



## Book Review: *Natural Hazards in the Asia–Pacific Region: Recent Advances and Emerging Concepts*

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NATURAL HAZARDS IN THE ASIA–PACIFIC REGION – RECENT ADVANCES AND EMERGING CONCEPTS, BY: J. P. TERRY AND J. GOFF, GEOLOGICAL SOCIETY, SPECIAL PUBLICATION 361, LONDON, 2012. 225 PAGES, ISBN 978-1-86239-339-4 (HARDBACK), PRICE: UK £80.00.

This book is a collection of papers that discuss natural hazards in one of the most vulnerable regions of the earth: the Asia–Pacific Region. “*Many might say that it could not be a worse time to live in the Asia–Pacific Region*”, the authors Goff and Terry started the first short introduction article with this sentence. If we consider that a significant number of people are living or decide to live in the coastal area, and the natural hazards that occurred in the last decade (e.g., the 2004 Indian Ocean, and the most recent 2011 Tohoku tsunamis), the readers can easily image how effective the sentence from Goff and Terry is. In the second paper, still an introduction to the entire book, the same authors highlighted the special vulnerability of Asia–Pacific islands to natural hazards. The islands are more vulnerable to natural hazards than continental locations for different reasons: because they are located in remote and inaccessible areas, because of issues related to communications, or because of their economic marginalization. All of these reasons are relevant and may be of critical importance when planning disaster preparedness, risk management and adaptation. After these two introductory papers, the discussion focuses on more site-specific case studies. These are mainly related to tsunamis, but also to tropical cyclones, volcanic eruptions, and submarine natural hazards. In order to give a quick overview, the case studies have been summarized in the following sections, where a brief explanation of the contents is provided.

### a. Tsunamis

The topics discussed in the tsunami collection of papers treat the analysis of tsunami deposits of south-east India as the key element to better understanding the dynamics of tsunami inundation; the analysis of the tsunami triggered by the Anak Krakatau eruption (Indonesia) through numerical modeling; the communication methods used to inform the vulnerable communities of Hawaii during the 1946 and 1960 tsunamis; searching for better design and management of tsunami evacuation roads through presenting a southern Thailand case study; the GIS-based techniques for assessing the vulnerability of buildings to tsunami; the impact, recovery, and resilience of the Thai tourist coasts to the 2004 Indian Ocean Tsunami; and the value of a tsunami database, which could be achieved by collecting data of past events over the last thousand years from each Pacific island, for the risk reduction of the entire Pacific Region.

### b. Monsoons and cyclones

The papers grouped in this session present an analysis and description of the floods that occurred during the monsoon season in Thailand, through historical data set; the geomorphic impact of Cyclones in French Polynesia, where both coastal area and submarine environments were considered; the spatial pattern of three tropical storm migratory behavior parameters (track sinuosity, minimum pressure, duration) in the western North Pacific Basin; and the effectiveness of new computer based approach “*geovisualization*” in the analysis of the characteristics and behavior of tropical cyclones in the South Pacific Ocean.

## c. Volcanoes

Two papers consider volcanic hazards. The first discusses the geological hazards of southwest Natib Volcano, in order to identify any volcanic hazards it might pose to a nuclear power plant in the Philippines; the second explores the institutional response to the volcano crises and related problems encountered during the 1994 and 2006 eruptions of the Merapi Volcano.

## d. Earthquakes

Only one paper is related to earthquake hazards. This presents the effectiveness of the earthquake catastrophe models in the estimation of the levels of damage across an investigated area, quantification of the humanitarian and economic benefit after risk mitigation measures, and quantification of the risk metrics to the pricing of financial risk.

## e. Other hazards

A reader can also find one paper where an analysis of the records of submarine natural hazards surveyed in southwest of Taiwan is provided. In this work the authors, through detailed marine sediments analysis, suggest that the submarine hazards investigated are not only related to earthquake or floods, but that geological and hydrological setting also play an important role in the initiation of such hazards.

All the collected papers are generally well written, and illustrated with numerous clear color photographs, tables and maps. The readers will find these very easy to read, but this is not the real reason to buy the book. The real addressed values of this volume are (1) The region of the earth considered for the discussed topic; the Asia–Pacific region is probably one of the most vulnerable areas in the world, and the trending scenarios on the natural hazards rising due to climate change will probably increase its vulnerability; (2) The multidisciplinary approach given for the analysis and mitigation of natural hazards, which can be achieved through GIS, modeling, analysis of historical records, survivor interviews, and the effectiveness of mitigation measures. I found the papers related to the communication methods used to inform vulnerable communities during tsunamis and to the search for a better design and management of tsunami evacuation roads very interesting and effective. More efforts have to be spent along this line. Numerical models, and analysis of processes are important, but the real challenge is how to reduce the risk through a better communication system, preparedness and adaptation, improving also structural measures and their maintenance (e.g., roads). The only limit of the book is the fact that the sea level rise issue is not mentioned. Recent reports on climate change effects, highlighted the fact that sea level rise will be one of the major natural hazards of this century. Again the Asia–Pacific Region, especially the Pacific islands, more than other regions, will be highly exposed to this threat.

Overall this is a book that a student, scholar, or member of any public authority should have in the library. I strongly recommend buying it, since it draw attention to a highly vulnerable region of our planet, and it represents a basis upon which the scientific community, technicians, and politics could improve the solutions for a better understanding and management of the natural hazards in the Asia–Pacific Region.