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Book Review

Three Great Tsunamis: Lisbon (1755), Sumatra–Andaman (2004), and Japan (2011) by Harsh K. Gupta and Vineet K. Gahalaut, Springer Briefs in Earth Sciences, Springer, 2013; ISBN: 978-94-007-6575-7

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"Three Great Tsunamis: Lisbon (1755), Sumatra–Andaman (2004), and Japan (2011)" is published in Springer's new series SpringerBriefs. According to Springer's website, the SpringBriefs volumes are intended to provide "concise summaries of cutting-edge research and practical applications across a wide spectrum of fields". Among the several categories considered for SpringerBriefs are in-depth case studies, for which this volume is most closely aligned.

This 89-page volume comprises six chapters. Chapter 1 describes the fundamentals of tsunamis at a basic level, including a selective list of major historical tsunamis. Chapter 2 describes the 1755 Lisbon earthquake and tsunami, although no tectonic background is given for this event, as it is for the other two events considered in this volume. Included in this chapter, however, is a brief but fascinating account of how this earthquake affected scientific and philosophical thought during the Age of Enlightenment. The authors' description of the 2004 Sumatra–Andaman earthquake and tsunami in Chapter 3 includes instrumental and post-tsunami measurements of the tsunami, ground shaking and subsidence, and other effects such as mud volcanoes. Primarily, tsunami observations are described for the 2011 Japan event, including a brief summary of the nuclear disaster in the Fukushima region. The fifth chapter is on tsunami warning systems, including new and emerging systems around the world in the twenty-first century. The final chapter provides perspectives on why these events were so destructive and how future hazards may be mitigated.

At first, the three events examined in this book appear to be disparate in both time and location. There are, however, some commonalities that link these events, as mentioned by the authors. Most obvious is the destructive nature of each event: each resulted in tens to hundreds of thousands of casualties. Each was unexpected, though for very different reasons. Finally, each caused a shift in science and technology that has persisted to the present.

The descriptions of the earthquakes and tsunamis in this short volume focus on observational evidence and the impact that these events had on populations and infrastructure. Perhaps because of the scope and length of SpringerBriefs, the book does not delve into some of the discoveries made in understanding the physics of tsunamis, particularly after the 2004 and 2011 events. The authors' writing style is informal and very readable, although readers looking for more technical details of the tsunami phenomenon, and of these three events in particular, may be disappointed. Nonetheless, the authors are keenly attuned to the current trend in tsunami science that expands from purely physical science into the social sciences. Including the historical and cultural setting of each event, as well as the response and performance of natural and instrument-based warnings, the authors paint a broad and interesting picture of how society is affected by these unpredictable disasters.

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