise knowledge of the relation between hazardous processes at the Earth's surface and their rates, and the meteorological processes driving them, in combination with robust, regionally or locally explicit scenarios of climate change. To explore the state of knowledge and to identify the key requirements for progress we aim to bring together (i) well constrained examples from a wide range of environments including the following: high mountain areas, river flood basins and deltas, dry lands, and coast lines, (ii) numerical modelling studies exploring impacts of future climate change, (iii) other studies that bring light to our understanding of hazard development under a changing climate.
- **Multi-hazard interactions (cascades).** This theme examines natural hazard interactions, multi-hazard cascades and concurrent natural hazards. Multi-hazard risk assessments for a given region have commonly been restricted to qualitative and semi-quantitative approaches, in which risks across individual hazards are summed together to give the resultant multi-hazard risk. However, relationships between hazards may not sum linearly and may have cumulative and non-linear effects. This theme solicits documenting case examples, quantifying causal links and models for cascading hazards (one hazard triggers a chain of hazards, e.g. earthquake → landslide → flood) and concurrent natural hazards (two single hazards occurring at the same time as each other, and the resultant risk not summing linearly). We also encourage submission of one hazard increasing the probability of another hazard occurring. Finally, we encourage submissions that examine how we build resilience for cascading and concurrent natural hazards and the risk and stakeholder awareness of hazard interactions and multi-hazard risk.

- **Black swans and grey swan events.** In the context of hazards the term 'black swan' is commonly used to describe the uncertainty and risk posed by completely unpredictable events. In contrast 'grey swan' events, which are derived from the black swan concept, may include repeating events over long time scales usually centuries to millennia. Human life is very short when compared to the cycle of large natural hazard events, for example, large volcanic eruptions, tsunamis, earthquakes, floods and even space weather, pandemics and economic depressions. This theme looks at how much risk is protected and how much is left uncovered and investigates what mitigation strategies exist for such events including how to establish the risk levels acceptable/affordable for our society. We also invite contributions in how the clear communication of risk can work to achieve minimal impact with a desire to turn black swans grey and grey swans 'white'.
- **Communications.** This theme addresses knowledge exchange between researchers, the public, policy makers, and practitioners about natural hazards. Although we welcome all contributions in this theme, we are particularly interested in: (i) The communication (by scientists, engineers, the press, civil protection, government agencies, and a multitude other agencies) of natural hazards risk and uncertainty to the general public and other government officials; (ii) Approaches that address barriers and bridges in the science-policy-practice interface that hinder and support application of hazard-related knowledge; (iii) The teaching of natural hazards to university and lower-level students, using innovative techniques to promote understanding. We also are specifically interested in distance education courses on themes related to hazard and risk assessment, and disaster risk management, and in programmes for training in developing countries.
- **General Contributions.** We encourage interested participants to choose which theme(s) is/are most appropriate for your presentation. However, if your work does not fit into any of the given themes, but still relevant to "New Dimensions of Natural Hazards in Asia", you should select the general session.
- We invite **contributions in the above themes, from the practical to the theoretical.** Although primarily aimed at geo-scientists and geo-engineers, we also encourage contributions from economists, social scientists, historians, policy actors, educators and hazard practitioners.

*For more information, please contact:*  
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