

## Book Review of “Catastrophic Landslides: Effects, Occurrence, and Mechanisms”

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CATASTROPHIC LANDSLIDES: EFFECTS, OCCURRENCE, AND MECHANISMS, EDITED BY S. G. EVANS AND J. V. DEGRAFF, THE GEOLOGICAL SOCIETY OF AMERICA, REVIEWS IN ENGINEERING GEOLOGY, VOLUME XV, 2002, VIII + 411 PAGES, PRICE: GSA MEMBERS: US\$ 112.00, NON-MEMBERS: US\$ 140.00, ISBN 0-8137-4115-7.

In the style of its predecessors in the Geological Society of America Series on “Reviews in Engineering Geology”, the volume is a collection of sixteen excellent papers that describe the occurrence, mechanisms, and effects of catastrophic landslides worldwide. A total of 35 scientists from eleven countries have contributed to the special volume, which provides a comprehensive picture of the nature, origin, occurrence, geographical distribution, mechanisms and effects of catastrophic slope movements in five continents.

The book is organized in three sections. The first section, “Effects”, focuses primarily on the impact of catastrophic landslides on human population and the built-up environment. This section contains only one paper, Chapter 1, an overview of recent catastrophic landslides in South America, a geographical area historically affected by catastrophic mass movements and that has recently suffered several highly destructive events. In the second section, “Occurrence”, six Chapters describe the occurrence of recent catastrophic landslides, including site-specific insights about catastrophic slope failures and illustrating their worldwide occurrence. The third section, “Mechanisms”, contains nine Chapters addressing mechanisms and geological settings prone to catastrophic landslide occurrence, including pre-historical perspectives.

The volume contains a balanced mix of global (one paper), national or super-national (two papers) and regional studies (eight papers), and site specific investigations (six papers). Although a definition of “catastrophic landslide” is not specified, most of the papers in the volume describe highly mobile slope failures, chiefly large rock falls, rock slides,

and rock or debris avalanches. An exception is Chapter 5, which describes a large slide with small displacement triggered by the 1989 Loma Prieta, California, earthquake. Most of the papers deal with natural landslides, but Chapter 9 discusses examples of failures of waste piles in open-pit coal mines in British Columbia, Canada, that produce highly mobile flow-type landslides. Slope failures discussed in the text range from relatively small rock falls (a few thousands cubic meters) to very large rock avalanches, extending for several square kilometres and involving hundreds of millions of cubic meters of rocks (e.g. Chapter 15, on rock avalanches in Karakorum Himalaya, and Chapter 10, on landslides caused by the partial failure of volcanoes). Noticeably, considerations on the hazards and risk posed by catastrophic landslides do not emerge clearly from the volume. Chapter 1, which describes catastrophic landslides in South America during the twentieth century, represents a remarkable exception.

In their Preface, the two Editors tell the reader that the volume was stimulated by the Sixth International Landslide Symposium (ISL) in Christchurch, New Zealand. The Symposium was held in February 1992. Papers in the volume were all first submitted in 1996 and accepted in 2001. The Volume was finally published in 2002. Such a long delay in getting a high quality scientific book published is commonplace these days. The book is well produced and clearly illustrated. The price is not too high, considering the cost of science books these days, and the wealth of information it contains. Catastrophic Landslides: Effects, Occurrence, and Mechanisms complements and updates with new information and recent discoveries the well known, two volumes book on “Rockslides and Avalanches” edited by Barry Voight in 1978, and should represent a useful addition to the reference shelves of personal and shared libraries.

In this review we explore how a soft-matter perspective has helped to illuminate, and even predict, the rich dynamics of Earth materials and their associated landscapes. We also highlight some novel phenomena of geophysical flows that challenge, and will hopefully inspire, more fundamental work in soft matter. Furthermore, earth materials exhibit such soft-matter effects as shear-rate dependent rheologies influenced by microstructure [14–17]; aging and history dependence [18–24]; and signatures of glassy dynamics and jamming [25–29]. Earth materials that fall into this category of granular flows/suspensions include landslides [69, 105], debris flows [49, 106], and river sediment transport [15, 87] (see Fig. 1). Keywords: editors / Catastrophic Landslides / occurrence / Stephen / Degraff / Jerome / Evans / mechanisms. Scifeed alert for new publications. Never miss any articles matching your research from any publisher. Get alerts for new papers matching your research. Find out the new papers from selected authors. Updated daily for 49'000+ journals and 6000+ publishers. Define your Scifeed now. —.