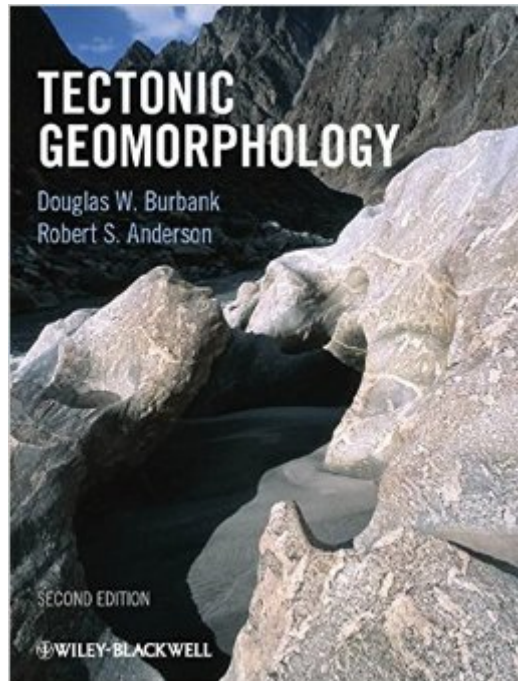


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Tectonic Geomorphology



Synopsis

Tectonic geomorphology is the study of the interplay between tectonic and surface processes that shape the landscape in regions of active deformation and at time scales ranging from days to millions of years. Over the past decade, recent advances in the quantification of both rates and the physical basis of tectonic and surface processes have underpinned an explosion of new research in the field of tectonic geomorphology. Modern tectonic geomorphology is an exceptionally integrative field that utilizes techniques and data derived from studies of geomorphology, seismology, geochronology, structure, geodesy, stratigraphy, meteorology and Quaternary science. While integrating new insights and highlighting controversies from the ten years of research since the 1st edition, this 2nd edition of Tectonic Geomorphology reviews the fundamentals of the subject, including the nature of faulting and folding, the creation and use of geomorphic markers for tracing deformation, chronological techniques that are used to date events and quantify rates, geodetic techniques for defining recent deformation, and paleoseismologic approaches to calibrate past deformation. Overall, this book focuses on the current understanding of the dynamic interplay between surface processes and active tectonics. As it ranges from the timescales of individual earthquakes to the growth and decay of mountain belts, this book provides a timely synthesis of modern research for upper-level undergraduate and graduate earth science students and for practicing geologists. Additional resources for this book can be found at: www.wiley.com/go/burbank/geomorphology.

Book Information

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Customer Reviews

A new 274-page book on tectonic geomorphology has been authored by Douglas Burbank of the University of California at Santa Barbara, and Robert Anderson of the University of Colorado. Tectonic geomorphology is a new branch of geology that evaluates the "unrelenting competition between tectonic processes that tend to build topography, and the surface processes that tend to tear them down." This affordable soft-bound book is organized into 11 chapters, as follows: (1) Introduction, (2) Geomorphic Markers, (3) Establishing Timing in the Landscape - Dating Methods, (4) Stress, Faults, and Folds, (5) Short-term Deformation - Geodesy, (6) Paleoseismology, (7) Rates of Erosion and Uplift, (8) Holocene Deformation and Landscape Processes, (9) Deformation and Geomorphology at Intermediate Time Scales, (11) Numerical Modeling of Landscape Evolution. The book is targeted for upper-division undergraduates, first-year graduate students in geology, and for working engineering geologists who need an update in tectonic geomorphology. There are 461 references, most of them within the past five years, so the book contains a robust foundation of new citations that will be particularly useful for students. The authors include nine developments that have driven rapid changes in tectonic geomorphology: new age-dating methods, process-oriented geomorphic studies, new insights into past climatic change, new geodetic tools (like GPS), paleoseismology methods (like trenching of active faults), new ability for physical characterization of faulting and folding, new digital topographic methods (like GPR), and accessibility to high-speed computing for numerical modeling of geomorphic processes.

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