

**Arctic Region &  
Antarctica Issues &  
Research**

**Climate Change &  
Its Causes, Effects  
& Prediction**

**Earth Sciences in  
the 21st Century**

**Environmental  
Remediation  
Technologies,  
Regulations &  
Safety**

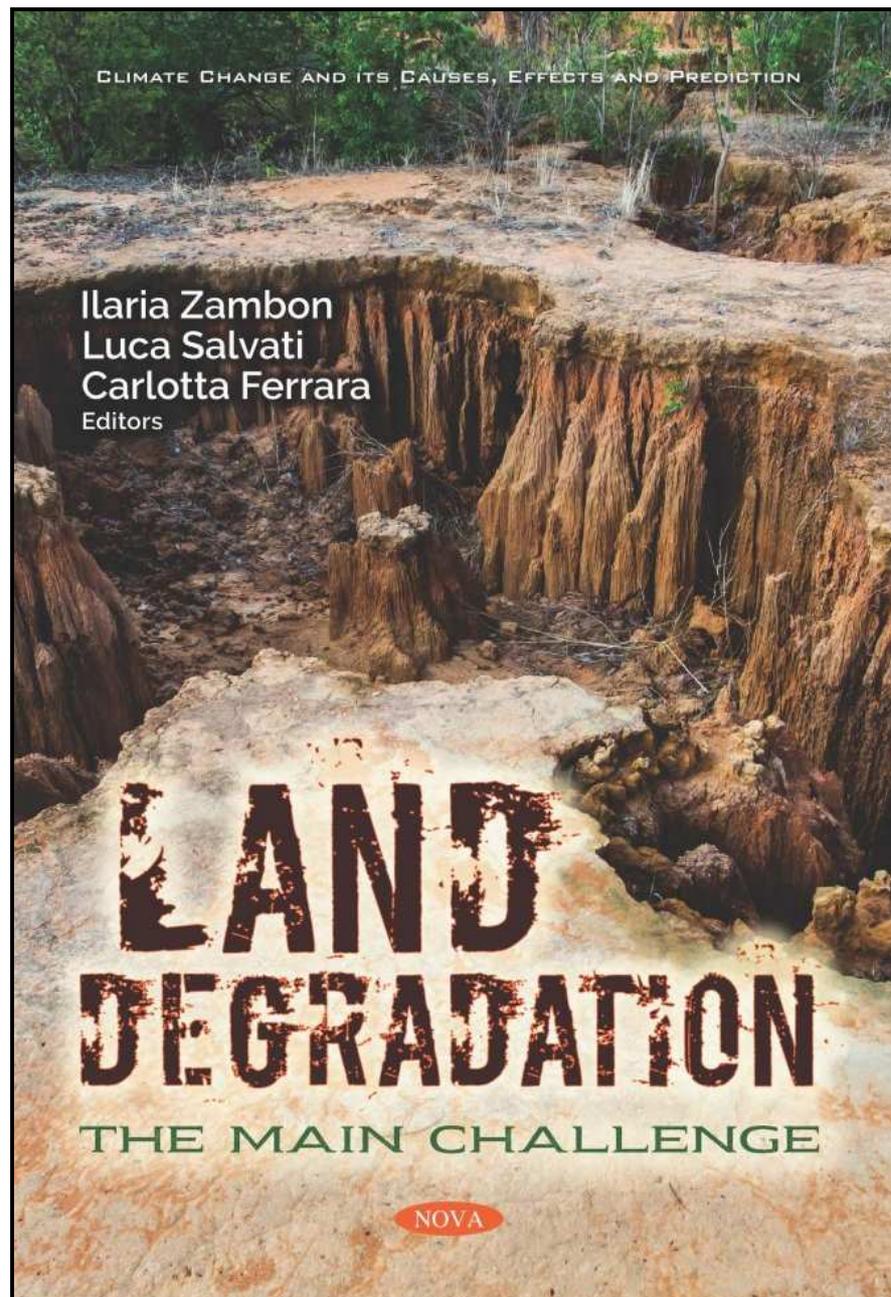
**Environmental  
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**Geology &  
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Research  
Developments**

**Horizons in Earth  
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**Origin, Evolution &  
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## **Geography & Environment**



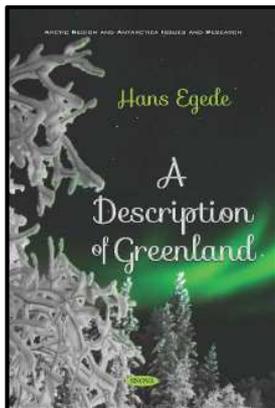
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## Arctic Region & Antarctica Issues & Research Series



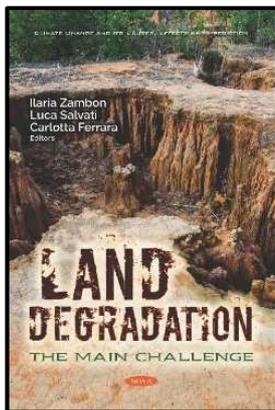
### **A Description of Greenland**

Hans Egede

Hans Egede was a Lutheran missionary who launched mission efforts to Greenland. He embarked for Greenland, with his wife and four small children, the 12th of May, 1721; and he landed in Ball's River, the 3d of July. He established a successful mission among the Inuit and is credited with revitalizing the island.

PB 9781536150773 £90.99 March 2019 Nova Science Publishers 185 pages

## Climate Change & Its Causes, Effects & Prediction



### **Land Degradation**

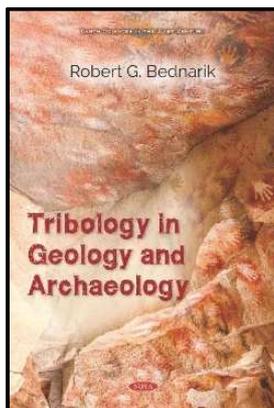
#### **The Main Challenge**

Edited by Ilaria Zambon, Luca Salvati, Carlotta Ferrara

Desertification is one of the most important issues facing our societies because of its serious consequences for human health, landscape and the environment. Nonetheless, the issue has been in the eyes of media, decision makers and public opinion and it should be noted that this interest tends to be cyclical, corresponding to peaks that reflect the outbreak of emergency situations related to prolonged episodes of drought and water scarcity, in turn associated with climate changes.

This volatile interest has focused on the relationship between desertification and climate change (and more generally on the biophysical factors underlying desertification), neglecting the important role played by social, economic, cultural, political and institutional factors. This role — brought to the fore by the most recent socioeconomic dynamics at various spatial scales — requires dedicated approaches from the scientific point of view and a less sensationalistic dissemination of research evidence. This book proposes a trans-disciplinary vision on issues of desertification and land degradation, focusing on long-term socio-ecological dynamics as an interpretative key to local systems' complexity.

PB 9781536155754 £78.99 June 2019 Nova Science Publishers 154 pages



### **Tribology in Geology and Archaeology**

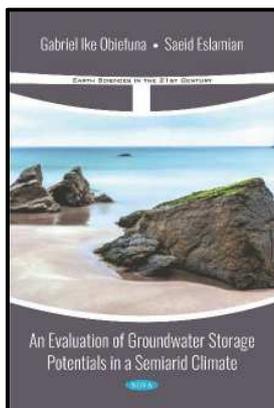
Robert G. Bednarik

Tribology, the science of interacting surfaces in relative motion, has traditionally focused on technological applications, although some attention has been given to geotribology and tribochemistry. This volume explores the geological applications of tribology in some detail, before introducing the entirely new subdisciplines of archaeotribology and the tribology of rock art. The various geological, archaeological, and rock art applications are then correlated through the detailed description of a tribological phenomenon of the natural world that was only discovered most recently, kinetic energy metamorphosis (KEM).

This newly described phenomenon was first observed as a by-product of rock art production, but it was subsequently recognized as a widespread physical process whose effects are much more common in both geology and archaeology. Not only does this book illuminate the holistic and thus inter-disciplinary character of natural processes, it also presents the need to view tribology as a science connected to many other fields. Therefore, this volume advocates an extended scope for a science traditionally focused on aspects of friction, wear, and lubrication of machines. This enhances the importance of tribology, while at the same time enriching disciplines that have never even been considered to have potential connections with tribology. The book therefore succeeds in demonstrating that, ultimately, all disciplines are interconnected in the magnificent web of science, in which all fields of scientific enquiry must play a role.

This book thus presents a strong statement on the need for integrative understanding, but at the same time it demands high standards of epistemology. The introductory chapter presents a rigorous definition of science, and of the inherent characteristics of scientific propositions. It is followed by a chapter about geotribology, detailing the many applications of tribology in the vast field of geology. This includes reviews of fluvial, aeolian, glacial, and tectonic processes, each of which deals with interacting surfaces in relative motion. In the next section, the numerous applications of tribology in archaeology are examined in some detail. The chapter on the tribological nature of all rock art presents an innovative review of a topic never before defined as tribological. The “climax” of the book, however, is in the concluding chapter, which expounds and analyzes the newly discovered process of KEM. First detected in a specific kind of rock art, it was upon investigation identified as a major contributor to several hitherto unexplained phenomena in geology. In this way, the volume demonstrates strikingly how all of science, in the end, forms a single interconnected system.

HB 9781536149098 £219.99 March 2019 Nova Science Publishers 322 pages



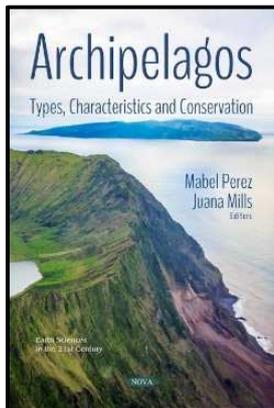
### **An Evaluation of Groundwater Storage Potentials in a Semiarid Climate**

Gabriel Ike Obiefuna, Saeid Eslamian

This book focuses on evaluating the groundwater storage potentials of a semiarid environment of northeastern Nigeria. The book uses the proven and well established methods and approaches in identifying aquifer types and calculating aquifer parameters, simulating groundwater flow net and transport. We also employ the measured and estimated water budget parameters in evaluating groundwater storage potentials of a hitherto virgin area of Nigeria.

We have featured more than 24 figures, diagrams and illustrations to highlight the major themes, that are important in the retention of key concepts. This book presents a holistic approach to advances in groundwater hydrology from recent developments in reservoirs and hydraulics and analytic modeling of transient multi-layer flow. This book therefore integrates the real life data and gives the examples of processes that make the content practical and implementable. These are the examples of developments in groundwater hydrology that underscored perspectives regarding the challenges faced by industry, professionals, researchers and academia.

PB 9781536149005 £90.99 April 2019 Nova Science Publishers 122 pages



**Archipelagos**  
**Types, Characteristics and Conservation**  
Edited by Mabel Perez, Juana Mills

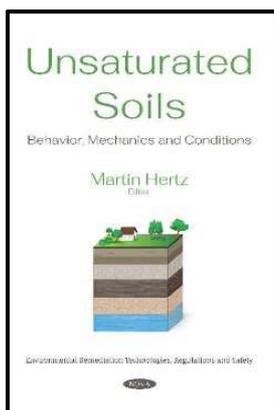
*Archipelagos: Types, Characteristics and Conservation* begins by examining the Canary Islands and their characteristic orography and regime of winds that affect this archipelago. Investigations were carried out by the authors which allowed for the characterization of the atmospheric corrosion for metals of wide industrial use.

Due to its geographical location, the Azores archipelago is one of the perfect places to observe and study the characteristics of atmospheric processes. The remote conditions of the islands allow for the monitoring of greenhouse gases without the influence of local sources of pollution. Consequences of climate change are also discussed.

The closing chapter discusses a new paradigm in the sol-gel synthesis, particularly in the synthesis of bioactive glass. In this new approach, the deionized water is replaced by highly ionized and naturally acidified thermal water collected from springs located in Furnas Volcano. Given the potential impact of these waters on the structure and bioactivity of sol-gel bioactive glass, special emphasis is given to their genesis, physicochemical properties and ionic diversity.

PB 9781536146813 £78.99 January 2019 Nova Science Publishers 103 pages

## Environmental Remediation Technologies, Regulations & Safety



**Unsaturated Soils**  
**Behavior, Mechanics and Conditions**  
Martin Hertz

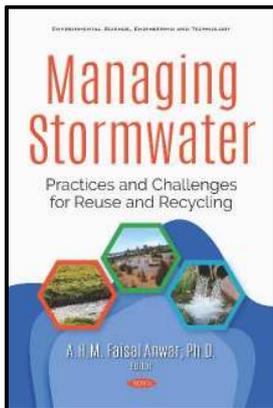
This compilation opens with an exploration of the vadose, or unsaturated zone, which is of utmost importance as the nexus between surface water and groundwater. It is the link between what happens on the surface and what happens below, inside the aquifers. As such, understanding this underground natural environment is essential for the sustainable development of society.

Due to the complexities involved in considering the hysteretic response of the Soil Water Characteristic Curve and its dependency on volume changes, these two features are often ignored in numerical studies of unsaturated soils. To facilitate their use in numerical modeling, a model for the Soil Water Characteristic Curve equation based on the bounding surface concept is proposed.

The authors go on to focus on the temperature distribution and water migration in unsaturated soil, which is of significant importance because these factors are related to the thermal-physical properties of soil. The changes in these properties may cause disastrous engineering problems such as the cracking of pavement, damage of structure foundation and fracture of pipelines.

Lastly, *Unsaturated Soils: Behavior, Mechanics and Conditions* addresses the measurement and expression of the mass chemical potential in the presence of superficial layers induced by a complex structure. By definition, the mass chemical potential of a constituent in a soil represents the variation of the internal energy of the medium when a unit mass of the constituent is transferred to a reference state with the entropy, volume and mass of the other constituents remaining constant.

PB 9781536159851 £90.99 June 2019 Nova Science Publishers 211 pages



### **Managing Stormwater Practices and Challenges for Reuse and Recycling**

Edited by A.H.M. Faisal Anwar

Current freshwater availability is reducing because of climate change, rapid urbanization, and an increase in population. Due to these situations, the identification of alternative water resources has become a main focus of research world-wide. Among all alternatives, stormwater has been found as most promising for reuse and recycling. The rapid development of urban and suburban areas has limited the natural infiltration of storm water because of increased impermeable areas, which in turn, increase the risk of urban and suburban flooding.

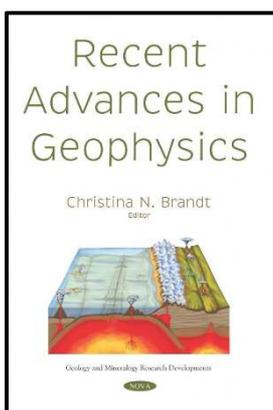
Urban and suburban stormwater runoff carries a significant amount of pollutants, such as heavy metals, hydrocarbons, pesticides, and bacteria. The sources of pollutants and their contribution to urban stormwater runoff are highly dependent on the land use pattern. These pollutants are harmful to the environment and a threat to human health at higher concentrations. In order to maintain healthy waterways, it is necessary to develop sustainable management of stormwater.

Stormwater management practices involve many challenges for its reuse and recycling, which are the main focus areas of this book. Available management practices consist of collecting and discharging the stormwater into rivers, ponds, or nearby retention basins. The best management practices (BMPs) may include oil and grit separators, grassed swales, vegetated filter strips, biofiltration/bioretention ponds, constructed wetlands, gross pollutant traps, and catch basin inserts.

This book has eleven chapters that describe the practices and challenges of different BMPs for stormwater management. These include combined sewer networks, different rainwater harvesting techniques, constructed wetlands, MUSIC modelling of bioretention systems, catch basin inserts, permeable pavements, the use of adsorbents for cleaning stormwater, low impact developments, and membrane-based technologies for stormwater treatment.

HB 9781536152500 £219.99 March 2019 Nova Science Publishers 274 pages

## Geology & Mineralogy Research Developments



### **Recent Advances in Geophysics**

Christina N. Brandt

In the opening chapter of this compilation, the authors process and geologically interpretate the marine geological mapping of a detailed grid of very high resolution seismic profiles recorded in the Campania continental shelf between the Solofrone river mouth and Agnone. Following this, an integrated analysis of the volcanic structures located in the subsurface of Naples and the Gulf of Gaeta is presented based on the geologic interpretation of seismic profiles. The goal of this study is to advance the seismo-stratigraphic knowledge concerning volcanic structures occurring in this sector of the Tyrrhenian offshore.

In the closing study, geochemical and tomography techniques were applied to agricultural area near the coastline of Spain with the following objectives: determining the spatial and vertical distribution of nutrients and soluble salts in the agricultural area; identifying the different layers of soil and subsoil; and evaluating the relationships between the identified layers and leaching of salts and nutrients.

PB 9781536162073 £78.99 September 2019 Nova Science Publishers

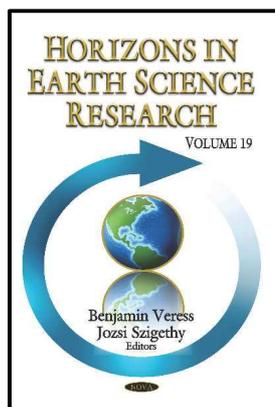
## Encyclopedia of Geology (12 Volume Set)

Edited by Enrique Walker, Darrell Gomez

The Encyclopedia of Geology organizes researchers from around the world in geology and related disciplines and maintains an up-to-date reference work for readers worldwide.

HB 9781536155037 £1,571.99 June 2019 Nova Science Publishers 5659 pages

## Horizons in Earth Science Research



### Horizons in Earth Science Research Volume 19

Edited by Benjamin Veress, Jozsi Szigethy

In the opening chapter of *Horizons in Earth Science Research. Volume 19* uses obtained kinetic data to estimate the growth rate of the basic copper carbonates with the participation of complexing agents, thus demonstrating that natural organic complexing agents can play an important role in the formation of copper carbonate minerals.

The next section deals with how the presence of organic matter, which is much softer than the inorganic matrix, affects gas production in shale reservoirs. A comprehensive study of the characteristics of organic matter can improve our understanding of organic-rich shale reservoirs. Additionally, remote-sensing for oil spills is reviewed. The technical aspects of sensors are summarized and the benefits and limitations of each sensor are given.

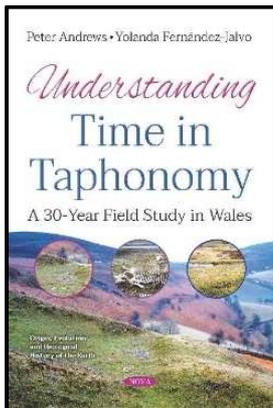
In the last few decades, as the number of reclamation projects has increased, the diversity of the landscape has also increased, as has the proportion of ecologically valuable elements (such as forests, meadows and water bodies) which can approximate the original landscape with a greater degree of ecological stability. More accurate quantification of the extent of mining activities and reclamation projects is important for exploration of environmental impacts on the ecosystem.

In order to address coastal degradation, the Atlantic Andalusian Coastal District has performed beach and dune restoration planning, described by the authors as an example of sustainable coastal management.

In the penultimate chapter, the method of the gravitational mass spectroscopy is used to investigate the inhomogeneity of the density in the surface layers of the Earth's crust under the European continent in the area of massive deposits of hard coal.

The final chapter describes the petrography, whole-rock major and trace-element geochemistry of lamprophyre dyke reported in southern India.

HB 9781536158267 £238.99 June 2019 Nova Science Publishers 256 pages



### **Understanding Time in Taphonomy A 30-Year Field Study in Wales**

Peter Andrews, Yolanda Fernandez-Jalvo

*Understanding Time in Taphonomy* investigates time as it affects taphonomy. All taphonomic agents operate through time, which may be long or short, so time adds another dimension to taphonomic change. The processes and modifications recorded in fossils can tell us how long the fossils took to accumulate and the geological/biological/ environmental context in which they fossilized.

Measuring time in taphonomy requires long-term studies of taphonomic processes operating at the present time. In 1976, one of the authors (PA) started a 30-year monitoring project of animals that died natural deaths at Neuadd in Wales. The study area of 680ha of upland heathland, woodland and rough grazing were monitored. Over 100 sheep, horses, foxes, badgers, rabbits and small mammals were monitored, but only 56 yielded useful results. YFJ has also begun a similar study at Riofrio in Spain, and other long-term studies are reviewed.

This 30-year study highlighted several time-specific taphonomic issues. Trampling of Neuadd specimens produced pitting and superficial scratching found commonly on fossils. Longer striations mimicking cut marks are common, particularly on bones in rocky substrates. The number and morphology of these pseudo-cut-marks are compared with cut marks made during human butchery. There is only a weak relationship with exposure time.

The extreme effects of water and wind at Neuadd quickly dispersed body parts. Modifications similar to trampling and butchery were produced in running water. In still water, three modification stages are identified: Stage 1, which is 3-5 years with broad flaking; stage 2, 10-12 years with extreme flaking and loss of surface bone; and stage 3, >18 years with deep tissue loss. Weathering at Neuadd has a time-scale that is different from the one established for tropical environments: At 0-5 years, 92% of bones are unweathered, with 8% at stage 1; at 6 to 10 years, 73% of bones are unweathered, with 27% at stage 1; at 15 to 25 years, 17% of bones are unweathered, with 63% at stage 1 and 20% of bones at stage 2; at 30 to 35 years, only one skull survived, and it is at stage 1 weathering.

Monitoring of buried bones at Neuadd shows three time-scales of modifications resulting from soil corrosion: Progressive corrosion under dense vegetation cover with high humidity from 2 to 23 years; increasing root marks from 2 to 23 years; and corrosion from the action of lower plants such as moss and algae in 3 to 11 years.

The extent and sizes of carnivore and herbivore chewing marks was found to have no usable timescale. Dispersal of bones is slow at Neuadd and is related strongly both to the nature of the environment and to the size of the animals. Three timescales have been identified: Dispersal over 15 years is greatest for large animals in open environments, lower for medium sized animals like sheep, and the least for small and medium size animals in dense vegetation.

Future monitoring projects could use electronic marking chips on single specimens, camera traps, GPS, the Global Weathering Project, radioactive markers on bones, and aerial mapping, backed up with experimental work in controlled conditions.

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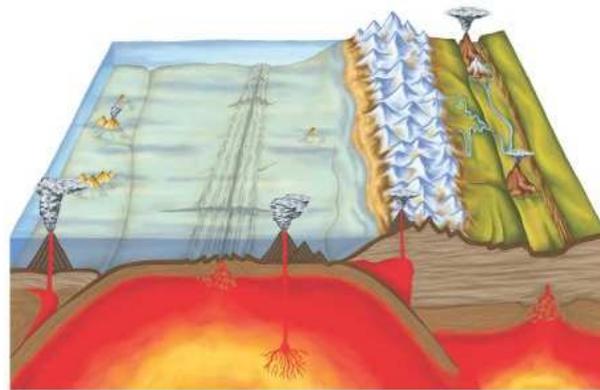
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## Geography & Environment

# Recent Advances in Geophysics

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