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Soggetti	Natural disasters Climate change Structural geology Hydrogeology Atmospheric sciences Soil science Soil conservation Natural Hazards Climate Change/Climate Change Impacts Structural Geology Atmospheric Sciences Soil Science & Conservation
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters.
Nota di contenuto	Introduction -- Ecosystem of sloping terrain, soil and vegetation -- Landslides are a double-edged sword -- Strain and Stress -- Landslide dynamics -- SEGMENT-Landslide and applications on various climatic zones -- Changes in extreme precipitation in a future warming climate -- Landslides impact on sea level rise -- Modeling the debris flows in the aftermath of the 2007 Southern California Wildfires -- Opportunity and challenges in a remote sensing era -- The path forward: Landslides in a future climate -- Mathematical skills required to fully understand

SEGMENT-Landslide -- Appendix 1: Pressure fields within a simplest granular media - A comment on a recent Science article on locomotors running over sands -- Appendix 2: Cluster analysis -- Appendix 3: Scarp size distribution, who are the players? -- Appendix 4: Basic tensor (and vector) operations -- Appendix 5: GPD analysis of extreme precipitation -- Appendix C1: Lax-Windoff scheme of various order of accuracy (1D followed by a higher order scheme implemented in SEGMENT-Landslide -- Appendix C2: 1D thermal equation solver (semi-implicit C-N scheme).

Sommario/riassunto

This volume covers the general physics of debris flows and various approaches to modeling - including the SEGMENT-Landslide approach – as well as the pros and cons of these approaches, and how other approaches are sub-sets of the SEGMENT-Landslide approach. In addition, this volume will systematically unify the concepts of vadose zone hydrology and geotechnical engineering, with special emphasis on quantifying ecosystem consequences of storm-triggered landslides in a warmer climate setting. The reader will find a comprehensive coverage of concepts ranging from hillslope hydrology, porous granular material rheology, and the fundamentals of soil properties to state-of-the-art concepts of enhanced hydrological cycle with climate warming, finishing with a discussion of new approaches for future research.