

Envi Atmospheric Correction Module User S Guide

This book is an excellent resource for scientists, political decision makers, and students interested in the impact of peatlands on climate change and ecosystem function, containing a plethora of recent research results such as monitoring-sensing-modeling for carbon–water flux/storage, biodiversity and peatland management in tropical regions. It is estimated that more than 23 million hectares (62 %) of the total global tropical peatland area are located in Southeast Asia, in lowland or coastal areas of East Sumatra, Kalimantan, West Papua, Papua New Guinea, Brunei, Peninsular Malaysia, Sabah, Sarawak and Southeast Thailand. Tropical peatland has a vital carbon–water storage function and is host to a huge diversity of plant and animal species. Peatland ecosystems are extremely vulnerable to climate change and the impacts of human activities such as logging, drainage and conversion to agricultural land. In Southeast Asia, severe episodic droughts associated with the El Niño-Southern Oscillation, in combination with over-drainage, forest degradation, and land-use changes, have caused widespread peatland fires and microbial peat oxidation. Indonesia's 20 Mha peatland area is estimated to include about 45–55 GtC of carbon stocks. As a result of land use and development, Indonesia is the third largest emitter of

greenhouse gases (2–3 Gtons carbon dioxide equivalent per year), 80 % of which is due to deforestation and peatland loss. Thus, tropical peatlands are key ecosystems in terms of the carbon–water cycle and climate change.

Although the development of remote sensing techniques focuses greatly on construction of new sensors with higher spatial and spectral resolution, it is advisable to also use data of older sensors (especially, the LANDSAT-mission) when the historical mapping of land use/land cover and monitoring of their dynamics are needed. Using data from LANDSAT missions as well as from Terra (ASTER) Sensors, the authors shows in his book maps of historical land cover changes with a focus on agricultural irrigation projects. The kernel of this study was whether, how and to what extent applying the various remotely sensed data that were used here, would be an effective approach to classify the historical and current land use/land cover, to monitor the dynamics of land use/land cover during the last four decades, to map the development of the irrigation areas, and to classify the major strategic winter- and summer-irrigated agricultural crops in the study area of the Euphrates River Basin.

This book gathers the proceedings of the 6th China High Resolution Earth Observation Conference (CHREOC). Since its inception, the conference series has become an influential academic event in the earth detection area and

attracted more and more top experts and industry practitioners in related fields. CHREOC chiefly focuses on popular topics including military-civilian integration, the One Belt and One Road initiative, and the transformation of scientific research achievements, while also discussing new ideas, new technologies, new methods, and new developments. The CHREOC conferences have effectively promoted high-level institutional mechanisms, technological innovation, and industrial upgrading in the high-resolution earth observation area, and sparked new interest in the major national-sponsored project CHREOS. The majority of the contributing authors are researchers and experts participating in the CHREOS project. The papers highlight new findings, technical innovations, and research directions in the field of high-resolution earth observation. All articles have undergone several rounds of expert review and reflect cutting-edge advances. Accordingly, the proceedings offer an informative and valuable resource for both academic research and engineering practice.

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

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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.

This courseware teaches you to take raw image data and perform spectral

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analysis and data processing using ENVI. Exercises use ENVI's tools for principal components analysis, region of interest selection, classification, whole pixel and sub-pixel analysis. Course work includes workshops utilizing ENVI's multispectral tools as well as in-depth discussion and hands-on usage of the hyperspectral analysis tools unique to ENVI. (Publisher's blurb).

This book primarily addresses Intelligent Information Systems (IIS) and the integration of artificial intelligence, intelligent systems and technologies, database technologies and information systems methodologies to create the next generation of information systems. It includes original and state-of-the-art research on theoretical and practical advances in IIS, system architectures, tools and techniques, as well as “success stories” in intelligent information systems. Intended as an interdisciplinary forum in which scientists and professionals could share their research results and report on new developments and advances in intelligent information systems, technologies and related areas – as well as their applications – , it offers a valuable resource for researchers and practitioners alike.

International Transaction Journal of Engineering, Management, & Applied Sciences & Technologies publishes a wide spectrum of research and technical articles as well as reviews, experiments, experiences, modelings, simulations,

designs, and innovations from engineering, sciences, life sciences, and related disciplines as well as interdisciplinary/cross-disciplinary/multidisciplinary subjects. Original work is required. Article submitted must not be under consideration of other publishers for publications.

This book comprises select proceedings of the First International Conference on Geomatics in Civil Engineering (ICGCE 2018). This book presents latest research on applications of geomatics engineering in different domains of civil engineering, like structural engineering, geotechnical engineering, hydraulic and water resources engineering, environmental engineering and transportation engineering. It also covers miscellaneous applications of geomatics in a wide range of technical and societal problems making use of geospatial information, engineering principles, and relational data structures involving measurement sciences. The book proves to be very useful for the scientific and engineering community working in the field of geomatics and geospatial technology.

This book examines innovation in the fields of computer engineering and networking, and explores important, state-of-the-art developments in areas such as artificial intelligence, machine learning, information analysis and communication. It gathers papers presented at the 8th International Conference on Computer Engineering and Networks (CENet2018), held in Shanghai, China on August 17–19, 2018. • Explores emerging topics in computer engineering

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and networking, along with their applications • Discusses how to improve productivity by using the latest advanced technologies • Examines innovation in the fields of computer engineering and networking

Tropical forests occupy only one-tenth of the world's land area but are home to more than half of the world's flora and fauna. They comprise extremely complex labyrinth of ecological interactions. The astounding richness and biodiversity of tropical forests are rapidly dwindling. There is a fear that the burgeoning human population and industrialization, where a majority of these tropical forests are found, may lead to the clearing or modification or may be a complete disappearance of the remaining tropical forests within few decades. This has severely altered the vital biogeochemical cycles of carbon, phosphorus, nitrogen, and so on and has led to the change in global climate and pristine natural ecosystems. Hence, there is an urgent need to protect, restore, conserve, and improve the forest resources before they are irrevocably lost. In this second edition of the book *Tropical Forests*, the chapters share the above issues and help in understanding, educating, and creating awareness on the role of "tropical forests" for the very survival of mankind, climate change, and the diversity of biota across the globe. This book will be of great use and could be useful to students, scientists, ecologists, population and conservation biologists, and forest managers across the globe.

This book is a printed edition of the Special Issue "Urban and Periurban Forest Diversity and Ecosystem Services" that was published in *Forests*

This two-volume set (CCIS 848 and CCIS 849) constitutes the thoroughly refereed proceedings of the 5th International Conference Geo-Spatial Knowledge and Intelligence, GSKI 2017, held in Chiang Mai, Thailand, in December 2018. The 142 full papers presented

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were carefully reviewed and selected from 579 submissions. They are organized in topical sections on smart city in resource management and sustainable ecosystem; spatial data acquisition through RS and GIS in resource management and sustainable ecosystem; ecological and environmental data processing and management; advanced geospatial model and analysis for understanding ecological and environmental process; applications of geoinformatics in resource management and sustainable ecosystem.

This book gathers a selection of peer-reviewed papers presented at the Tiangong-2 Data Utilization Conference, which was held in Beijing, China, in December 2018. As the first space laboratory in China, Tiangong-2 carries 3 new types of remote sensing payloads – the Wide-band Imaging Spectrometer (WIS), Three-dimensional Imaging Microwave Altimeter (TIMA), and Multi-band Ultraviolet Edge Imaging Spectrometer (MUEIS) – for observing the Earth. The spectrum of the WIS covers 18 bands, from visible to thermal infrared, with a swath of 300km. The TIMA is the first-ever system to use interferometric imaging radar altimeter (InIRA) technology to measure sea surface height and land topography at near-nadir angles with a wide swath. In turn, the MUEIS is the world's first large-field atmospheric detector capable of quasi-synchronously detecting the characteristics of ultraviolet limb radiation in the middle atmosphere. The Earth observation data obtained by Tiangong-2 has attracted many research groups and been applied in such diverse areas as land resources, water resources, climate change, environmental monitoring, agriculture, forestry, ecology, oceanography, meteorology and so on. The main subjects considered in this proceedings volume include: payload design, data processing, data service and application. It also provides a comprehensive introduction to the research results gleaned by engineers, researchers and scientists throughout the lifecycle

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of the Tiangong-2 Earth observation data, which will improve the payload development and enhance remote sensing data applications.

This volume contains peer-reviewed papers from the Third World Landslide Forum organized by the International Consortium on Landslides (ICL) in June 2014. The complete collection of papers from the Forum is published in three full-color volumes and one mono-color volume. This book is a printed edition of the Special Issue "Water Optics and Water Colour Remote Sensing" that was published in Remote Sensing

Nowadays it is hard to find areas of human activity and development that have not profited from or contributed to remote sensing. Natural, physical and social activities find in remote sensing a common ground for interaction and development. This book intends to show the reader how remote sensing impacts other areas of science, technology, and human activity, by displaying a selected number of high quality contributions dealing with different remote sensing applications.

Hydrologic Modeling Select Proceedings of ICWEES-2016 Springer

This book examines social and natural environmental changes in present-day Laos and presents a new research framework for environmental studies from an interdisciplinary point of view. In Laos, after the Lao version of perestroika, Chintanakan Mai, in 1986, for better or worse, rural development and urbanization have progressed, and people's livelihoods are about to change significantly. Compared to those of the neighboring countries of mainland Southeast Asia, however, many traditional livelihoods such as region-specific/ethnic-specific livelihood complexes, which combined traditional rice

farming with a variety of subsistence activities, have been carried over into the present in Laos. The biggest challenge this book presents is to elucidate livelihood strategies of people who cope successfully with both social and environmental changes and to illustrate how to maintain this rich social and natural environment of Laos in the future. The book includes chapters on social, cultural, and natural concerns and on ethnicity, urbanization, and regional development in Laos. All chapters are based on original data from field surveys. These data will greatly contribute not only to local studies in Laos but also to environmental studies in developing countries.

Above ground biomass has been listed by the Intergovernmental Panel on Climate Change as one of the five most prominent, visible, and dynamic terrestrial carbon pools. The increased awareness of the impacts of climate change has seen a burgeoning need to consistently assess carbon stocks to combat carbon sequestration. An accurate estimation of carbon stocks and an understanding of the carbon sources and sinks can aid the improvement and accuracy of carbon flux models, an important pre-requisite of climate change impact projections. Based on 15 research topics, this book demonstrates the role of remote sensing in quantifying above ground biomass (forest, grass, woodlands) across varying spatial and temporal scales. The innovative application areas of the book include algorithm development and implementation, accuracy assessment, scaling issues (local–regional–global biomass mapping), and the integration of microwaves (i.e. LiDAR), along with optical sensors, forest biomass

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mapping, rangeland productivity and abundance (grass biomass, density, cover), bush encroachment biomass, and seasonal and long-term biomass monitoring.

Proceedings of the 29th Symposium of the European Association of Remote Sensing Laboratories Chania. The introduction of online access to remote sensing data, such as Google Earth, has made remote sensing more familiar to the public and has popularized the science in recent years. Remote sensing makes it possible to collect data from dangerous or inaccessible areas, replacing costly and slow data collection on the ground and ensuring that areas or objects are not disturbed in the process.

Applications include monitoring deforestation and the effects of climate change, as well as depth sounding of coastal and ocean depths. This book

The Fifth International Symposium on Recent Advances in Quantitative Remote Sensing was held in Torrent, Spain from 18 to 22 September 2018. It was sponsored and organized by the Global Change Unit (GCU) from the Image Processing Laboratory (IPL), University of Valencia (UEG), Spain. This Symposium addressed the scientific advances in quantitative remote sensing in connection with real applications. Its main goal was to assess the state of the art of both theory and applications in the analysis of remote sensing data, as well as to provide a forum for researcher in this subject area to exchange views and report their latest results. In this book 89 of the 262 contributions presented in both plenary and poster sessions are arranged according to the scientific topics selected. The papers are ranked in the same order as the final programme.

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Recently, growing interest in the use of remote sensing imagery has appeared to provide synoptic maps of water quality parameters in coastal and inner water ecosystems; monitoring of complex land ecosystems for biodiversity conservation; precision agriculture for the management of soils, crops, and pests; urban planning; disaster monitoring, etc. However, for these maps to achieve their full potential, it is important to engage in periodic monitoring and analysis of multi-temporal changes. In this context, very high resolution (VHR) satellite-based optical, infrared, and radar imaging instruments provide reliable information to implement spatially-based conservation actions. Moreover, they enable observations of parameters of our environment at greater broader spatial and finer temporal scales than those allowed through field observation alone. In this sense, recent very high resolution satellite technologies and image processing algorithms present the opportunity to develop quantitative techniques that have the potential to improve upon traditional techniques in terms of cost, mapping fidelity, and objectivity. Typical applications include multi-temporal classification, recognition and tracking of specific patterns, multisensor data fusion, analysis of land/marine ecosystem processes and environment monitoring, etc. This book aims to collect new developments, methodologies, and applications of very high resolution satellite data for remote sensing. The works selected provide to the research community the most recent advances on all aspects of VHR satellite remote sensing.

Bunga Rampai ForMIND menunjukkan identitasnya sebagai salah satu sumber alternatif referensi berbagai macam bidang keilmuan dan aplikasinya saat ini dan ke depan di Indonesia.

Remote sensing has been successfully applied in monitoring of protected areas around the world. With intensified impacts of climate and environmental change, protected areas become increasingly important to serve as indicators of and buffers against the impacts of the disturbances. Remote sensing plays an irreplaceable role in this frontline of challenges. The subjects and contents of the articles collected in this book reflect the state-of-the-art applications of remote sensing for capturing dynamics of environmental and ecological variations of the protected areas. The examples include revealing the level, growth rate, trend, and distribution pattern of the night-time light of global protected areas; quantifying the energy budget, water cycle, and carbon sink over the Three-River Headwaters Region in the hinterland of the Tibetan Plateau; monitoring wetland change in a cross-boundary zone between Northeast China and the Russian Far East; and monitoring applications and change analyses in protected areas of boreal forests, dryland shrubs, coastal salt marshes, large lakes, and temperate semi-humid to semi-arid transitional agricultural regions, using a variety of sensor data with innovative approaches. Also included in this collection is a bibliometric analysis that suggests the intellectual structure in remote sensing of protected areas from the perspective of journal publications.

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Remote sensing stands as the defining technology in our ability to monitor coral reefs, as well as their biophysical properties and associated processes, at regional to global scales. With overwhelming evidence that much of Earth's reefs are in decline, our need for large-scale, repeatable assessments of reefs has never been so great. Fortunately, the last two decades have seen a rapid expansion in the ability for remote sensing to map and monitor the coral reef ecosystem, its overlying water column, and surrounding environment. Remote sensing is now a fundamental tool for the mapping, monitoring and management of coral reef ecosystems. Remote sensing offers repeatable, quantitative assessments of habitat and environmental characteristics over spatially extensive areas. As the multi-disciplinary field of coral reef remote sensing continues to mature, results demonstrate that the techniques and capabilities continue to improve. New developments allow reef assessments and mapping to be performed with higher accuracy, across greater spatial areas, and with greater temporal frequency. The increased level of information that remote sensing now makes available also allows more complex scientific questions to be addressed. As defined for this book, remote sensing includes the vast array of geospatial data collected from land, water, ship, airborne and satellite platforms. The book is organized by technology, including: visible and infrared sensing using photographic, multispectral and hyperspectral instruments; active sensing using light detection and ranging (LiDAR); acoustic sensing using ship, autonomous underwater vehicle (AUV) and in-water platforms; and thermal and radar

instruments. **Emphasis and Audience** This book serves multiple roles. It offers an overview of the current state-of-the-art technologies for reef mapping, provides detailed technical information for coral reef remote sensing specialists, imparts insight on the scientific questions that can be tackled using this technology, and also includes a foundation for those new to reef remote sensing. The individual sections of the book include introductory overviews of four main types of remotely sensed data used to study coral reefs, followed by specific examples demonstrating practical applications of the different technologies being discussed. Guidelines for selecting the most appropriate sensor for particular applications are provided, including an overview of how to utilize remote sensing data as an effective tool in science and management. The text is richly illustrated with examples of each sensing technology applied to a range of scientific, monitoring and management questions in reefs around the world. As such, the book is broadly accessible to a general audience, as well as students, managers, remote sensing specialists and anyone else working with coral reef ecosystems.

International Journal of Advanced Remote Sensing and GIS (IJARSG, ISSN 2320 – 0243) is an open-access peer-reviewed scholarly journal publishes original research papers, reviews, case study, case reports, and methodology articles in all aspects of Remote Sensing and GIS including associated fields. This Journal commits to working for quality and transparency in its publishing by following standard Publication Ethics and Policies.

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This book is geared for advanced level research in the general subject area of remote sensing and modeling as they apply to the coastal marine environment. The various chapters focus on the latest scientific and technical advances in the service of better understanding coastal marine environments for their care, conservation and management. Chapters specifically deal with advances in remote sensing coastal classifications, environmental monitoring, digital ocean technological advances, geophysical methods, geoacoustics, X-band radar, risk assessment models, GIS applications, real-time modeling systems, and spatial modeling. Readers will find this book useful because it summarizes applications of new research methods in one of the world's most dynamic and complicated environments. Chapters in this book will be of interest to specialists in the coastal marine environment who deals with aspects of environmental monitoring and assessment via remote sensing techniques and numerical modeling.

Remote sensing data and methods are increasingly being implemented in assessments of volcanic processes and risk. This happens thanks to their capability to provide a spectrum of observation and measurement opportunities to accurately sense the dynamics, magnitude, frequency, and impacts of volcanic activity. This book includes research papers on the use of satellite, aerial, and ground-based remote sensing to detect thermal features and anomalies, investigate lava and pyroclastic flows, predict the flow path of lahars, measure gas emissions and plumes, and estimate ground

deformation. The multi-disciplinary character of the approaches employed for volcano monitoring and the combination of a variety of sensor types, platforms, and methods that come out from the papers testify to the current scientific and technology trends toward multi-data and multi-sensor monitoring solutions. The added value of the papers lies in the demonstration of how remote sensing can improve our knowledge of volcanoes that pose a threat to local communities; back-analysis and critical revision of recent volcanic eruptions and unrest periods; and improvement of modeling and prediction methods. Therefore, the selected case studies also demonstrate the societal impact that this scientific discipline can potentially have on volcanic hazard and risk management.

International Conference on Remote Sensing and Wireless Communications (RSWC 2014) will be held from February 22nd to 23rd, 2014 in Shanghai, China. RSWC 2014 will bring together top researchers from Asian Pacific areas, North America, Europe and around the world to exchange research results and address open issues in all aspects of Remote Sensing and Wireless Communications. The RSWC 2014 welcomes the submission of original full research papers, short papers, posters, workshop proposals, tutorials, and industrial professional reports.

The interface of 440,000 km long coastline in the world is subject to global change, with an increasing human pressure (land use, buildings, sand mining, dredging) and increasing population. Improving our knowledge on involved mechanisms and sediment

transport processes, monitoring the evolution of sedimentary stocks and anticipating changes in littoral and coastal zones is essential for this purpose. The special issue of Water on “Sediment transport in coastal waters” gathers thirteen papers which introduce the current revolution in the scientific research related to coastal and littoral hydrosedimentary dynamics, and reflect the diversity of concerns on which research in coastal sediment transport is based, and current trends — topics and preferred methods — to address them.

This volume offers up-to-date and comprehensive information on various aspects of the Nile River, which is the main source of water in Egypt. The respective chapters examine the Nile journey; the Aswan High Dam Reservoir; morphology and sediment quality of the Nile; threats to biodiversity; fish and fisheries; rain-fed agriculture, rainfall data, and fluctuations in rainfall; the impact of climate change; and hydropolitics and legal aspects. The book closes with a concise summary of the conclusions and recommendations provided in the preceding chapters, and discusses the requirements for the sustainable development of the Nile River and potential ways to transform conflicts into cooperation. Accordingly, it offers an invaluable source of information for researchers, graduate students and policymakers alike.

Artificial neural networks (ANNs) and evolutionary computation methods have been successfully applied in remote sensing applications since they offer unique advantages for the analysis of remotely-sensed images. ANNs are effective in finding underlying

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relationships and structures within multidimensional datasets. Thanks to new sensors, we have images with more spectral bands at higher spatial resolutions, which clearly recall big data problems. For this purpose, evolutionary algorithms become the best solution for analysis. This book includes eleven high-quality papers, selected after a careful reviewing process, addressing current remote sensing problems. In the chapters of the book, superstructural optimization was suggested for the optimal design of feedforward neural networks, CNN networks were deployed for a nanosatellite payload to select images eligible for transmission to ground, a new weight feature value convolutional neural network (WFCNN) was applied for fine remote sensing image segmentation and extracting improved land-use information, mask regional-convolutional neural networks (Mask R-CNN) was employed for extracting valley fill faces, state-of-the-art convolutional neural network (CNN)-based object detection models were applied to automatically detect airplanes and ships in VHR satellite images, a coarse-to-fine detection strategy was employed to detect ships at different sizes, and a deep quadruplet network (DQN) was proposed for hyperspectral image classification.

This volume Future Control and Automation- Volume 1 includes best papers selected from 2012 2nd International Conference on Future Control and Automation (ICFCA 2012) held on July 1-2, 2012, Changsha, China. Future control and automation is the use of control systems and information technologies to reduce the need for human work

in the production of goods and services. This volume can be divided into five sessions on the basis of the classification of manuscripts considered, which is listed as follows: Identification and Control, Navigation, Guidance and Sensor, Simulation Technology, Future Telecommunications and Control

Understanding the differences in carbon and nitrogen distribution and cycling both spatially and temporally using various approaches is essential in forest ecosystems. In addition, the influence of biotic and abiotic factors as well as natural and artificial disturbances on carbon and nitrogen cycling need to first be understood before drawing their implications to forest management practices. This Special Issue aims to understand carbon and nitrogen distribution and cycling in forest ecosystems for ecosystem-based forest management under different natural and artificial disturbances. This book contains seven parts. The first part deals with some aspects of rainfall analysis, including rainfall probability distribution, local rainfall interception, and analysis for reservoir release. Part 2 is on evapotranspiration and discusses development of neural network models, errors, and sensitivity. Part 3 focuses on various aspects of urban runoff, including hydrologic impacts, storm water management, and drainage systems. Part 4 deals with soil erosion and sediment, covering mineralogical composition, geostatistical analysis, land use impacts, and land use mapping. Part 5 treats remote sensing and geographic information system (GIS) applications to different hydrologic problems. Watershed runoff and floods are discussed in Part 6,

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encompassing hydraulic, experimental, and theoretical aspects. Water modeling constitutes the concluding Part 7. Soil and Water Assessment Tool (SWAT), Xinanjiang, and Soil Conservation Service-Curve Number (SCS-CN) models are discussed. The book is of interest to researchers and practitioners in the field of water resources, hydrology, environmental resources, agricultural engineering, watershed management, earth sciences, as well as those engaged in natural resources planning and management. Graduate students and those wishing to conduct further research in water and environment and their development and management find the book to be of value.

Advanced Remote Sensing is an application-based reference that provides a single source of mathematical concepts necessary for remote sensing data gathering and assimilation. It presents state-of-the-art techniques for estimating land surface variables from a variety of data types, including optical sensors such as RADAR and LIDAR. Scientists in a number of different fields including geography, geology, atmospheric science, environmental science, planetary science and ecology will have access to critically-important data extraction techniques and their virtually unlimited applications. While rigorous enough for the most experienced of scientists, the techniques are well designed and integrated, making the book's content intuitive, clearly presented, and practical in its implementation. Comprehensive overview of various practical methods and algorithms Detailed description of the principles and procedures of the state-of-the-

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art algorithms Real-world case studies open several chapters More than 500 full-color figures and tables Edited by top remote sensing experts with contributions from authors across the geosciences

This unique book focuses on remote sensing (RS) and geographical information systems (GIS) in Iraq. The environmental applications include monitoring and mapping soil salinity and prediction of soil properties, monitoring and mapping of land threats, proximal sensing for soil monitoring and soil fertility, spatiotemporal land use/cover, agricultural drought monitoring, hydrological applications including spatial rainfall distribution, surface runoff and drought control, geo-morphometric analysis and flood simulation, hydrologic and hydraulic modelling and the effective management of water resources. Also, this book assesses the impacts of climate change on natural resources using both RS and GIS, as well as other applications, covering different parts of Iraq. The book chapters include tens of maps extracted from the remotely sensed datasets, in addition to tables and statistical relations obtained from the results of the studies of the chapters' authors. These studies have been conducted in different parts of Iraq; in the north (Kurdistan region) with its mountainous and undulating lands, in western parts which have desert soils, and in central and southern Iraq where there are salty soils, dunes, wetlands, and marshes. The book is written by distinguished scientists from Iraq, China, USA, Italy, Iran, Germany, and the Czech Republic who are interested in the Iraqi environment. The book is therefore a useful source of information and

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knowledge on Iraqi environment for graduate students, researchers, policy planners, and stakeholders in Iraq as well as similar regions.

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