Remote Sensing And Urban Analysis Book Download

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Remote Sensing Time Series Image Processing Springer Nature
In an age of unprecedented proliferation of data from disparate sources the urgency is to create efficient methodologies that can optimise data combinations and at the same time solve increasingly complex application problems. Integration of GIS and Remote Sensing explores the tremendous potential that lies along the interface between GIS and remote sensing for activating interoperable databases and instigating information interchange. It concentrates on the rigorous and meticulous aspects of analytical data matching and thematic compatibility - the true roots of all branches of GIS/remote sensing applications. However closer harmonization is tempered by numerous technical and institutional issues, including scale incompatibility, measurement disparities, and the inescapable notion that data from GIS and remote sensing essentially represent diametrically opposing conceptual views of reality. The first part of the book defines and characterises GIS and remote sensing and presents the reader with an awareness of the many scale, taxonomical and analytical problems when attempting integration. The second part of the book moves on to demonstrate the benefits and costs of integration across a number of human and environmental applications. This book is an invaluable reference for students and professionals dealing not only with GIS and remote sensing, but also computer science, civil engineering, environmental science and urban planning within the academic, governmental and commercial/business sectors.

Hyperspectral Remote Sensing in Urban Environments CRC Press
Land use and land cover changes associated with increased urbanization have led to landscape and environmental changes throughout the world. Remote Sensing Applications for the Urban Environment places emphasis on the rapid development of worldwide urbanization and its impact on the environment, and reviews the assessment of urban land cover condit

Analysis of Urban Growth and Sprawl from Remote Sensing Data CRC Press
An authoritative guide to the essential techniques and most recent advances in urban remote sensing Techniques and Methods in Urban Remote Sensing offers a comprehensive guide to the recent theories, methods, techniques, and applications in urban remote sensing. Written by a noted expert on the subject, this book explores the requirements for mapping impervious surfaces and examines the issue of scale. The book covers a range of topics and includes illustrative examples of commonly used methods for estimating and mapping urban impervious surfaces, explains how to determine urban thermal

landscape and surface energy balance, and offers information on impacts of urbanization on land surface temperature, water quality, and environmental health. Techniques and Methods in Urban Remote Sensing brings together in one volume the latest opportunities for combining ever-increasing computational power, more plentiful and capable data, and more advanced algorithms. This allows the technologies of remote sensing and GIS to become mature and to gain wider and better applications in environments, ecosystems, resources, geosciences, geography and urban studies. This important book: Contains a comprehensive resource to the latest developments in urban remote sensing Explains urban heat islands modeling and analysis Includes information on estimating urban surface energy fluxes Offers a guide to generating data on land surface temperature Written for professionals and students of environmental, ecological, civic and urban studies, Techniques and Methods in

Urban Remote Sensing meets the demand for an updated resource that addresses the recent advances urban remote sensing. **Urban Remote Sensing** CRC Press

"Remote Sensing of Urban and Suburban Areas" provides instructors with a text reference that has a logical and easy-to-follow flow of topics around which they can structure the syllabi of their urban remote sensing courses. Topics have been chosen to bridge the gap between remote sensing and urban studies through a better understanding of the science that underlies both fields. In so doing, the book includes 17 chapters written by leading international experts in respected fields to provide a balanced coverage of fundamental issues in both remote sensing and urban studies. Emphasis is placed on: theoretical and practical issues in contemporary urban studies and remote sensing; the spectral, spatial and temporal requirements of remotely sensed data in relation to various urban phenomena; methods and techniques for analyzing and integrating remotely sensed data and image processing with geographic information systems to address urban problems; and examples of applications in which applying remote sensing to tackle urban problems is deemed useful and important.

Integration of GIS and Remote Sensing CRC Press

One of the key geographical developments over the last two centuries has been that of urbanisation. In recent years this has exploded globally, particularly in developing countries. It is essential for governments, planners and researchers in geography and allied fields to understand this process and the main way of being able to do this is to accurately map these changes. The main method of this mapping is Remote Sensing. This up-to-date analysis of the area looks at a wide range of methodologies

currently being used to produce and analyse remotely sensed data of urban areas. The authors examine the various techniques used to extract information from digital, multispectral images of urban areas. Donnay and Barnsley then go on to look at the identification of urban forms, the delineation of agglomerations and the development of urban morphology, considering the analysis of integrated data sets and surface models and going on to look at the estimation of human population levels.
Geospatial Techniques in Urban Hazard and Disaster Analysis CRC Press
This book presents a systematic study of urban green space remote sensing from multi-dimensional and multi-scale technologies. On the basis of introducing the connotation, science and application value of urban green space, this book focuses on the two-dimensional and three-dimensional information extraction technology of urban vegetation, two-dimensional and three-dimensional measurement technology of urban green space and multi-scale perception technology and discusses the remote sensing evaluation method of urban green space. By exploring the technical advantages of 'satellite remote sensing + aerial remote sensing + near-ground remote sensing', urban green space remote sensing promotes the development of urban vegetation research from two-dimensional to three-dimensional observation, so that the quantity, quality and human perception of urban vegetation can be measured. In each chapter, an individual technology/method is introduced, and several cases are cited to demonstrate its practical application. This book offers a valuable reference guide for practitioners in urban planning, landscape greening, environmental protection and urban management, as well as teachers and graduate students engaged in urban remote sensing research.
Advanced Remote Sensing for Urban and Landscape Ecology Springer

Using a systems analysis approach and extensive case studies, Environmental Remote Sensing and Systems Analysis shows how remote sensing can be used to support environmental decision making. It presents a multidisciplinary framework and the latest remote sensing tools to understand environmental impacts, management complexity, and policy implicatio

Remote Sensing of Urban Areas Routledge Urban Remote Sensing is designed for upper level undergraduates, graduates, researchers and practitioners, and has a clear focus on the development of remote sensing technology for monitoring, synthesis and modeling in the urban environment. It covers four major areas: the use of high-resolution satellite imagery or alternative sources of image date (such as high-resolution SAR and LIDAR) for urban feature extraction; the development of improved image processing algorithms and techniques for deriving accurate and consistent information on urban attributes from remote sensor data; the development of analytical techniques and methods for deriving indicators of socioeconomic and environmental conditions that prevail within urban landscape; and the development of remote sensing and spatial analytical techniques for urban growth simulation and predictive modeling.

The Operational Use of Remote Sensing in Municipalities Elsevier

High spatial resolution remote sensing is an area of considerable current interest and builds on developments in object-based image analysis, commercial high-resolution satellite sensors, and UAVs. It captures more details through high and very high resolution images (10 to 100 cm/pixel). This unprecedented level of detail offers the potential extraction of a

range of multi-resource management information, such as precision farming, invasive and endangered vegetative species delineation, forest gap sizes and distribution, locations of highly valued habitats, or sub-canopy topographic information. Information extracted in high spatial remote sensing data right after a devastating earthquake can help assess the damage to roads and buildings and aid in emergency planning for contact and evacuation. To effectively utilize information contained in high spatial resolution imagery, High Spatial Resolution Remote Sensing: Data, Analysis, and Applications addresses some key questions: What are the challenges of using new sensors and new platforms? What are the cutting-edge methods for fine-level information extraction from high spatial resolution images? How can high spatial resolution data improve the quantification and characterization of physical-environmental or human patterns and processes? The answers are built in three separate parts: (1) data acquisition and preprocessing, (2) algorithms and techniques, and (3) case studies and applications. They discuss the opportunities and challenges of using new sensors and platforms and high spatial resolution remote sensing data and recent developments with a focus on UAVs. This work addresses the issues related to high spatial image processing and introduces cutting-edge methods, summarizes state-of-the-art high spatial resolution applications, and demonstrates how high spatial resolution remote sensing can support the extraction of detailed information needed in different systems. Using various high spatial resolution data, the third part of this book covers a range

of unique applications, from grasslands to wetlands, karst areas, and cherry orchard trees. Radar Remote Sensing of Urban Areas Springer Science & Business Media Urban Remote Sensing The second edition of Urban Remote Sensing is a state-of-the-art review of the latest progress in the subject. The text examines how evolving innovations in remote sensing allow to deliver the critical information on cities in a timely and cost-effective way to support various urban management activities and the scientific research on urban morphology, socio-environmental dynamics, and sustainability. Chapters are written by leading scholars from a variety of disciplines including remote sensing, GIS, geography, urban planning, environmental science, and sustainability science, with case studies predominately drawn from North America and Europe. A review of the essential and emerging research areas in urban remote sensing including sensors, techniques, and applications, especially some critical issues that are shifting the directions in urban remote sensing research. Illustrated in full color throughout, including numerous relevant case studies and extensive discussions of important concepts and cutting-edge technologies to enable clearer understanding for non-technical audiences. Urban Remote Sensing, Second Edition will be of particular interest to upper-division undergraduate and graduate students, researchers and professionals working in the fields of remote sensing, geospatial

information, and urban & environmental planning.

Environmental Remote Sensing and Systems Analysis Springer Science & Business Media Remote Sensing image analysis is mostly done using only spectral information on a pixel by pixel basis. Information captured in neighbouring cells, or information about patterns surrounding the pixel of interest often provides useful supplementary information. This book presents a wide range of innovative and advanced image processing methods for including spatial information, captured by neighbouring pixels in remotely sensed images, to improve image interpretation or image classification. Presented methods include different types of variogram analysis, various methods for texture quantification, smart kernel operators, pattern recognition techniques, image segmentation methods, sub-pixel methods, wavelets and advanced spectral mixture analysis techniques. Apart from explaining the working methods in detail a wide range of applications is presented covering land cover and land use mapping, environmental applications such as heavy metal pollution, urban mapping and geological applications to detect hydrocarbon seeps. The book is meant for professionals, PhD students and graduates who use remote sensing image analysis, image interpretation and image classification in their work related to disciplines such as geography, geology, botany, ecology, forestry, cartography, soil science, engineering and urban and regional planning.

Urban High-Resolution Remote Sensing IGI Global
A wide range of methodologies for the production and analysis of urban remote sensing data are outlined in this book. To begin with, a number of techniques are examined for the extraction of information which can be applied to digital,

multispectral images of urban areas. These include improvements to conventional per-pixel image classification algorithms, various methods of image fusion, the application of syntactic pattern recognition techniques, the role of mathematical morphology, and geostatistical approaches to the analysis and intepretation of image textural and spatial patterns. The bo.

Urban Applications of Satellite Remote Sensing and GIS Analysis CRC Press Re-envisioning Advances in Remote Sensing: Urbanization, Disasters and Planning aims at portraying varied advancements in remote sensing applications, particularly in the fields of urbanization, disaster management and regional planning perspectives. The book is organized into three sections of overlapping areas of research covering chief remote sensing applications. Apart from introducing the advances in remote sensing through Indian remote sensing developments, it depicts the broader themes of: urbanization and its impacts; geospatial technology for disaster management; and, remote sensing applications in models and planning. It also provides outlook to future research agenda for remote sensing. Features: • Depicts advances in remote sensing in major fields through applications of geospatial technologies. • Covers remote sensing applications in varied aspects of urbanization, urban problems and disasters. • Includes advancements in remote sensing in model building and planning perspectives.

• Analyses the usage of smartphones and other digital devices in mapping urban problems and monitoring disaster risks. • Explores future agenda for remote sensing advances and its ever-widening horizon. This book would be of interest to all the researchers and graduate students pursuing studies in the fields of remote sensing, GIS, geospatial technologies, urbanizations, disaster management, regional planning, environmental sciences, natural resource management and related fields.

Remote Sensing of Urban Green Space CRC Press

Driven by advances in technology and societal needs, the next frontier in remote sensing is urban areas. With the advent of high-resolution imagery and more capable techniques, the question has become "Now that we have the technology, how do we use it?" The need for a definitive resource that explores the technology of remote sensing and the issues it can resolve in an urban setting has never been more acute. Containing contributions from world renowned experts, Urban Remote Sensing provides a review of basic concepts, methodologies, and case studies. Each chapter demonstrates how to apply up-to-date techniques to the problems identified and how to analyze research results. Organized into five sections, this book: Focuses on data, sensors, and systems considerations as well as algorithms for urban feature extraction Analyzes urban landscapes in terms of composition and

structure, especially using sub-pixel analysis techniques Presents methods for monitoring, analyzing, and modeling urban growth Illustrates various approaches to urban planning and socio-economic applications of urban remote sensing Assesses the progress made to date, identifies the existing problems and challenges, and demonstrates new developments and trends in urban remote sensing This book is ideal for upper division undergraduate and graduate students, however it can also serve as a reference for researchers or those individuals interested in the remote sensing of cities in academia, and governmental and commercial sectors. Urban Remote Sensing examines how to apply remote sensing technology to urban and suburban areas.

Remote Sensing of Urban and Suburban Areas John Wiley & Sons
This book provides a comprehensive discussion on urban growth and sprawl, and how they can be analyzed using remote sensing imageries. It compiles views of numerous researchers that help in understanding the urban growth and sprawl; their patterns, process, causes, consequences, and countermeasures; how remote sensing data and geographic information system techniques can be used in mapping, monitoring, measuring, analyzing, and simulating the urban growth and sprawl and what are the merits and demerits of available methods and models. This book will be of value for the scientists and researchers engaged in urban geographic research, especially using remote sensing imageries. This book will serve as a rigours literature review for them. Post graduate students of urban geography or urban/regional planning may refer this book as additional studies. This book may help the academicians for preparing lecture notes

and delivering lectures. Industry professionals may also be benefited from the discussed methods and models along with numerous citations.

Remote Sensing and Urban Analysis Springer Science & Business Media

This book introduces the use of various remote sensing data such as microwave, hyperspectral and very high-resolution (VHR) satellite imagery; mapping techniques including pixel and object-based machine learning; and geostatistical modelling techniques including cellular automation, entropy and land fragmentation. Remote sensing plays a vital role in solving urban and environmental challenges at the landscape level. Globally, more than half of the urban population is facing severe environmental and social challenges, especially those relating to climate change, agricultural land encroachment, green infrastructure and environmental degradation, mobility due to rapid rural– urban transformation and anthropogenic interventions. Mapping and quantification of such threats at the landscape level are challenging for experts using traditional techniques; however, remote sensing technology provides diverse spatial data at a varying scale, volume and accessibility for mapping and modelling; and it also analyses challenges at urban and landscape levels. Together, they address challenges at urban and landscape levels to support the Sustainable Development Goals (SDGs).

Geospatial Technology and Smart Cities Springer Nature

This book discusses the application of Geospatial data, Geographic Information System (GIS) and Remote Sensing (RS) technologies in analysis and modeling of urban growth process, and its pattern,

with special focus on sprawl and compact form of urban development. The book explains these two kinds of urban forms (sprawl and compact urban development) in detail regarding their advantages, disadvantages, indicators, assessment, modeling, implementation and their relationship with urban sustainability. It confirms that the proposed modeling approaches, geospatial data and GIS are very practical for identifying urban growth, land use change patterns and their general trends in future. The analyses and modeling approaches presented in this book can be employed to guide the identification and measurements of the changes and growth likely to happen in urban areas. In addition, this book can be helpful for town planning and development in order to design urban areas in a compact form and eventually sustainable manner.

Urban Informatics Springer

This book expands the current frame of reference of remote sensing and geographic information specialists to include an array of socio-economic and related planning issues. Using remotely sensed data, the project explores the efficacy and policy implications of new approaches toward analyzing data, integrates approaches from human geography and explores the utility of employing geo-technologies to further the politics of local growth and smart growth coalitions, as in green space programs.

Remote Sensing Applications for the Urban Environment CRC Press

Remote sensing of impervious surfaces has matured using advances in geospatial technology so recent that its applications have received only sporadic coverage in remote sensing literature. Remote Sensing of Impervious Surfaces is the first to focus entirely on this developing field. It provides detailed coverage of mapping, data extraction, and

modeling techniques specific to analyzing impervious surfaces, such as roads and buildings. Written by renowned experts in the field, this book reviews the major approaches that apply to this emerging field as well as current challenges, developments, and trends. The authors introduce remote sensing digital image processing techniques for estimating and mapping impervious surfaces in urban and rural areas. Presenting the latest modeling tools and algorithms for data extraction and analysis, the book explains how to differentiate roads, roofs, and other manmade structures from remotely sensed images for individual analysis. The final chapters examine how to use impervious surface data for predicting the flow of storm- or floodwater and studying trends in population, land use, resource distribution, and other real-world applications in environmental, urban,

and regional planning. Each chapter offers a consistent format including a concise review of basic concepts and methodologies, timely case studies, and guidance for solving problems and analyzing data using the techniques presented. **Re-envisioning Advances in Remote Sensing** John Wiley & Sons Written by world renowned scientists, this book provides an excellent overview of a wide array of methods and techniques for the processing and analysis of multitemporal remotely sensed images. These methods and techniques include change detection, multitemporal data fusion, coarse-resolution time series processing, and interferometric SAR multitemporal processing, among others. A broad range of multitemporal datasets are used in their methodology demonstrations and application examples, including multispectral, hyperspectral, SAR

and passive microwave data. This book features a variety of application examples covering both land and aquatic environments. Land applications include urban, agriculture, habitat disturbance, vegetation dynamics, soil moisture, land surface albedo, land surface temperature, glacier and disaster recovery. Aquatic applications include monitoring water quality, water surface areas and water fluctuation in wetland areas, spatial distribution patterns and temporal fluctuation trends of global land surface water, as well as evaluation of water quality in several coastal and marine environments. This book will help scientists, practitioners, students gain a greater understanding of how multitemporal remote sensing could be effectively used to monitor our changing planet at local, regional, and global scales.