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MARSHALL HARPER

Spatial Modeling and Assessment of Urban Form World Scientific
This comprehensive introduction to rock mechanics treats the basics of rock mechanics in a clear and straightforward manner and discusses important design problems in terms of the mechanics of materials. This extended second edition includes an additional chapter on Rock Bursts and Bumps, a part on Basics Dynamics, and has numerous additional examples and exercises throughout the chapters. Developed for a complete class in rock engineering, this volume uniquely combines the design of surface and underground rock excavations and addresses: • rock slope stability in surface excavations, from planar block and wedge slides to rotational and toppling failures • shaft and tunnel stability, ranging from naturally-supported openings to analysis and design of artificial support and reinforcement systems • entries and pillars in stratified ground • three-dimensional caverns, with emphasis on cable bolting and backfill • geometry and forces of chimney caving, combination support and trough subsidence • rock bursts and bumps in underground excavations, with focus on dynamic phenomena and on fast and sometimes catastrophic failures. The numerous exercises and examples familiarize the reader with solving basic practical problems in rock mechanics through various design analysis techniques and their applications. Supporting the main text, appendices provide supplementary information about rock, joint, and composite properties, rock mass classification schemes, useful formulas, and an extensive literature list. The large selection of problems at the end of each chapter can be used for home assignment. A solutions manual is available to course instructors. Explanatory and illustrative in character, this volume is suited for courses in rock mechanics, rock engineering and geological engineering design for undergraduate and first year graduate students in mining, civil engineering and applied earth sciences. Moreover, it will form a good introduction to the subject of rock mechanics for earth scientists and engineers from other disciplines.
Smart Cities and Smart Spaces: Concepts, Methodologies, Tools, and Applications MDPI
Lessons learned in the last several years have given clear indications that the prediction and efficient monitoring of disasters is one of the critical factors in decision-making process. In this respect space-based technologies have the great potential of supplying information in near real time. Earth observation satellites have already demonstrated their flexibility in providing data to a wide range of applications: weather forecasting, person and vehicle tracking, alerting to disaster, forest fire and flood monitoring, oil spills, spread of desertification, monitoring of crop and forestry damages. This book focuses on a wider utilisation of remote sensing in disaster management. The discussed aspects comprise data access/delivery to the users, information extraction and analysis, management of data and its integration with other data sources (airborne and terrestrial imagery, GIS data, etc.), data standardization, organisational and legal aspects of sharing remote sensing information.
A Comparative Study Trans Tech Publications Ltd
Cities built on unconsolidated sediments consisting of clays, silt, peat, and sand, are particularly susceptible to subsidence. Such regions are common in delta areas, where rivers empty into the oceans, along flood plains adjacent to rivers, and in coastal marsh lands. Building cities in such areas aggravates the problem for several reasons: 1. Construction of buildings and streets adds weight to the region causing additional soil deformations. 2. Often the regions have to be drained in order to be occupied. This results in lowering of the water table and leads to hydro-compaction. 3. Often the groundwater is used as a source of water for both human consumption and industrial use. 4. Levees and dams are often built to prevent or control flooding. Earth fissures caused by ground failure in areas of uneven or differential compaction have damaged buildings, roads and highways, railroads, flood-control structures and sewer lines. As emphasized by Barends , "in order to develop a legal framework to claims and litigation, it is essential that direct and indirect causes of land subsidence effects can be quantified with sufficient accuracy from a technical and scientific point of view." Most existing methods and software applications treat the subsidence problem by analyzing one of the causes. This is due to the fact that the causes appear at different spatial scales. For example, over-pumping creates large scale subsidence, while building loading creates local subsidence/consolidation only. Then, maximum permissible land subsidence (or consolidation) is a constraint in different management problems such as: groundwater management, planning of town and/or laws on building construction. It is, therefore, necessary to quantify the contribution of each cause to soil subsidence of the ground surface in cities urban area. In this text book, we present an engineering approach based on the Biot system of equations to predict the soil settlement due to subsidence, resulting from different causes. Also we present a case study of The Bangkok Metropolitan Area (BMA).
Sustainable Built Environment and Urban Growth Management Springer
This book is one out of 8 IAEG XII Congress volumes, and deals with the theme of urban geology. Along with a rapidly growing world population, the wave of urban growth continues, causing cities to swell and new metropolitan centers to emerge. These global trends also open new ventures for underground city development. Engineering geology plays a major role in facing the increasing issues of the urban environment, such as: finding aggregates for construction works; providing adequate water supply and waste management; solving building problems associated to geological and geomorphological conditions; evaluating host rock conditions for underground constructions; preventing or mitigating geological and seismic hazards. Furthermore, this book illustrates recent advancements in sustainable land use planning, which includes conservation,

protection, reclamation and landscape impact of open pit mining and alternative power generation. The Engineering Geology for Society and Territory volumes of the IAEG XII Congress held in Torino from September 15-19, 2014, analyze the dynamic role of engineering geology in our changing world and build on the four main themes of the congress: environment, processes, issues and approaches. The congress topics and subject areas of the 8 IAEG XII Congress volumes are: 1. Climate Change and Engineering Geology 2. Landslide Processes River Basins 3. Reservoir Sedimentation and Water Resources 4. Marine and Coastal Processes Urban Geology 5. Sustainable Planning and Landscape Exploitation 6. Applied Geology for Major Engineering Projects 7. Education, Professional Ethics and Public Recognition of Engineering Geology 8. Preservation of Cultural Heritage
Proceedings of the Fifth International Symposium on Deformation Characteristics of Geomaterials, IS-Seoul 2011, 1-3 September 2011, Seoul, Korea Routledge
This book gathers a selection of peer-reviewed papers presented at the first Big Data Analytics for Cyber-Physical System in Smart City (BDCPS 2019) conference, held in Shengyang, China, on 28–29 December 2019. The contributions, prepared by an international team of scientists and engineers, cover the latest advances made in the field of machine learning, and big data analytics methods and approaches for the data-driven co-design of communication, computing, and control for smart cities. Given its scope, it offers a valuable resource for all researchers and professionals interested in big data, smart cities, and cyber-physical systems.
Methods and Practices Springer
Land Subsidence Analysis in Urban AreasThe Bangkok Metropolitan Area Case StudySpringer Science & Business Media
Principles and Practice Springer Nature
Earth Observation Science (EOS) is the study of the global Earth land-ocean-atmosphere system through observations. The principal tools for such studies are measurements from space since these provide the coverage of the planet that is necessary to capture the behaviour of the entire coupled system. In addition, surface observations, and measurements from aircraft, balloons and sounding rockets provide valuable contributors to what are now termed "integrated, global observing systems." Coupled with models, the EOS measurement suites provide powerful tools for research into the factors controlling and changing the Earth system in which we live. The objectives of this book are to describe new methods and applications of satellite technology in the fields of land and emergency monitoring. It draws on new research outcomes from the European FP7 project GIONET (European Centre of Excellence in Earth Observation Research Training). GIONET combines industrial partners with universities and research institutes, and this book provides a perspective on Earth Observation applications that is motivated by the cross-fertilisation of both sectors. Hence, this book will find readers in both industry and academia. This book highlights a broad range of innovative uses of Earth Observation technology to support environmental management, decision making, crisis management and climate policies. It uses advanced concepts of multi-sensor image integration, multi-temporal analysis and synergies between data and models. This is a truly interdisciplinary subject that encompasses a range of applications in various fields which are discussed in detail throughout the text. If you are interested in remote sensing applications and looking for inspiration, this is the book for you.
A Summary of Recent Significant Scientific and Economic Results Accompanied by a List of Geologic and Hydrologic Investigations in Progress and a Report on the Status of Topographic Mapping MDPI
This book brings forward the concept of the geology-environmental capacity of ground buildings. It quantifies the geology-environmental capacity of ground buildings by analyzing the main factors of land subsidence and setting up the evaluation system. The geological environmental capacity of ground buildings is mainly controlled by the land subsidence and the output is the floor area ratio. According to the different geology structures and the different requirements of subsidence control in the soft soil areas in Shanghai, the evaluation system of the floor area ratio is built up by the adaptive neuro-fuzzy inference system (ANFIS) and the floor area ratios of four typical regions (Lujiazui, Xujiahui, Zhongyuan and Changqiao) are obtained by the ANFIS to offer references for urban planning. By taking the typical soft soil areas in Shanghai as case studies, this book will provide valuable insights to professors and graduate students in the field of Geotechnical Engineering, Civil Engineering, Engineering Geology and Environmental Geology.
Proceedings of the 1st International Conference (ICITG) Shanghai Springer Nature
This proceedings book presents contributions to the International Conference on Critical Thinking in the Sustainable Rehabilitation and Risk Management of the Built Environment – CRIT-RE-BUILT – held in Iași, Romania, November 7–9, 2019. It mirrors outcomes in fundamental and applied research covering a broad palette of competences like observations, analysis, interpretation, evaluation, problem-solving and decision making. The book sets up eight chapters related to rehabilitation and risk in the built environment. Each chapter starts with a broad state-of-the-art presentation comprising the latest ideas and methods in the field assessing and asserting synthesized levels of research, development and novelty through a critical thinking process. The authors of the eight presentations are partners in the E+ Programme for Strategic Partnerships Rehabilitation of the Built Environment in the Context of Smart City and Sustainable Development Concepts for Knowledge Transfer and Lifelong Learning (RE-BUILT).
Urban Water Planning Springer Nature
This project came into being due to the dramatic transformation of the four core Texas metropolitan areas into an emergent megalopolis: Dallas-Fort Worth, Houston, San Antonio, and Austin. Its aims are two-fold: to provide a framework for decisions about future growth in the fastest growing region of Texas, and to spur further research into the complexities of this vast and rapidly emerging mega-region. The Texas Urban Triangle - 17 million persons spread over 58,000 square miles - is a new urban phenomenon, a triangular megalopolis whose development is not linear and contiguous. This report gives policy makers and investors from all sectors of society the critical knowledge they need to make decisions that will shape the future of Texas. The Texas Urban Triangle is one of the most dynamic urban regions in the nation, and to ensure it continues to flourish, we must build a future based on sustainable growth principles. Our preliminary findings suggest that this is not always the case. Further research needs to be conducted to obtain a complete, detailed, and comprehensive portrait. Nonetheless, even these preliminary findings are robust and point to more sustainable options for the future. Now that this preliminary analysis has been completed, readers are invited to consider the results. The ultimate goals of the project are three-fold: To plant the Texas Urban Triangle squarely and firmly into the public imagination of Texans far and wide - to put the Texas Urban Triangle "on the map." To provide a basis for current policy and planning decisions so that a more vibrant and attractive "Heart of Texas" - its metropolises, counties, and cities - provides a more sustainable environment for its residents, and their descendents and newcomers, well into

the future. To determine what future research, particularly at the regional scale, is needed to provide a sound basis for public policy and private investment decisions.

Big Data Analytics for Cyber-Physical System in Smart City Springer Science & Business Media

The six-volume set LNCS 10404-10409 constitutes the refereed proceedings of the 17th International Conference on Computational Science and Its Applications, ICCSA 2017, held in Trieste, Italy, in July 2017. The 313 full papers and 12 short papers included in the 6-volume proceedings set were carefully reviewed and selected from 1052 submissions. Apart from the general tracks, ICCSA 2017 included 43 international workshops in various areas of computational sciences, ranging from computational science technologies to specific areas of computational sciences, such as computer graphics and virtual reality. Furthermore, this year ICCSA 2017 hosted the XIV International Workshop On Quantum Reactive Scattering. The program also featured 3 keynote speeches and 4 tutorials.

The Proceedings of the Seventh International Symposium on Land Subsidence, Held in Shanghai, China IGI Global

In this book are reported nine works related to land subsidence monitoring using remote sensing techniques. Land subsidence is a common phenomenon in many regions of the world, where it causes degradation of local ecosystems and disruption of economic activities. Its effects are more evident in densely populated areas in particular in low-lying territories such as river deltas and coastal areas where the combination of land subsidence and sea level rise increases the flooding risk. For this reason, the monitoring of ground deformations is a crucial step to obtain important information for the development of risk mitigation strategies. In the presented papers, the characteristics of land subsidence occurring in different study areas are described, and recent developments in the used methodologies for the monitoring of the ground displacements are discussed and validated also by means of ground-based data. Moreover, advantages and disadvantages of the adopted techniques are highlighted. The outcomes of these research works can provide national and local authorities with useful information for the implementation of integrated monitoring systems in the areas most affected by land subsidence.

Challenges and Future Directions IOS Press

This book examines the urban growth trends and patterns of various rapidly growing metropolitan regions in developing Asian and African nations from the perspective of geography. State-of-the-art geospatial tools and techniques, including geographic information system/science and remote sensing, were used to facilitate the analysis. In addition to the empirical results, the methodological approaches employed and discussed in this book showcase the potential of geospatial analysis, e.g. land-change modeling for improving our understanding of the trends and patterns of urban growth in Asia and Africa. Furthermore, given the complexity of the urban growth process across the world, issues raised in this book will contribute to the improvement of future geospatial analysis of urban growth in the developing regions. This book is written for researchers, academicians, practitioners, and graduate students. The inclusion of the origin and brief history of each of the selected metropolitan regions, including the analysis of their urban primacy, spatiotemporal patterns of urban land-use changes, driving forces of urban development, and implications for future sustainable development, makes the book an important reference for various related studies.

Framework for Future Growth Land Subsidence Analysis in Urban AreasThe Bangkok Metropolitan Area Case Study

Nowadays, the sustainable built environment planning in most cities has come to a turning point as the growth in traffic and population has become a serious concern and put tremendous pressure on both the environment and people in these cities. It is therefore important to find new ways or lifestyles—such as compact city, transit-oriented development (TOD) formulations—that are more flexible, inclusive, and sustainable. Furthermore, for the sustainable built environment and urban growth management, not only should the growth management principles—which include smart growth, sustainable growth, and inclusive growth—be taken into account but innovative/smart planning strategies—such as mixed use design, green transport, and new urbanism—are also utilized in planning sustainable built environments in order to prevent the urban sprawl development that has occurred.

Proceedings of the 23rd International Symposium on Advancement of Construction Management and Real Estate Springer Nature

The book cover current research results in Construction and Urban Planning and is divided into 18 chapters, including Geological and Geotechnical Engineering, Structural Engineering, Bridge Engineering, Tunnel, Subway and Underground Facilities, Road and Railway Engineering, Seismic Engineering, Computational Mechanics, Traditional Construction Materials, Advanced Construction Materials, Energy-Efficient Technologies in Buildings, Architectural Design and Its Theory, Architectural Environment and Ecological Environmental Protection etc. This book will not only provide the readers a broad overview of the latest advances but also provide the researchers a valuable summary and reference in this field. Volume is indexed by Thomson Reuters CPCI-S (WoS).

Information Technology in Geo-engineering MDPI

This book presents the proceedings of CRIOCM2018, 23rd International Symposium on Advancement of Construction Management and Real Estate, sharing the latest developments in real estate and construction management around the globe. The conference was organized by the Chinese Research Institute of Construction Management (CRIOCM) working in close collaboration with Guizhou Institute of Technology (GIT). Written by international academics and professionals, the proceedings discuss the latest achievements, research findings and advances in frontier disciplines in the field of construction management and real estate. Covering a wide range of topics, including New-type urbanization, land development and land use, urban planning and infrastructure construction, housing market and housing policy, real estate finance and investment, new theories and practices on construction project management, smart city, BIM technologies and applications, construction management in big data era, green architecture and eco-city, rural rejuvenation and eco-civilization, other topics related to construction management and real estate, the discussions provide valuable insights into the advancement of construction management and real estate in the new era. The book is an outstanding reference resource for academics and professionals alike.

Engineering Geology for Society and Territory - Volume 5 Utah Geological Survey

This book is a printed edition of the Special Issue "Observing Geohazards from Space" that was published in Geosciences

The Bangkok Metropolitan Area Case Study Springer

This book is the international edition of the proceedings of IS-Seoul 2011, the Fifth International Symposium on Deformation Characteristics of Geomaterials, held in Seoul, South Korea, in September 2011.The book includes 7 invited lectures, as well as 158 technical papers selected from the 182 submitted. The symposium explored ideas about the complex load-deformation response in geomaterials, including laboratory methods for small

and large strains; anisotropy and localization; time-dependent responses in soils; characteristics of treated, unsaturated, and natural geomaterials; applications in field methods; evaluation of field performance in geotechnical structures; and physical and numerical modeling in geomechanics. These topics were grouped under a number of main themes, including experimental investigations from very small strains to beyond failure; behavior, characterization and modeling of various geomaterials; and practical prediction and interpretation of ground response: field observation and case histories. Both the symposium and this book represent an important contribution to the exchange of advanced knowledge and ideas in geotechnical engineering and promote partnership among participants worldwide.

Urban Water Planning, a Bibliography MDPI

This volume gathers the latest advances, innovations, and applications in the field of mining, geology and geo-spatial technologies, as presented by leading researchers and engineers at the International Conference on Innovations for Sustainable and Responsible Mining (ISRM), held in Hanoi, Vietnam on October 15-17 2020. The contributions cover a diverse range of topics, including mining technology, drilling and blasting engineering, tunneling and geotechnical applications, mineral processing, mine management and economy, environmental risk assessment and management, mining and local development, mined land rehabilitation, water management and hydrogeology, regional Geology and tectonics, spatial engineering for monitoring natural resources and environment change, GIS and remote sensing for natural disaster monitoring, risk mapping and revisualization, natural resources monitoring and management, mine occupational safety and health. Selected by means of a rigorous peer-review process, they will spur novel research directions and foster future multidisciplinary collaborations.

Analysis of Urban Growth: From Sprawl to Compact Using Geospatial Data CRC Press

A summary of recent significant scientific and economic results accompanied by a list of geologic and hydrologic investigations in progress and a report on the status of topographic mapping.