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J. H. Andersen, D. J. Conley (Eds)

Eutrophication in Coastal Ecosystems

Towards better understanding and management strategies

Highlighting its definitions and causes, this review synthesizes the most recent scientific results in relation to specific eutrophication issues. Other topics discussed include nutrient loads, cycling and limitation, reference conditions and trend reversal.

2009. 264 p. (Developments in Hydrobiology, Volume 207) Hardcover ISBN 978-90-481-3384-0

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The Handbook of Sidescan Sonar

This exhaustive new edition offers the fundamentals of sidescan sonar imagery and bathymetry and explains the tricky science of interpreting them. It also covers all recent advances in the field regarding both technology and knowledge of marine structures.

2009. XXVIII, 316 p. 235 illus. (Springer Praxis Books / Geophysical Sciences) Hardcover ISBN 978-3-540-42641-7

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of Tunis-Carthage, Hammam-Chatt, Tunisia;
C. Mesjasz, Cracow University of Economics, Poland;
H. Krummenacher, swisspeace, Bern, Switzerland
(Eds)

H. G. Brauch, Free University of Berlin, Germany; **N. C. Behera**, Nelson Mandela Centre for Peace

and Conflict Resolution, New Delhi, India;

Facing Global Environmental Change

Environmental, Human, Energy, Food, Health and Water Security Concepts

2009. XLVIII, 1588 p. 249 illus. With27 Boxes. (Hexagon Series on Human and Environmental Security and Peace, Volume 4) Hardcover ISBN 978-3-540-68487-9

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D. Barceló, IIQAB-CSIC, Barcelona, Spain (Ed.)

Fuel Oxygenates

With contributions by numerous experts

The state of the art on fuel oxygenates, and in particular of MTBE in groundwater, is presented. Historically, oxygenates like MTBE were developed in the 1970s as octane enhancers to replace toxic additives like lead, which were phased out of gasoline. The presence of oxygenates in gasoline promotes cleaner fuel combustion within the engine, boosts fuel octane values and reduces vehicle emissions. Another relevant oxygenate is ethyl-tertiary-butyl ether (ETBE), which has increasingly replaced MTBE. Ethanol is by far the most commonly used alcohol oxygenate and bioethanol in particular is being increasingly used as a replacement for other fuel oxygenates.

2007. XVI, 411 p. 51 illus. (The Handbook of Environmental Chemistry / Water Pollution, Part 5 / 5R) Hardcover

ISBN 978-3-540-72640-1

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EL Oegstgeest, The Netherlands; S. I. Rasool, Paris,
France; A. Griend, Zeist, The Netherlands (Eds)

Mediterranean Land-surface Processes Assessed from Space

The book describes the steps which lead from the raw signals measured in space to firstly calibrated an comparable long term data sets and in a second step to information for user communities.

2006. XXVIII, 760 p. 442 illus. (Regional Climate Studies) Hardcover ISBN 978-3-540-40151-3

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Security and Environment in the Mediterranean

Conceptualising Security and Environmental Conflicts

Foreword by: L. Robertson, A. Moussa, Preface by: K. Jaber, C. Tickell, J. Dean, E. Yassin

2003. XXVI, 1136 p. 177 illus. (Hexagon Series on Human and Environmental Security and Peace, Volume 1) Hardcover ISBN 978-3-540-40107-0

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K. Buczkó, J. Korponai, J. Padisák, S. W. Starratt (Eds)

Palaeolimnological Proxies as Tools of Environmental Reconstruction in Fresh Water

This volume details new palaeolimnological findings from eastern and central Europe. It reviews the late Quaternary records from the Carpathian region and presents new results on the history of a crater lake, glacial lakes in the Tatra Mountains and Lake Bled.

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K.-J. Evert, Stuttgart, Germany (Ed.)

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Encyclopedia of Soil Science

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Oil Spill Response: A Global Perspective

Proceedings of the NATO CCMS Workshop on Oil Spill Response Dartmouth, Nova Scotia, Canada October 11-13, 2006

International experts in the field of oil spill response, including reprsentatives from 26 NATO countries, participated in a workshop in Canada to discuss their experience in the development and application of current and emerging technologies for oil spill response in the marine environment.

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The Mound Challenger Code

This book details the nature and internal structure of a whole carbonate mound body and discusses the significance of the recent carbonate mound record. It highlights that recent carbonate mounds form an important category within deep-water carbonate systems.

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E. S. Husebye, University of Bergen, Norway (Ed.)

Earthquake Monitoring and Seismic Hazard Mitigation in Balkan Countries

Proceedings of the NATO Advanced Research Workshop on Earthquake Monitoring and Seismic Hazard Mitigation in Balkan Countries, Borovetz, Bulgaria, 11-18 September 2005

Seismology is rated the Queen of Earth Sciences due to its ability to provide detailed structural information bearing on the Earth interior and on-going dynamic processes. This is due to the advanced theoretical foundation of seismology and the extensive cooperation among seismologists on recording and disseminating of data worldwide.

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Atmospheric and Biological Environmental Monitoring

This book presents select papers from the 7th International Symposium on Advanced Environmental Monitoring. It addresses numerous monitoring topics as well as real world problems such as supporting economic development amid changing environmental conditions.

2009. XIX, 311 p. 185 illus., 110 in color. Hardcover ISBN 978-1-4020-9673-0

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Thrust Belts and Foreland Basins

From Fold Kinematics to Hydrocarbon Systems

What is the important geologic information recorded in Thrust Belts and Foreland Basins (TBFB) on the evolution of orogens? How do they transcript the coupled influence of deep and surficial geological processes? Is it still worth looking for hydrocarbons in foothills areas?

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Cephalopods Present and Past: New Insights and Fresh Perspectives

This book brings together an international group of scientists focusing on present-day and fossil cephalopods, ranging broadly from Paleozoic ammonoids to today's octopods. It has three general sections dealing with: systematics and evolution; descriptions of hard- and soft part morphology; and ecology, biogeography, and taphonomy.

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Infrasound Monitoring for Atmospheric Studies

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C. v. Leeuwen, European Commission, Ispra, Italy; T. Vermeire, National Institute of Public Health and the Environment, Bilthoven, The Netherlands (Eds)

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Information Technologies in Environmental Engineering

ITEE 2007 - Third International ICSC Symposium

The increasing environmental problems demand interdisciplinary approaches where engineers, natural scientists, economists and computer scientists work together.

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The Future of Drylands

International Scientific Conference on Desertification and Drylands Research, Tunis, Tunisia, 19-21 June 2006

Drylands have been cradles to some of the world's greatest civilizations, and contemporary dryland communities feature rich and unique cultures. Dryland ecosystems support a surprising amount of biodiversity. Desertification, however, is a significant land degradation problem in the arid, semi-arid and dry sub-humid regions of the world. Deterioration of soil and plant cover has adversely affected 70% of the world's drylands as a result of extended droughts as well as mismanagement of range and cultivated lands. The situation is likely to worsen with high population growth rates and accompanying land-use conflicts.

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V. Lykousis, D. Sakellariou, Institute of Oceanography, Athens, Greece; J. Locat, Laval University, Quebec, QC, Canada (Eds)

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This book provides a world-wide perspective of submarine mass movements and their consequences. This has been made possible by assembling excellent contributions from active researchers, groups, or institutions, thus providing full coverage of the many scientific and engineering aspects of this type of marine and coastal geohazard.

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Biogeography, Time and Place: Distributions, Barriers and Islands

Biogeography considers the distribution of biological units over a wide range of scales. The units range from genotypes, populations and species to families and higher taxa. Processes can be local, such as the isolation on islands due to sea-level fluctuations, or large-scale tectonic processes that separates continents and creates oceans. In all processes time is an important factor and by combining data on recent patterns with paleontological data the understanding of the distribution of extant taxa can be improved.

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R. J. Schotting, Utrecht University, The Netherlands; H. C. van Duijn, Eindhoven University of Technology, The Netherlands; A. Verruijt, Formerly of Delft University of Technology, The Netherlands (Eds)

Soil Mechanics and Transport in Porous Media

Selected Works of G. de Josselin de Jong

This book contains an overview of the most relevant scientific contributions of Gerard de Josselin de Jong to the development of both Soil Mechanics and Transport in Porous Media. The volume comprises a selection of papers by de Josselin de Jong as they were published in the international scientific literature. In addition, some unpublished, but highly relevant work has been included. Most of the papers by de Josselin de Jong are concerned with issues related to soil mechanics.

2006. XI, 364 p. (Theory and Applications of Transport in Porous Media, Volume 19) Hardcover ISBN 978-1-4020-3536-4

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K. L. Seip, Oslo University College, Norway; F. Wenstøp, BI Norwegian School of Management, Oslo, Norway

A Primer on Environmental Decision-Making

An Integrative Quantitative Approach

This book integrates decision-making and environmental science. For ecologists it will bridge the gap to economics. For practitioners in environmental economics and management it will be a major reference book. It contains many expressions and basic equations.

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A. Stokes, INRA, Montpellier, France; I. Spanos, NAGREF, Forest Research Institute, Thessaloniki, Greece; J. E. Norris, Nottingham Trent University, Nottingham, UK; E. Cammeraat, University of Amsterdam, The Netherlands (Eds)

Eco- and Ground Bio-Engineering: The Use of Vegetation to Improve Slope Stability

Proceedings of the First International Conference on Eco-Engineering 13-17 September 2004

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M. G. Sideris, University of Calgary, AB, Canada (Ed.)

Observing our Changing Earth

Proceedings of the 2007 IAG General Assembly, Perugia, Italy, July 2 - 13, 2007

This volume contains a selection of 99 papers from the International Association of Geodesy (IAG) quadrennial General Assembly, held in Perugia, Italy, from July 2 to 13, 2007, in conjunction with the XXIV General Assembly of the International Union of Geodesy and Geophysics (IUGG). There were 225 oral and 474 poster presentations made at the five IAG Symposia, which covered the following research themes: Reference Frames, Gravity Field, Earth Rotation and Geodynamics, Positioning and Applications, The Global Geodetic Observing System (GGOS).

2009. XVI, 864 p. 589 illus. (International Association of Geodesy Symposia, Volume 133) Hardcover ISBN 978-3-540-85425-8

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S. Suh, University of Minnesota, St. Paul, MN, USA (Fd.)

Handbook of Input-Output Economics in Industrial Ecology

Industrial Ecology (IE) is an emerging multidisciplinary field. University departments and higher education programs are being formed on the subject following the lead of Yale University, The Norwegian University of Science and Technology (NTNU), Leiden University, University of Michigan at Ann Arbor, Carnegie Mellon University, University of California at Berkeley, Institute for Superior Technology in Lisbon, Eidgenössische Technische Hochschule (ETH) Zürich, and The University of Tokyo. IE deals with stocks and flows in interconnected networks of industry and the environment, which relies on a basic framework for analysis.

2nd Printing. 2009. XXXVI, 884 p. (Eco-Efficiency in Industry and Science, Volume 23) Hardcover ISBN 978-1-4020-4083-2

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T. Tscharntke, C. Leuschner, University of Göttingen, Germany; M. Zeller, University of Hohenheim, Stuttgart, Germany; E. Guhardja, Institut Pertanian Bogor, Bogor, Indonesia; A. Bidin, Universitas Tadulako, Palu, Indonesia (Eds)

Stability of Tropical Rainforest Margins

Linking Ecological, Economic and Social Constraints of Land Use and Conservation

Tropical rainforests disappear at an alarming rate causing unprecedented losses in biodiversity and ecosystem services.

2007. XVI, 515 p. 89 illus., 1 in color. (Environmental Science and Engineering / Environmental Science)

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F. Wang, Kyoto University, Kyoto, Japan; **T. Li**, Chang'an University, Xi'an, China (Eds)

Landslide Disaster Mitigation in Three Gorges Reservoir, China

This heavily-illustrated book on research results on landslide disaster mitigation in Three Gorges Reservoir consists of three parts: Regional properties of landslides in this area; case studies for typical landslides; new methodologies applied in this area.

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M.-k. Woo, McMaster University, Hamilton, ON, Canada (Ed.)

Cold Region Atmospheric and Hydrologic Studies. The Mackenzie GEWEX Experience

Volume 2: Hydrologic Processes

This book presents decade-long advances in atmospheric research in the Mackenzie River Basin in northern Canada, which encompasses environments representative of most cold areas on Earth. Collaborative efforts by a team of about 100 scientists and engineers have yielded knowledge entirely transferable to other high latitude regions in America, Europe and Asia.

2008. XXII, 508 p. 162 illus., 5 in color. Hardcover ISBN 978-3-540-74927-1

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A. R. Turton, J. H. Hattingh, G. A. Maree, D. J. Roux, CSIR, Pretoria, South Africa; M. Claassen, CSIR, Petoria, South Africa; W. F. Strydom, CSIR, Pretoria, South Africa (Eds)

Governance as a Trialogue: Government-Society-Science in Transition

The Global Water Partnership notes that the crisis in the water sector is a crisis of governance. The same is true for environmental management. Water management is an integral part of ecosystem governance and is closely linked to the sustainable development discourse. This book unpacks the core elements of governance, with a specific focus on water and analyses the linkages between key variables in an effort to increase our understanding of what makes governance good.

2007. XLIV, 354 p. 45 illus. (Water Resources Development and Management) Hardcover ISBN 978-3-540-46265-1

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M.-k. Woo, McMaster University, Hamilton, ON, Canada (Ed.)

Cold Region Atmospheric and Hydrologic Studies. The Mackenzie GEWEX Experience

Volume 1: Atmospheric Dynamics

This book presents decade-long advances in atmospheric research in the Mackenzie River Basin in northern Canada, which encompasses environments representative of most cold areas on Earth. Collaborative efforts by a team of about 100 scientists and engineers have yielded knowledge entirely transferable to other high latitude regions in America, Europe and Asia.

2008. XXIV, 470 p. 136 illus., 12 in color. Hardcover ISBN 978-3-540-73935-7

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V. Yanko-Hombach, Avalon Institute for Applied Science, Winnipeg, WB, Canada; A. S. Gilbert, Fordham University, Bronx, NY, USA; N. Panin, National Institute of Marine Geology and Geoecology, Bucharest, Rumania; P. M. Dolukhanov, University of Newcastle upon Tyne, UK (Eds)

The Black Sea Flood Question: Changes in Coastline, Climate and Human Settlement

Stimulated by "Noah's Flood Hypothesis" proposed by W. Ryan and W. Pitman in which a catastrophic inundation of the Pontic basin was linked to the biblical story, leading experts in Black Sea research (including oceanography, marine geology, paleoclimate, paleoenvironment, archaeology, and linguistic spread) provide overviews of their data and interpretations obtained through empirical scientific approaches.

2007. XXVIII, 971 p. 246 illus. Hardcover ISBN 978-1-4020-4774-9

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C. Zerefos, G. Contopoulos, G. Skalkeas, Academy of Athens, Greece (Eds)

Twenty Years of Ozone Decline

Proceedings of the Symposium for the 20th Anniversary of the Montreal Protocol

This book includes articles presented by leading scientists in the ozone field at the Symposium for the 20th Anniversary of the Montreal Protocol, jointly organized by the United Nations Environment Programme (UNEP), the International Ozone Commission (IO3C), the Academy of Athens and the Mariolopoulos-Kanaginis Foundation, held in Athens in September 2007. His Excellency Ban Ki-moon, the Secretary-General of the United Nations, recently stated: "The success of the Montreal Protocol shows us that there are global instruments that can help curb the impact of human activities on the global environment.

2009. XII, 472 p. Hardcover ISBN 978-90-481-2468-8

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A. Aguilera, Universidad de Sevilla, Spain; R. Rothstein, Columbia University, New York, NY,

Molecular Genetics of Recombination

Genetic recombination is an important process involved in shaping the genetic make up of progeny. Increasingly, it has become evident that recombination is a DNA repair pathway crucial during DNA replication in vegetatively growing cells. It plays a critical role in preserving the integrity of the genome by mediating the repair of DNA damage, which can occur during normal cellular metabolism as a result of oxidative stress, transcription, replication fork stalling or breakdown, or after the exposure to DNA damaging agents.

2007. XXIV, 524 p. 70 illus., 30 in color. (Topics in Current Genetics, Volume 17) Hardcover ISBN 978-3-540-71020-2

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M. Barbieri, University of Ferrara, Italy (Ed.)

The Codes of Life

The Rules of Macroevolution

Building on a range of disciplines – from biology and anthropology to philosophy and linguistics – this book draws on the expertise of leading names in the study of organic, mental and cultural codes brought together by the emerging discipline of biosemiotics. The book's 18 chapters present a range of experimental evidence which suggests that the genetic code was only the first in a long series of organic codes, and that it has been the appearance of new codes – organic, mental and cultural – that paved the way for the major transitions in the history of life.

2008. XX, 440 p. 8 illus. in color. (Biosemiotics, Volume 1) Hardcover ISBN 978-1-4020-6339-8

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A. N. Kosarev, Lomonosov Moscow State University, Moscow, Russia (Ed.)

The Black Sea Environment With contributions by numerous experts

This book presents a systematic description of the knowledge accumulated on the physical oceanography, marine chemistry and pollution, marine biology and geology, meteorology and hydrology of the Black Sea. It presents the principal characteristic features of the environmental conditions of the sea and their changes in the second half of the 20th century. At present, the principal problems of the Black Sea are related to the estimation of the intensity of the chemical pollution of the sea and its impact upon the biota. Special attention is given to the socioeconomic, legal, and political issues in the Black Sea region.

2008. XIV, 457 p. 109 illus. (The Handbook of Environmental Chemistry / Water Pollution, Part 5 / 5Q) Hardcover

ISBN 978-3-540-74291-3

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J. F. Allen, Queen Mary University of London, UK; E. Gantt, University of Maryland, College Park, MD, USA; J. Golbeck, Pennsylvania State University, University Park, PA, USA; B. Osmond, Australian National University, Canberra, ACT, Australia (Eds)

Photosynthesis. Energy from the Sun

14th International Congress on Photosynthesis

This proceedings collects 350 contributions from participants in the 14th International Congress on Photosynthesis. Its two volumes provide a glimpse of the future, from the molecule to the biosphere, by the most active researchers in this area of research.

2008. XXXVIII, 1640 p. (In 2 volumes, not available seperately) Hardcover ISBN 978-1-4020-6707-5

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A. Bationo, B. Waswa, J. Kihara, J. Kimetu, TSBF Institute of CIAT, Nairobi, Kenya (Eds)

Advances in Integrated Soil Fertility Management in sub-Saharan Africa: Challenges and Opportunities

Food insecurity is a central concern and a fundamental challenge for human welfare and economic growth in Africa. Low agricultural production, results in low incomes, poor nutrition, vulnerability to risks and lack of empowerment. Land degradation and soil fertility depletion are considered the major threats to food security and natural resource conservation in sub-Saharan Africa (SSA). Investments in technology, policy and institutional reforms are needed to increase agricultural productivity to ensure food security and sustained national economies.

2007. XIV, 1094 p. Hardcover ISBN 978-1-4020-5759-5

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B. Berg, University of Helsinki, Finland; **C. McClaugherty,** Mount Union College, Alliance, OH, USA

Plant Litter

Decomposition, Humus Formation, Carbon Sequestration

This fully revised and updated 2nd edition of Plant Litter focuses on decomposition processes in natural terrestrial systems such as boreal and temperate forests. The availability of several long-term studies from these forest types allows a more in-depth approach to the later stages of decomposition as well as to humus formation. It further briefly explores how processes are modified due to anthropogenic influences. Earlier findings are re-evaluated in light of recent research and with relevance to current areas of investigation.

2nd ed. 2008. XIV, 338 p. 91 illus. Hardcover ISBN 978-3-540-74922-6

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T. M. Bert, Florida Fish and Wildlife Research Institute, St Petersburg, USA (Ed.)

Ecological and Genetic Implications of Aquaculture Activities

Aquaculture is a rapidly growing industry and aquaculture practices can directly interact with and depend upon the surrounding environment. Therefore, the effects of all types of aquaculture on living natural resources and ecosystems are of significant and increasing national and international interest.

2007. XII, 548 p. (Reviews: Methods and Technologies in Fish Biology and Fisheries, Volume 6) Hardcover ISBN 978-1-4020-0884-9

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R. Bock, Max-Planck-Institut, Potsdam-Golm, Germany (Ed.)

Cell and Molecular Biology of Plastids

The past two decades have witnessed an enormous progress in our understanding of plastid (chloroplast) biology. Basic principles of plastid biogenesis, genome structure and function, gene expression and its regulation as well as plastid-nuclear interaction and communication pathways have been elucidated. In addition, the possibility to directly alter the genetic information of the plastid by transformation has facilitated the study of virtually all aspects of plastid biology in vivo and, moreover, has paved the way to diverse applications of transgenic plastids in biotechnology.

2007. XX, 524 p. 51 illus., 11 in color. (Topics in Current Genetics, Volume 19) Hardcover ISBN 978-3-540-75375-9

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E. Bonucci, Università La Sapienza, Rome, Italy

Biological Calcification

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The topics falling under the heading biological calcification are exceedingly numerous and varied. They include systems as different as vertebrate skeletons and mollusks, in vitro cultures and unicellular organisms, ectopic calcification and urinary stones. Furthermore, the results are scattered through a huge number of scientific publications. Although calcification is probably one of the most widespread biological processes, the mechanisms which lead to calcification of biological systems are still unexplained. For the first time, this book offers a critical review of the calcification process, of the organic and inorganic phases of mineralized tissues, focusing on the earliest phases.

2007. XXII, 592 p. 48 illus. Hardcover ISBN 978-3-540-36012-4

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I. Bos, University of Wageningen, The Netherlands; **P. Caligari**, University of Talca, Chile

Selection Methods in Plant Breeding

Written for plant breeders, researchers and post-graduate students, this book provides a comprehensive review of the methods and underlying theoretical foundations used for selection in plant breeding programmes. The authors review basic elements of population and quantitative genetic theory, and consider in a unique way the tackling of the problems presented by soil heterogeneity and intergenotypic competition when selecting quantitative characters. The efficacy of different methods with regard to developing new varieties of crops are discussed for different modes of reproduction. This work provides a sound basis for informed decision making within the process of a selection programme.

2nd ed. 2008. XII, 461 p. Hardcover ISBN 978-1-4020-6369-5

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J. I. Boullata, University of Pennsylvania, Philadelphia, PA, USA; V. T. Armenti, Thomas Jefferson University, Philadelphia, PA, USA (Eds)

Handbook of Drug-Nutrient Interactions

This work provides a scientific look behind many drug-nutrient interactions, examines their relevance, offers recommendations, and suggests research questions to be explored. The text has been extensively revised and updated from the first edition.

2nd ed. 2010. XXVIII, 824 p. 11 illus. (Nutrition and Health) Hardcover ISBN 978-1-60327-363-3

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The Mycota

A Comprehensive Treatise on Fungi as Experimental Systems for Basic and Applied Research

Series editor: K. Esser

Volume 6

A. A. Brakhage, P. F. Zipfel, Friedrich Schiller Universität, Jena, Germany (Eds)

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 H. Buck, Buck Semillas S.A., La Dulce, Argentina;
 J. Nisi, National Institute for Agricultural Technology and Animal Husbandry, Marcos Juarez, Argentina;
 N. Salomón, National Southern University, Buenos Aires, Argentina (Eds)

Wheat Production in Stressed Environments

Proceedings of the 7th International Wheat Conference, 27 November - 2 December 2005, Mar del Plata, Argentina

The book comprises the proceedings of the 7th International Wheat Conference, held in Mar del Plata, Argentina, at the end of 2005. Leading scientists from all over the world, specialized in different areas that contribute to the better understanding of wheat production and use, reviewed the present achievements and discussed the future challenges for the wheat crop.

2007. XXI, 795 p. (Developments in Plant Breeding, Volume 12) Hardcover ISBN 978-1-4020-5496-9

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J. v. Byern, I. Grunwald (Eds)

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2010. XI, 305 p. 156 illus., 85 in color. Hardcover ISBN 978-3-7091-0141-4

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W. H. Conner, Clemson University, Georgetown, SC, USA; T. W. Doyle, K. W. Krauss, US Geological Survey, Lafayette, LA, USA (Eds)

Ecology of Tidal Freshwater Forested Wetlands of the Southeastern United States

This book draws together the latest findings from investigators focusing on the hydrological processes, community organization, and stress physiology of freshwater, tidally influenced land-margin forests of the southeastern United States. It describes the land use history that led to the restricted distribution of these wetlands, and provides descriptions of the hydrology, soils, biogeochemistry, and physiological ecology of these systems, highlighting the similarities shared among tidal freshwater forested wetlands.

2007. XIV, 505 p. Hardcover ISBN 978-1-4020-5094-7

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L. M. Coluccio, Boston Biomedical Research Institute, Watertown, MA, USA (Ed.)

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R. S. Dhillon, Punjab Agricultural University, Ludhiana, India

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P. Dion, Université Laval, Quebec, QC, Canada; C. S. Nautiyal, National Botanical Research Institute, Lucknow, India (Eds)

Microbiology of Extreme Soils

Foreword by: J. Rummel

This volume provides a comprehensive coverage of the principal extreme soil ecosystems of natural and anthropogenic origin. Extreme soils oppose chemical or physical limits to colonization by most soil organisms and present the microbiologist with exciting opportunities. Described here are fascinating environments, such as permafrost, saline, arid and geothermal soils, peatlands, subsurface geomaterial rich in sulfidic ore, Martian soils, hydrocarbon-contaminated hot desert and Antarctic soils, as well as fire-impacted, heavymetal and radionuclide contaminated soils.

2008. XVIII, 370 p. 47 illus., 10 in color. (Soil Biology, Volume 13) Hardcover ISBN 978-3-540-74230-2

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S. Ebashi, National Institute of Physiological Sciences, Okazaki, Japan; I. Ohtsuki, The Jikei University of School of Medicine, Tokyo, Japan (Eds)

Regulatory Mechanisms of Striated Muscle Contraction

This volume covers the entire spectrum of research on troponin and related muscle proteins, including pathophysiological and clinical aspects. Many color figures illustrate the three-dimensional structures of the proteins involved in the muscle functions.

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R. Egel, Institute of Molecular Biology and Physiology, Copenhagen, Denmark; D.-H. Lankenau, Ladenburg, Germany (Eds)

Recombination and Meiosis

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Once per life cycle, mitotic nuclear divisions are replaced by meiosis I and II – reducing chromosome number from the diploid level to a haploid genome, reshuffling the homologous chromosomes by their centromeres, and recombining chromosome arms by crossing-over. In animals, including humans, all this happens during the germ cell formation of eggs and sperm. Due to the reign of meiosis, no child is a true genetic copy of either parent. Central to mainstream meiosis, the mechanisms of reciprocal exchange at crossover/chiasma sites stand out as a controlled program of biologically significant molecular changes.

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Volume 8

S. Eguchi, Nagoya University, Nagoya, Japan (Ed.)

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E. Eich, Freie Universität Berlin, Germany

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W. El-Sharoud, Mansoura University, Mansoura, Egypt (Ed.)

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U. Lüttge, Series editor: W. Beyschlag, B. Büdel, D. Francis, J. Cushman

Volume 68

K. Esser, Ruhr University Bochum, Germany;
 U. Lüttge, TU, Darmstadt, Germany;
 W. Beyschlag,
 University of Bielefeld, Germany;
 J. Murata,
 University of Tokyo, Japan (Eds)

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The Prokaryotes

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4th International Workshop on Wearable and Implantable Body Sensor Networks (BSN 2007)

March 26-28, 2007 RWTH Aachen University, Germany

The International Workshop on Wearable and Implantable Body Sensor Networks (BSN 2007) was held from 26th to 28th March, 2007 at the University Hospital Aachen, Germany. BSN 2007 is the fourth in the series of successful workshops launched three years ago at Imperial College in London.

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G. Loebenstein, Agricultural Research Organization, Bet Dagan, Israel; **G. Thottappilly,** Sahrdaya College of Engineering and Technology, Kerala, India (Eds)

Agricultural Research Management

Agricultural research is one of the most widespread forms of organized research in the world, in both developed and developing countries. Management of agricultural research involves many decisions that have scientific, social and political consequences. Every country has established agricultural research priorities based on many complex factors that must be considered when decisions are made on the choice of research problems to be investigated. Resources must be divided among projects that often compete for the limited funding available that supports the total research enterprise.

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Progress in Botany

Genetics - Physiology - Systematics - Ecology

U. Lüttge, Series editor: W. Beyschlag, B. Büdel, D. Francis, J. Cushman

Volume 69

U. Lüttge, Technical University Darmstadt, Germany; W. Beyschlag, University of Bielefeld, Germany; J. Murata, University of Tokyo, Japan (Eds)

Progress in Botany 69

With one volume each year, this series keeps scientists and advanced students informed of the latest developments and results in all areas of the plant sciences. The present volume includes reviews on genetics, cell biology, physiology, comparative morphology, systematics, ecology, and vegetation science.

2008. XII, 480 p. 33 illus. Hardcover ISBN 978-3-540-72953-2

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A. Macieira-Coelho, INSERM, Versailles, France (Ed.)

Asymmetric Cell Division

Cell biologists have recently become aware that the asymmetry of cell division is an important regulatory phenomenon in the fate of a cell. During development, cell diversity originates through asymmetry; in the adult organism asymmetric divisions regulate the stem cell reservoir and are a source of the drift that contributes to the aging of organisms with renewable cell compartments. Because of the concept of semi-conservative DNA synthesis, it was thought that the distribution of DNA between daughter cells was symmetric. The analysis of the phenomenon in cells during mitosis, however, revealed the asymmetry in the distribution of the genetic material that creates the drift contributing to aging of mammals.

2007. XII, 248 p. 44 illus., 8 in color. (Progress in Molecular and Subcellular Biology, Volume 45) Hardcover

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S. Mancuso, University of Florence, Italy; **S. Shabala**, University of Tasmania, Hobart, TAS, Australia (Eds)

Rhythms in Plants

Phenomenology, Mechanisms, and Adaptive Significance

Rhythmic behaviour is quintessential to life itself. Advances in plant molecular biology, micro/nanotechnology and applied mathematics provide new tools for understanding how environmental signals and internal clocks regulate rhythmic gene expression and development, and how these signals are translated into physiological responses at various levels of structural organisation. This book reviews recent progress in assessing underlying mechanisms controlling plant circadian and ultradian oscillations, and their physiological implications for growth, development, and adaptive responses to the environment.

2007. XX, 362 p. 84 illus., 3 in color. Hardcover ISBN 978-3-540-68069-7

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R. Margesin, F. Schinner, University of Innsbruck, Austria; J.-C. Marx, C. Gerday, University of Liège, Belgium (Eds)

Psychrophiles: From Biodiversity to Biotechnolgy

The majority of the Earth's biosphere is cold and exposed to temperatures below 5°C throughout the year. Having evolved special mechanisms to overcome the life-endangering influence of low temperatures, psychrophiles, i.e. cold-adapted microorganisms, have successfully colonized these environments. Cold adaptation includes a complex range of structural and functional adaptations at the level of all cellular constituents, and these adaptations render cold-adapted organisms particularly useful for biotechnological applications.

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P. Marschner, The University of Adelaide, SA, Australia; Z. Rengel, The University of Western Australia, Crawley, WA, Australia (Eds)

Nutrient Cycling in Terrestrial Ecosystems

Nutrient Cycling in Terrestrial Ecosystems presents a comprehensive overview of nutrient cycling processes and their importance for plant growth and ecosystem sustainability. The first part of the book presents the fundamentals of nutrient cycling. Topics included are cycling of carbon, nitrogen, phosphorus, sulphur and micronutrients. Particular attention is paid to the role of root exudates and rhizosphere microorganisms in facilitating nutrient cycling. The second part discusses nutrient cycling at an ecosystem scale, covering cropping systems, pastures, natural grasslands, arid lands, tundras and forests.

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W. F. Martin, Heinrich-Heine Universität, Düsseldorf, Germany; M. Müller, The Rockefeller University, New York, NY, USA (Eds)

Origin of Mitochondria and Hydrogenosomes

The evolutionary origins of hydrogenosomes have been the subject of considerable debate. From early days it was apparent that hydrogenosomes had evolved on multiple occasions in different eukaryotes, but from which progenitor organelle or endosymbiont was unresolved. Work from many different laboratories has contributed towards formulating the current hypothesis that hydrogenosomes and mitosomes, their even more reduced cousins, share common ancestry with mitochondria.

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B. Martinac, University of Queensland, Brisbane, QLD, Australia (Ed.)

Sensing with Ion Channels

All living cells are able to detect and translate environmental stimuli into biologically meaningful signals. Sensations of touch, hearing, sight, taste, smell or pain are essential to the survival of all living organisms. The importance of sensory input for the existence of life thus justifies the effort made to understand its molecular origins. Sensing with Ion Channels focuses on ion channels as key molecules enabling biological systems to sense and process the physical and chemical stimuli that act upon cells in their living environment. Its aim is to serve as a reference to ion channel specialists and as a source of new information to non specialists who want to learn about the structural and functional diversity of ion channels and their role in sensory physiology.

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MEDICON 2010, 27-30 May 2010, Chalkidiki, Greece

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Volume 272

T. Peters, University of Lübeck, Germany (Ed.)

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E. C. Pua, Monash University Malaysia, Selangor, Malaysia; M. R. Davey, University of Nottingham, Loughborough, UK (Eds)

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Genetic engineering is a powerful tool for crop improvement. The status of crop biotechnology before 2001 was reviewed in Transgenic Crops I-III, but recent advances in plant cell and molecular biology have prompted the need for new volumes. Following Transgenic Crops IV (2007) on cereals, vegetables, root crops, herbs, and spices, and Transgenic Crops V (2007) on fruits, trees, and beverage crops, this volume, Transgenic Crops VI, contains the following sections: Oils and Fibers, Medicinal Crops, Ornamental Crops, Forages and Grains, Regulatory and Intellectual Property of Genetically Manipulated Plants.

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E. C. Pua, Monash University Malaysia, Selangor, Malaysia; M. R. Davey, University of Nottingham, Loughborough, UK (Eds)

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A. Querol, CSIC, Burjassot, Spain; G. H. Fleet, The University of New South Wales, Sydney, NSW, Australia (Eds)

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Volume 99

D. V. Schaffer, University of California at Berkeley, CA, USA; **W. Zhou,** Protein Design Lags, Inc., Fremont, USA (Eds)

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Volume 269

K. Sakai, Toray Fine Chemicals, Nagoya, Japan;N. Hirayama, Tokai University, Kanagawa, Japan;R. Tamura, University of Kyoto, Japan (Eds)

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L. H. Schmidt, Forest & Landscape, Hoersholm, Denmark

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2007. XVIII, 410 p. 143 illus. (Tropical Forestry) Hardcover

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S. Shirahata, K. Ikura, M. Nagao, A. Ichikawa, K. Teruya (Eds)

Animal Cell Technology: Basic & Applied Aspects

Proceedings of the 19th Annual Meeting of the Japanese Association for Animal Cell Technology (JAACT), Kyoto, Japan, September 25-28, 2006

Animal cell technology is a growing discipline of cell biology which aims not only to understand structures, functions and behaviors of differentiated animal cells, but also to ascertain their abilities to be used for industrial and medical purposes.

2009. XV, 357 p. (Animal Cell Technology: Basic & Applied Aspects, Volume 15) Hardcover ISBN 978-1-4020-9645-7

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Volume 105

R. Ulber, Technische Universität Kaiserslautern, Germany; D. Sell, DECHEMA, Frankfurt, Germany (Eds)

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S. Seino, Kobe University, Kobe, Japan; **G. I. Bell,** The University of Chicago University, IL, USA (Eds)

Pancreatic Beta Cell in Health and Disease

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M. G. Tjoelker, Texas A&M University, College Station, USA; A. Boratynski, W. Bugala, Polish Academy of Sciences, Kórnik, Poland (Eds)

Biology and Ecology of Norway Spruce

Norway spruce (Picea abies L.) is an important tree species with a remarkable natural range throughout Europe and Asia, ranging from the Balkan Peninsula to Siberia in the north and from the French Alps in the west to the Sea of Okhotsk in the east. Wherever it occurs, it is a key component of both natural and managed forests. Norway spruce is the most economically valuable conifer in Europe, producing high-quality timber and wood products. Written by 25 authorities, this book presents a concise and comprehensive review of the biology, ecology, and management of Norway spruce.

2007. VI, 469 p. (Forestry Sciences, Volume 78) Hardcover

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E. Ulvestad, Haukeland University Hospital, Bergen, Norway

Defending Life

The Nature of Host-Parasite Relations

Defending Life discusses the relationship between hosts and parasites. A major contention of the book is that the immune system depends ontologically on the ecosystem in which it is embedded; it would not have the features it has if it was not related in one way or other to parasitic agents and to the host's own cells and tissues. To sustain the argument, life is investigated at all layers – from molecules up through cells, organisms and ecosystems. Together with the inverse course, which goes from ecological contingencies down to geneexpression profiles, the approach facilitates an advanced understanding of immunocompetence as well as its converse, immunoincompetence.

2007. XIX, 241 p. Hardcover ISBN 978-1-4020-5675-8

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2006. XIV, 354 p. 178 illus. (Ecological Studies, Volume 183) Hardcover ISBN 978-3-540-26086-8

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D. P. Verma, Ohio State University, Columbus, OH, USA; Z. Hong, University of Idaho, Moscow, ID, USA

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Rice blast, caused by the fungal pathogen Magnaporthe grisea, is one of the most destructive rice diseases worldwide and destroys enough rice to feed more than 60 million people annually. Due to high variability of the fungal population in the field, frequent loss of resistance of newly-released rice cultivars is a major restraint in sustainable rice production. In the last few years, significant progress has been made in understanding the defense mechanism of rice and pathogenicity of the fungus. The rice blast system has become a model pathosystem for understanding the molecular basis of plant-fungal interactions due to the availability of both genomes of rice and M.

2009. XXXII, 464 p. Hardcover ISBN 978-1-4020-9499-6

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F. E. Wielgolaski, University of Oslo, Blindern, Norway (Ed.)

Plant Ecology, Herbivory, and Human Impact in Nordic Mountain Birch Forests

Editorial board: S. Karlsson, S. Neuvonen, D. Thannheiser

The successful long-term sustainable management of forests is dependent on our knowledge of their history, present state, and responses to changing environmental conditions. In this light, the text evaluates the Nordic mountain birch ecosystem with examples from different sites in the Nordic countries and Scotland. The authors analyse vegetation and soils, and investigate the influence of climate change, insect pests, grazing pressure by sheep and reindeer, construction of roads and other consequences of increasing tourism.

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R. Willis, University of Melbourne, Parkville, VIC, Australia

The History of Allelopathy

This book firstly addresses the question of what is allelopathy, as allelopathy is one of these unfortunate terms in ecology that has no unified definition. The book then examines the major episodes in the history of allelopathy: the writings from classical Greece and Rome; mediaeval Arabic, Indian and Chinese work; the advent of printing and promulgation of information in the 16th and 17th centuries; the 18th century and the theory of root excretion; the 19th century and the influence of A.P. de Candolle; the early 20th century and the work of Pickering and the USDA Bureau of Soils; and the years leading to the current era. The work draws extensively on original sources, and consequently many of the assertions published in relation to the background of allelopathy, are shown to be incorrect, or at best very inadequate.

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J. Wu, Kagawa University, Japan; K. Ito, Tokyo Institute of Technology, Yokohama, Japan; S. Tobimatsu, Kyushu University, Japan; T. Nishida, H. Fukuyama, Kyoto University, Japan (Eds)

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