

Edited by John J. Clague and Douglas Stead

Landslides

Types, Mechanisms and Modeling



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Landslides cause tens of billions of dollars' worth of damage throughout the world every year, and losses are increasing due to a growing population and new development in potentially unstable areas. Fundamentally they have geological causes, but can have natural triggers such as rainfall, snowmelt, erosion, and earthquakes, or can be triggered by human actions such as agriculture and construction. To reduce the threat that landslides pose to public safety and property, research aimed at better understanding slope stability and failure has accelerated in recent years. This acceleration has been accompanied by basic field research and numerical modeling of slope failure processes, mechanisms of debris movement, and landslide causes and triggers.

Written by 78 of the leading researchers and practitioners in the world, this book provides a state-of-the-art summary of landslide science. It features both field geology and engineering approaches, as well as modeling of slope failure and runout using a variety of numerical codes. The book is illustrated with international case studies that integrate geological, geotechnical, and remote sensing studies, and includes recent slope investigations in North America, Europe, and Asia.

This comprehensive and complete one-stop synthesis of current landslide research forms an essential reference for researchers and graduate students in geomorphology, engineering geology, geotechnical engineering, and geophysics, as well as professionals in the field of natural hazard analysis.

JOHN J. CLAGUE is the Canada Research Chair in Natural Hazard Research at Simon Fraser University and also, at the same institution, Director of the Centre for Natural Hazard Research. He has published over 250 papers in 45 different journals on a range of earth science disciplines, including glacial geology, geomorphology, stratigraphy, sedimentology, and natural hazards. Professor Clague's other principal professional interest is improving public awareness of earth science by making relevant geoscience information available: he has written two popular books on the geology and geologic hazards of southwest British Columbia and a textbook on natural hazards. He is the recipient of the Geological Society of America Burwell Award, the Royal Society of Canada Bancroft Award, the Geological Association of Canada's (GAC) 2006 E. R. W. Neale Medal and GAC's 2007 Logan Medal. He was the 2007/8 Richard Jahns Distinguished Lecturer for the Geological Society of America and the Association of Environmental and Engineering Geology.

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