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Environmental Geochemistry: Site Characterization, Data Analysis and Case Histories - Benedetto DeVivo 2008-07-21
This volume contains chapters spanning from the role of geochemistry in the environment in general to specific investigations on site characterization (sampling strategy, analytical procedures and problems). Specific articles deal with health problems related to environment pollution, waste disposal, data base management, and provide illustrations of specific case histories of site characterization and remediation of brownfield sites. * Comprehensive analysis providing background information ranging from geochemistry in general to specific investigations * Provides practical insight through case study material * Informs and updates students and practitioners on hot topics, latest trends and developments
Arsenic - 2014

Pore Scale Geochemical Processes - Steefel 2015-09-16
"This volume ... presents a comprehensive review of the topics covered at the "Environmental Geochemistry, Mineralogy, and Microbiology of Arsenic" short course that followed the 24th Annual V.M. Goldschmidt Conference and held at the Miners Foundry, Nevada City, CA (June 15-16, 2014)"--Page iii.
Arsenic - J. Christopher States 2015-10-26
This book illustrates the chemistry, toxicology, and health effects of arsenic using novel modeling techniques, case studies, experimental data, and future perspectives. • Covers exposure sources, health risks, and mechanisms of one of the most toxic minerals in the world • Helps readers understand potential health effects of arsenic, using population studies, mammalian and invertebrate models, and pharmacokinetic and toxicokinetic models • Discusses outcomes, epidemiology, real-life examples, and modes of action for arsenic-induced diseases, like lung cancer, diabetes, cardiovascular and pulmonary diseases, and immunotoxicity • Acts as a reference for toxicologists, environmental chemists, and risk assessors and includes up-to-date, novel modeling techniques for scientists • Includes future perspectives on special topics, like extrapolation from experimental models to human exposures, biomarkers for phenotypic anchoring, and pathology of chronic exposure
Handbook of Soil Sciences - Pan Ming Huang 2011-11-17
An evolving, living organic/inorganic covering, soil is in dynamic equilibrium with the atmosphere above, the biosphere within, and the geology below. It acts as an anchor for roots, a purveyor of water and nutrients, a residence for a vast community of microorganisms and animals, a sanitizer of the environment, and a source of raw materials for construction and manufacturing. To develop lasting solutions to the challenges of balanced use and stewardship of the Earth, we require a fundamental understanding of soil—from its elastic, porous three-phase system to its components, processes, and reactions. Handbook of Soil Sciences: Resource Management and Environmental Impacts, Second Edition is the second of two volumes that form a comprehensive reference on the discipline of soil science. Completely revised and updated to reflect the current state of knowledge, this

volume covers interfacial interactions between the physical, chemical, and biological regimes within the soil; the factors that control the availability of plant nutrients and microelements; interdisciplinary aspects of soil science, including salinity, sodicity, and soil erosion; and soil databases for assessing worldwide soil resources. Critical elements addressed in each section include: Descriptions of concepts and theories Definitions, approaches, methodologies, and procedures Data in tabular and figure format Extensive references This cohesive handbook provides a thorough understanding of soil science principles and practices based on a rigorous, complete, and up-to-date treatment of the subject matter compiled by leading scientists. It is a resource rich in data, offering professional soil scientists, agronomists, engineers, ecologists, biologists, naturalists, and students their first point of entry into a particular aspect of the soil sciences.

Arsenic - Robert Bowell 2014-11-21

Environmental Mineralogy and Bio-Geochemistry of Arsenic provides a comprehensive understanding of arsenic geochemistry in the near-surface environment. Topics covered include the mineralogy, thermodynamics, geochemistry, analysis, microbiology, and bioavailability of arsenic, with emphasis on implications for arsenic toxicity, geochemistry in natural ground waters, and mine-associated impacts and possible mitigation options. This volume is useful for those seeking to understand arsenic geochemistry and biological interactions in the near-surface environment, Clay Minerals does not use an online manuscript tracking/submission system. as well those working for mining companies, the chemicals industry, NGO’s or government bodies concerned with reducing the impact of arsenic on the environment.

Arsenic - Juraj Majzlan 2014

"This volume ... presents a comprehensive review of the topics covered at the "Environmental Geochemistry, Mineralogy, and Microbiology of Arsenic" short course that followed the 24th Annual V.M. Goldschmidt Conference and held at the Miners Foundry, Nevada City, CA (June 15-16, 2014)"--Page iii.

Spoil to Soil: Mine Site Rehabilitation and Revegetation - N.S. Bolan 2017-09-06

Spoil to Soil: Mine Site Rehabilitation and Revegetation presents both fundamental and practical aspects of remediation and revegetation of mine sites. Through three major themes, it examines characterization of mine site spoils; remediation of chemical, physical and biological constraints of mine site spoils, including post mine-site land-use practices; and revegetation of remediated mine site spoils. Each theme includes chapters featuring case studies involving mine sites around the world. The final section focuses specifically on case studies with successful mine site rehabilitation. The book provides a narrative of how inert spoil can be converted to live soil. Instructive illustrations show mine sites before and after rehabilitation. The purpose of this book is to provide students, scientists, and professional personnel in the mining industry sensible, science-based information needed to rehabilitate sustainably areas disturbed by mining activities. This book is suitable for undergraduate and graduate students majoring in environmental, earth, and soil sciences; environmental and soil scientists; and mine site environmental engineers and regulators.

Global Arsenic Hazard - Nabeel Khan Niazi 2022-12-02

This book provides a plethora of information about global arsenic (As) contamination and the challenges for environment. Arsenic is a naturally occurring metalloid that is widely distributed in water, soil, air and biota from natural and anthropogenic sources. Arsenic has been found in drinking water in over 100 countries worldwide, which caused a major public health issue including: cardiovascular disorders, diabetes, and cancers of various organs - these are some of the general health effects of As exposure. Exposure of plants to As, even at very low concentrations, can cause many morphological, physiological, and biochemical changes. The recent research on As in the water-soil-plant-human systems indicates that As toxicity to plants varies with As speciation in plants, type of plant species and with other soil factors controlling As accumulation in plants. In recent years, the development of efficient green chemistry methods for detoxification of trace metal poisoning has become a major focus of

researchers. It has been investigated in order to find an eco-friendly and recyclable technique for the removal of As contamination from the natural resources. Understanding the significance of As hazard and roles of sustainable or eco-friendly approaches in its mitigation, we intend to bring forth a comprehensive volume “Global Arsenic Hazard - Ecotoxicology and Remediation" highlighting the various prospects involved in current scenario. We are hopeful that this comprehensive volume will furnish the requisite of all those who are working or have interest in the proposed topic.

Reviews of Environmental Contamination Volume 197 - Hemda Garelick 2008-12-10

Reviews of Environmental Contamination and Toxicology attempts to provide concise, critical reviews of timely advances, philosophy and significant areas of accomplished or needed endeavor in the total field of xenobiotics, in any segment of the environment, as well as toxicological implications.

Current Trends and Future Developments on (Bio-) Membranes - Angelo Basile 2023-01-31

Current Trends and Future Developments on (Bio-) Membranes: Membrane Technologies in Environmental Protection and Public Health-Challenges and Opportunities illustrates the application of membrane technology used in separation processes, along with the advantages of membranes in comparison with other types of separation methods. In addition, the book illustrates new approaches for pollution monitoring and helps researchers develop new membrane systems for air or water pollution monitoring. Sections focus on the application of membrane technology to new membranes, hence it is ideal for R&D managers in industry and a variety of others, including academic researchers and postgraduate students working in strategic treatment, separation and purification processes. Includes membrane purification processes relating to environmental applications and membrane-based tools for air monitoring Discusses membrane water potabilization Presents a comprehensive reference on recent applications of membrane technology in environmental monitoring and pollution processes

Arsenic Contamination in the World - Susan Murcott 2012-09-30

Arsenic Contamination in the World: an International Sourcebook provides a global compendium of cited arsenic occurrences in the world as they affect public health. This book details arsenic contamination by source, region and arsenic-affected country. Arsenic is identified in 105 countries and territories, representing a larger database than any previous published work. Sources of arsenic contamination are categorized as Anthropogenic, Geogenic, Volcanogenic, Coal, Mining and Petroleum-related. National, regional and international maps locate the affected areas and populations. A synthesis of critical country information includes an estimate of the exposed population of 226 million people worldwide. This reference work is an indispensable tool for medical doctors, public health workers, scientists, water experts, governments, industries, non-profit organizations and communities in identifying site-specific arsenic contamination. An extensive bibliography of peer-reviewed literature gives the reader important arsenic contamination locations as the first step towards remediation. This Sourcebook is updatable via an on-line annex which provides up-to-date information on new arsenic occurrences and developments. We invite readers to participate in updating this database at: http://www.iwawaterwiki.org/xwiki/bin/view/Articles/ExecutiveSummaryofArsenicContaminationintheWorld By synthesizing the known occurrences of arsenic world-wide, this reference book offers an essential tool for understanding and addressing the global arsenic geological-public health interface. Discounted ebook price available for customers from Developing Countries. Please contact mlygizou@iwap.co.uk if you wish to purchase an ebook from a developing country @ £50.00 (PDF format). Author: Susan Murcott, Senior Lecturer, Civil and Environmental Engineering Department, Massachusetts Institute of Technology, USA Table of Contents: Executive Summary, African Region, Region of the Americas, Asia Region, European Region, Region of Australia and Oceania.

Remediation Engineering - Suthan S. Suthersan 2016-11-25

"This second edition of Remediation Engineering

will continue to be the seminal handbook that regulators must have on-hand to address any of the remediation issues they are grappling with daily. The book is wide-ranging, but specific enough to address any environmental remediation challenge." —Patricia Reyes, Interstate Technology Regulatory Council, Washington, DC, USA "This book offers the researcher, teacher, practitioner, student, and regulator with state-of-the-art advances in conducting site investigations and remediation for common and emerging contaminants. It is revolutionary in its approach to conducting subsurface investigation, which greatly influences a successful and appropriate response in assessing and addressing environmental risk. This book is a giant leap forward in understanding how contaminates behave and how to reduce risk to acceptable levels in the natural world." —Daniel T. Rogers, Amsted Industries Incorporated, Chicago, Illinois, USA "This text is a superb reference and a good tool for learning about state-of-the-art techniques in remediation of soil and groundwater. [It] will become a ready reference at many companies as the engineering community creates increased value from remediation efforts around the world." —John Waites, AVX Corporation, Fountain Inn, South Carolina, USA Remediation Engineering was first published in 1996 and quickly became the go-to reference for a relatively young industry, offering the first comprehensive look at the state-of-the-science in treatment technologies of the time and the contaminants they applied to. This fully updated Second Edition will capture the fundamental advancements that have taken place during the last two decades within all the subdisciplines that form the foundation of the remediation engineering platform. It covers the entire spectrum of current technologies that are employed in the industry and also discusses future trends and how practitioners should anticipate and adapt to those needs. Features: Shares the latest paradigms in remediation design approach and contaminant hydrogeology Presents the landscape of new and emerging contaminants Details the current state of the practice for both conventional technologies, such as sparging and venting Examines newer technologies such as dynamic groundwater recirculation and injection-based remedies to address both organic and inorganic contaminants. Describes the advances in site characterization concepts such as smart investigations and digital conceptual site models. Includes all-new color photographs and figures.

Disaster Risk Reduction for Resilience - Saeid Eslamian 2022-09-30

This book is part of a six-volume series on Disaster Risk Reduction and Resilience. The series aims to fill in gaps in theory and practice in the Sendai Framework, providing additional resources, methodologies, and communication strategies to enhance the plan for action and targets proposed by the Sendai Framework. The series will appeal to a broad range of researchers, academics, students, policy makers, and practitioners in engineering, environmental science and geography, geoscience, emergency management, finance, community adaptation, atmospheric science, and information technology. This volume focuses on the concepts of economic and development vulnerability, discussing the roles of physical, social, cultural, political, economic, technological, and development factors that contribute to disaster impacts and threat levels on vulnerable populations. This approach explores how the resilience of individuals and communities can be increased in the face of future hazard threats, and how post-disaster efforts are planned for and implemented to manage risk reduction and the potential outcomes of hazard threats. Topics addressed in the boom include disaster recovery reform and resilience, recovery, and development programs, place-based reconstruction policies, resilient and sustainable disaster relief, and recovery programs, sustainable community development, and disaster recovery and post-hazard recovery strategies.

Environmental Geochemistry - Heinrich D. Holland 2005-05-21

The Treatise on Geochemistry is the first work providing a comprehensive, integrated summary of the present state of geochemistry. It deals with all the major subjects in the field, ranging from the chemistry of the solar system to environmental geochemistry. The Treatise on Geochemistry has drawn on the expertise of

outstanding scientists throughout the world, creating the reference work in geochemistry for the next decade. Each volume consists of fifteen to twenty-five chapters written by recognized authorities in their fields, and chosen by the Volume Editors in consultation with the Executive Editors. Particular emphasis has been placed on integrating the subject matter of the individual chapters and volumes. Elsevier also offers the Treatise on Geochemistry in electronic format via the online platform ScienceDirect, the most comprehensive database of academic research on the Internet today, enhanced by a suite of sophisticated linking, searching and retrieval tools.

Mine Wastes - Bernd Lottermoser 2007-08-26

This book provides comprehensive, up-to-date overview of the accumulation of wastes at mine, including sulfidic mine wastes, mine water, tailings, cyanidation wastes of gold-silver ores, radioactive wastes of uranium ores, and wastes of phosphate and potash ores. The updated second edition includes new case studies; presents crucial aspects of mine wastes as scientific issues; reflects major developments and contemporary issues in mine waste science; additional figures; and an updated reference list.

Environmental Geochemistry - Benedetto DeVivo 2017-09-18

Environmental Geochemistry: Site Characterization, Data Analysis and Case Histories, Second Edition, reviews the role of geochemistry in the environment and details state-of-the-art applications of these principles in the field, specifically in pollution and remediation situations. Chapters cover both philosophy and procedures, as well as applications, in an array of issues in environmental geochemistry including health problems related to environment pollution, waste disposal and data base management. This updated edition also includes illustrations of specific case histories of site characterization and remediation of brownfield sites. Covers numerous global case studies allowing readers to see principles in action Explores the environmental impacts on soils, water and air in terms of both inorganic and organic geochemistry Written by a well-respected author team, with over 100 years of experience combined Includes updated content on: urban geochemical mapping, chemical speciation, characterizing a brownsfield site and the relationship between heavy metal distributions and cancer mortality

Arsenic in Ground Water - Alan H. Welch 2007-05-08

Interest in arsenic in ground water has greatly increased in the past decade because of the increased awareness of human health effects and the costs of avoidance or treatment of ground water supplies used for consumption. The goal of this book is to provide a description of the basic processes that affect arsenic occurrence and transport by providing sufficient background information on arsenic geochemistry and descriptions of hi- arsenic ground water, both affected and unaffected by human activity. An understanding of thermodynamics, adsorption, and the speciation of arsenic in solid phases, which are described in first three chapters, is needed to predict the fate of arsenic in ground water systems. Large-scale and deep movement of ground water can and has redistributed arsenic in the near surface environment, as described in the next two chapters. These large-scale systems can affect large volumes of both ground water and surface water, such as in the Yellowstone system, and can produce mineralised zones that subsequently release arsenic to ground water supplies. Regional identification of high-arsenic ground water and its consumption as described in the next three chapters clearly demonstrates a need for increased wat- quality monitoring, particularly in south and southeast Asia. Chapters 9-11 provide examples of high arsenic ground water associated with sulfide mineral oxidation and alkaline conditions. Finally, smaller scale studies of the effects of human activities that have produced high-arsenic ground water and methods for attenuation of ground water are presented.

Separating arsenic oxyanions from natural waters for oxygen isotope analysis - Tang, Xiaohui 2014-08-14

Essentials of Medical Geology - Olle Selinus 2013-03-30

Essentials of Medical Geology reviews the essential concepts and practical tools required to tackle environmental and public health

problems. It is organized into four main sections. The first section deals with the fundamentals of environmental biology, the natural and anthropogenic sources of health elements that impact health and illustrate key biogeochemical transformations. The second section looks at the geological processes influencing human exposure to specific elements, such as radon, arsenic, fluorine, selenium and iodine. The third section presents the concepts and techniques of pathology, toxicology and epidemiology that underpin investigations into the human health effects of exposure to naturally occurring elements. The last section provides a toolbox of analytical approaches to environmental research and medical geology investigations. Essentials of Medical Geology was first published in 2005 and has since won three prestigious rewards. The book has been recognized as a key book in both medical and geology fields and is widely used as textbook and reference book in these fields. For this revised edition, editors and authors have updated the content that evolved a lot during 2005 and added two new chapters, on public health, and agriculture and health. This updated volume can now continue to be used as a textbook and reference book for all who are interested in this important topic and its impacts the health and wellbeing of many millions of people all over the world. · Addresses key topics at the intersection of environmental science and human health · Developed by 60 international experts from 20 countries and edited by professionals from the International Medical Geology Association (IMGA) · Written in non-technical language for a broad spectrum of readers, ranging from students and professional researchers to policymakers and the general public · Includes color illustrations throughout, references for further investigation and other aids to the reader

Environmental and Low-Temperature Geochemistry - Peter Ryan 2019-12-16

Environmental and Low-Temperature Geochemistry presents conceptual and quantitative principles of geochemistry in order to foster understanding of natural processes at and near the earth's surface, as well as anthropogenic impacts and remediation strategies. It provides the reader with principles that allow prediction of concentration, speciation, mobility and reactivity of elements and compounds in soils, waters, sediments and air, drawing attention to both thermodynamic and kinetic controls. The scope includes atmosphere, terrestrial waters, marine waters, soils, sediments and rocks in the shallow crust; the temporal scale is present to Precambrian, and the spatial scale is nanometers to local, regional and global. This second edition of Environmental and Low-Temperature Geochemistry provides the most up-to-date status of the carbon cycle and global warming, including carbon sources, sinks, fluxes and consequences, as well as emerging evidence for (and effects of) ocean acidification. Understanding environmental problems like this requires knowledge based in fundamental principles of equilibrium, kinetics, basic laws of chemistry and physics, empirical evidence, examples from the geological record, and identification of system fluxes and reservoirs that allow us to conceptualize and understand. This edition aims to do that with clear explanations of fundamental principles of geochemistry as well as information and approaches that provide the student or researcher with knowledge to address pressing questions in environmental and geological sciences. New content in this edition includes: Focus Boxes – one every two or three pages – providing case study examples (e.g. methyl isocyanate in Bhopal, origins and health effects of asbestiform minerals), concise explanations of fundamental concepts (e.g. balancing chemical equations, isotopic fractionation, using the Keq to predict reactivity), and useful information (e.g. units of concentration, titrating to determine alkalinity, measuring redox potential of natural waters); Sections on emerging contaminants for which knowledge is rapidly increasing (e.g. perfluorinated compounds, pharmaceuticals and other domestic and industrial chemicals); Greater attention to interrelationships of inorganic, organic and biotic phases and processes; Descriptions, theoretical frameworks and examples of emerging methodologies in geochemistry research, e.g. clumped C-O isotopes to assess seawater temperature over geological time, metal stable isotopes to assess source and transport processes, X-ray absorption

spectroscopy to study oxidation state and valence configuration of atoms and molecules; Additional end-of-chapter problems, including more quantitatively based questions. Two detailed case studies that examine fate and transport of organic contaminants (VOCs, PFCs), with data and interpretations presented separately. These examples consider the chemical and mineralogical composition of rocks, soils and waters in the affected system; microbial influence on the decomposition of organic compounds; the effect of reduction-oxidation on transport of Fe, As and Mn; stable isotopes and synthetic compounds as tracers of flow; geological factors that influence flow; and implications for remediation. The interdisciplinary approach and range of topics – including environmental contamination of air, water and soil as well as the processes that affect both natural and anthropogenic systems – make it well-suited for environmental geochemistry courses at universities as well as liberal arts colleges.

Contamination of Water - Arif Ahamad 2021-08-16

Contamination of Water: Health Risk Assessment and Treatment Strategies takes an interconnected look at various pollutants, sources of contamination, the effects of contamination on aquatic ecosystems and human health, and potential mitigation strategies. The book begins by examining the sources of potential contamination, including the current scenario of dyes, heavy metals, pesticides and oils contamination as well as regions impacted due to industrialization, mining or urbanization. It then analyzes various methods of water contamination, assesses health risk and adverse effects on those impacted, and concludes with an exploration of efficient, low-cost treatment technologies that remove toxic pollutants from the water. This book incorporates both theoretical and practical information that will be useful for researchers, professors, graduate students and professionals working on water contamination, environmental and health impacts, and the management and treatment of water resources. Provides practical case studies of various types of contamination and sources in different regions Offers an overview of inorganic and organic contaminants and their impact on human health Evaluates several low-cost, efficient and effective water treatment technologies to remove toxins from water and minimize risk

U.S. Geological Survey Water-supply Paper - 1982

Firestorm - Edward Struzik 2017-10-05

"Frightening...Firestorm comes alive when Struzik discusses the work of offbeat scientists." --New York Times Book Review "Comprehensive and compelling." --Booklist "A powerful message." --Kirkus "Should be required reading." --Library Journal In the spring of 2016, the world watched as wildfire ravaged the Canadian town of Fort McMurray. Firefighters named the fire "the Beast." It seemed to be alive with destructive energy, and they hoped never to see anything like it again. Yet it's not a stretch to imagine we will all soon live in a world in which fires like the Beast are commonplace. In Firestorm, Edward Struzik confronts this new reality, offering a deftly woven tale of science, economics, politics, and human determination. It's possible for us to flourish in the coming age of megafires--but it will take a radical new approach that requires acknowledging that fires are no longer avoidable. Living with fire also means, Struzik reveals, that we must better understand how the surprising, far-reaching impacts of these massive fires will linger long after the smoke eventually clears.

Proceedings of the 10th International Congress for Applied Mineralogy (ICAM) - Maarten A.T.M. Broekmans 2012-03-20

This book comprises 96 peer-reviewed contributions submitted to the 10th ICAM Congress, held in Trondheim, Norway on 01-05 August 2011. Themes covered include: 1) Advanced materials, including high-performance technical ceramics and glasses, 2) Analytical techniques, instrumentation and automation, 3) Bio-mimetic mineral materials, medical mineralogy, 4) Construction materials including cement/SCMs, concrete, bricks, tiles, screeds, 5) Cultural heritage, stone artifacts and preservation, 6) Environment and energy mineralogy, including CO2 sequestration, 7) Geometallurgy and process mineralogy, and 8) Industrial minerals including gems, ore minerals, and mineral exploration.

The Metabolism of Arsenite - Joanne M. Santini 2018-10-03

Up to 200 million people in 70 countries are at risk from drinking water contaminated with arsenic, which is a major cause of chronic debilitating illnesses and fatal cancers. Until recently little was known about the mobility of arsenic, and how redox transformations determined its movement into or out of water supplies. Although human activities contribute to the release of arsenic from minerals, it is now clear that bacteria are responsible for most of the redox transformation of arsenic in the environment. Bacterial oxidation of arsenite (to the less mobile arsenate) has been known since 1918, but it was not until 2000 that a bacterium was shown to gain energy from this process. Since then a wide range of arsenite-oxidizing bacteria have been isolated, including aerobes and anaerobes; heterotrophs and autotrophs; thermophiles, mesophiles and psychrophiles. This book reviews recent advances in the study of such bacteria. After a section on background—geology and health issues—the main body of the book concerns the cellular machinery of arsenite oxidation. It concludes by examining possible applications. Topics treated are: The geology and cycling of arsenic Arsenic and disease Arsenite oxidation: physiology, enzymes, genes, and gene regulation. Community genomics and functioning, and the evolution of arsenite oxidation Microbial arsenite oxidation in bioremediation Biosensors for arsenic in drinking water and industrial effluents

Arsenic in Geosphere and Human Diseases; Arsenic 2010 - Jiin-Shuh Jean 2010-04-26

The congress "Arsenic in the Environment" offers an international, multi- and interdisciplinary discussion platform for arsenic research aimed at short-term solutions of problems with considerable social impact, rather than only focusing on cutting edge and breakthrough research in physical, chemical, toxicological, medical and other specific issue

Medical Geology - Meththika Vithanage 2023-02-20

Medical Geology The key to understanding the relationship between the geological environment and human health Medical geology deals with of the impact of environmental factors on the health of individual human beings and communities. In particular, it studies environmental exposure to both macro- and micronutrients in the geosphere, hydrosphere, and atmosphere—respectively, soil, water, and airborne dust—which may positively or negatively impact human growth, development, and overall health. The insights contributed by this burgeoning field can aid not only in individual medical cases, but also in assessing disproportionately impacted communities and addressing global medical inequality. Medical Geology: En route to One Health is among the first books to address this vital subject by summarizing recent research in this field. It also serves as an introduction to the multidisciplinary One Health methodology, which unites medical, geological, and environmental insights in one continuous approach to public health. Medical Geology readers will also find: An explanation of the influence of the environment on nutrient availability Case studies of well-documented links between endemic diseases and environmental conditions A systematic analysis of the causes of essential element deficiencies in different world regions Medical Geology is an essential overview of the field, for advanced students as well as medical, environmental, or geological researchers who wish to understand the complex relationship between the geological environment and human health.

Medical Mineralogy and Geochemistry - Nita Sahai 2018-12-17

Volume 64 of Reviews in Mineralogy and Geochemistry presents examples that include the effects of inhaled dust particles in the lung (Huang et al. 2006; Schoonen et al. 2006), biomineralization of bones and teeth (Glimcher et al. 2006), the formation of kidney-stones, the calcification of arteries, the speciation exposure pathways and pathological effects of heavy metal contaminants (Reeder et al. 2006; Plumlee et al. 2006), the transport and fate of prions and pathological viruses in the environment (Schramm et al. 2006), the possible environmental-genetic link in the occurrence of neurodegenerative diseases (Perl and Moalem 2006), the design of biocompatible, bioactive ceramics for use as orthopaedic and dental implants and related tissue engineering applications (Cerruti and Sahai 2006) and the

use of oxide-encapsulated living cells for the development of biosensors (Livage and Coradin 2006).

Understanding the Geological and Medical Interface of Arsenic - As 2012 - Jack C. Ng 2012-07-06

The congress "Arsenic in the Environment" offers an international, multi- and interdisciplinary discussion platform for arsenic research aimed at practical solutions of problems with considerable social impact, as well as focusing on cutting edge and breakthrough research in physical, chemical, toxicological, medical and other specific issues on ar

Advances in In Situ Biological and Chemical Groundwater Treatment - Sabrina Saponaro 2020-12-03

This book collects the peer-reviewed contributions accepted for the publication in the Special Issue “Advances in In Situ Biological and Chemical Groundwater Treatment” of the MDPI journal Water. As such, the contributions refer to a variety of widespread pollutants (chlorinated ethenes, chlorinated phenols, chromium, copper, nickel, and arsenic phenols) and new remediation approaches (bioremediation, bioelectrochemical systems, and sorption), covering lab and field studies.

Global Groundwater - Abhijit Mukherjee 2020-11-08

Global Groundwater: Source, Scarcity, Sustainability, Security, and Solutions presents a compilation of compelling insights into groundwater scenarios within all groundwater-stressed regions across the world. Thematic sub-sections include groundwater studies on sources, scarcity, sustainability, security, and solutions. The chapters in these sub-sections provide unique knowledge on groundwater for scientists, planners, and policymakers, and are written by leading global experts and researchers. Global Groundwater: Source, Scarcity, Sustainability, Security, and Solutions provides a unique, unparalleled opportunity to integrate the knowledge on groundwater, ranging from availability to pollution, nation-level groundwater management to transboundary aquifer governance, and global-scale review to local-scale case-studies. Provides interdisciplinary content that bridges the knowledge from groundwater sources to solutions and sustainability, from science to policy, from technology to clean water and food Includes global and regional reviews and case studies, building a bridge between broad reviews of groundwater-related issues by domain experts as well as detailed case studies by researchers Identifies pathways for transforming knowledge to policy and governance of groundwater security and sustainability

Applications of Adsorption and Ion Exchange Chromatography in Waste Water Treatment - Inamuddin 2017-06-01

The ion-exchange process is a natural phenomenon and mankind has been using this technique since the early days of civilisation. With the progress of technologies and concepts, we got a better understanding of this technique and increased its application horizon. Like in other research areas, nanotechnology has also penetrated heavily into this field, and has helped develop smart materials with better properties for application in adsorption and ion-exchange chromatography. A large amount of research was carried out in this field in the last few decades, showing the importance of these materials and technologies. Water treatment is receiving great attention worldwide, due to the increasing demand of drinking water and hence the need to recycle polluted water sources. Keeping this importance in mind, this book “Applications of Adsorption and Ion Exchange Chromatography in Waste Water Treatment” has been edited with contributions from well know experts in the field, who have been working on different ion-exchange materials and technologies for many years.

Arsenic - Kevin Henke 2009-02-25

This book presents an overview of the chemistry, geology, toxicology and environmental impacts of arsenic, presenting information on relatively common arsenic minerals and their key properties. In addition, it includes discussions on the environmental impacts of the release of arsenic from mining and coal combustion. Although the environmental regulations of different nations vary and change over time, prominent International, North American, and European guidelines and regulations on arsenic will be reviewed. Includes information on recent environmental catastrophes (e.g. Bangladesh

and China) A thorough discussion of the arsenic cycle, including the cosmological origin of arsenic Includes Appendices providing extensive glossary and measurement conversion tables

The Taiwan Crisis: a showcase of the global arsenic problem - Jiin-Shuh Jean 2011-03-03

In the 1950s, the residents of the southwestern coastal areas of Taiwan suffered greatly from Blackfoot disease (BFD) due to the consumption of arsenic-contaminated groundwater. Groundwater with high levels of arsenic in southwestern and northeastern Taiwan received much attention. After arsenic-safe tap water was utilized for drinking instead of groundwater in the 1970s, BFD cases decreased greatly. After 1990, no new BFD cases were reported, and as a consequence, BFD problems disregarded. However, arsenic is still present in the groundwater. This book will improve the knowledge and understanding of the occurrence and genesis of arsenic-rich groundwaters in Taiwan. It deals with constraints on the mobility of arsenic in groundwater, its uptake from soil and water by plants, arsenic-propagation through the food chain, human health impacts, and arsenic-removal technologies. Taiwan case experiences are described in this book and can be applied worldwide. This book is a state-of-the-art overview of research on arsenic in Taiwan and is designed to: create interest in regions within Taiwan that are affected by the presence of arseniferous aquifers; draw attention from the international scientific community; increase awareness among researchers, administrators, policy makers, and company executives; improve the international cooperation on arsenic problems worldwide.

In-Situ Remediation of Arsenic-Contaminated Sites - Jochen Bundschuh 2018-10-30

Providing an introduction, the scientific background, case studies and future perspectives of in-situ arsenic remediation technologies for soils, soil water and groundwater at geogenic and anthropogenic contaminated sites. The case studies present in-situ technologies about natural arsenic, specifically arsenate and arsenite, but also about organic arsenic compounds. This work covers geochemical, microbiological and plant ecological solutions for arsenic remediation. It will serve as a standard textbook for (post-)graduate students and researchers in the field of Environmental Sciences and Hydrogeochemistry as well as researchers, engineers, environmental scientists and chemists, toxicologists, medical scientists and even for general public seeking an in-depth view of arsenic which had been classed as a carcinogen. This book aims to stimulate awareness among administrators, policy makers and company executives of in-situ remediation technologies at sites contamined by arsenic and to improve the international cooperation on the subject.

Applications of Synchrotron Radiation in Low-Temperature Geochemistry and Environmental Science - Paul A. Fenter 2018-12-17

Volume 49 of Reviews in Mineralogy and Geochemistry reviews the state of the art of synchrotron radiation applications in low temperature geochemistry and environmental science, and offer speculations on future developments. The reader of this volume will acquire an appreciation of the theory and applications of synchrotron radiation in low temperature geochemistry and environmental science, as well as the significant advances that have been made in this area in the past two decades. It gives a fairly comprehensive overview of synchrotron radiation applications in low temperature geochemistry and environmental science, describes the ways that synchrotron radiation is generated, including a history of synchrotrons and a discussion of aspects of synchrotron radiation that are important to the experimentalist, describes specific synchrotron methods that are most useful for single-crystal surface and mineral-fluid interface studies as well as methods that can be used more generally for investigating complex polyphase fine-grained or amorphous materials, including soils, rocks, and organic matter.

Geochemistry and Environmental Mineralogy of the Iron-sulphur-arsenic System - Mariëtte Wolthers 2003

Managing Arsenic in the Environment - R. Naidu 2006

Contains contributions from an international

team of key researchers in the field Includes individual country reviews and recent international case studies, giving a broad perspective on the extent and severity of arsenic contamination and poisoning throughout the Asia-Pacific region, where the majority of research has occurred to date. Takes a whole of systems approach, providing a comprehensive picture of the transfer of arsenic from ground water to humans, impacts to human health and management strategies Describes recent technological advances for risk management and remediation

Arsenic Contamination of Groundwater - Satinder Ahuja 2008-10-03
Provides a viable reference, describing the state-of-knowledge on sources of arsenic contamination in ground water, which affects about 100 million people worldwide. With contributions from world-renowned experts in the field, this book explores developments in the transport kinetics, detection, measurement, seasonal cycling, accumulation, geochemistry, removal, and toxicology of arsenic. Includes compelling case studies describing how arsenic contamination occurs and the devastating effects on the people and environment affected by it.