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The Blight of Muirwood

The Blight of Muirwood is the second book in the Muirwood Trilogy. The Aldermaston, the protector of Muirwood Abbey, is directed by the Medium to make Lia the new hunter of Muirwood. This will take some doing and a lot of training, but with leather bracers, a shooting glove, and quivers in hand, Lia rises to the challenge. Her first real order is to protect Ellowyn Demont from rivals like the Queen Dowager and the Earl of Dieyre. Lia knows very little about the princess's land of Pry-Ree, but when Ellowyn is abducted, Lia will join forces with Colvin to bring her back. Lia and Colvin must venture into the heart of a fallen kingdom, one devastated by an encroaching sickness called the Blight. It is here that a dark new secret is revealed-one that will make safeguarding the Abbeys nearly impossible.

The Wretched of Muirwood

47North In the ancient and mystical land of Muirwood, Lia has known only a life of servitude. Labeled a "wretched," an outcast unwanted and unworthy of respect, Lia is forbidden to realize her dream to read or write. All but doomed, her days are spent toiling away as a kitchen slave under the charge of the Aldermaston, the Abbey's watchful overseer. But when an injured squire named Colvin is abandoned at the kitchen's doorstep, an opportunity arises. The nefarious Sheriff Almaguer soon starts a manhunt for Colvin, and Lia conspires to hide Colvin and change her fate. In the midst of a land torn by a treacherous war between a ruthless king and a rebel army, Lia finds herself on an ominous journey that will push her to wonder if her own hidden magic is enough to set things right. At once captivating, mysterious, and magic-infused, The Wretched of Muirwood takes the classic fantasy adventure and paints it with a story instantly epic, and yet, all its own.

The Human Division

Pan Macmillan Hard-core science fiction at its very best, John Scalzi's The Human Division is the fifth in The Old Man's War series. Lieutenant Harry Wilson has an impossible mission. He must help preserve the union of humanity's colonies, in the wake of a terrible revelation. For years the Colonial Union has protected its citizens from the dangerous universe around them. But the people of Earth now know the ugly truth. The Union deliberately kept Earth as an ignorant backwater – and as a source of recruits for its war against hostile aliens. Now, other alien races have formed a new alliance against the Union. And they've invited the incensed people of Earth to join them. Managing the Colonial Union's survival will take all the political cunning and finesse its diplomats can muster. And Harry and his team will be deployed to deal with the unexpected – for failure is unthinkable. Continue the gripping space war series with The End of All Things.

Heal Your Knees

How to Prevent Knee Surgery and what to Do If You Need it

Rowman & Littlefield An orthopedic surgeon and a physical therapist join forces to create an exercise program that helps sufferers of knee pain prevent further injury while alleviating pain.

A Color Guide to the Petrography of Carbonate Rocks

Grains, Textures, Porosity, Diagenesis, AAPG Memoir 77

AAPG

Take Back Plenty

Hachette UK A fast-moving space adventure featuring mysterious aliens, a journey to a de-populated planet, a mad run from space cops, a ship captain in trouble, and her AI (Artificially Intelligent) companion/ship's computer. It is carnival time on Mars, but Tabitha Jute isn't partying. She is in hiding from the law, penniless and about to lose her livelihood and her best friend, the space barge "Alice Liddell". Then, the intriguing Marco Metz offers her some money to take him to Plenty, and then the adventure begins. Winner of both the Arthur C. Clarke Award for best science fiction novel of the year and the British Science Fiction Association Award for best novel of the year--the only book ever to win both prestigious British awards. Winner of the Arthur C. Clarke Award for best novel, 1991 Winner of the BSFA Award for best novel, 1991

Abrupt Climate Change

Inevitable Surprises

National Academies Press The climate record for the past 100,000 years clearly indicates that the climate system has undergone periodic--and often extreme--shifts, sometimes in as little as a decade or less. The causes of abrupt climate changes have not been clearly established, but the triggering of events is likely to be the result of multiple natural processes. Abrupt climate changes of the magnitude seen in the past would have far-reaching implications for human society and ecosystems, including major impacts on energy consumption and water supply demands. Could such a change happen again? Are human activities exacerbating the likelihood of abrupt climate change? What are the potential societal consequences of such a change? Abrupt Climate Change: Inevitable Surprises looks at the current scientific evidence and theoretical understanding to describe what is currently known about abrupt climate change, including patterns and magnitudes, mechanisms, and probability of occurrence. It identifies critical knowledge gaps concerning the potential for future abrupt changes, including those aspects of change most important to society and economies, and outlines a research strategy to close those gaps. Based on the best and most current research available, this book surveys the history of climate change and makes a series of specific recommendations for the future.

Introducing Meteorology

Dunedin Academic Press Ltd

Assessment of Intraseasonal to Interannual Climate Prediction and Predictability

National Academies Press More accurate forecasts of climate conditions over time periods of weeks to a few years could help people plan agricultural activities, mitigate drought, and manage energy resources, amongst other activities; however, current forecast systems have limited ability on these time- scales. Models for such climate forecasts must take into account complex interactions among the ocean, atmosphere, and land surface. Such processes can be difficult to represent realistically. To improve the quality of forecasts, this book makes recommendations about the development of the tools used in forecasting and about specific research goals for improving understanding of sources of predictability. To improve the accessibility of these forecasts to decision-makers and researchers, this book also suggests best practices to improve how forecasts are made and disseminated.

America's Climate Choices

National Academies Press Climate change is occurring. It is very likely caused by the emission of greenhouse gases from human activities, and poses significant risks for a range of human and natural systems. And these emissions continue to increase, which will result in further change and greater risks. America's Climate Choices makes the case that the environmental, economic, and humanitarian risks posed by climate change indicate a pressing need for substantial action now to limit the magnitude of climate change and to prepare for adapting to its impacts. Although there is some uncertainty about future risk, acting now will reduce the risks posed by climate change and the pressure to make larger, more rapid, and potentially more expensive reductions later. Most actions taken to reduce vulnerability to climate change impacts are common sense investments that will offer protection against natural climate variations and extreme events. In addition, crucial investment decisions made now about equipment and infrastructure can "lock in" commitments to greenhouse gas emissions for decades to come. Finally, while it may be possible to scale back or reverse many responses to climate change, it is difficult or impossible to "undo" climate change, once manifested. Current efforts of local, state, and private-sector actors are important, but not likely to yield progress comparable to what could be achieved with the addition of strong federal policies that establish coherent national goals and incentives, and that promote strong U.S. engagement in international-level response efforts. The inherent complexities and uncertainties of climate change are best met by applying an iterative risk management framework and making efforts to significantly reduce greenhouse gas emissions; prepare for adapting to impacts; invest in scientific research, technology development, and information systems; and facilitate engagement between scientific and technical experts and the many types of stakeholders making America's climate choices.

Lectures in Meteorology

Springer Lectures in Meteorology is a comprehensive reference book for meteorologists and environmental scientists to look up material on the thermodynamics, dynamics and chemistry of the troposphere. The lectures demonstrate how to derive/develop equations – an essential tool for model development. All chapters present applications of the material including numerical models. The lectures are written in modular form, i.e. they can be used at the undergraduate level for classes covered by the chapters or at the graduate level as a comprehensive, intensive course. The student/instructor can address chapters 2 (thermodynamics) and 4 (radiation) in any order. They can also switch the order of chapter 5 (chemistry) and 6 (dynamics). Chapter 7 (climatology and climate) requires an understanding of all chapters. Chapter 3 (cloud physics) needs basics from chapter 2 to understand the cloud microphysical processes. The governing conservation equations for trace constituents, dry air, water substances, total mass, energy, entropy and momentum are presented, including simplifications and their application in models. A brief introduction to atmospheric boundary layer processes is presented as well. Basic principles of climatology discussed include analysis methods, atmospheric waves and their analytical solutions, tropical and extra-tropical cyclones, classical and non-classical mesoscale circulations, and the global circulation. The atmospheric chemistry section encompasses photolytic and gas-phase processes, aqueous chemistry, aerosol processes, fundamentals of biogeochemical cycles and the ozone layer. Solar and terrestrial radiation; major absorber; radiation balance; radiative equilibrium; radiative-convective equilibrium; and basics of molecular, aerosol and cloud adsorption and scattering and their use in remote sensing are also presented.

Light Scattering Reviews, Vol. 6

Light Scattering and Remote Sensing of Atmosphere and Surface

Springer Science & Business Media This is the next volume in series of Light Scattering Reviews. Volumes 1-5 have already been printed by Springer. The volume is composed of several papers (usually, 10) of leading researchers in the respective field. The main focus of this book is light scattering, radiative transfer and optics of snow.

Dynamic Meteorology

Springer Science & Business Media 1. ABOUT THE DISCIPLINE 'DYNAMIC METEOROLOGY' The name 'dynamic meteorology' is traditional for designating a university course as well as the scientific branch of meteorology as a whole. While there is no need to abandon this name, it needs contemporary treatment and specifications in its definition. A synonym for it could be 'dynamics (more precisely, hydrodynamics or fluid dynamics) of the atmosphere'. It suggests the relationship of this discipline to general hydrodynamics and applied mathematics and its pronounced theoretical nature. Besides the atmosphere, however, our planet has another (liquid) envelope - the hydrosphere (world's ocean), which also concerns ocean dynamics and, therefore, it is necessary to define, from a unified standpoint, the subject and aims of the disciplines dealing with the dynamics of the processes which take place in both fluid spheres. Such a unified standpoint offers the so-called geophysical fluid dynamics. During the past few years this description is encountered quite often in scientific literature concerning the Earth as a planet. Obviously, a scientific branch or a science is created whose subject is our planet and the investigation methods are borrowed from classical fluid dynamics and applied mathematics, including the most recent numerical methods. As can be seen from its very suitable name, it is the dynamics of quite definite geophysical fluids (atmosphere, ocean and even the liquid inside of the Earth) and not of some abstract (often perfect) flUids, as in classical hydrodynamics.

Advances in Fission-Track Geochronology

Springer Science & Business Media Since 1980, progress in research on the fission-track dating method and its applications to earth and related sciences has been evaluated during an International Workshop that takes place every four years. This volume contains a selection of papers presented at the International Workshop held in Gent (Belgium) from 26 to 30 August, 1996. Primarily the articles will be of interest to the active fission-track scientists but the combination of research papers and critical reviews that is presented may also provide the interested non-specialist reader with a valuable insight into the fission-track dating method and its role in the earth sciences. This reader will undoubtedly note the evolution that the method has undergone during the last fifteen years, from a technique that was debated in most of its facets to an established chronometric tool with unique qualities in geothermochronology.

Analysis of SAR Data of the Polar Oceans

Recent Advances

Springer Science & Business Media This book is a collection of the most recent and significant research on algorithms for the analysis of polar sea-ice SAR data. All algorithms are implemented and tested. One chapter is from the Alaskan SAR Facility, the major NASA archive of polar SAR data and a source of many SAR analysis algorithms, including high-level results of such analyses. One chapter has been written jointly by the US and Canadian Ice Centers, which provide e.g., operational sea-ice products to the shipping and oil-drilling industries and to polar explorations. This book will be useful to all researchers in the polar sciences community.

35 Seasons of U.S. Antarctic Meteorites (1976-2010)

A Pictorial Guide To The Collection

John Wiley & Sons The US Antarctic meteorite collection exists due to a cooperative program involving the National Science Foundation (NSF), the National Aeronautics and Space Administration (NASA), and the Smithsonian Institution. Since 1976, meteorites have been collected by a NSF-funded field team, shipped for curation, characterization, distribution, and storage at NASA, and classified and stored for long term at the Smithsonian. It is the largest collection in the world with many significant samples including lunar, martian, many interesting chondrites and achondrites, and even several unusual one-of-a-kind meteorites from as yet unidentified parent bodies. Many Antarctic meteorites have helped to define new meteorite groups. No previous formal publication has covered the entire collection, and an overall summary of its impact and significant samples has been lacking. In addition, available statistics for the collection are out of date and need to be updated for the use of the community. 35 seasons of U.S. Antarctic Meteorites (1976-2011): A Pictorial Guide to the Collection is the first comprehensive volume that portrays the most updated key significant meteoritic samples from Antarctica. 35 seasons of U.S. Antarctic Meteorites presents a broad overview of the program and collection nearly four decades after its beginnings. The collection has been a consistent and reliable source of astromaterials for a large, diverse, and active scientific community. Volume highlights include: Overview of the history, field practices, curation approaches Special focus on specific meteorite types and the impact of the collection on understanding these groups (primitive chondrites, differentiated meteorites, lunar and martian meteorites) Role of Antarctic meteorites in influencing the determination of space and terrestrial exposure ages for meteorites Statistical summary of the collection by year, region, meteorite type, as well as a comparison to modern falls and hot desert finds The central portion of the book features 80 color plates each of which highlights more influential and interesting samples from the collection. 35 seasons of U.S. Antarctic Meteorites would be of special interest to a multidisciplinary audience in meteoritics, including advanced graduate students and geoscientists specializing in mineralogy, petrology, geochemistry, astronomy, near-earth object science, astrophysics, and astrobiology.

Air-Sea Exchange: Physics, Chemistry and Dynamics

Springer Science & Business Media During the 1980's a wealth of information was reported from field and laboratory experiments in order to validate andlor modify various aspects of the surface layer Monin-Obukhov (M-O) similarity theory for use over the sea, and to introduce and test new concepts related to high resolution flux magnitudes and variabilities. For example, data from various field experiments conducted on the North Sea, Lake Ontario, and the Atlantic experiments, among others, yielded information on the dependence of the flux coefficients on wave state. In all field projects, the usual criteria for satisfying M-O similarity were applied. The assumptions of stationarity and homogeneity was assumed to be relevant over both small and large scales. In addition, the properties of the outer layer were assumed to be "correlated" with properties of the surface layer. These assumptions generally required that data were averaged for spatial footprints representing scales greater than 25 km (or typically 30 minutes or longer for typical windspeeds). While more and more data became available over the years, and the technology applied was more reliable, robust, and durable, the flux coefficients and other turbulent parameters still exhibited significant unexplained scatter. Since the scatter did not show sufficient reduction over the years to meet customer needs, in spite of improved technology and heavy financial investments, one could only conclude that perhaps the use of similarity theory contained too many simplifications when applied to environments which were more complicated than previously thought.

A Petrographic Atlas of Ophiolite

An example from the eastern India-Asia collision zone

Springer Science & Business Media The book is a thoughtful discussion with scientists studying convergent plate boundaries such as the well-known, active India-Eurasia collision zone. It provides a comprehensive collection of petrographic images of ophiolitic rocks exhumed from oceanic lithosphere and mantle at the India-Asia plate boundary. Ophiolite is exposed in the northwestern Himalayas, eastern Indian plate margin and Andaman-Nicobar Islands. At the eastern margin, it occurs in a narrow strip comprising mantle peridotite

tectonite, cummulate peridotite-gabbro-plagiogranite-anorthosite, mafic dyke, volcanics and oceanic sediments. Low temperature/high pressure rocks including blueschists and eclogites were extensively studied recently. Ophiolite derived sediments and podiform chromites will also be discussed to provide complete details. Supplemental maps, geological sections, field sketches and photographs will explain the structure, stratigraphy, ore mineralization, and metamorphic history.

Cryosols

Permafrost-Affected Soils

Springer Science & Business Media Cryosols – permafrost – occupy a unique part of the earth and have properties greatly different from other soils. They also occur where the greatest impact of global warming is predicted. This is the first book bring together the leading researchers in the area of permafrost soils to produce a review of the geography, cryogenic soil forming processes, ecological processes, classification and use of soils that are affected by permafrost.

Footprints in Micrometeorology and Ecology

Springer How to interpret meteorological measurements made at a given level over a surface with regard to characteristic properties such as roughness, albedo, heat, moisture, carbon dioxide, and other gases is an old question which goes back to the very beginnings of modern micrometeorology. It is made even more challenging when it is unclear whether these measurements are only valid for this point/region and precisely describe the conditions there, or if they are also influenced by surrounding areas. After 50 years of field experiments, it has become both apparent and problematic that meteorological measurements are influenced from surfaces on the windward side. As such, extending these measurements for inhomogeneous experimental sites requires a quantitative understanding of these influences. When combined with atmospheric transport models similar to air pollution models, the 'footprint' concept – a fundamental approach introduced roughly 20 years ago – provides us with information on whether or not the condition of upwind site homogeneity is fulfilled. Since these first models, the development of more scientifically based versions, validation experiments and applications has advanced rapidly. The aim of this book is to provide an overview of these developments, to analyze present deficits, to describe applications and to advance this topic at the forefront of micrometeorological research.

Dynamics of Internal Gravity Waves in the Ocean

Springer Science & Business Media This monograph creates a systematic interpretation of the theoretical and the most actual experimental aspects of the internal wave dynamics in the ocean. Firstly, it draws attention to the important physical effects from an oceanographical point of view which are presented in mathematical descriptions. Secondly, the book serves as an introduction to the range of modern ideas and the methods in the study of wave processes in dispersive media. The book is meant for specialists in physics of the ocean, oceanography, geophysics, hydroacoustics.

An Introduction to the Study of Mineralogy

BoD – Books on Demand An Introduction to the Study of Mineralogy is a collection of papers that can be easily understood by a wide variety of readers, whether they wish to use it in their work, or simply to extend their knowledge. It is unique in that it presents a broad view of the mineralogy field. The book is intended for chemists, physicists, engineers, and the students of geology, geophysics, and soil science, but it will also be invaluable to the more advanced students of mineralogy who are looking for a concise revision guide.

Advances in Seismic Event Location

Springer Science & Business Media Advances in Seismic Event Location provides a broad overview of the fundamental issues involved in seismic event location, and presents a variety of state-of-the-art location methods and applications at a wide range of spatial scales. Three important themes in the book are: seismic monitoring for a Comprehensive

Nuclear-Test-Ban Treaty (CTBT), seismic event location in three-dimensional Earth models, and methods for multiple-event location. Each chapter contains background material to help readers less familiar with the topics covered, as well as to provide abundant references for readers interested in probing deeper into a topic. However, most of the emphasis is on recent advances in methodology and their application. Audience: The book is intended primarily for academic and professional researchers and graduate students in seismology.

Airborne Measurements for Environmental Research

Methods and Instruments

John Wiley & Sons This first comprehensive review of airborne measurement principles covers all atmospheric components and surface parameters. It describes the common techniques to characterize aerosol particles and cloud/precipitation elements, while also explaining radiation quantities and pertinent hyperspectral and active remote sensing measurement techniques along the way. As a result, the major principles of operation are introduced and exemplified using specific instruments, treating both classic and emerging measurement techniques. The two editors head an international community of eminent scientists, all of them accepted and experienced specialists in their field, who help readers to understand specific problems related to airborne research, such as immanent uncertainties and limitations. They also provide guidance on the suitability of instruments to measure certain parameters and to select the correct type of device. While primarily intended for climate, geophysical and atmospheric researchers, its relevance to solar system objects makes this work equally appealing to astronomers studying atmospheres of solar system bodies with telescopes and space probes.

Alluvial Fans

Geomorphology, Sedimentology, Dynamics

Geological Society of London Alluvial fans are important sedimentary environments. They trap sediment delivered from mountain source areas, and exert an important control on the delivery of sediment to downstream environments, to axial drainages and to sedimentary basins. They preserve a sensitive record of environmental change within the mountain source areas. Alluvial fan geomorphology and sedimentology reflect not only drainage basin size and geology, but change in response to tectonic, climatic and base-level controls. One of the challenges facing alluvial fan research is to resolve how these gross controls are reflected in alluvial fan dynamics and to apply the results of studies of modern fan processes and Quaternary fans to the understanding of sedimentary sequences in the rock record. This volume includes papers based on up-to-date research, and focuses on three themes: alluvial fan processes, dynamics of Quaternary alluvial fans and fan sedimentary sequences. Linking the papers is an emphasis on the controls of fan geomorphology, sedimentology and dynamics. This provides a basis for integration between geomorphological and sedimentological approaches, and an understanding how fluvial systems respond to tectonic, climatic and base-level changes.

A Vision for the National Weather Service

Road Map for the Future

National Academies Press In this study, the committee explores ways the National Weather Service (NWS) can take advantage of continuing advances in science and technology to meet the challenges of the future. The predictions are focused on the target year 2025. Because specific predictions about the state of science and technology or the NWS more than 25 years in the future will not be entirely accurate, the goal of this report is to identify and highlight trends that are most likely to influence change. The Panel on the Road Map for the Future National Weather Service developed an optimistic vision for 2025 based on advances in science and technology.

Climate Development and History of the North Atlantic Realm

Springer Science & Business Media The global environment is changing rapidly under the impact of human activities, and an important element of this change is related to global c1imate modification. Can the study of c1imate and history help in devising strategies for coping with this change? What might be the type of information most useful in this context? What are the pitfalls awaiting the unwary? These are the kinds of questions that led us to bring together experts from the natural and social sci ences with a strong interest in history, to promote discussion between workers in different disciplines by focussing on a common topic of great interest to society. The meeting was arranged in the framework of a "Hanse Conference" within the interdisciplinary program of the Hanse-Wissenschaftskolleg, a foundation set up to promote interdisciplinary studies in collaboration between the universities ofBremen and Oldenburg. The aim ofthe Hanse Conferences in general is to provide opportunities for experts from different fields of the sciences and humanities to come together and explore the larger framework oftopics of common interest. What unites the partici pants is their desire to look over the fence to neighboring disciplines. Young colleagues who wish to build an interdisciplinary career are particularly welcome. In the Hanse Conference on Climate and History, we have endeavoured to build bridges between the c1imate sciences and the sociological sciences concemed with environmental impacts on human activities. The geological sciences, we felt, are especially well suited to the purpose because they al ready comprise historical aspects.

Climate Variability and Change in High Elevation Regions: Past, Present & Future

Springer Science & Business Media Glaciers in the Andes are particularly important natural archives of present and past climatic and environmental changes, in significant part because of the N-S trend of this topographic barrier and its influence on the atmospheric circulation of the southern hemisphere. Strong gradients in the seasonality and amount of precipitation exist between the equator and 30° S. Large differences in amount east and west of the Andean divide also occur, as well as a change from tropical summer precipitation (additionally modified by the seasonal shift of the circulation belts) to winter precipitation in the west wind belt (e. g. , Yuille, 1999; Garraud and Aceituno, 2001). The so-called 'dry axis' lies between the tropical and extra tropical precipitation regimes (Figure 1). The high mountain desert within this axis responds most sensitively to the smallest changes in effective moisture. An important hydro-meteorological feature on a seasonal to inter-annual time-scale is the occurrence of EN SO events, which strongly control the mass balance of glaciers in this area (e. g. , Wagnon et ai. , 2001; Francou et ai. , in press). The precipitation pattern is an important factor for the interpretation of climatic and environmental records extracted from ice cores, because much of this information is related to conditions at the actual time of precipitation, and this is especially so for stable isotope records. Several ice cores have recently been drilled to bedrock in this area. From Huascanin (Thompson et ai. , 1995), Sajama (Thompson et ai.

Environmental Interactions of Clays

Clays and the Environment

Springer Science & Business Media This companion volume to Velde's Origin and Mineralogy of Clays deals with the role of clays in specific environmental issues, and is unique in its subject matter. Individual chapters are written by recognized international experts in their field, and cover such subjects as radioactive waste disposal, trace metals, soil quality and productivity, pesticides, landfill, fibrous minerals and health. The approach combines reviews with current research, making it an invaluable resource for students, researchers and practitioners alike.

From Turbulence to Climate

Numerical Investigations of the Atmosphere with a Hierarchy of Models

Springer Science & Business Media This volume covers aspects of numerical modeling of the atmosphere and climate from the microscales of turbulence to the very large scales associated with climate and climatic change. Each of the three major spatio-temporal scales of the atmosphere, namely, the microscale, the mesoscale, and the macroscale is addressed through a hierarchy of models. Results of model simulations are illustrated throughout the text, with many of these examples based on the author's original research work. For each type of model discussed here, the theoretical background, including governing equation sets, simplifying assumptions, and advantages and limits of the models, is provided. The topic of coupled, or nested, modeling systems as a promising approach to air pllution embedded in regional atmospheric flows, as well as to the regional atmospheric response to global climate forcings, is also addressed. An attempt is made throughout the book to highlight the highly interdisciplinary nature of atmospheric modeling, particularly in those sections dealing with climatic change issues.

Advanced Topics in Biomineralization

BoD – Books on Demand Advanced Topics in Biomineralization is a compendium of current topics focusing on processes of formation, organization, as well as mineralization of novel structural materials. From enchondral ossification to the application of biomineralized cement, the subject of biomineralization encompasses a range of diverse disciplines including molecular biology, supramolecular chemistry, materials science and engineering. A common theme in all these areas of research in biomineralization is the ability to utilize strategies from Nature to create functional materials. By understanding Nature's tools to make strong and tough materials, similar properties can be endowed into man-made materials in the near future.

Detecting and Modelling Regional Climate Change

Springer Science & Business Media For the very first time, this book provides updated, integrated and organized, theoretical and methodological information on regional climate change and the associated environmental and socio-economic impacts on a regional scale. The most recent findings in the field of long-term climate change, which improve our understanding of the global climate puzzle, will be presented. Readers are introduced to state-of-the-art research in downscaling and GCMs, which involve the construction of reliable regional climate scenarios and the solution to key problems regarding the assessment of the impacts of climate change in the most important geographical areas of the world, from the Arctic to Antarctic regions, with special emphasis on the Northern Hemisphere.

Drilling in Extreme Environments

Penetration and Sampling on Earth and other Planets

John Wiley & Sons Uniquely comprehensive and up to date, this book covers terrestrial as well as extraterrestrial drilling and excavation, combining the technology of drilling with the state of the art in robotics. The authors come from industry and top ranking public and corporate research institutions and provide here real-life examples, problems, solutions and case studies, backed by color photographs throughout. The result is a must-have for oil companies and all scientists involved in planetary research with robotic probes. With a foreword by Harrison "Jack" Schmitt -- the first geologist to drill on the moon.

3D, 4D and Predictive Modelling of Major Mineral Belts in Europe

Springer This book presents the results of the major EU project Promine. For the first time there is now a European database available on mineral deposits, as well as 3D, 4D and predictive models of major mineral belts in Europe: Fennoscandia (Skellefteå and Vihanti-Pyhäsalmi), the Fore-Sudetic basin (Kupferschiefer deposits in Poland and Germany), the Hellenic belt in northern Greece, and the Iberian Pyrite belt and Ossa Morena zone in Spain and Portugal. The book also describes the modelling techniques applied and how

different types of software are used for three- and four-dimensional modelling. Furthermore, fundamental descriptions of how to build the database structure of three-dimensional geological data are provided and both 2D and 3D predictive models are presented for the main mineral belts of Europe.

Aeolian Sediments

Ancient and Modern

John Wiley & Sons Studies of aeolian sediments, both ancient and modern, have exhibited a number of important conceptual advances in recent years. In particular, there has been a move away from descriptions of sediments, bedforms and sedimentary environments toward a new emphasis on the dynamics of aeolian depositional systems at different temporal and spatial scales, and their response to external changes in sea levels, regional and global climates and tectonics. This Special Publication contains a selection of papers that were presented at the Symposium "Aeolian Sediments: Ancient and Modern" held in 1990. It also includes a number of contributions from authors who were not able to attend the meeting, but whose work reflects important aspects of contemporary research in aeolian sedimentology. State-of-the-art research papers in aeolian sedimentology International, expert authorship Of relevance to modern concerns about global climate change If you are a member of the International Association of Sedimentologists, for purchasing details, please see: http://www.iasnet.org/publications/details.asp?code=SP16

Ancient Earthquakes

Geological Society of America "Ancient earthquakes are pre-instrumental earthquakes that can only be identified through indirect evidence in the archaeological (archaeoseismology) and geological (palaeoseismology) record. Special Paper 471 includes a selection of cases convincingly illustrating the different ways the archaeological record is used in earthquake studies. The first series of papers focuses on the relationship between human prehistory and tectonically active environments, and on the wide range of societal responses to historically known earthquakes. The bulk of papers concerns archaeoseismology, showing the diversity of approaches, the wide range of disciplines involved, and its potential to contribute to a better understanding of earthquake history. Ancient Earthquakes will be of interest to the broad community of earth scientists, seismologists, historians, and archaeologists active in and around archaeological sites in the many regions around the world threatened by seismic hazards. This Special Paper frames in the International Geoscience Programme IGCP 567 'Earthquake Archaeology: Archaeoseismology along the Alpine-Himalayan Seismic Zone.'"--Publisher's description.

Chemistry of the Climate System

Walter de Gruyter GmbH & Co KG Climate change is a major challenge facing the modern world. The chemistry of air and it's influence on the climate system forms the main focus of this monograph. The book presents a problem-based approach to presenting global atmospheric processes, evaluating the effects of changing air composition as well as possibilities for interference within these processes and indicates ways for solving the problem of climate change through chemistry. The new edition includes innovations and latest research results.

Atmospheric Measurements during POPCORN — Characterisation of the Photochemistry over a Rural Area

Springer Science & Business Media Present policy issues concern the reduction of ozone levels by controlling its precursors, NOx and volatile organic compounds (VOC). VOC are emitted from anthropogenic and biogenic sources. Whereas our understanding of VOC emissions from anthropogenic sources has advanced significantly in recent years, there is still a lack of knowledge concerning the contribution of biogenic VOC to the budget of organic trace gases and their impact on the formation of ozone in the troposphere. Improving ozone reduction strategies in the future requires a detailed understanding of the chemical processes in the troposphere. This book comprises the results of atmospheric measurements obtained during the field campaign POPCORN (Photo-Oxidant Formation by Plant Emitted Compounds and OH Radicals in North-Eastern Germany) which was carried

out to investigate the role and impact of biogenic trace gases on tropospheric chemistry. This volume describes meteorological situations and origins of air masses during the campaign, and presents measurements of a variety of trace gases, solar radiation and photolysis frequencies. Special attention is given to OH radical measurements and the in-situ comparison of the two OH measurement techniques.

Bitumens in Ore Deposits

Springer Science & Business Media This volume covers the occurrence, interpretation and significance of bitumens (hydrocarbon residues) in ore deposits. Bitumens occur with a wide variety of ores, including deposits of base metals, mercury, uranium, gold and other precious metals. The papers included reflect this variety of bitumen occurrences and the potential for obtaining useful data from them. The contributions are written by acknowledged experts in this field, who cover analytical techniques and case studies using diverse petrographic and geochemical approaches which will give ore geologists and geochemists an excellent insight into the interpretation of bitumens during mineral exploration. The large number of plates in particular will help the non-specialist to make good use of the volume through the application to new deposits. This is the most comprehensive set of contributions published on a subject of growing interest; at a time when explorationists are increasingly recognising the occurrence of bitumens in ore deposits and the fact that the evolution of mineralising fluids and hydrocarbon fluids may be closely interlinked.

Arctic Matters

The Global Connection to Changes in the Arctic

National Academies Press Viewed in satellite images as a jagged white coat draped over the top of the globe, the high Arctic appears distant and isolated. But even if you don't live there, don't do business there, and will never travel there, you are closer to the Arctic than you think. Arctic Matters: The Global Connection to Changes in the Arctic is a new educational resource produced by the Polar Research Board of the National Research Council (NRC). It draws upon a large collection of peer-reviewed NRC reports and other national and international reports to provide a brief, reader-friendly primer on the complex ways in which the changes currently affecting the Arctic and its diverse people, resources, and environment can, in turn, affect the entire globe. Topics in the booklet include how climate changes currently underway in the Arctic are a driver for global sea-level rise, offer new prospects for natural resource extraction, and have rippling effects through the world's weather, climate, food supply and economy.