

J. Ashbourn, Berkhamsted, Hertfordshire, UK

The Geology of Britain

The book discusses the geological and natural history of Britain through the early geological formation of the British Isles, the variety of ground rock and how it has formed in different areas, and how early settlers may have lived. The areas are photographically documented over time in order to understand environmental and societal change. The book includes detailed imagery, documenting natural areas in Britain.

Features

- Presents ongoing value as a documented image archive, diverse in scope and coverage
- Relevant to contemporary environmental science
- Will appeal to a wide academic audience

Contents

Prologue (an introduction).- 1. How and when the British Isles were formed.- 2. Early settlers of Mesolithic and Neolithic occupation.- 3. The South Coast: from Dover to The Lizard (overview).- 4. Dartmoor (overview).- 5. Northern Devon: Exmoor and the North Devon coast.- 6. The Lake District: Overview of the Lakes.- 7. North Wales: Snowdonia and North Wales.- 8. South and Mid Wales: Brecon Beacons and South Wales.- 9. The Peak District: White and Dark Peaks.- 10. The Yorkshire Dales (overview).- 11. The Yorkshire Moors (overview).- 12. The Scottish Lowlands (overview).- 13. The Scottish Highlands (overview).- 14. Coastal Erosion (coverage of coastal erosion, particularly in the south).- 15. Epilogue (a summary and general discussion, including possible futures).- Bibliography.

Fields of interest

Historical Geology; Nature Conservation; Physical Geography

Target groups

Professional/practitioner

Type of publication

Monograph

 Earth and Environmental Science

Due May 2010

2010. Approx. 300 p. 150 illus., 75 in color. Hardcover

- **approx. € 99,95 | £90,00**
 - **approx. * € (D) 106,95 | € (A) 109,95 | sFr 166,00**
- ISBN 978-90-481-8860-4



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J. Flor, LEGI-CNRS, Grenoble, France (Ed.)

A Course on Fronts, Waves and Vortices in Geophysical Flows

Most well known structures in planetary atmospheres and the Earth's oceans are jets or fronts interacting with vortices on a wide range of scales. The transition from one state to another, such as in unbalanced or adjustment flows, involves the generation of waves as well as the interaction of coherent structures with these waves.

This book presents a fluid mechanics perspective to the dynamics of fronts and vortices and their interaction with waves in geophysical flows. It provides a basic physical background for modeling coherent structures in a geophysical context, and it gives essential information on advanced topics such as spontaneous wave emission and wavemomentum transfer in geophysical flows.

Based on a set of lectures by leading specialists, this text is targeted at graduate students, researchers and engineers in geophysics and environmental fluid mechanics.

Contents

Dynamics of Cortices in Rotating and Stratified Fluids.- Stability of Quasi of Two-Dimensional Vortices.- Oceanic Vortices.- Lagrangian Dynamics of Fronts, Vortices and Waves: Understanding the (Semi-)Geostrophic Adjustment.- Wave-Vortex Interactions.- Index.

Fields of interest

Geophysics/Geodesy; Fluid- and Aerodynamics; Engineering Fluid Dynamics

Target groups

Research

Type of publication

Monograph

 Earth and Environmental Science

Due April 2010

2010. X, 160 p. (Lecture Notes in Physics, Volume 805) Softcover

- **€ 59,95 | £53,99**
 - *** € (D) 64,15 | € (A) 65,95 | sFr 93,50**
- ISBN 978-3-642-11586-8



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F. Kraas, Universität Köln, Germany (Ed.)

Megacities

Our Global Urban Future

As urbanization continues, and even accelerates, scientists estimate that by 2015 the world will have up to 60 'megacities' – urban areas with more than five million inhabitants. With the irresistible economic attractions of urban centers, particularly in developing countries, making the influx of citizens unstoppable, many of humankind's coming social, economic and political dramas will be played out in megacities. This book shows how geographers and Earth scientists are contributing to a better understanding of megacities.

The contributors analyze the impact of socio-economic and political activities on environmental change and vice versa, and identify solutions to the worst problems. They propose ways of improving the management of megacities and achieving a greater degree of sustainability in their development.

Features

- Identifies and promotes examples of balanced and safe urban management, through contrasting megacities worldwide
- Reviews planning and management systems to assess their ability to support sustainable megacities and to make more balanced use of resources
- Research on how megacities can become more competitive, creative and attractive human environments, as well as safer places for people to live

Contents

Megacities and Global Change: Vulnerability, Informality and Governance.- Sustainability and Health in Indian Megacities.- Last Spaces: Underground Potentials in Megacities.- Risk Habitat Megacity.- Managing the Metropolis – Planning in New York City.

Fields of interest

Landscape/Regional and Urban Planning; Geophysics/Geodesy; Sustainable Development

Target groups

Professional/practitioner

Type of publication

Monograph

 Earth and Environmental Science

Due June 2010

2010. X, 250 p. (International Year of Planet Earth) Hardcover

- **approx. € 99,95 | £90,00**
 - **approx. * € (D) 106,95 | € (A) 109,95 | sFr 166,00**
- ISBN 978-90-481-3416-8



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A. Le Pichon, E. Blanc, CEA/DASE, France;
A. Hauchecorne, Aeronomy Service/IPSL, UVSQ and
CNRS, France (Eds.)

Infrasound Monitoring for Atmospheric Studies

The infrasound field, the science of low-frequency acoustic waves, has developed into a broad interdisciplinary field encompassing academic disciplines of physics and recent technical and scientific developments.

In 1996, the United Nations General Assembly adopted the Comprehensive Nuclear-Test-Ban Treaty (CTBT), prohibiting atmospheric nuclear explosions worldwide. The infrasound network of the International Monitoring Network (IMS) of the CTBT-Organization has demonstrated its capability for detecting and locating infrasonic sources such as meteorites, volcanic eruptions, earthquakes, auroras, mountain associated waves... Nearly 70% of the global network is now operational and regional cluster arrays are deployed around the globe. Systematic investigations into low-frequency acoustic signals have evidenced an unprecedented potential of the monitoring of infrasonic waves permanently generated by natural and man-made events. Furthermore, recent studies point out new insights on quantitative relationships between observables and atmospheric specifications, and therefore opening new fields into the mathematics of geophysical inverse problems for atmospheric remote sensing.

Features

► New results from global operational infrasound network ► Interdisciplinary technical and scientific developments in geophysics ► Opening of new fields of investigation into fundamental and applied topics ► Contributions by experts from international institutions

Fields of interest

Applied Earth Sciences; Acoustics; Monitoring/
Environmental Analysis

Target groups

Research

Type of publication

Monograph

 Earth and Environmental Science

Available

Previously announced in Springer News 01/2009

2009. XIX, 735 p. 288 illus., 144 in color. Hardcover

► € 199,95 | £180.00

► * € (D) 213,95 | € (A) 219,95 | sFr 310,50

ISBN 978-1-4020-9507-8



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M. Leppäranta, University of Helsinki, Finland

The Drift of Sea Ice

The Second Edition of The Drift of Sea Ice presents the fundamental laws of sea ice drift which come from the material properties of sea ice and the basic laws of mechanics. The resulting system of equations is analysed for the general properties of sea ice drift, the free drift model and analytical models for ice drift in the presence of internal friction, and the construction of numerical ice drift models is detailed. This second edition of a much lauded work, unique on this topic in the English language, has been revised, updated and expanded with much new information and outlines recent results, in particular in relation to the climate problem, mathematical modelling and ice engineering applications.

The current book presents the theory, observations, mathematical modelling techniques, and applications of sea ice drift science. The theory is presented from the beginning on a graduate student level, so that students and researchers coming from other fields such as physical oceanography, meteorology, physics, engineering, environmental sciences or geography can use the book as a source book or self-study material.

Features

► Presents the theory, observations, mathematical modelling techniques and applications of sea ice drift science ► Details analytical modelling in one chapter to increase the understanding of the physics of this topic ► Gives a collection of worked examples on sea ice dynamics ► Details the derivation of the fundamental laws of sea ice dynamics in an understandable form

Fields of interest

Geophysics/Geodesy; Oceanography; Environmental Physics

Target groups

Research

Type of publication

Monograph



 Earth and Environmental Science

Due April 2010

Jointly published with Praxis Publishing, UK

2nd ed 2010. Approx. 325 p. 145 illus., 25 in color.

(Springer Praxis Books / Geophysical Sciences) Hardcover

► approx. € 139,95 | £126.00

► approx. * € (D) 149,75 | € (A) 153,95 |

sFr 217,50

ISBN 978-3-642-04682-7



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H. Storch, Institute of Coastal Research, Geesthacht, Germany; K. Hasselmann, Max-Planck-Institute of Meteorology, Hamburg, Germany

Seventy Years of Exploration Oceanography

A prolonged weekend discussion with
Walter Munk

The present volume documents an interview with the eminent oceanographer and geophysicist Walter Munk, who is one of the "grand old men" of oceanography. The book covers many key issues, such as ocean-wave prediction, ocean acoustic thermography. As a highly prominent scientist who has influenced many present day key oceanographers, Munk's career covers 70 years of practice, beginning about 1940 and continuing to the present.

Features

► Provides many key issues such as ocean wave prediction and ocean acoustic thermography
► Biography of one of the leading scientists in the field. ► Science history overview 1940-2010.

Contents

1 WAVES AND WAVE SPECTRA. 1.1 Oceanographers learn about power spectra. 1.2 Wave prediction. 1.3 Where the swell begins.- 2 COMING TO AMERICA. 2.1 Coming to America. 2.3 Caltech. 2.4 Serving in the Army. 2.5 Clearance problems.- 3 BIKINI (1946) AND ENIWETOK (1951).- 4 SETTLING DOWN AT SCRIPPS. 4.1 Munk finally gets his degree. 4.2 Wind-driven ocean circulation.- 5 FROM WAVES TO TIDES 1958-1968.- 6 DEEP SEA TIDES 1964. 6.1 The alleged suicide of Aristotle.- 7 INTERNAL WAVES 1971 - 1981.- 8 OCEAN ACOUSTICS 1974. 8.1 The Gulf Stream sheds eddies. 8.2 The MODE experiments. 8.3 Ocean Acoustic Tomography. 8.4 Heard Island. 8.5 Whales. 8.6 The last twenty years.- 9 MOHOLE 1957 - 1964.- 10 THE WOBBLING EARTH 1950 - 1960.

Fields of interest

Oceanography; History of Science; Geophysics/
Geodesy

Target groups

Research

Type of publication

Monograph



Earth and Environmental Science

Due April 2010

2010. X, 190 p. Hardcover

► approx. € 99,95 | £90.00

► approx. * € (D) 106,95 | € (A) 109,95 |

sFr 155,50

ISBN 978-3-642-12086-2



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J. A. Talent, Macquarie University, Sydney, Australia
(Ed.)

Extinction Intervals and Biogeographic Perturbations Through Time

Earth and Life

This volume focuses on the broad pattern of increasing biodiversity through time, and recurrent events of minor and major ecosphere reorganization. Intense scrutiny is devoted to the pattern of physical (including isotopic), sedimentary and biotic circumstances through the time intervals during which life crises occurred. These events affected terrestrial, lacustrine and estuarine ecosystems, locally and globally, but have affected continental shelf ecosystems and even deep ocean ecosystems. The pattern of these events is the backdrop against which modelling the pattern of future environmental change needs to be evaluated.

Features

- ▶ Global extinction events have been a significant factor in evolutionary pathways through time
- ▶ It is the backdrop against which modelling future environmental change needs to be evaluated
- ▶ The combined new data will enable to forecast and then mitigate geological hazards facing people all over the world

Fields of interest

Biogeosciences; Biodiversity; Geoecology/Natural Processes

Target groups

Research

Type of publication

Monograph

H. Xing, University of Queensland, Australia; X. Xu, Chinese Earthquake Administration, Beijing, China

M8.0 Wenchuan Earthquake

The M8.0 Wenchuan Earthquake occurred in China on May 12, 2008, killing over 69,000 people and displacing millions from their homes. This was one of the most catastrophic natural disasters on record. This book includes 5 chapters describing the tectonic setting and historical earthquakes around the Chuan-Dian region, the nucleation of the Wenchuan earthquake, occurrence and aftershocks. The field observations of earthquake induced surface fractures and building damage, form a major and special part of this book and include a large number of digital photos with accompanying explanations.

Features

- ▶ Provides major documentation of Wenchuan Earthquake in May 2008
- ▶ Concentrates on surface fractures and damage
- ▶ Authors have worked actively in this field for the past ten years and can call on a vast expertise knowledge of earthquakes

Contents

1. Tectonic setting around Chuan-Dian region.-
2. Historical earthquakes around, Wenchuan earthquake and aftershocks.-
3. Earthquake nucleation and occurrence – a numerical simulation.-
4. Geological observation: Earthquake induced surface fractures and the relevant geological explanation.-
5. Field observation: seismic deconstruction and its relationship with the ruptured faults.

Fields of interest

Structural Geology; Models and Principles; Physical Geography

Target groups

Research

Type of publication

Monograph

 Earth and Environmental Science

Due June 2010

2010. Approx. 400 p. (International Year of Planet Earth)
Hardcover

▶ **approx. € 99,95 | £90.00**
▶ **approx. * € (D) 106,95 | € (A) 109,95 | sFr 166,00**
ISBN 978-90-481-3427-4



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 Earth and Environmental Science

Available

2010. 300 p. (Lecture Notes in Earth Sciences,
Volume 123) Hardcover

▶ **€ 99,95 | £90.00**
▶ *** € (D) 106,95 | € (A) 109,95 | sFr 155,50**
ISBN 978-3-642-01875-6



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