D. W. Brown, D. V. Duchane, G. Heiken, V. T. Hriscu, Los Alamos, NM, USA

**Mining the Earth’s Heat: Hot Dry Rock Geothermal Energy**

Mining the Earth’s Heat: Hot Dry Rock Geothermal Energy describes the work carried out by the Los Alamos National Laboratory to turn an idealistic concept - that of drawing useful amounts of energy from the vast underground store of hot rock at reachable depths - into a practical reality. This book provides comprehensive documentation of the over two decades of experiments carried out at the test site at Fenton Hill, New Mexico, where the feasibility of accessing and extracting this vast natural resource was finally demonstrated. It also discusses the numerous technical, administrative, and financial hurdles that had to be overcome along the way.

**Features**
- The book preserves the data of the Hot Dry Rock project of the last 25 years
- The material is presented in a format easily grasped by any engineer, scientist, or educated layman
- Proven technology’s first move towards commercial viability

**Contents**

**PART I: Hot Dry Rock Geothermal Energy: History and Potential of the Newest and Largest Renewable Energy Resource**
- Concept: Development of the Phase I Reservoir at Fenton Hill
- PART II: Engineering the HDR System: Development and Testing of the Phase II Reservoir at Fenton Hill
- PART IV: Future Outlook for Hot Dry Rock

**Fields of Interest**
Geology

**Target Groups**
Research

**Discount Group**
Professional Non-Medical

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J. A. Goodman, HySpeed Computing, Miami, FL, USA; S. J. Purkis, Nova Southeastern University, Dania Beach, FL, USA; S. R. Phinn, University of Queensland, Brisbane, QLD, Australia (Eds)

**Coral Reef Remote Sensing**

A Guide for Mapping, Monitoring and Management

**Features**
- First book to exclusively focus on techniques for remote sensing of coral reefs
- Provides an integrated multi-level approach to the coral reef remote sensing problem
- Combines introductory overviews with application-specific examples
- Links image data collection to delivery of validated information
- Provides an overview of reef remote sensing for science and management

**Contents**

**Section I - Essential Field Knowledge**
- Reef Details for Calibration and Validation
- Site Selection and Spatial Scaling
- Habitat Composition and Class Selection
- Multispectral and Hyperspectral
- Multispectral and Hyperspectral Overview
- Multispectral Application
- Hyperspectral Inversion Model
- LiDAR Overview
- Habitat Metrics Derived from LiDAR Bathymetry
- Integrated LiDAR and Hyperspectral
- Vegetation Overview
- Acoustic Overview
- Habitat Metrics Derived from Acoustics
- Integrated Acoustics and Optics
- Vegetation Overview
- Acoustic Overview
- Habitat Metrics Derived from Acoustics
- Integrated Acoustics and Optics
- Vegetation Overview
- Acoustic Overview
- Habitat Metrics Derived from Acoustics
- Integrated Acoustics and Optics
- Vegetation Overview
- Acoustic Overview
- Habitat Metrics Derived from Acoustics
- Integrated Acoustics and Optics

**Fields of Interest**
Remote Sensing/Photogrammetry; Monitoring/Environmental Analysis; Climate Change

**Target Groups**
Research

**Discount Group**
Professional Non-Medical
Coastal Karst Landforms

Features
- Offers an integrated view of karst processes in various coastal landforms
- Includes cutting-edge coastal research from leaders in the field
- Examples from a broad range of island and continental shoreline settings

Contents

Ecorestoration of the coalmine degraded lands

Contents

Fields of interests
Environmental Science and Engineering; Landscape Ecology; Fossil Fuels (incl. Carbon Capture)

Target groups
Professional/practitioner

Discount group
Professional Non-Medical

Due November 2012

2013. X, 280 p. 125 illus. (Coastal Research Library, Volume 5) Hardcover
- $129.00
ISBN 978-94-007-5015-9

Reading the Archive of Earth's Oxygenation

Volume 3: Global Events and the Fennoscandian Arctic Russia - Drilling Early Earth Project

Earth’s present-day environments are the outcome of a 4.5 billion year period of evolution reflecting the interaction of global-scale geological and biological processes.

Features
- Establishment of a well-characterized, well-dated and well-archived succession of rocks for the period of 2500-2000 Ma
- Documentation of the changes in the biosphere and the geosphere associated with the rise in atmospheric oxygen
- Development of a self-consistent model to explain the genesis and timing of the establishment of the aerobic Earth System

Contents

Fields of interests
Geology; Climate Change; Earth System Sciences

Target groups
Research

Discount group
Professional Non-Medical

Due August 2012

2013. XXII, 510 p. 189 illus., 177 in color. (Frontiers in Earth Sciences) Hardcover
- $229.00
ISBN 978-3-642-29669-7

Due November 2012

2013. Approx. 300 p. 99 illus., 42 in color. Hardcover
- approx. $179.00
ISBN 978-81-322-0850-1

S. K. Maiti, Indian School of Mines, Dhanbad, India

V. A. Melezhik, University of Bergen, Trondheim, Norway; A. R. Prave, University of St Andrews, Fife, UK; A. E. Fallick, Scottish Universities, East Kilbride, UK; L. R. Kump, Pennsylvania State University, PA, USA; H. Strauss, Westfälische Wilhelms-Universität, Münster, Germany; A. Lepland, Geological Survey of Norway, Trondheim, Norway; E. J. Hanski, University of Oulu, Finland (Eds)
**Earth Sciences**

M. Ramkumar, Periyar University, Salem, TN, India (Ed)

**On a Sustainable Future of Earth’s Natural Resources**

It is divided into three sections with individual chapters contributed by experts on different facets of earth sciences, natural resources, management and related issues. The first section focuses on the status of Earth’s resources; land, water, biota and atmosphere. Reviews on rate of exploitation and the need to conserve these resources for future sustenance are also covered in this section. The following section includes chapters elucidating environmental, ecological, climatological and anthropological pressures over the nourishment of earth resources. The last section describes management practices, issues and perspectives on sociological, legal, administrative, ICT and strategic efforts that need to be implemented for the sustenance of earth resources. This book covers a broad spectrum of earth resources and sustenance giving a comprehensive perspective on past, present and future of earth’s resources.

**Features**
- Suitable for a broad readership, from popular science to graduate research
- Discusses comprehensively a sustainable future of Earth’s natural resources
- Written by an experts in this field

**Contents**
Future perspectives in Earth Science.
- Geosphere.
- Hydrosphere.
- Biosphere.
- Energy.
- Palaeoenvironment.
- Environmental Issues and Sustenance.
- Novel methods addressing sustenance and conservation.

**Fields of interests**
Earth System Sciences; Climate Change; Mineral Resources

**Target groups**
Research

**Discount group**
Professional Non-Medical

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C. Russell, University of California, Los Angeles, CA, USA; C. Raymond, California Institute of Technology, Pasadena, CA, USA (Eds)

**The Dawn Mission to Minor Planets 4 Vesta and 1 Ceres**

Dawn is the first mission to orbit a main belt asteroid and the first scientific mission to use ion propulsion. Major objectives of this mission include mapping of the surfaces of 4 Vesta and 1 Ceres, determining its topography from stereo measurements, determining its mineralogy, measuring its elemental composition and obtaining gravity data.

**Features**
- The only book that presents data and information from Dawn, the first mission to orbit a main belt asteroid
- Details the mapping of the surfaces of 4 Vesta and 1 Ceres, as well as data on its mineralogy and elemental compositions
- Describes the instruments that were used on the mission and the way it relates to the study of asteroids and solar system evolution

**Contents**
From the Contents: The Dawn Mission to Vesta and Ceres.
- Vesta and Ceres: Crossing the History of the Solar System.
- The Origin and Evolution of the Asteroid Belt—Implications for Vesta and Ceres.
- Vesta and Ceres: Crossing the History of asteroids and solar system evolution

**Fields of interests**
Planetology; Extraterrestrial Physics; Space Sciences; Geophysics/Geodesy

**Target groups**
Research

**Discount group**
Professional Non-Medical

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Due December 2012

2013. 540 p. 135 illus., 35 in color. (Springer Earth System Sciences) Hardcover
- approx. $239.00
ISBN 978-3-642-32916-6

Due September 2012

2013. VIII, 122 p. 49 illus., 17 in color. (SpringerBriefs in Earth System Sciences) Softcover
- $49.95
ISBN 978-94-007-5490-4

Due November 2012

Previously published in Space Science Reviews, Vol. 163/1-4, 2011

2012. VI, 574 p. 308 illus., 211 in color. Hardcover
- $229.00

9784007340074
K. D. Singh, Academy of Forest and Environmental Sciences, New Delhi, India

**Capacity Building for the Planning, Assessment and Systematic Observations of Forests**

With Special Reference to Tropical Regions

This book is intended to support the forestry institutions in the tropical countries in the planning, assessment and systematic observation of forests required to fulfill their obligations as laid in international conventions such as the CBD and UNFCCC. Following the Rio Conference, a number of countries, donors and international organizations have implemented capacity-building projects with varying degrees of success.

**Features**
- Presents an overview of methods as well as knowledge on tropical forests from an assessment perspective
- Serves the basic needs of national planning strategies
- Emphasizes national capacity building: How this can be achieved? Why countries should work together

**Contents**

**Fields of interests**
Environmental Science and Engineering; Forestry; Sustainable Development

**Target groups**
Research

**Discount group**
Professional Non-Medical

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C. Sobiech, OFFIS, Oldenburg, Germany

**Agent-Based Simulation of Vulnerability Dynamics**

A Case Study of the German North Sea Coast

This thesis constitutes an extraordinary innovative research approach in transferring the concepts and methods of complex systems to risk research. It ambitiously bridges the barriers between theoretical, empirical and methodical research work and integrates these fields into one comprehensive approach of dealing with uncertainty in socio-ecological systems. The developed agent-based simulation aims at the dynamics of social vulnerability in the considered system of the German North Sea Coast. Thus, the social simulation provides an analytical method to explore the individual, relational, and spatial aspects leading to dynamics of vulnerability in society. Combining complexity science and risk research by the method of agent-based simulation hereby emphasizes the importance of understanding interrelations inside the system for the system's development, i.e.

**Features**
- Nominated for a Springer Theses Prize by the University of Hamburg, Germany
- Ambitiously bridges the barriers between theoretical, empirical and methodical research work in the field of complex systems research and risk research
- Innovative application of agent-based simulation to analyse the multidimensional and context specific phenomenon of vulnerability
- Set relevant conclusions with regard to complexity theory and risk management in flood prone coastal regions

**Contents**

**Fields of interests**
Natural Hazards; Human Geography; Coastal Sciences

**Target groups**
Research

**Discount group**
Professional Non-Medical

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A. Szymkiewicz, Gdansk University of Technology, Poland

**Modelling Water Flow in Unsaturated Porous Media**

Accounting for Nonlinear Permeability and Material Heterogeneity

The book focuses on two issues related to mathematical and numerical modelling of flow in unsaturated porous media. In the first part numerical solution of the governing equations is discussed, with particular emphasis on the spatial discretization of highly nonlinear permeability coefficient. The second part deals with large scale flow in heterogeneous porous media of binary structure. Upscaled models are developed and it is shown that the presence of material heterogeneities may give rise to additional non-equilibrium terms in the governing equations or to hysteresis in the averaged constitutive relationships.

**Features**
- Provides consistent presentation of two approaches to modelling water flow in unsaturated porous media
- Presents in-depth discussion of the numerical solution algorithm with improved method for averaging of the permeability coefficient
- Analyzes the applicability of the Richards' model for heterogeneous media

**Contents**

**Fields of interests**
Hydrogeology; Geophysics/Geodesy

**Target groups**
Research

**Discount group**
Professional Non-Medical
MATLAB and Design Recipes for Earth Sciences
How to Collect, Process and Present Geoscientific Information
The overall aim of the book is to introduce students to the typical course of a data analysis project in earth sciences. The project starts with searching of the relevant literature, reviewing and ranking of the published books and journal articles, extracting the relevant information as text, data or graphs from the literature, searching and processing the corresponding original data with MATLAB, and compiling and presenting the results as posters, abstracts and oral presentations using graphics design software.

Features
► There is no similar book ► Like the sister book "MATLAB Recipes for Earth Sciences", it is a recipe-based cookbook ► The concept is identical, short theoretical introduction, then lots of examples ► Based on mixed open-source and therefore free software, and professional tools widely available and very popular

Contents

Fields of interests
Earth Sciences, general; Statistics for Engineering, Physics, Computer Science, Chemistry and Earth Sciences

Target groups
Upper undergraduate

Discount group
Professional Non-Medical

D. Wolf, University of Stuttgart, Germany; M. A. Santoyo, Universidad Complutense de Madrid, Spain; J. Fernández, CSIC-UCM, Madrid, Spain (Eds)

Deformation and Gravity Change
Indicators of Isostasy, Tectonics, Volcanism and Climate Change Volume III

Contents
Deformation and Gravity Change: Indicators of Isostasy, Tectonics, Volcanism and Climate Change, Vol. III. Introduction.- Observing gravity change in the Fennoscandian uplift area with the Hannover Absolute Gravimeter.- On the accuracy of the calibration of superconducting gravimeters using absolute and spring sensors: A critical comparison.- Separation of the geodetic consequences of past and present ice mass change: Influence of topography with application to Svalbard (Norway).- Retrieval of large-scale hydrological signals in Africa from GRACE time-variable gravity fields.- Land water storage changes from ground and space geodesy: First results from the GHYRAF (Gravity and Hydrology in Africa) experiment.- Combination of multisatellite altimetry and tide gauge data for determining vertical crustal movements along Northern Mediterranean coast.- Using a Mesoscale Meteorological Model to Reduce the Effect of Tropospheric Water Vapour from DInSAR Data: A Case Study for the Island of Tenerife, Canary Islands.- An Elliptical Model for Deformation Due to Groundwater Fluctuations.- The transition from three-dimensional embedding to two-dimensional Euler-Lagrange deformation tensor of the second kind: variation of curvature measures.- A quantitative assessment of DInSAR measurements of interseismic deformation: the Southern San Andreas Fault case study. [...]
D. Zeitoun, Ecole Superieure de Gestion, Paris, France; E. Wakshal, The Hebrew University, Jerusalem, Israel

Land Subsidence Analysis in Urban Areas

The Bangkok Metropolitan Area Case Study

Cities built on unconsolidated sediments consisting of clays, silt, peat, and sand, are particularly susceptible to subsidence. Such regions are common in delta areas, where rivers empty into the oceans, along flood plains adjacent to rivers, and in coastal marsh lands. Building cities in such areas aggravates the problem for several reasons. 1. Construction of buildings and streets adds weight to the region causing additional soil deformations.

Features
► Presents an integrative method based on both hydrology and soil mechanics ◄ Contains exercises with each chapter in the soil deformation part of the book ◄ Presents the state of the art in computational methods of subsidence ◄ Includes a case study of the Bangkok metropolitan area

Contents

Fields of interests
Geotechnical Engineering & Applied Earth Sciences; Hydrogeology; Geoengineering, Foundations, Hydraulics

Target groups
Graduate

Discount group
Professional Non-Medical

Due November 2012

2013. X, 270 p. 95 illus., 6 in color. (Springer Environmental Science and Engineering) Hardcover
► approx. $119.00