



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.

The book highlights recent research efforts in the monitoring of aquatic districts with remote sensing observations and proximal sensing technology integrated with laboratory measurements. Optical satellite imagery gathered at spatial resolutions down to few meters has been used for quantitative estimations of harmful algal bloom extent and Chla mapping, as well as winds and currents from SAR acquisitions. The knowledge and understanding gained from this book can be used for the sustainable management of bodies of water across our planet.

Marine Optics

Color of Inland and Coastal Waters

Advances in Coastal and Marine Resources

Multitemporal Remote Sensing

Wetlands and Habitats

The aquatic coastal zone is one of the most challenging targets for environmental remote sensing. Properties such as bottom reflectance, spectrally diverse suspended sediments and phytoplankton communities, diverse benthic communities, and transient events that affect surface reflectance (coastal blooms, runoff, etc.) all combine to produce an optical complexity not seen in terrestrial or open ocean systems. Despite this complexity, remote sensing is proving to be an invaluable tool for "Case 2" waters. This book presents recent advances in coastal remote sensing with an emphasis on applied science and management. Case studies of the operational use of remote sensing in ecosystem studies, monitoring, and interfacing remote sensing/science/management are presented.

Spectral signatures of phytoplankton and suspended sediments are discussed in detail with accompanying discussion of why blue water (Case 1) algorithms cannot be applied to Case 2 waters. Audience This book is targeted for scientists and managers interested in using remote sensing in the study or management of aquatic coastal environments. With only limited discussion of optics and theory presented in the book, such researchers might benefit from the detailed presentations of aquatic spectral signatures, and to operational management issues. While not specifically written for remote sensing scientists, it will prove to be a useful reference for this community for the current status of aquatic coastal remote sensing.

The book "'Applied Studies of Coastal and Marine Environments'" is a collection of a number of high-quality and comprehensive work on coastal and marine environment. This book has an Introductory Chapter, followed by 15 chapters. Chapters 2 and 3 are devoted to coastal geological sedimentation and its impacts on marine environment. Consequently, Chapter 4 investigates neo-tectonic movement in the Pearl River Delta. Different aspects of the coastal pollution and its impacts are addressed in Chapter 5 through Chapter 13. Furthermore, coastal management is also discussed in Chapter 14, and monitoring the coastal environment using remote sensing and GIS techniques is reported in Chapter 15. Finally, Chapter 16 addresses the human history of maritime exploitation and adaptation process to coastal and marine environments. It is important to investigate the history of maritime exploitation and adaptation to environment coastal zone to learn how to explore the oceans.

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