

Cave And Karst Prospecting Within Seram Island Maluku Province

WATER RESOURCES AND ENVIRONMENT provides a detailed introduction to the full range of advanced, multidisciplinary techniques used in the study of water resources from understanding individual aquifers to the protection and management of water in a sustainable way, compatible with the preservation of the environment. Based on a masters course from UNESCO ' s International Hydrological Program, this textbook is accompanied by color figures and graphics, illustrating clearly the content of the text and showing real examples from the field. Each chapter also contains a list of exercises and practical activities as well as case studies.

The focus of this book is on the more than 2000 caves of the Greenbrier Valley of West Virginia of which the 14 with lengths greater than 10 km have an aggregate length of 639 km. The major caves form the core part of sub-basins which drain to big springs and ultimately to the Greenbrier River. Individual chapters of this book describe each of the major caves and its associated drainage basin. The caves are formed in the Mississippian Greenbrier Limestone in a setting of undulating gentle folds. Fractures, lineaments and confining layers within the limestone are the main controlling factors. The caves underlie an extensive sinkhole plain which may relate to a major erosion surface. The caves are habitat for both aquatic and terrestrial organisms which are cataloged and described as are the paleontological remains found in some of the caves. The sinkhole plain of the Greenbrier karst and the underlying complex of cave systems are the end result of at least a ten million year history of landscape evolution which can be traced through the evolving sequence of cave passages and which is described in this book.

Natural Water Treatment Systems for Safe and Sustainable Water Supply in the Indian Context is based on the work from the Saph Pani project (Hindi word meaning potable water). The book aims to study and improve natural water treatment systems, such as River Bank Filtration (RBF), Managed Aquifer Recharge (MAR), and wetlands in India, building local and European expertise in this field. The project aims to enhance water resources and water supply, particularly in water stressed urban and peri urban areas in different parts of the Indian sub-continent. This project is co-funded by the European Union under the Seventh Framework (FP7) scheme of small or medium scale focused research projects for specific cooperation actions (SICA) dedicated to international cooperation partner countries. Natural Water Treatment Systems for Safe and Sustainable Water Supply in the Indian Context provides: an introduction to the concepts of natural water treatment systems (MAR, RBF, wetlands) at national and international level knowledge of the basics of MAR, RBF and wetlands, methods and hydrogeological characterisation an insight into case studies in India and abroad. This book is a useful resource for teaching at Post Graduate level, for research and professional reference.

Hypogene Karst Regions and Caves of the World

Hydrogeological and Environmental Investigations in Karst Systems

Minnesota, Iowa, Illinois, Wisconsin

Environmental Impact Statement

Karst Hydrogeology, Geomorphology and Caves

This book sheds new light on contaminant transport in karst aquifers and the public health implications of contaminated karst groundwater. The papers included were presented at a conference held in early 2016 in San Juan, Puerto Rico, and range from lengthy reviews on contaminant transport mechanisms to short articles summarizing research findings. The conference addressed a variety of topics, such as contamination sources, the hydrogeology of contaminant transport, the storage and release of contaminants, and the health impacts as well as the epidemiology of contaminated water supplies drawn from karst aquifers, and gathered perspectives from experts in different disciplines, including hydrogeologists and public health specialists. Although there is a wealth of literature on specific instances of karst groundwater contamination, this book offers an integrated conceptual framework for the public health impacts of karst groundwater, making it a valuable resource for a broad interdisciplinary readership.

Rock Engineering in Difficult Ground Conditions - Soft Rocks and Karst contains the Proceedings of the Regional Symposium of the International Society for Rock Mechanics (ISRM), which was held 29 to 31 October 2009 in Cavtat near Dubrovnik, Croatia. It is a continuation of the successful series of regional ISRM symposia for Europe, which began in 1

GB 50021-2001 Standard for design of intelligent building English-translated version

Cave and Karst Systems of Hungary

Geological Survey Bulletin

Amendment to the Hoosier National Forest Land and Resource Management Plan

Karst and Cavernous Rocks in Engineering and Construction

Selected Water Resources Abstracts

This book discusses the karst and pseudokarst of the Upper Midwest, USA, consisting of the states of Minnesota, Wisconsin, Iowa, and Illinois—the first regional synthesis in 40 years.

Starting with an overview of the regional geology of what is largely glaciated fluviokarst and paleokarst developed on Paleozoic carbonates, but including other lithologies such as the St.

Peter Sandstone and the Ft. Dodge Gypsum, the caves, springs, sinkholes, and karst hydrogeology of each state are described. Special attention is devoted to the region's longest caves:

Coldwater Cave, Mystery Cave, and the Minnesota Cave Preserve caves. Application of tools such as data loggers and LiDAR, with new conceptual models such as hypogenic speleogenesis, has

been transformative here. Special topics include lead and zinc mining in the Driftless Area, vertebrate and invertebrate cave fauna near the Laurentide ice limit, the impact and policies of

nutrient and herbicide intensive modern agriculture on karst, and paleoclimate studies. The discovery, exploration, institutional history of caving organizations, and show caves of the

Upper Midwest, from the year 1700 onwards, are brought up to date. The top 10 historical paradigms of cave and karst science in the Midwest are reviewed. Perspectives on paleontology, archeology, and Native American rock art are included.

The purpose of this project was to distinguish between the karst and pseudokarst caves throughout Mississippi, create an inventory and survey of representative caves and karst features,

identify the geology of the rocks hosting the caves, and produce a GIS-based digital karst map. The State of Mississippi is not known for its karst features, yet there are three distinct

limestone units that contain dissolution caves: 1) Paleozoic (Mississippian) Tuscumbia Formation limestone; 2) Mesozoic carbonate units; and 3) Cenozoic limestone, Marianna Formation. There

are a total of 44 caves known within the state based on past documentation, however the caves listed are not always differentiated between karst or pseudokarst features. This study located

and mapped 20 caves, of which 18 were karst caves from eight counties and two were pseudokarst caves from two counties. Four of these caves were newly discovered karst caves, increasing the

state total to 48; however two separate karst caves were connected, which makes the final state total 47 caves. Of the remaining 28 caves not surveyed, 11 were pseudokarst caves from eight

counties and were not studied because the focus was on dissolutional karst caves. The remaining 17 missing karst caves either had been destroyed, access permission could not be obtained, or

the caves could not be located. No active caving organizations exist in Mississippi to preserve cave location data or the caves themselves. Mining, deforestation, and other land use

procedures have altered the landscape, resulting in concealment of some caves, and completely or partially destroying other caves.

Originally published in 1989, Karst Geomorphology andHydrology became the leading textbook on karststudies. This new textbook has been substantially revised andupdated. The first half of

the book is a systematic presentation of thedissolution kinetics, chemical equilibria and physical flow lawsrelating to karst environments. It includes details of themany environmental

factors that complicate their chemicalevolution, with a critique of measurement of karst erosionrates. The second half of the book looks at the classificationsystem for cave systems and the

influence of climate and climaticchange on karst development. The book ends with chapters onkarst water resource management and a look at the important issuesof environmental management,

including environmental impactassessment, environmental rehabilitation, tourism impacts andconservation values. Practical application of karst studiesare explained throughout the text.

"This new edition strengthens the book's position as theessential reference in the field. Karst geoscientists will not dareto stray beyond arm's reach of this volume. It is certain to

remainthe professional standard for many decades." Journal of Cave andKarst Studies, August 2007

Natural Water Treatment Systems for Safe and Sustainable Water Supply in the Indian Context: Saph Pani

Eurokarst 2018, Besançon

Rock Engineering in Difficult Ground Conditions - Soft Rocks and Karst

Advances in Karst Research

Caves and Karst of the Greenbrier Valley in West Virginia

This book reveals the science and beauty of Mammoth Cave, the world's longest cave, which has played an important role in the natural sciences. It offers a comprehensive and interdisciplinary treatment of the cave, combining insights from leading experts in fields ranging from archeology and cultural history to life science and geosciences. The first animals specialized for cave life in North America, including beetles, spiders, crayfish, and fish, were discovered in Mammoth Cave in the 1840s. It has also been used and explored by humans, including Native Americans, who mined its sulfate minerals and later African-American slaves, who made a map of the cave. More recent stories include 'wars' between commercial cave owners, epic exploration trips by modern cave explorers, and of course tourism. The first section of the book is an extensive description including maps and photos of the cave, its basic structural pattern, and how it relates to the surface landscape. The second section covers the human history of utilization and exploration of the cave, including mining, tourism, and medical experiments. Cave science is the topic of the third section, including geology, hydrology, mineralogy, climatology, paleontology, ecology, biodiversity, and microbiology. The fourth section looks to the future, with an overview of environmental issues facing Mammoth Cave managers. The book is intended for anyone interested in caves in general and Mammoth Cave in particular, experts in one discipline seeking information about other areas, and researchers and students interested in the many avenues of pursuit possible in Mammoth Cave.

Explore deep into the hidden wonders beneath the surface as cave expert Dr. Emil Silvestru takes you on an illuminating and educational journey through the mysterious world of caves. Discover the beautiful formations, thriving ecology, unique animals, and fragile balance of this little-seen ecosystem in caves from around the globe. The Cave Book will teach you about: A creationary model of how caves form A history of how caves have been used by humans for shelter and worship How old caves really are The surprising world of Neanderthals and their connection to modern humans How to make a stone axe and about early tools Just how long it really takes for cave formations to form Unusual animals that make caves their home Examples of how connected caves are to mythology of many cultures The Climate and geologic processes and features of caves and karst rocks The process by which ice caves form Exploration, hazards, and record-setting caves How caves form, and features about and below the surface Filled with beautiful and fascinating color photos of caves from around the world, The Cave Book is wonderful guide to this hidden world of wonders. Enjoy learning on your journey of exploration into these exciting and mysterious places underground!

Shield Tunnel Engineering: From Theory to Practice is a key technique that offers one of the most important ways to build tunnels in fast, relatively safe, and ecologically friendly ways. The book presents state-of-the-art solutions for engineers working within the field of shield tunnelling technology for railways. It includes expertise from major projects in shield tunnel construction for high-speed rail, subways and other major projects. In particular, it presents a series of advances in shield muck conditioning technology, slurry treatment, backfill grouting, and environmental impact and control. In this volume, foundational knowledge is combined with the latest advances in shield tunnel engineering. Twelve chapters cover key areas including geological investigation, the types, structures and workings of shield machines, selecting a machine, shield segment design, shield tunnelling parameter control, soil conditioning for earth pressure balance (EPB) shield tunnelling, shield slurry treatment, backfill grouting, environmental impact, and problems in shield tunnel structures and their amelioration. This book presents the essential knowledge needed for shield tunnel engineering, the latest advances in the field, and practical guidance for engineers. Presents the foundational concepts of shield tunnel engineering Gives the latest advances in shield tunnel engineering techniques Considers common problems in shield tunnel structures and their solutions Lays out step-by-step guidance for engineers working with shield tunnelling Assesses environmental impacts and their control in shield tunnel engineering

Lagoa Santa Karst: Brazil's Iconic Karst Region

Caves and karst

Tongass National Forest (N.F.), Tuxekan Island Timber Sale(s)

Atlas of Karst Collapses

Final Environmental Impact Statement, Hoosier National Forest Land and Resource Management Plan Amendment #2

Encyclopedia of Caves, Third Edition, provides detailed background information to anyone with a serious interest in caves. This includes students, both undergraduate and graduate, in the earth, biological and environmental sciences, and consultants, environmental scientists, land managers and government agency staff whose work requires them to know something about caves and the biota that inhabit them. Caves touch on many scientific interests in geology, climate science, biology, hydrology, archaeology, and paleontology, as well as more popular interests in sport caving and cave exploration. Case studies and descriptions of specific caves selected for their special features and public interest are also included. This book will appeal to these audiences by providing in-depth essays written by expert authors chosen for their expertise in their assigned subject. Features 14 new chapters and 13 completely rewritten chapters Contains beautifully illustrated content, with more than 500 color images of cave life and features Provides extensive bibliographies that allow readers to access their subject of interest in greater depth

This book comprehensively documents the various types of karst collapse and related conceptual site models, before discussing these collapses in terms of their impacts on engineering and the environment. Featuring over 200 real-world photos to illustrate the variety of karst collapses and their consequences, the book also provides specific methods and techniques to prevent, investigate, monitor and remediate these collapses. Decades of experience with these collapses make it clear that addressing the related hazards requires a multi-disciplinary approach that integrates geomorphology, engineering geology, hydrology, hydrogeology, biology, geophysics, geochemistry, and risk assessment.

The Encyclopedia of Caves and Karst Science contains 350 alphabetically arranged entries. The topics include cave and karst geoscience, cave archaeology and human use of caves, art in caves, hydrology and groundwater, cave and karst history, and conservation and management. The Encyclopedia is extensively illustrated with photographs, maps, diagrams, and tables, and has thematic content lists and a comprehensive index to facilitate searching and browsing.

The Dinaric Karst System of Croatia

Beyond Case Studies

Sinkholes and Subsidence

Dark Canyon

Caves and Karst of Southeastern New Mexico

This book discusses Turkey's karst systems' most critical features, one of the world's most important karst areas. This publication has been prepared to assist geologists and professionals working in karst areas by solving several different problems, for example, to conduct groundwater analysis in regions with karstic depressions and examine subsidence problems through geotechnical and hydrogeological studies to solve dams' technical challenges from Karstic areas.

This book discusses the Lagoa Santa Karst, which has been internationally known since the pioneering studies of the Danish naturalist Peter Lund in the early 1800s. It covers the speleogenesis, geology, vegetation, fauna, hydrogeology, geomorphology, and anthropogenic use of the Lagoa Santa Karst and is the first English-language book on this major karst area. The area, which has been at the heart of the debate on the origin and age of human colonization in the Americas, is characterized by a classical and scenic karst landscape with limestone cliffs, karst lakes and karst plains, in addition to numerous solution dolines. More than 1,000 caves have been documented in the area, many with significant archeological and paleontological value. Despite its great importance, the Lagoa Santa Karst faces severe environmental threats due to limestone mining and the expansion of the metropolis of Belo Horizonte and its surrounding towns. The growing recognition of the area's remarkable significance has led to increasing concern, and a number of protected areas have now been established, improving the conservation status of this landmark karst area.

This book offers readers a thorough introduction to the Dinaric Karst System in Croatia. As the first comprehensive book on the country's caves and karst, it presents a wealth of fascinating photographs from its karst underground. To date, ca. 12,000 caves and pits have been confirmed in Croatia, approximately 35% of which contain constant groundwater. Knowing the amount, direction and quality of groundwater that has been discovered in caves of the Croatian karst allows us to predict with greater certainty the hydrogeological situation of some karst areas where no special drilling or borehole measurements were performed. In the process of building highways in the country's karst regions over the last thirty years, thousands of caverns (speleological features without natural entrances) were discovered and thoroughly explored. All of them were geologically mapped, surveyed, and photographed in detail. Extensive research was systematically carried out in Croatian karst regions on sections of roads, highways, cuttings, slides, tunnels, bridge foundations, viaducts, etc., while creating ca. 800 kilometers of highways (such as the Zagreb-Rijeka highway, Zagreb-Split-Dubrovnik highway, Y-Ipsilon of Istria semi-highway, Rijeka-Rupa highway, Zagreb-Zadar semi-highway, and the Rijeka bypass). Some of these caverns contain major chambers like in the “Sveti Rok” tunnel and in some of them, like in the “Vrata” tunnel, it was even necessary to build a bridge. This bridge is the longest one in the world built in a tunnel over a cavern. The book describes this and many more features of the cave exploration of the Dinaric Karst System of Croatia, making it a valuable resource for researchers, engineers, cavers, and all other readers interested in karst.

Geological Survey Water-supply Paper

Control Lake Timber Sales: EIS

A Human and Natural History

Theory, Fieldwork and Applications

Speleology and Cave Exploration

“Sinkholes and Subsidence” provides a twenty-first century account of how the various subsidence features in carbonate and evaporite rocks cause problems in development and construction in our living environment. The authors explain the processes by which different types of sinkholes develop and mature in karst terrains. They consider the various methods used in site investigations, both direct and indirect, to locate the features associated with these hazards and risks, highlighting the value of hazard mapping. Various ground improvement techniques and the special types of foundation structures which deal with these problems are covered in the second half of the text. This book is supplemented with a wealth of actual case studies and solutions, written by invited experts.

This book presents selected papers from the EuroKarst 2018 conference, which highlighted the latest advances in the field of Karst Hydrogeology and Carbonate Reservoirs. The event attracted more than 180 participants. From among their contributions, the papers were selected and subsequently reviewed by the scientific committee to ensure the highest possible quality.

This volume covers major advances in the study of the geomorphology, hydrology, engineering geology and management of these specialized and fragile environments. The book will be valuable for geologists, engineers and geophysicists interested in karst, along with land planners, developers, and managers of show caves, natural parks and reserves in karst areas.

Advances in the Hydrogeology of Karst and Carbonate Reservoirs

Hoosier National Forest (N.F.) Land and Resource(s) Management Plan (LRMP)

From Theory to Practice

The Engineering Geology and Hydrology of Karst Terrains

Florida Resource(s) Management Plan (RMP)

This book illustrates the diversity of hypogene speleogenetic processes and void-conduit patterns depending on variations of the geological environments by presenting regional and cave-specific case studies. The cases include both well-known and newly recognized hypogene karst regions and caves of the world. They all focus on geological, hydrogeological, geodynamical and evolutionary contexts of hypogene speleogenesis. The last decade has witnessed the boost in recognition of the possibility, global occurrence, and practical importance of hypogene karstification (speleogenesis), i.e. the development of solutional porosity and permeability by upwelling flow, independent of recharge from the overlying or immediately adjacent surface. Hypogene karst has been identified and documented in many regions where it was previously overlooked or misinterpreted. The book enriches the basis for generalization and categorization of hypogene karst and thus improves our ability to adequately model hypogene karstification and predict related porosity and permeability. It is a book which benefits every researcher, student, and practitioner dealing with karst.

Karst Hydrogeology, Geomorphology and Caves A Comprehensive Resource Covering All Aspects of Karst Hydrogeology, Geomorphology, and Caves This essential book covers all physical, chemical, and geological aspects of karst science. It reviews current knowledge on hydrogeology, geomorphology and caves in karst, based on the vast existing literature and investigations carried out by the authors worldwide. The different topics are profusely illustrated with color figures and images from all continents and climates, showing the scientific and aesthetic appeal of karst environments. The book covers in a systematic way the significant features of karst rocks, the chemistry and kinetics of their dissolution, the rate and distribution of karst denudation, the unique

hydrogeology of karst terrains, the landforms endemic to karst, the morphology of caves and their diverse sedimentary records, and the multiple processes that lead to the formation of underground voids. Overall, the work reflects the increasing recognition of karst as a fundamental part of the Earth's dynamic systems, and helps readers understand this multidisciplinary field from a holistic and nuts-and-bolts perspective. Some of the ideas discussed within the book include: How karst is gaining importance for human development, because of its valuable resources (groundwater) and associated environmental problems (impacts and hazards) The enormous technological developments achieved in recent years Recent major breakthroughs in the field and their influence on other scientific disciplines The central role played by karst science for understanding and mitigating global environmental issues (global warming, depletion of resources, human-induced hazards) For all scientists working in karst, and for students and lecturers of karst-related programs, this book serves as a valuable all-in-one source. It is also a valuable resource for professional hydrogeologists, the petroleum industry, environmental geologists, and of course speleologists, the last true geographic explorers in the world.

Engineers from around the world recount in this volume their successes and failures in attempting to deal with unique and quixotic landscapes.

GB 50021-2001 Translated English of Chinese Standard

Karst Hydrogeology and Geomorphology

Shield Tunnel Engineering

Fall Creek Falls Petition Evaluation Document

Geology, Hydrogeology and Karst