Soils Genesis And Geomorphology

This book presents a comprehensive and up-to-date overview on soils of Taiwan. It includes sections on soil research history, climate, geology, geomorphology, major soil types, soil maps, soil properties, soil classification, soil fertility, land use and vegetation, soil management, soils and humans, soils and industry, future soil issues. The book summarizes what is known about the soils in Taiwan in a concise and highly reader-friendly way.

Forest soils form the foundation that underpins the existence of all forests. This book encapsulates soil ecology and functioning in northern forests, focusing on the effects of human activity and climate change. The authors introduce the fundamental principles necessary for studying forest soils, and explain the functioning and mutual influence of all parts of a forest soil ecosystem. A chapter is dedicated to each of soil acidity and heavy metal pollution, elevated carbon dioxide, nitrogen deposition and climate change, highlighting the most important anthropogenic factors influencing forest soil functioning and how these soils are likely to respond to environmental change. With its unique view of the functioning of the soils found under temperate and boreal forests in today's rapidly changing world, this book is of interest to anyone studying forestry and forest ecology in European, North American and North Asian contexts.

Pedogenesis and Soil Taxonomy: Concepts and Interactions

Since 1980, our understanding of the factors and processes governing the distribution of soils on the Earth’s surface has increased dramatically, as have the techniques for studying soil patterns. The approach used in this book relies on the National Resources Conservation Service databases to delineate the distribution of each of the eight diagnostic epipedons and 19 subsurface horizons, to identify the taxonomic level at which each of these horizons is used, to develop an understanding of the role of the factors and processes in their formation and to summarize our latest understanding of their genesis. A chapter is devoted to each diagnostic horizon (or combined horizons). This book is intended to serve as a textbook in soil geography, a reference book for geographers, ecologists and geologists and a tool for soil instructors, landlookers, mappers, classifiers and information technologists.

Soils of South Africa is the first book in seventy years that provides a comprehensive account of South African soils. The book arranges more than seventy soil forms into fourteen groups and then provides, for each group: • maps showing their distribution and abundance throughout South Africa • descriptions of morphological, chemical and physical properties • a detailed account of classification and its correlation with international systems • a discussion of soil genesis which includes a review of relevant research papers • appraisal of soil quality from a land use perspective as well as for its ecological significance • illustrative examples of soil profiles with analytical data and accompanying interpretations. There is also a fascinating account of the special relationship that exists between South African animals and soil environments. Soils of South Africa should interest students and researchers in the earth, environmental and biological sciences, as well as environmental practitioners, farmers, foresters and civil engineers.

This profusely illustrated book gives an exhaustive account of the principal types of soils of our planet. The "progressive descent of weathering fronts" model, recognized and used by eminent international scientists is the guiding principle of choice to link the observations and to give the reader a synthetic and coherent view of the differentiati

This book provides an overview of the distribution, properties, and function of soils in Japan. First, it offers general descriptions of the country’s climate, geology, geomorphology, and land use, the history of the Japanese soil classification system and characteristics and genesis of major soil types follow. For each region – a geographic/administrative region of the country – there is a chapter with details of current land use as well as properties and management

challenges of major soils. Maps of soil distribution, pedon descriptions, profile images, and tables of properties are included throughout the text and appendices.

The Soils of Bulgaria offers a comprehensive analysis of the characteristics of soils and concepts on their magnitude. The purpose of the book is to introduce readers to the soil problematic and ecology in Bulgaria. The volume is divided into 3 parts. The first includes historical facts on soil research in Bulgaria, as well as general conditions and factors of soil formation, while the second applies an original pedological approach. The book's third part focuses on essential information concerning land use/cover in Bulgaria. Each of the 13 chapters deals more specifically with fundamental chemical and physical soil properties, concepts of soil evolution, old and modern processes, geographic distribution, climatic conditions, topography, parent materials, plant associations, morphology and the relationship with different classification systems. The interactions between soil status and management are also highlighted. The use of the latest, statistically significant data ensures precise conclusions. The book also includes a large number of charts and new illustrations. The Soils of Bulgaria is crucial reading material for anyone interested in soil management and agriculture in Easter Europe, from students to policy makers and is also of particular interest for researchers in the field.

This book was born as an international tribute to Fiorenzo C. Ugolini, an outstanding soil scientist, now retired from university teaching and research. It is a synthesis of the knowledge of soils, their genesis, functions and management, and includes contributions from leading soil scientists. It provides the basic concepts as well as data and practical examples from across the discipline. The book also discusses the increasingly important role of soils in enabling the preservation of life and contains a rare attempt to cross-harmonize the Soil Groups of the World Reference Base of Soil Resources with the Orders of the Soil Taxonomy. It also considers the possible existence of extraterrestrial soils based on the findings from the last space missions. This volume will be a valuable resource for researchers and students of soil science, soil conservation, geography and landscape ecology.

This book, first published in 1984, has both a geomorphic and a hydrologic message. It examines and analyses the role of groundwater in landscapes in a series of articles by authors of diverse backgrounds and experience.

"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 'geomorphic system' 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.

The Encyclopedia of Soil Science provides a comprehensive, alphabetical treatment of basic

soil science in a single volume. It constitutes a wide ranging and authorative collection of some 160 academic articles covering the salient aspects of soil physics, chemistry, biology, fertility, technology, genesis, morphology, classification and geomorphology. With increased usage of soil for world food production, building materials, and waste repositories, demand has grown for a better global understanding of soil and its processes. longer articles by leading authorities from around the world are supplemented by some 430 definitions of common terms in soil sciences.

This book offers a proven approach for reliable mapping of soil-landscape relationships to derive information for policy, planning and management at scales ranging from local to regional. It presents the theoretical and conceptual framework of the geopedologic approach and a bulk of applied research showing its application and benefits for knowledge generation relevant to geohazard studies, land use conflict analysis, land use planning, land degradation assessment, and land suitability analysis. Soil is a vital resource for society at large and an important determinant of the economic status of nations. The intensification of natural disasters and the increased land use competition for food and energy have raised awareness of the relevant role the pedosphere plays in natural and anthropogenic environments. Recent papers and global initiatives show a renewed interest in soil research and its applications for improved planning and management of this fragile and finite resource.

Morphology of soils; Soil micromorphology; Soil composition and characterization; Weathering and soil formation; Pedogenic processes: internal, soil-building processes; Soil environment: External factors of soil formation; Parent material: initial material of the solum; Relief and landscape factors of the soil and its environment; Contributions of climate to the total soil environment; Organisms: biological portion of the soil and its environment; Time as a factor of soil formation; Principles and historical development of soil classification; Modern soil classification systems; Entisols:recently formed soils: Vertisols: shrinking and swelling dark clay soils; In ceptisols: emleryonic soils with few diagnostic features; Aridisols: soils of arid regions; Mollisols: grassland soils of steppes and prairies; Spodosols: soils with subsoil, accumulations of sesquioxide and humus; Alfisols:high base status soils; Ultisols: low base status forest soils: Oxisols: sesquioxide - rihch, highly weathered soils of the intertropical regions; Histosols: organic soils.

Highlighting the vast differences in tropical climate, from hot and humid to cool and arctic, Soils in the Humid Tropics and Monsoon Region of Indonesia explores the climate, soil zones, and altitudinal variation in soil formation. The author explores the changes in geomorphology, especially in climate and vegetation above sea level, that have yielded zones of different soils. The book makes accessible hard-to-find information translated from Dutch archives. Informally divided into two parts, it begins with coverage of the development of soil science in Indonesia. The author reviews the geography and geomorphology of the archipelago, climate, vegetation, and mineralization and humification processes as factors of soil formation. The second part examines the major soils, their genesis, properties, taxonomy, land use, and evaluation. The discussion moves from lowlands, to uplands, then mountains, and concludes with andosols found in the mountains as well as in the lowlands. Focused and timely, this book knits new knowledge with old but important information that has been previously difficult to access. These features and more make it an important resource in this field.

This state-of-the-art volume reviews both past work and current research, with contributions from internationally recognized experts. The book is organized into fourteen chapters and designed to embrace the full range of terrestrial geochemical sediments. An up-to-date and comprehensive survey of research in the field of geochemical sediments and landscapes Discusses the main duricrusts, including calcrete, laterite and silcrete Considers deposits precipitated in various springs, lakes, caves and near-coastal environments Considers the range of techniques used in the analysis of geochemical sediments, representing a significant

advance on previous texts

This book presents a comprehensive and up-to-date overview on soils of Greece. It includes sections on soil research history, climate, geology, geomorphology, major soil types, soil maps, soil properties, soil classification, soil fertility, land use and vegetation, soil management, soils and humans, soils and industry, future soil issues. The book summarizes what is known about the soils in Greece in a concise and highly reader-friendly way.

A pioneering study that encompasses both field and laboratory research, this text explores the landscapes of mountains, rivers, and seacoasts. Topics include weathering, climate, and erosion. New Foreword. 1964 edition.

There are features on the earth's surface that science cannot explain with theories of changes over millions or even billions of years by the geographic processes that we see occurring commonly today. However, when you explore the evidence from a biblical worldview, the geological features marking the planet's surface make sense given the worldview catastrophic flood described in the book of Genesis. Join author Mike Oard as he explores what is termed as "the retreating stage of the flood" - the seven month-period when the waters receded and the landscapes which are familiar to us were formed by a myriad of processes like uplifts and sinking, erosion, and more, which answer important questions regarding: Unusual dispersals of rocks over hundred of miles How quickly mountains and valleys were carved Emergence of continents and the formation of ocean basins Percussions marks shaped by vast and violently moving water Why very gradual erosion and deposits of soil cannot explain surface formations The study of geomorphology and what it can reveal Flood by Design takes you into a fascinating aspect of the Genesis flood you may never have considered. Examine unusual rock formations and evidence that only the biblical flood model can fully explain. Filled with many photographs and easy-to-understand illustrations and charts, the books is a powerful source of research and answers for high school students and beyond.

Integrates geoscience and ecology, focusing on connections in ecological, geospheric, hydrospheric and atmospheric processes in ecosystems.

Soils: Genesis and Geomorphology is a comprehensive and accessible textbook on all aspects of soils. The book's introductory chapters on soil morphology, physics, mineralogy and organisms prepare the reader for the more advanced and thorough treatment that follows. Theory and processes of soil genesis and geomorphology form the backbone of the book, rather than the emphasis on soil classification that permeates other less imaginative soils textbooks. This refreshingly readable text takes a truly global perspective, with many examples from around the world sprinkled throughout. Replete with hundreds of high quality figures and a large glossary, this book will be invaluable for anyone studying soils, landforms and landscape change. Soils: Genesis and Geomorphology is an ideal textbook for mid- to upper-level undergraduate and graduate level courses in soils, pedology and geomorphology. It will also be an invaluable reference text for researchers.

This book presents a comprehensive and up-to-date overview of the soils of Sri Lanka. Including sections on the soil research history, climate, geology, geomorphology, major soil types, soil maps, soil properties, soil classification, soil fertility, land use and vegetation, soil management, soils and humans, soils and industry, and future soil issues, the book summarizes the current state of knowledge in a concise and highly reader-friendly way.

Soils and Geomorphology, now in its third edition, remains popular among soil scientists, geomorphologists, geologists, geographers, and archaeologists. While retaining the useful "factors of soil formation format," it has been extensively revised, incorporating a considerable amount of new research and offering a

greater number of topics and examples -- particularly in the chapters "Weathering and Soil Development with Time" and "Topography: Soil Relations with Time in Different Climatic Settings." Greater emphasis is placed on the role of dust in pedogenesis, and new data are included on tropical soil development, global soil-loess relations, neotectonics, and reduction processes. The text discusses field applications such as the use of soils in recognizing climate change, estimating the age of geological deposits, and dealing with environmental problems such as acid rain. New "how-to" appendices on soil descriptions and calculating the profile development index are also included. Soils and Geomorphology is an ideal text for advanced undergraduate and graduate students in courses on pedology, soil science, Quaternary geology, archeology, and sedimentary petrology.

Masterpiece offers a detailed discussion of the nature of the earth's terrestrial environment, and a method of subdividing and studying it. 1941 edition.

This book is a discussion of the study of soils as a component of earth science applications in archaeology, a subdiscipline known as geoarchaeology. The volume focuses on how the study of soils can be integrated with other aspects of archaeological and geoscientific research to answer questions regarding the past. Anyone who needs to know how soils can be used to help answer archaeological questions will be interested in this work.

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.

Covering wetlands soils from Florida to Alaska, Wetland Soils: Genesis, Hydrology, Landscapes, and Classification provides information on all types of hydric soils. With contributions from soil scientists who have extensive field experience, the book focuses on the soil morphology of the wet soils that cover most wetlands from the subtropics northw

SoilsGenesis and GeomorphologyCambridge University Press

This book presents a comprehensive overview of the soils of Bangladesh. It is compiled by authors with vast experience in soil related problems and potential mitigation approaches. It discusses the development of Soil Science as an individual discipline in a country with limited resources and where soil plays a pivotal role for the economy; the formation of different agro-climatic regions; and the effects of human-induced soil degradation and climatic change on its soils, geology and geomorphology and major soil types. It examines 'problem soils' and how they are managed, the scenario of soil fertility status, and land and crop management, as well as focusing on the future soils. Topics covered include: the history of soil research in Bangladesh; agro-climatic regions of Bangladesh; soil and climatic change, major soil types; soil maps; soil properties; soil classification; soil fertility; land use and vegetation; land use changes; human-induced soil degradation; soil contaminants; and future soil issues. This book will be a valuable resource for researchers and soil science professionals.

This book provides an overview of the distribution, properties, and function of soils in the U.S., including Alaska, Hawaii, and its Caribbean territories. It discusses the history of soil surveys and pedological research in the U.S., and offers general descriptions of the country’s climate, geology and geomorphology. For each Land Resource Region (LRR) – a geographic/ecological region of the country characterized by its own climate, geology, landscapes, soils, and agricultural practices – there is a chapter with details of the climate, geology, geomorphology, pre-settlement and current vegetation, and land use, as well as the distribution and properties of major soils including their genesis, classification, and management challenges. The final chapters address topics such as soils and humans, and the future challenges for soil science and soil surveys in the U.S. Maps of soil distribution, pedon descriptions, profile images, and tables of properties are included throughout the text.

Interpretation of Micromorphological Features of Soils and Regolith, 2nd edition, provides researchers and students with a global tool for interpretation of micromorphological features of regoliths and soils. After an introduction and general overview by the editors, micromorphological aspects of regoliths (e.g. saprolites, unconsolidated sediments, transported materials) are highlighted, followed by a systematic and coherent discussion of the micromorphological expression of various pedogenic processes. This is done by discussing diagnostic horizons, materials and processes. The following topics are also treated: freeze-thaw features, redoximorphic features, calcareous and gypsiferous formations, textural features, spodic and oxic horizons, andic and volcanic materials, organic and surface horizons, laterites, surface crusts, salts, biogenic and inorganic siliceous materials, authigenic silicates, phosphates, thionic and derived materials, and features related to faunal activity. The

last chapters address the impact of anthropic activities, with regard to archaeology and palaeopedology. Interpretation of Micromorphological Features of Soils and Regolith, 2nd edition, is written by a team of well-known, global experts in the field who all used a single set of concepts and terminology, making it a valuable interdisciplinary reference. The first exhaustive publication on interpretation of micromorphological features Covers related topics, making micromorphology more attractive and accessible for geographers, archaeologists and quaternary geologists Thematic treatment of a range of soil micromorphology fields broadens the content's applications Authored by a multi-disciplinary team, ensuring thorough coverage of archaeological, geological, and earth science disciplines

In its first edition, Soils established itself as the leading textbook in the fields of pedology and soil geomorphology. Expanded and fully updated, this second edition maintains its highly organized and readable style. Suitable as a textbook and a research-grade reference, the book's introductory chapters in soil morphology, mineralogy, chemistry, physics and organisms prepare the reader for the more advanced treatment that follows. Unlike its competitors, this textbook devotes considerable space to discussions of soil parent materials and soil mixing, along with dating and paleoenvironmental reconstruction techniques applicable to soils. Although introductions to widely used soil classification systems are included, theory and processes of soil genesis and geomorphology form the backbone of the book. Replete with more than 550 high-quality figures and photos and a detailed glossary, this book will be invaluable for anyone studying soils, landforms and landscape change anywhere on the globe.

In this new volume in the World Soil series, the various types of Icelandic soils, their different characteristics, their formation, degradation and erosion are reviewed. At the same time, the book also deals with the agriculture and land use in general to give a complete view of Icelandic soils. The first part details the natural parameters such as the climate and the geography of Iceland. It also explains Icelandic geology, which is the major parameter controlling the soil formation in this country. The author describes the formation of Iceland, the main volcanic systems, central volcanoes, tephra production and its influence on the soils. Explanations on rocks, glaciers, rivers and other main geologic features are also given. The book continues with a description of the Icelandic geomorphology, giving insights on the main surface types, frost, cryoturbation and other cryogenic features. Then it details the different types of soils, their formation and main features, comparing the Icelandic soils to other soils elsewhere in the world. Erosion and land degradation are then reviewed, including the exceptionally active wind erosion and dust production. Finally, it gives an insight on land use, agriculture and vegetation types. All this accompanied by the most amazing photos to illustrate the great diversity of Icelandic Soil.

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