Contaminant Geochemistry
Interactions and Transport in the Subsurface Environment

In this updated and expanded second edition, new literature has been added on contaminant fate in the soil-subsurface environment. In particular, more data on the behavior of inorganic contaminants and on engineered nanomaterials were included, the latter comprising a group of “emerging contaminants” that may reach the soil and subsurface zones. New chapters are devoted to a new perspective of contaminant geochemistry, namely irreversible changes in pristine land and subsurface systems following chemical contamination. Two chapters were added on this topic, focusing on attention on the impact of chemical contaminants on the matrix and properties of both liquid and solid phases of soil and subsurface domains. Contaminant impacts on irreversible changes occurring in groundwater are discussed and their irreversible changes on the porous medium solid phase are surveyed.

Features
► Updated and enlarged 2nd edition ► A comprehensive background for specialists interested in the protection and sustainable management of the subsurface environment ► Discussions on additional selected case studies are provided ► Extended bibliography ► References now appear at the end of each chapter for the reader’s convenience

Fields of interest
Geochemistry; Soil Science & Conservation; Terrestrial Pollution

Target groups
Research

Product category
Monograph

The Atmosphere and Ionosphere
Elementary Processes, Monitoring, and Ball Lightning

This book presents a collection of reviews prepared for the conference “Atmosphere, Ionosphere, Safety,” held in Kaliningrad, Russia, in July 2012. It provides the reader insight into the current developments in the following fields: physics of elementary processes; ionosphere dynamics; ball lightning and aerosol structures; as well as remote detection of the radioactive and highly toxic substances. The diversity of scope presented offers readers an up-to-date overview of trends, questions and their solutions.

Features
► The book provides new data in the field of atmospheric physics ► New discoveries in aerosol physics are presented ► The book contains updates in plasmod and ball lightning physics

Contents

Fields of interest
Atmospheric Sciences; Environmental Physics; Astronomy, Observations and Techniques

Target groups
Research

Product category
Contributed volume

Understanding an Orogenic Belt
Structural Evolution of the Himalaya

The book provides a model for structural evolution of the Himalaya with relevant background information so that earth scientists of other specialization will find it easy to comprehend. Hence the book is divided into two parts. The first part describes the basic principles of structural geology that are required to understand the evolutionary model described in the second part. The book incorporates some of the ignored structural features, e.g.

Features
► Guide to understand the evolution of the Himalaya ► Incorporates chapters on anisotropy of magnetic susceptibility, global positioning system, simultaneous development of folds and faults ► Contains new model for formation of duplex structure and a new model for formation of klippe structure ► Comprehensive interpretation of GPS data in active orogenic belts

Contents

Fields of interest
Structural Geology; Mineralogy

Target groups
Research

Product category
Monograph

Due May 2014
2nd ed. 2014. IX, 526 p. 312 illus., 26 in color.
Hardcover
► * € (D) 139,09 | € (A) 142,99 | sFr 173,50
► € 129,99 | £117.00
ISBN 978-3-642-54776-7

Due May 2014
2014. XVI, 436 p. 135 illus., 85 in color. (Physics of Earth and Space Environments) Hardcover
► * € (D) 139,09 | € (A) 142,99 | sFr 173,50
► € 129,99 | £117.00
ISBN 978-3-319-05238-7

Due April 2014
2014. 200 p. 310 illus. (Springer Geology) Hardcover
► approx. * € (D) 106,99 | € (A) 109,99 | sFr 133,50
► approx. € 99,99 | £90.00
ISBN 978-3-319-05587-0
M. Fischinger, University of Ljubljana Fac. of Civil and Geodetic Engineering, Ljubljana, Slovenia (Ed)

**Performance-Based Seismic Engineering: Vision for an Earthquake Resilient Society**

**Contents**
  - Toward the Bled Workshop in Future.
- Global Challenges and the Role of Civil Engineering-Earthquake-Resistant Bridges of the Future with Advanced Materials - Inelastic Shear Response and Strengthening of RC Bridge Hollow Box Piers - Developments in Codifying Direct Displacement-Based Seismic Design.
- Part II: New Vision after Recent Earthquakes - A Lesson from the 2011 Tohoku Earthquake - The necessity for collaboration and dialog among natural scientists, engineers, social scientists, government agencies, and the general public.
- Lessons Learned from the 2010 Haiti Earthquake for Performance-Based Design - L’Aquila Earthquake: A Wake-Up Call For European Research and Codes.
- Lessons from the 2010 Chile earthquake for performance based design and code development.
- Performance-Based Issues from the 22 February 2011 Christchurch Earthquake.
- Part IV: Vision in Japan and Asia (Coordinated and edited by Masayoshi Nakashima).
- Seismic Performance of a Bridge Column Based on E-Defense Shake-Table Excitations.
- Development of Building Monitoring System to Verify the Capacity Spectrum Method.
- Evaluation on ultimate flexural deformability of reinforced concrete columns with wing walls. 

**Fields of interest**
- Geotechnical Engineering & Applied Earth Sciences; Civil Engineering; Natural Hazards

**Target groups**
- Research

**Product category**
- Contributed volume

**Z. Garfunkel,** The Hebrew University, Jerusalem, Israel; Z. Ben-Avraham, E. Kagan, Tel Aviv University, Tel Aviv, Israel (Eds)

**Dead Sea Transform Fault System: Reviews**

The Dead Sea transform is an active plate boundary connecting the Red Sea seafloor spreading system to the Arabian-Eurasian continental collision zone. Its geology and geophysics provide a natural laboratory for investigation of the surficial, crustal and mantle processes occurring along transtensional and transpressional transform fault domains on a lithospheric scale and related to continental breakup.

**Features**
- Interdisciplinary study of a major plate boundary
- International authorship
- Rich in quantitative data and imagery

**Contents**
- Geophysical studies of the crustal structure along the Dead Sea fault.
- Geophysical studies of the lithosphere along the Dead Sea transform.
- The seismogenic thickness along the Dead Sea transform.
- The Dead Sea transform and the volcanism in northwestern Arabia.
- Lateral motion and deformation along the Dead Sea transform.
- Pleistocene strain partitioning during transpression along the Dead Sea fault, Metulla Saddle, northern Israel.
- Review of on-fault palaeoseismic studies along the Dead Sea fault.
- Pre-instrumental earthquakes along the Dead Sea rift.
- Instrumental data on the seismic activity along the Dead Sea transform.
- Evolution of Neogene-Quaternary waterbodies in the Dead Sea rift and their global climate relation.
- Saline water in the Dead Sea rift - the role of runoff and relative humidity.

**Fields of interest**
- Geophysics/Geodesy; Structural Geology; Geochemistry

**Target groups**
- Research

**Product category**
- Monograph

**T. Ghosh,** A. Mukhopadhyay, Jadavpur University, Kolkata, India

**Natural Hazard Zonation of Bihar (India) Using Geoinformatics**

**A Schematic Approach**

With increased climate variability, aggravated natural hazards in the form of extreme events are affecting the lives and livelihoods of many people. This work serves as a basis for formulating a ‘preparedness plan’ to ensure the effective policy formulation for planned development. Increased demand and competition with a high degree of variability have forced people to struggle in order to prosper. Good governance and innovative policy formulation are necessary to create a resilient society. This may promote a paradigm shift in the mindset on and perceptions of natural hazards and their impacts on development and growth. This new perspective will make people more concerned about minimizing the loss of life, property, and environmental damage and directly safeguard the development process.

**Features**
- Highlights the importance of natural hazards in development practice and growth potential
- Takes the innovative step of using geoinformatics for natural hazards zonation
- Establishes the relationship between open source data/software and policy formulation

**Contents**
- Flood hazard in Bihar.
- Drought hazard in Bihar.
- Earthquake hazard in Bihar.
- Thermal Heat Island effect in Bihar.

**Fields of interest**
- Natural Hazards; Geographical Information Systems/Cartography;

**Target groups**
- Research

**Product category**
- Brief
Due August 2014

2015. 200 p. 140 illus., 70 in color. (Cave and Karst Systems of the World) Hardcover
▶ approx. * € (D) 106,99 | € (A) 109,99 | sFr 133,50
▶ approx. € 99,99 | £90.00
ISBN 978-3-319-04455-7

Due June 2014

2014. 180 p. 108 illus., 41 in color. Hardcover
▶ approx. * € (D) 106,95 | € (A) 109,95 | sFr 143,50
▶ approx. € 99,95 | £90.00
ISBN 978-3-642-54544-7

The Impact of Melting Ice on the Ecosystems in Greenland Sea

Correlations and Predictions on Ice Cover, Phytoplankton Biomass, AOD and NAO

Arctic marine ecosystems are largely impacted by changes associated with global warming. The sea ice in Greenland Sea plays an important role in regional and global climate system. The book investigates the relationships between phytoplankton biomass, measured using remotely sensed chlorophyll-a, aerosol optical depth and sea-ice cover in the Greenland Sea (10°W-10°E, 65-80°N) over the period 2003-2012. First hand Satellite data was used to do correlation analysis.

Features
▶ First hand satellite data to give general outline of ecosystems in Greenland Sea and how the ice impacts the local ecosystems ◀ Enhanced statistics methods to analyze correlations between 2-3 variables and predict future 3 years trends of time series

Contents
Overview Greenland Sea.- Ecosystems in Greenland Sea.- Data and Methods.- Chlorophyll-a, Ice Cover and North Atlantic Oscillation.- Aerosol Optical Depth, Ice Cover and Cloud Cover.- Photosynthetically Active Radiation, Ice Cover and Sea Surface Temperature.- The predictions for Chlorophyll-a, Aerosol Optical Depth and Photosynthetically Active Radiation.- Conclusion and Discussion.

Fields of interest
Environmental Science and Engineering; Climate Change Impacts; Marine & Freshwater Sciences

Target groups
Research
Product category
Monograph

M. Knez, T. Slabe, M. Petrič, ZRC Sazu, Postojna, Slovenia; S. Šebela, RC Sazu, Postojna, Slovenia (Eds)

The Beká-Ocizla Cave System
Karstological Railway Planning in Slovenia

A proposed railway on the 5th European Railway Corridor (Venice-Kiev) between the northern Adriatic ports of Koper (Slovenia) and Trieste (Italy) and the interior of Slovenia required extensive karstological studies and planning. This book contains the knowledge gained from these studies as well as further information on the regional karst surface and underground, the karst hydrogeology and the specific caves of the Beká-Ocizla cave system.

 Features
▶ Contributions to the understanding of cave and karst systems of the world ◀ Provides necessary background information for railway planning in karst terrains ◀ Enables access to valuable maps and videos as supplementary material

Contents

Fields of interest
Hydrogeology; Physical Geography; Geoenvironment, Foundations, Hydraulics

Target groups
Research
Product category
Monograph

M. Y. Leclerc, University of Georgia Lab.
Environmental Physics, Griffin, GA, USA; T. Foken, Universität Bayreuth, Bayreuth, Germany

Footprints in Micrometeorology and Ecology

The interpretation of meteorological measurements made at a given level over a surface of characteristic properties in roughness, albedo, heat, moisture, carbon dioxide, and other gases is an old question which goes back to the early beginnings of modern micrometeorology. This is a challenging question especially since these measurements are only valid for this point/region, describe conditions exactly, or if these measurements are influenced also by surrounding areas. After 50 years of field experiments, it became both apparent and problematic that meteorological measurements are influenced from surfaces on the windward side. An extension of these measurements also at inhomogeneous experimental sites requires a quantitative knowledge of such influences.

Features
▶ First book on footprint topic ◀ Models and application overview ◀ Description of methods and models used to date

Contents
History and definition.- Surface layer properties and parameterizations.- Classification of footprint models.- Footprint studies.- Model validation.- Land surface – coupled footprints.- Application of footprint models to different measurement techniques.- Practical applications of footprint techniques.- Looking forward to the next generation of footprint models.

Fields of interest
Atmospheric Sciences; Climatology; Geography (general)

Target groups
Research
Product category
Monograph

B. Qu, Nantong University, Nantong, People’s Republic of China

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Product category
Monograph

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Target groups
Research
Product category
Monograph

B. Qu, Nantong University, Nantong, People’s Republic of China

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Fields of interest
Atmospheric Sciences; Climatology; Geography (general)

Target groups
Research
Product category
Monograph
Integrated Analysis of Interglacial Climate Dynamics (INTERDYNAMIC)

The work addresses the following questions in the context of interglacial climate dynamics: (i) What are the amplitudes of natural climate variations on timescales of several years to millennia? (ii) Do abrupt changes in the large-scale circulation of the Atlantic Ocean occur in interglacials? (iii) Which biogeochemical feedback mechanisms control the natural limits of atmospheric concentrations of greenhouse gases and aerosols? (iv) Which linkages exist between climate and pre-industrial cultures? The work is based on an integrated approach in paleoclimate research, in which all available paleoclimate archives (terrestrial and marine as well as ice cores) are combined in order to yield a comprehensive and quantitative analysis of global environmental variations. Moreover, through a close linkage between paleoclimate reconstructions and results from Earth-system models detailed insights into the dynamics of climate variations are gained.

Contents
Comparison of climate and carbon cycle dynamics during late Quaternary interglacials using a spectrum of climate system models, ice-core and terrestrial archives (COIN).- Climate Sensitivity during and between Interglacials (ClimSens).- What ends an Interglacial? Feedbacks between tropical rainfall, Atlantic climate and ice sheets during the Last Interglacial (EndLIG).- Evaluation of Eemian and Holocene Climate Variability: Synthesis of marine archives with climate modelling (HolEem).- […]

Fields of interest
Earth System Sciences; Atmospheric Sciences

Remote Sensing Applications to Environmental Research

Contents

Fields of interest
Geophysics/Geodesy; Environmental Science and Engineering; Monitoring/Environmental Analysis

Irrigation and Drainage Systems Engineering

This textbook focuses specifically on the combined topics of irrigation and drainage engineering. It emphasizes both basic concepts and practical applications of the latest technologies available.

Contents

Fields of interest
Hydrogeology; Water Industry/Water Technologies; Soil Science & Conservation

Due September 2014
2015. 80 p. 38 illus. (SpringerBriefs in Earth System Sciences) Softcover
-approx. *€ (D) 53,49 | € (A) 54,99 | sFr 67,00
-approx. € 49,99 | €44,99
ISBN 978-3-319-05698-2

Due June 2014
2014. 200 p. 70 illus., 30 in color. (Society of Earth Scientists Series) Hardcover
-approx. *€ (D) 106,99 | € (A) 109,99 | sFr 133,50
-approx. € 99,99 | £90.00
ISBN 978-3-319-05905-1

Due August 2014
2015. X, 654 p. 710 illus., 450 in color. Hardcover
-approx. *€ (D) 85,59 | € (A) 87,99 | sFr 106,50
-approx. 79,99 | £72.00
ISBN 978-3-319-05698-2
F. M. Williams, University of Adelaide, Adelaide, SA, Australia

Understanding Ethiopia

Geology and Landscapes

Understanding Ethiopia is a detailed description of Ethiopia’s geological story and enables non-specialist readers to share the author’s thrill at gaining a deeper insight into the processes which produced, and continue to shape, this amazing country. Ethiopia’s spectacular landscapes, ranging from mountains over 4500m high to salt plains 150m below sea level, are a reflection of the geological processes that formed the country. Indeed, its history and the historical sites, for which it is renowned, are largely determined by geology. Readers learn why and how Ethiopia’s geology is both unique and dynamic, as here the earth’s crust is in the process of breaking apart.

Features
► Comprises the first comprehensive guide to Ethiopian geology and geoheritage for non-specialists
► Includes a glossary of geological terms for the non-specialist traveller
► Fascinates with numerous color photographs

Contents
Setting the scene: Ethiopia today.- Beginnings: The First Billion Years.- Rocks and landforms of the south and west.- The far north: Axum and beyond.- The Early and Middle Years: Ice, Sea and Sand.- The great gorges: slices through time.- The rocks, landforms and hidden churches of Tigray. 

Fields of interest
Earth Sciences, general; Cultural Heritage

Target groups
Research

Product category
Monograph

Due September 2014

2015. 250 p. 175 illus. in color. Softcover
► approx. *€ (D) 32,09 | € (A) 32,99 | sFr 40,00
► approx. £29,99 | £26.99
ISBN 978-3-319-02179-9