Developments In Earth Surface Processes

#earth surface processes #geomorphology #landscape evolution #environmental change #geological developments

Explore the latest developments in earth surface processes, covering cutting-edge advancements in geomorphology and our understanding of landscape evolution. This vital field encompasses new research into how natural forces shape our planet, offering crucial insights into environmental change, natural hazards, and the dynamic interaction of geological systems.

Developments in earth surface processes

Geomorphological Mapping: a professional handbook of techniques and applications is a new book targeted at academics and practitioners who use, or wish to utilise, geomorphological mapping within their work. Synthesising for the first time an historical perspective to geomorphological mapping, field based and digital tools and techniques for mapping and an extensive array of case studies from academics and professionals active in the area. Those active in geomorphology, engineering geology, reinsurance, Environmental Impact Assessors, and allied areas, will find the text of immense value. Growth of interest in geomorphological mapping and currently no texts comprehensively cover this topic Extensive case studies that will appeal to professionals, academics and students (with extensive use of diagrams, potentially colour plates) Brings together material on digital mapping (GIS and remote sensing), cartography and data sources with a focus on modern technologies (including GIS, remote sensing and digital terrain analysis) Provides readers with summaries of current advances in methodological/technical aspects Accompanied by electronic resources for digital mapping

Geomorphological Mapping

Remote Sensing of Geomorphology, Volume 23, discusses the new range of remote-sensing techniques (lidar, structure from motion photogrammetry, advanced satellite platforms) that has led to a dramatic increase in terrain information, and as such provided new opportunities for a better understanding of surface morphology and related Earth surface processes. As several papers have been published (including paper reviews and special issues) on this topic, this book summarizes the major advances in remote sensing techniques for the analysis of Earth surface morphology and processes, also highlighting future challenges. Useful for MSc and PhD students, this book is also

ideal for any scientists that want to have a single volume guideline to help them develop new ideas. In addition, technicians and private and public sectors working on remote sensing will find the information useful to their initiatives. Provides a useful guideline for MSc and PhD students, scientists, technicians, and land planners on the use of remote sensing in geomorphology Includes applications on specific case studies that highlight issues and benefits of one technique compared to others Presents future trends in remote sensing and geomorphology

Remote Sensing of Geomorphology

The main objective of the book is to offer a vision of the dynamics of the main disasters in South America, describing their mechanisms and consequences on South American societies. The chapters are written by selected specialists of each country. Human-induced disasters are also included, such as desertification in Patagonia and soil erosion in Brazil. The receding of South-American glaciers as a response to recent climatic trends and sea-level scenarios are discussed. The approach is broad in analyzing causes and consequences and includes social and economic costs, discussing environmental and planning problems, but always describing the geomorphologic/geologic involved processes with a good scientific substantiation. This is important to differentiate the book from others of a more 'social' impact that discuss risks and disasters with emphases mainly on economy and simple impacts. Actual theme, interesting for a variety of professionals Fills in the scarcity of specialized literature in geosciences from South America The first book in the market exclusively devoted to geomorphology of disasters in South America

Developments in Earth Surface Processes Vol. 1 (1989)

This book addresses the evolution of the Alpine fold belt for the first time in the English language. It builds on classical Alpine geological studies made since the start of the 19th century by combining that research with modern results obtained over the past 50 years using new marine geological and geophysical technologies. The book thus provides an integrated overview of the evolution of the Alps from rift to passive margin to the present fold belt over a significant time span. * an integrated multidisciplinary synthesis of the evolution of the Alps from rift to passive margin to foldbelt. * 175 figures, structural maps and cross sections. * an index of localities referred to in the fext and figures. * a brief summary of the history and development of ideas concerning the evolution of fold belts and passive margins since the 19th century. * provides basis for further enquire and research * provides wider context relevant to marine and oil industry geoscientists.

Natural Hazards and Human-Exacerbated Disasters in Latin America

Kenya is a thriving country in East Africa: its economy is largely based on the natural environment that frames the tourism sector, mainly through safaris and holidays on the coast. The natural environment also underpins the second largest industry: agriculture. Kenya’s social, technological, and industrial developments are a reference for many neighboring countries. Kenya plays a leading role in Africa and attracts huge amounts of investments. Furthermore, the humanitarian community has made Nairobi its base for international headquarters and regional offices. This makes Kenya a possible model for development and investment in its widest sense. This book aims at updating the holistic view on Kenya’s natural environment and resources. It provides a sound scientific introduction to this country’s physical and socioeconomic setting and its evolution through time and will appeal to a broad audience of students – in Kenya and abroad – as well as those working in the development and humanitarian sectors and to international donors looking for a scientific compendium on Kenya’s environment. Its structure and references allow the reader to deepen his or her knowledge of every theme touched on in the book. Combines different aspects of physical geography, water and soil resources and their management strategies Written by a blend of international and national experts Includes specific case studies

The Western Alps, from Rift to Passive Margin to Orogenic Belt

During the past few decades climatic geomorphology has been substantially enlarged in knowledge, thanks to numerous detailed investigations, the application of a large number of techniques, and the acquisition of abundant absolute dates. The challenge of predicting the effects of the prophesied future global warming on morphogenetic processes and landforms has encouraged geomorphologists to study the Late Pleistocene and Holocene climatic changes from the geomorphological and geological record. The advances achieved in the field of climatic geomorphology during the past years are reflected

by the publication of several specific monographs about the different morphoclimatic zones. The aim of this book is to provide an up-to-date general view of this branch of geomorphology. It includes a chapter on applied geomorphology for each morphoclimatic zone providing an approximation of the main environmental problems. Geoscientists, geomorphologists

Kenya: A Natural Outlook

During geologic spans of time, Earth's shifting tectonic plates, atmosphere, freezing water, thawing ice, flowing rivers, and evolving life have shaped Earth's surface features. The resulting hills, mountains, valleys, and plains shelter ecosystems that interact with all life and provide a record of Earth surface processes that extend back through Earth's history. Despite rapidly growing scientific knowledge of Earth surface interactions, and the increasing availability of new monitoring technologies, there is still little understanding of how these processes generate and degrade landscapes. Landscapes on the Edge identifies nine grand challenges in this emerging field of study and proposes four high-priority research initiatives. The book poses questions about how our planet's past can tell us about its future, how landscapes record climate and tectonics, and how Earth surface science can contribute to developing a sustainable living surface for future generations.

Climatic Geomorphology

Earth Surface Processes is an introductory text for those studying the dynamics of fluid and sediment transport in the environments, in the context of both present-day patterns as well as the environmental changes decipherable in the geological record. The book is divided into two parts. The first deals with the global-scale aspects of the earth's surface system. The second part focuses on the physical underpinnings for fluid and sediment transport in a number of settings, found at the earth's surface and in its oceans. Earth Surface Processes fits into the literature of the broad holistic discipline of 'Earth System Science.' The author illustrates the physical principles of earth's surface processes and explains the relevant theories by quantitative practical exercises. The pioneering textbook on the "new sedimentology" One of the first textbooks to adopt the Earth Systems approach to geology, developed at Penn State and Stanford Should reinvigorate more traditional courses in physical sedimentology and dynamical sedimentology Successfully marries the innovative holistic approach to Earth Systems with the traditional reductionist approach to sedimentary processes Explains both the global-scale Earth Surface System and the fluid dynamics and sedimentary transport processes that underlie this Quantitative approach is reinforced with worked examples and solutions Richly illustrated with original diagrams and a colour plate section

Landscapes on the Edge

This textbook describes some of the most effective and straightforward quantitative techniques for modeling Earth surface processes. By emphasizing a core set of equations and solution techniques, the book presents state-of-the-art models currently employed in Earth surface process research, as well as a set of simple but practical research tools. Detailed case studies demonstrate application of the methods to a wide variety of processes including hillslope, fluvial, aeolian, glacial, tectonic, and climatic systems. Exercises at the end of each chapter begin with simple calculations and then progress to more sophisticated problems that require computer programming. All the necessary computer codes are available online at www.cambridge.org/9780521855976. Assuming some knowledge of calculus and basic programming experience, this quantitative textbook is designed for advanced geomorphology courses and as a reference book for professional researchers in Earth and planetary science looking for a quantitative approach to Earth surface processes.

Earth Surface Processes

Principles and Dynamics of the Critical Zone is an invaluable resource for undergraduate and graduate courses and an essential tool for researchers developing cutting-edge proposals. It provides a process-based description of the Critical Zone, a place that The National Research Council (2001) defines as the "heterogeneous, near surface environment in which complex interactions involving rock, soil, water, air, and living organisms regulate the natural habitat and determine the availability of life-sustaining resources." This text provides a summary of Critical Zone research and outcomes from the NSF funded Critical Zone Observatories, providing a process-based description of the Critical Zone in a wide range of environments with a specific focus on the important linkages that exist amongst the processes in each zone. This book will be useful to all scientists and students conducting research on

the Critical Zone within and outside the Critical Zone Observatory Network, as well as scientists and students in the geosciences – atmosphere, geomorphology, geology and pedology. The first text to address the principles and concepts of the Critical Zone A comprehensive approach to the processes responsible for the development and structure of the Critical Zone in a number of environments An essential tool for undergraduate and graduate students, and researchers developing cutting-edge proposals

Quantitative Modeling of Earth Surface Processes

For the past 200 years, geological scientists have used the present as a key to unlocking the past. This volume continues the tradition by exploring the processes of weathering and soil formation as indicators of the present environment of the Earth's land surface. Examined are the various ways in which this information can be used to interpret past environments which have produced the soils now preserved as paleosols. Because the surface environment of the earth may now be undergoing rapid change (the greenhouse effect), the book is a timely one for those researchers looking for evidence of analogous changes in the Earth's past. The work is divided into three major sections. The first deals with fundamental considerations of weathering, clay mineralogy and diagenesis. The second deals with the formation of soils from various starting materials and in various surficial environments. And the final section is an interpretation of paleosols. This volume provides valuable reading material for graduate and senior-undergraduate courses.

Principles and Dynamics of the Critical Zone

Geomorphology has now reached a certain level where the methodology, scientific content and results being published in the field make it worthy of being considered as a major environmental research area. In preparing Environmental Geomorphology, the author has given priority to methodology and illustrative case-histories. Schemes and classifications that would be ill-suited for a naturalistic, empirical and non-systematic discipline like geomorphology have been avoided. The concepts outlined in the text are based on a subdivision of geomorphological resources and hazards (as well as their links with man) together with the consequent risk and impact problems. Each investigation, study or intervention concerning the environment, cannot ignore either the human context in which it occurs or man's history and prospects. It is necessary to have the right dialogue and relationship with the other disciplines making up this system so as to apply the most suitable methodologies and offer the most valid solutions. For some subjects covered in the book, specialists concerned with a particular section of environmental geomorphology were consulted. The text of each chapter is accompanied by several illustrative schemes, figures and photographs, derived from real research and professional experiences. The volume is addressed both to university students studying topics of geomorphology as part of their syllabus, and to researchers and consultants (geologists, geographers, engineers, naturalists, etc.) working in the field.

Groundwater Geomorphology

"Given the sheer scale of the topic under consideration here, Professor Gregory does well to condense it into bite-size pieces for the reader. I recommend this text to all undergraduate students of physical geography and earth sciences, particularly to those in their first and second years... This book is a comprehensive and (crucially) inexpensive text that will provide students with a useful source on geomorphology." - Lynda York, The Geographical Journal "I would highly recommend this to anyone doing geology or geography at university as a 'go to' book for geomorphology and landform." - Sara Falcone, Teaching Earth Science "An excellent source of information for anyone who needs a well-informed, easy to use reference volume to introduce them to the fascinating complexities of the earth’s land surface, past, present and future." - Angela Gurnell, Queen Mary, University of London This introductory text details the land surface of the earth in a readable style covering the major issues, key themes and sensitivities of the environments/landscape. Emphasising the major ideas and their development, each chapter includes case studies and details of influential scientists (not necessarily geomorphologists) who have contributed to the progress of understanding. Providing a very clear explanation of the understanding achieved and of the debates that have arisen, the book is comprised of 12 chapters in four sections: Visualising the land surface explains and explores the composition of the land surface and outlines how it has been studied. Dynamics of the land surface considers the dynamics affecting the earth's land surface including its influences, processes and the changes that have occurred. Environments of the land surface looks to understand the land surface in major world

regions highlighting differences between the areas. Management of the land surface is an examination of the current and future prospects of the management of the earth's land surface. With pedagogical features including further reading, questions for discussion and a glossary, this original, lively text is authored by one of the leading experts in the field and will be core reading for first and second year undergraduates on all physical geography courses.

Earth Surface Processes

Discussions of "systems" and the "systems approach" tend to fall into one of two categories: the panegyrical and the disparaging. Scholars who praise the systems approach do so in the belief that it is a powerful and precise method of study. Scholars who try to shoot it down fail to see any advantage in it; indeed, many deem it perilicious. Van Dyne (1980, p. 889) records a facetious comment he once heard, the gist of which ran: "In instances where there are from one to two variables in a study you have a science, where there are from four to seven variables you have an art, and where there are more than seven variables you have a system". This tilt at the systems approach is mild indeed compared with the com ments of an anonymous reviewer of a paper by myself concerned with the systems approach as applied to the soil. The reviewer stated bluntly that he or she had no time for an approach which falsifies and belittles work that has been done and is of no use for future work. My summary of the paper opened with the seemingly innocuous sentence "The notion of the soil as a system is placed on a . formal footing by couching it in terms of dynamical systems theory".

Weathering, Soils & Paleosols

Co-published with British Society for Geomorphology This volume is the fifth in the definitive series, The History of the Study of Landforms or the Development of Geomorphology. Volume 1 (1964) dealt with contributions to the field up to 1890, Volume 2 (1973) with the concepts and contributions of William Morris Davis and Volume 3 (1991) covered historical and regional themes during the ‘classic’ period of geomorphology (1890–1950). Volume 4 (2008) concentrated on studies of geomorphological processes and Quaternary geomorphology between 1890 and 1965; by the end of this period, process-based studies had become dominant. Volume 5 builds on this platform, covering in detail the revolutionary changes in approach that characterized the study of geomorphology in the second half of the twentieth century. It is divided into three sections: the first deals with changes in approach and method; the second with changes in ideas and the broader scientific context within which geomorphology is studied; and the final section details advances in research on processes and landforms. The volume’s objective is to describe and analyse many of the developments that provide a foundation for the rich and varied subject matter of twenty-first century geomorphology.

Environmental Geomorphology

This book includes both basic material for students without a great deal of background in geology as well as more advanced topics. With coverage that reaches beyond the study of surface processes, it contains discussions on the evolution of landforms and interpretation of their origin. The Second Edition reflects the increasing relevance of geomorphology to environmental concerns and the additional emphasis this has placed on more applied aspects of the field. Also considered is the revolution of the discipline brought on by many rapidly-evolving tools, such as computers, sophisticated electronic measuring devices, lasers, mass spectrometers, new methods of dating landforms and deposits, and others.

The Earth's Land Surface

We live on a dynamic Earth shaped by both natural processes and the impacts of humans on their environment. It is in our collective interest to observe and understand our planet, and to predict future behavior to the extent possible, in order to effectively manage resources, successfully respond to threats from natural and human-induced environmental change, and capitalize on the opportunities â€" social, economic, security, and more â€" that such knowledge can bring. By continuously monitoring and exploring Earth, developing a deep understanding of its evolving behavior, and characterizing the processes that shape and reshape the environment in which we live, we not only advance knowledge and basic discovery about our planet, but we further develop the foundation upon which benefits to society are built. Thriving on Our Changing Planet presents prioritized science, applications, and observations, along with related strategic and programmatic guidance, to support the U.S. civil space Earth observation program over the coming decade.

Earth Surface Systems

Section 1. Geomorphological mapping -- section 2. Techniques in applied geomorphological mapping -- section 3. Case studies.

The History of the Study of Landforms or the Development of Geomorphology, Volume 5

This book on the current state of knowledge of submarine geomorphology aims to achieve the goals of the Submarine Geomorphology working group, set up in 2013, by establishing submarine geomorphology as a field of research, disseminating its concepts and techniques among earth scientists and professionals, and encouraging students to develop their skills and knowledge in this field. Editors have invited 30 experts from around the world to contribute chapters to this book, which is divided into 4 sections – (i) Introduction & history, (ii) Data & methods, (ii) Submarine landforms & processes and (iv) Conclusions & future directions. Each chapter provides a review of a topic, establishes the state-of-the-art, identifies the key research questions that need to be addressed, and delineates a strategy on how to achieve this. Submarine geomorphology is a priority for many research institutions, government authorities and industries globally. The book is useful for undergraduate and graduate students, and professionals with limited training in this field.

Surface Processes and Landforms

Lake Bonneville: A Scientific Update showcases new information and interpretations about this important lake in the North American Great Basin, presenting a relatively complete summary of the evolving scientific ideas about the Pleistocene lake. A comprehensive book on Lake Bonneville has not been published since the masterpiece of G.K. Gilbert in 1890. Because of Gilbert’s work, Lake Bonneville has been the starting point for many studies of Quaternary paleolakes in many places throughout the world. Numerous journal articles, and a few books on specialized topics related to Lake Bonneville, have been published since the late 1800s, but here the editors compile the important data and perspectives of the early 21st century into a book that will be an essential reference for future generations. Scientific research on Lake Bonneville is vibrant today and will continue into the future. Makes the widespread and detailed literature on this well-known Pleistocene body of water accessible Gives expositions of the many famous and iconic landforms and deposits Contains over 300 illustrations, most in full color Contains chapters on many important topics, including stratigraphy, sedimentology, hydrology, geomorphology, geochronology, isostasy, geophysics, geochemistry, vegetation history, pollen, fishes, mammals, mountain glaciation, prehistoric humans, paleoclimate, remote sensing, and geoantiquities in the Bonneville basin

Earth Surface Processes, Landforms and Sediment Deposits

This extensively revised, restructured, and updated edition continues to present an engaging and comprehensive introduction to the subject, exploring the world’s landforms from a broad systems perspective. It covers the basics of Earth surface forms and processes, while reflecting on the latest developments in the field. Fundamentals of Geomorphology begins with a consideration of the nature of geomorphology, process and form, history, and geomorphic systems, and moves on to discuss: structure: structural landforms associated with plate tectonics and those associated with volcanoes, impact craters, and folds, faults, and joints process and form: landforms resulting from, or influenced by, the exogenic agencies of weathering, running water, flowing ice and meltwater, ground ice and frost,

the wind, and the sea; landforms developed on limestone; and landscape evolution, a discussion of ancient landforms, including palaeosurfaces, stagnant landscape features, and evolutionary aspects of landscape change. This third edition has been fully updated to include a clearer initial explanation of the nature of geomorphology, of land surface process and form, and of land-surface change over different timescales. The text has been restructured to incorporate information on geomorphic materials and processes at more suitable points in the book. Finally, historical geomorphology has been integrated throughout the text to reflect the importance of history in all aspects of geomorphology. Fundamentals of Geomorphology provides a stimulating and innovative perspective on the key topics and debates within the field of geomorphology. Written in an accessible and lively manner, it includes guides to further reading, chapter summaries, and an extensive glossary of key terms. The book is also illustrated throughout with over 200 informative diagrams and attractive photographs, all in colour.

Thriving on Our Changing Planet

Introduction to Process Geomorphology provides an integrative approach to the process dynamics and the origin of landforms by the contemporary processes involved in their evolution. The author highlights the physical and chemical laws governing the activity of the earth-surface processes in specific environmental stress conditions, puts forward com

Geomorphological Mapping

From the oceans to continental heartlands, human activities have altered the physical characteristics of Earth's surface. With Earth's population projected to peak at 8 to 12 billion people by 2050 and the additional stress of climate change, it is more important than ever to understand how and where these changes are happening. Innovation in the geographical sciences has the potential to advance knowledge of place-based environmental change, sustainability, and the impacts of a rapidly changing economy and society. Understanding the Changing Planet outlines eleven strategic directions to focus research and leverage new technologies to harness the potential that the geographical sciences offer.

Submarine Geomorphology

Rocky landforms dominate large portions of the world’s coast. Cliffs and shore platforms form spectacular landscapes, yet when compared to other landforms they are relatively unstudied with many contemporary controversies dating back to the mid-nineteenth century. The past decade has seen a reinvigoration of research driven by advances in technology that now enable precise measurements of erosion to the micron scale and quantification of wave energy onto and through cliff edifices to be made, as well as being able to directly date rock surfaces. In order to integrate this diverse range of research this volume’s regional approach first integrates the latest data with longstanding theory and then analyses this research through the boundary conditions that exist in each area. The volume brings together the research leaders in the field; includes chapters on nearly all the major rock coasts of the world and identifies future research needs.

Lake Bonneville: A Scientific Update

A modern, quantitative, process-oriented approach to geomorphology and the role of Earth surface processes in shaping landforms, starting from basic principles.

Fundamentals of Geomorphology

Geomorphological Fieldwork addresses a topic that always remains popular within the geosciences and environmental science. More specifically, the volume conveys a growing legacy of field-based learning for young geomorphologists that can be used as a student book for field-based university courses and postgraduate research requiring fieldwork or field schools. The editors have much experience of field-based learning within geomorphology and extend this to physical geography. The topics covered are relevant to basic geomorphology as well as applied approaches in environmental and cultural geomorphology. The book integrates a physical-human approach to geography, but focuses on physical geography and geomorphology from an integrated field-based geoscience perspective. Addresses fluvial and karst landscapes in depth Focuses on field-based learning as well as educational geomorphology Conveys experiential knowledge in international contexts

Introduction to Process Geomorphology

This book presents the study of limnogeomorphology, in which past proxy data such as lacustrine sediments with information on landform development can be linked to modern observed data acquired by instruments, including hydro-geomorphological and sedimentary data. Traditionally, in the field of earth sciences, it has been thought that geophysical studies dealing mainly with the present process were not smoothly linked to geological studies that originated from historical studies. Although such earth-surface process studies are closely related to those on historical landform development in the field of geomorphology, they have been studied separately. Those two geomorphology studies correspond to process geomorphology (dynamic geomorphology) and historical geomorphology. There have been some attempts to combine them; however, they lacked past quantitative records available for further analyses. In the study of limnogeomorphology, proxy data can be converted to quantitative information to be utilized in future environmental discussions. This book also covers information not only on large lake-catchment systems, but on small systems. Those include long-term and short-term and large-scale and small-scale environmental changes in east Eurasia such as Lake Baikal, Lake Khuvsgul, Lake Biwa, and small lakes in Japan, Mongolia, China, and Korea.

Understanding the Changing Planet

"I can think of no better guides than Professors Ken Gregory and John Lewin to lead the reader through the conceptual basis of this exciting science." - Victor R. Baker, University of Arizona "A very readable and informative introduction to the discipline for senior undergraduates, postgraduates and researchers." - Angela Gurnell, Queen Mary University of London "Time will tell, but this book may well mark a turning point in the way students and scientists alike perceive Earth surface processes and landforms." - Jonathan Phillips, University of Kentucky This student focused book provides a detailed description and analysis of the key concepts, ideas, and hypotheses that inform geomorphology. Kenneth Gregory and John Lewin explain the basics of landform science in 20 concepts, each the subject of a substantive, cross-referenced entry. They use the idea of the 2geomorphic system2 to organise entries in four sections, with extensive web resources provided for each: System Contexts: The Systems Approach / Uniformitarianism / Landform / Form, Process and Materials / Equilibrium / Complexity and Non Linear Dynamical Systems System Functioning: Cycles and cascades / Force-Resistance / Geomorphic work / Process Form Models System Adjustments: Timescales / Forcings / Change Trajectories / Inheritance and Sensitivity / Anthropocene Drivers for the Future: Geomorphic Hazards / Geomorphic Engineering / Design and Prediction Aligned with the teaching literature, this innovative text provides a fully-functioning learning environment for study, revision, and even self-directed research for both undergraduate and postgraduate students of geomorphology.

Rock Coast Geomorphology

After the discovery that elements were commonly composed of isotopes, there developed a range of studies of the variability of isotopic compositions in Earth materials, which was able to add to our understanding of Earth processes and history. This collection of chapters from the Treatise on Geochemistry describes the range of isotopic studies. The chapters are grouped into the following categories: light stable isotopes, radiogenic tracers, noble gases and radioactive tracers. The first three groups depend on mass spectrometric measurements. The section on radioactive tracers employs both radioactive counting techniques and the newly developed accelerator mass spectrometric techniques. Comprehensive, interdisciplinary and authoritative content selected by leading subject experts Robust illustrations, figures and tables Affordably priced sampling of content from the full Treatise on Geochemistry

Geomorphology

The Geomorphological Hazards of Europe contains an excellent balance of authoritative statements on the range and causes of natural hazards in Europe. Written in a clear and unpretentious style, it removes myths and concentrates on the basic facts. The book looks at the known distributions, processes and the underlying principles and focuses on the need for a true understanding of the scientific details so that a real contribution to hazard management can be made. A comprehensive treatment of scientific and management issues of hazards in Europe caused by natural or sometimes human induced earth surface processes are covered including floods, landslides, avalanches, glacier-, coastal-, karstic-, and volcanic hazards, soil erosion and subsidence. Leading researchers in the field of natural hazards and their mitigation have contributed to this nation by nation account covering 20 European countries. The individual chapters deal with the distribution of natural hazards within specific countries (quite

often the first synthesis of the information available) and • provide a review of current research in the field • discuss the economic, engineering and policy responses in national hazard management • are complemented by an extensive bibliography. The volume is well illustrated with 207 figures of which 66 are photos and has an extensive general index and a complete index of place names. It is a major European contribution to the International Decade for Natural Disasters Reduction. The book will appeal to practitioners, managers, academicians, researchers, as well as graduate students in geomorphlogy, natural hazards research and environmental management.

Geomorphological Fieldwork

The only work to date to collect data gathered during the American and Soviet missions in an accessible and complete reference of current scientific and technical information about the Moon.

Geomorphology of Lake-Catchment Systems

Grounded in current research, this second edition has been thoroughly updated, featuring new topics, global examples and online material. Written for students studying coastal geomorphology, this is the complete guide to the processes at work on our coastlines and the features we see in coastal systems across the world.

The Basics of Geomorphology

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Isotope Geochemistry

Land Surface Remote Sensing: Environment and Risks explores the use of remote sensing in applications concerning the environment, including desertification and monitoring deforestation and forest fires. The first chapter covers the characterization of aerosols and gases by passive remote sensing. The next chapter presents the correlation of optical images for quantifying the deformation of the Earth's surface and geomorphological processes. The third chapter is examines remote sensing applications in the mining environment. The fourth chapter depicts the strong potential of radar imagery for volcanology and urban and mining subsidence studies. The next two chapters deal respectively with the use of remote sensing in locust control and the contribution of remote sensing to the epidemiology of infectious diseases. In the last ten years, spatial observation of the Earth—particularly continental surfaces—has expanded considerably with the launch of increasing numbers of satellites covering various applications (hydrology, biosphere, flow of surface, snow, ice, landslide, floods). This has paved the way for an explosion in the use of remote sensing data. This book offers essential coverage of space-based observation techniques for continental surfaces. The authors explore major applications

and provide a corresponding detailed chapter for the physical principles, physics of measurement, and data processing requirements for each technique, bringing you up-to-date descriptions of techniques used by leading scientists in the field of remote sensing and Earth observation. Provides clear and concise descriptions of modern remote sensing methods Explores the most current remote sensing techniques with physical aspects of the measurement (theory) and their applications Provides chapters on physical principles, measurement, and data processing for each technique described Describes optical remote sensing technology, including a description of acquisition systems and measurement corrections to be made

Geomorphological Hazards of Europe

Lunar Sourcebook