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Related with Measuring The Oceans From Space The Principles And Methods Of Satellite Oceanography Springer Praxis Books:
Measuring the Oceans from Space-Ian S. Robinson
2004-06-30 This book covers the fundamental principles of measuring oceans from space, and also contains state-of-the-art developments in data analysis and interpretation and in sensors. Completely new will be material covering advances in oceanography that have grown out of remote sensing, including some of the global applications of the data. The variety of applications of remotely sensed data to ocean science has grown significantly and new areas of science are emerging to exploit the global datasets being recovered by satellites, particularly in relation to climate and climate change, basin-scale, air-sea interaction processes (e.g. El Nino) and the modelling, forecasting and prediction of the ocean.

Discovering the Ocean from Space-Ian S. Robinson
2010-08-12 This book offers a survey of the contribution of satellite data to the study of the ocean, focusing on the special insights that only satellite data can bring to oceanography. Topics range from ocean waves to ocean biology, spanning scales from basins to estuaries. Some chapters cover applications to pure research while others show how satellite data can be used operationally for tasks such as pollution monitoring or oil-spill detection.

An Introduction to Ocean Remote Sensing-Seelye Martin 2004-08-26 A graduate-level 2004 textbook describing the use of satellites to study oceanic physical and biological properties.

Oceanography from Space-Vittorio Barale 2010-04-26 To all those sailors / Who dreamed before us / Of another way to sail the oceans. The dedication of this Volume is meant to recall, and honour, the bold pioneers of ocean exploration, ancient as well as modern. As a marine scientist, dealing with the oceans through the complex tools, ?lters and mechanisms of contemporary research, I have always wondered what it was like, in centuries past, to look at that vast ho- zon with the naked eye, not knowing what was ahead, and yet to sail on. I have tried to imagine
what ancient sailors felt, when “the unknown swirls around and engulfs the mind”, as a forgotten author simply described the brave, perhaps reckless, act of facing such a hostile, menacing and yet fascinating adventure. Innovation has always been the key element, I think, for their success: another way, a better way, a more effective, safer and worthier way was the proper answer to the challenge. The map of our world has been changed time and again, from the geographical as well as the social, economic and scientific points of view, by the new discoveries of those sailors. One of the positive qualities of human beings is without doubt the inborn desire to expand their horizons, to see what lies beyond, to learn and understand.

Measuring Ocean Currents—Antony Joseph 2013-08-12

Measuring Ocean Currents: Tools, Technologies, and Data covers all major aspects of ocean current measurements in view of the implications of ocean currents on changing climate, increasing pollution levels, and offshore engineering activities.

Although more than 70% of the Earth is covered by ocean, there is limited information on the countless fine- to large-scale water motions taking place within them. This book fills that information gap as the first work that summarizes the state-of-the-art methods and instruments used for surface, subsurface, and abyssal ocean current measurements. Readers of this book will find a wealth of information on Lagrangian measurements, horizontal mapping, imaging, Eulerian measurements, and vertical profiling techniques. In addition, the book describes modern technologies for remote measurement of ocean currents and their signatures, including HF Doppler radar systems, satellite-borne sensors, ocean acoustic tomography, and more. Crucial aspects of ocean currents are described in detail as well, including dispersion of effluents discharged into the sea and transport of beneficial materials—as well as environmentally hazardous materials—from one region to another. The book highlights several important practical
applications, showing how measurements relate to climate change and pollution levels, how they affect coastal and offshore engineering activities, and how they can aid in tsunami detection. Coverage of measurement, mapping and profiling techniques Descriptions of technologies for remote measurement of ocean currents and their signatures Reviews crucial aspects of ocean currents, including special emphasis on the planet-spanning thermohaline circulation, known as the ocean's "conveyor belt," and its crucial role in climate change

Topics in Oceanography- Enrico Zambianchi 2013-07-10 Oceanography is the par excellence interdisciplinary science thanks to its peculiar setting within a fluid environment that makes connections extremely efficient. The oceans connections are well mirrored in the chapters of this book that share a quite explicit multidisciplinary and multi-environmental character. The book provides chapters on very different topics under very different settings, some with a focused angle, others with a broader approach, yet all sharing the idea that we need to understand the small pieces in order to put together the big picture for a much larger mechanism, the functioning of the ocean as a whole.

Lagrangian Oceanography- Sergey V. Prants 2017-03-27 This book uses the Lagrangian approach, especially useful and convenient for studying large-scale transport and mixing in the ocean, to present a detailed view of ocean circulation. This approach focuses on simulations and on monitoring the trajectories of fluid particles, which are governed by advection equations. The first chapter of the book is devoted to dynamical systems theory methods, which provide the framework, methodology and key concepts for the Lagrangian approach. The book then moves on to an analysis of chaotic mixing and cross-stream transport in idealized models of oceanic meandering currents like the Gulfstream in the Atlantic, the Kuroshio in the Pacific, and Antarctic Circumpolar
Current, after which the current state of physical oceanography is reviewed. The latter half of the book applies the techniques and methods already described in order to study eddies, currents, fronts and large-scale mixing and transport in the Far-Eastern seas and the north-western part of the Pacific Ocean. Finally, the book concludes with a discussion of Lagrangian simulation and monitoring of water contamination after the Fukushima disaster of 2011. The propagation of Fukushima-derived radionuclides, surface transport across the Kuroshio Extension current, and the role of mesoscale eddies in the transport of Fukushima-derived cesium isotopes in the ocean are examined, and a comparison of simulation results with actual measurements are presented. Written by some of the world leaders in the application of Lagrangian methods in oceanography, this title will be of benefit to the oceanographic community by presenting the necessary background of the Lagrangian approach in an accessible manner.

Satellite Gravity and the Geosphere-National Research Council 1997-10-02 For the past three decades, it has been possible to measure the earth’s static gravity from satellites. Such measurements have been used to address many important scientific problems, including the earth’s internal structure, and geologically slow processes like mantle convection. In principle, it is possible to resolve the time-varying component of the gravity field by improving the accuracy of satellite gravity measurements. These temporal variations are caused by dynamic processes that change the mass distribution in the earth, oceans, and atmosphere. Acquisition of improved time-varying gravity data would open a new class of important scientific problems to analysis, including crustal motions associated with earthquakes and changes in groundwater levels, ice dynamics, sea-level changes, and atmospheric and oceanic circulation patterns. This book evaluates the potential for using satellite
technologies to measure the time-varying component of the gravity field and assess the utility of these data for addressing problems of interest to the earth sciences, natural hazards, and resource communities. 

Remote Sensing of Ocean and Coastal Environments—Meenu Rani 2020-09-27 Remote Sensing of Ocean and Coastal Environments advances the scientific understanding and application of technologies to address a variety of areas relating to sustainable development, including environmental systems analysis, environmental management, clean processes, green chemistry and green engineering. Through each contributed chapter, the book covers ocean remote sensing, ocean color monitoring, modeling biomass and the carbon of oceanic ecosystems, sea surface temperature (SST) and sea surface salinity, ocean monitoring for oil spills and pollutions, coastal erosion and accretion measurement. This book is aimed at those with a common interest in oceanography techniques, sustainable development and other diverse backgrounds within earth and ocean science fields. This book is ideal for academicians, scientists, environmentalists, meteorologists, environmental consultants and computing experts working in the areas of earth and ocean sciences.

Provides a comprehensive assessment of various ocean processes and their relative phenomena Includes graphical abstract and photosets in each chapter Presents literature reviews, case studies and applications Assessing the Requirements for Sustained Ocean Color Research and Operations—National Research Council 2011-12-15 The ocean is a fundamental component of the earth's biosphere. It covers roughly 70 percent of Earth's surface and plays a pivotal role in the cycling of life's building blocks, such as nitrogen, carbon, oxygen, and sulfur. The ocean also contributes to regulating the climate system. Most of the primary producers in the ocean comprise of microscopic plants and some bacteria; and these photosynthetic organisms (phytoplankton) form the base
of the ocean's food web. Monitoring the health of the ocean and its productivity is critical to understanding and managing the ocean's essential functions and living resources. Because the ocean is so vast and difficult for humans to explore, satellite remote sensing of ocean color is currently the only way to observe and monitor the biological state of the surface ocean globally on time scales of days to decades. Ocean color measurements reveal a wealth of ecologically important characteristics including: chlorophyll concentration, the rate of phytoplankton photosynthesis, sediment transport, dispersion of pollutants, and responses of oceanic biota to long-term climate changes. Continuity of satellite ocean color data and associated climate research products are presently at significant risk for the U.S. ocean color community. Assessing Requirements for Sustained Ocean Color Research and Operations aims to identify the ocean color data needs for a broad range of end users, develop a consensus for the minimum requirements, and outline options to meet these needs on a sustained basis. The report assesses lessons learned in global ocean color remote sensing from the SeaWiFS/MODIS era to guide planning for acquisition of future global ocean color radiance data to support U.S. research and operational needs. Challenges and Innovations in Ocean In Situ Sensors-Eric Delory 2018-09-21 Challenges and Innovations in Ocean In-Situ Sensors: Measuring Inner Ocean Processes and Health in the Digital Age highlights collaborations of industry and academia in identifying the key challenges and solutions related to ocean observations. A new generation of sensors is presented that addresses the need for higher reliability (e.g. against biofouling), better integration on platforms in terms of size and communication, and data flow across domains (in-situ, space, etc.). Several developments are showcased using a broad diversity of measuring techniques and technologies. Chapters address different sensors and approaches for measurements, including
applications, quality monitoring and initiatives that will guide the need for monitoring. Integrates information across key marine and maritime sectors and supports regional policy requirements on monitoring programs. Offers tactics for enabling early detection and more effective monitoring of the marine environment and implementation of appropriate management actions. Presents new technologies driving the next generation of sensors, allowing readers to understand new capabilities for monitoring and opportunities for another generation of sensors. Includes a global vision for ocean monitoring that fosters a new perspective on the direction of ocean measurements.

Data Analysis Methods in Physical Oceanography- Richard E. Thomson

2001-04-03 Data Analysis Methods in Physical Oceanography is a practical reference guide to established and modern data analysis techniques in earth and ocean sciences. This second and revised edition is even more comprehensive with numerous updates, and an additional appendix on 'Convolution and Fourier transforms'. Intended for both students and established scientists, the five major chapters of the book cover data acquisition and recording, data processing and presentation, statistical methods and error handling, analysis of spatial data fields, and time series analysis methods. Chapter 5 on time series analysis is a book in itself, spanning a wide diversity of topics from stochastic processes and stationarity, coherence functions, Fourier analysis, tidal harmonic analysis, spectral and cross-spectral analysis, wavelet and other related methods for processing nonstationary data series, digital filters, and fractals. The seven appendices include unit conversions, approximation methods and nondimensional numbers used in geophysical fluid dynamics, presentations on convolution, statistical terminology, and distribution functions, and a number of important statistical tables. Twenty pages are devoted to references. Featuring: • An
in-depth presentation of modern techniques for the analysis of temporal and spatial data sets collected in oceanography, geophysics, and other disciplines in earth and ocean sciences. • A detailed overview of oceanographic instrumentation and sensors - old and new - used to collect oceanographic data. • 7 appendices especially applicable to earth and ocean sciences ranging from conversion of units, through statistical tables, to terminology and non-dimensional parameters. In praise of the first edition: "(...)This is a very practical guide to the various statistical analysis methods used for obtaining information from geophysical data, with particular reference to oceanography(...) The book provides both a text for advanced students of the geophysical sciences and a useful reference volume for researchers." Aslib Book Guide Vol 63, No. 9, 1998 "(...)This is an excellent book that I recommend highly and will definitely use for my own research and teaching." EOS Transactions, D.A. Jay, 1999

"(...)In summary, this book is the most comprehensive and practical source of information on data analysis methods available to the physical oceanographer. The reader gets the benefit of extremely broad coverage and an excellent set of examples drawn from geographical observations." Oceanography, Vol. 12, No. 3, A. Plueddemann, 1999 "(...)Data Analysis Methods in Physical Oceanography is highly recommended for a wide range of readers, from the relative novice to the experienced researcher. It would be appropriate for academic and special libraries." E-Streams, Vol. 2, No. 8, P. Mofjelf, August 1999

Fathoming the Ocean-Helen M ROZWADOWSKI 2009-06-30 By the middle of the nineteenth century, as scientists explored the frontiers of polar regions and the atmosphere, the ocean remained silent and inaccessible. The history of how this changed--of how the depths became a scientific passion and a cultural obsession, an engineering challenge and a political attraction--is the story that
unfolds in Fathoming the Ocean.
A Strategy for Active Remote Sensing Amid Increased Demand for Radio Spectrum-National Academies of Sciences, Engineering, and Medicine 2015-09-21 Active remote sensing is the principal tool used to study and to predict short- and long-term changes in the environment of Earth - the atmosphere, the oceans and the land surfaces - as well as the near space environment of Earth. All of these measurements are essential to understanding terrestrial weather, climate change, space weather hazards, and threats from asteroids. Active remote sensing measurements are of inestimable benefit to society, as we pursue the development of a technological civilization that is economically viable, and seek to maintain the quality of our life. A Strategy for Active Remote Sensing Amid Increased Demand for Spectrum describes the threats, both current and future, to the effective use of the electromagnetic spectrum required for active remote sensing. This report offers specific recommendations for protecting and making effective use of the spectrum required for active remote sensing.
Sustaining Ocean Observations to Understand Future Changes in Earth's Climate-National Academies of Sciences, Engineering, and Medicine 2018-01-20 The ocean is an integral component of the Earth's climate system. It covers about 70% of the Earth's surface and acts as its primary reservoir of heat and carbon, absorbing over 90% of the surplus heat and about 30% of the carbon dioxide associated with human activities, and receiving close to 100% of fresh water lost from land ice. With the accumulation of greenhouse gases in the atmosphere, notably carbon dioxide from fossil fuel combustion, the Earth's climate is now changing more rapidly than at any time since the advent of human societies. Society will increasingly face complex decisions about how to mitigate the adverse impacts of climate change such as droughts, sea-level rise, ocean acidification, species loss,
Changes to growing seasons, and stronger and possibly more frequent storms. Observations play a foundational role in documenting the state and variability of components of the climate system and facilitating climate prediction and scenario development. Regular and consistent collection of ocean observations over decades to centuries would monitor the Earth’s main reservoirs of heat, carbon dioxide, and water and provides a critical record of long-term change and variability over multiple time scales. Sustained high-quality observations are also needed to test and improve climate models, which provide insights into the future climate system. Sustained Ocean Observations to Understand Future Changes in Earth’s Climate considers processes for identifying priority ocean observations that will improve understanding of the Earth’s climate processes, and the challenges associated with sustaining these observations over long timeframes.

Satellite Altimetric Measurements of the Ocean-

TOPEX Science Working Group 1981
International Cooperation and Competition in Civilian Space Activities- 1985
Polar Oceans from Space- Josefino Comiso 2010-03-24

Only a few centuries ago, we knew very little about our planet Earth. The Earth was considered flat by many although it was postulated by a few like Aristotle that it is spherical based on observations that included the study of lunar eclipses. Much later, Christopher Columbus successfully sailed to the West to discover the New World and Ferdinand Magellan’s ship circumnavigated the globe to prove once and for all that the Earth is indeed a sphere. Worldwide navigation and explorations that followed made it clear that the Earth is huge and rather impossible to study solely by foot or by water. The advent of air travel made it a lot easier to do exploratory studies and enabled the mapping of the boundaries of continents and the oceans. But aircraft coverage was limited and it was not until the satellite era that full coverage of the Earth’s surface became
available. Many of the early satellites were research satellites and that meant in part the development of engineering measurement systems with no definite applications in mind. The Nimbus-5 Electrically Scanning Microwave Radiometer (ESMR) was a classic case in point. The sensor was built with the idea that it may be useful for meteorological research and especially rainfall studies over the oceans, but success in this area of study was very limited.

Introduction to Physical Oceanography-John A. Knauss 2016-12-02 For decades, previous editions of John Knauss’s seminal work have struck a balance between purely descriptive texts and mathematically rigorous ones, giving a wide range of marine scientists access to the fundamental principles of physical oceanography. Newell Garfield continues this tradition, delivering valuable updates that highlight the book’s resourceful presentation and concise effectiveness. The authors include historical and current research, along with a 12-page color insert, to illuminate their perspective that the world ocean is tumultuous and continually helps to shape global environmental processes. The Third Edition builds a solid foundation that readers will find straightforward and lucid. It presents valuable insight into our understanding of the world ocean by:

- Encompassing essential oceanic processes such as the transfer of heat across the ocean surface, the distribution of temperature and salinity, and the effect of the earth’s rotation on the ocean.
- Providing sensible and well-defined explanations of the roles played by a stratified ocean, global balances, and equations of motion.
- Discussing cogent topics such as major currents, tides, waves, coastal oceans, semienclosed seas, and sound and optics.

Oceans from Space-Christian Aage 1999
Precise Geodetic Infrastructure-National Research Council 2010-10-25

Geodesy is the science of accurately measuring and understanding three fundamental properties of
Earth: its geometric shape, its orientation in space, and its gravity field, as well as the changes of these properties with time. Over the past half century, the United States, in cooperation with international partners, has led the development of geodetic techniques and instrumentation. Geodetic observing systems provide a significant benefit to society in a wide array of military, research, civil, and commercial areas, including sea level change monitoring, autonomous navigation, tighter low flying routes for strategic aircraft, precision agriculture, civil surveying, earthquake monitoring, forest structural mapping and biomass estimation, and improved floodplain mapping.

Recognizing the growing reliance of a wide range of scientific and societal endeavors on infrastructure for precise geodesy, and recognizing geodetic infrastructure as a shared national resource, this book provides an independent assessment of the benefits provided by geodetic observations and networks, as well as a plan for the future development and support of the infrastructure needed to meet the demand for increasingly greater precision. Precise Geodetic Infrastructure makes a series of focused recommendations for upgrading and improving specific elements of the infrastructure, for enhancing the role of the United States in international geodetic services, for evaluating the requirements for a geodetic workforce for the coming decades, and for providing national coordination and advocacy for the various agencies and organizations that contribute to the geodetic infrastructure.

Ocean Circulation in Three Dimensions-Barry A. Klinger 2019-03-31 An innovative survey of large-scale ocean circulation that links observations, conceptual models, numerical models, and theories.

Youmares 8 - Oceans Across Boundaries-Simon Jungblut 2019-09-13

Space Remote Sensing of Subtropical Oceans (SRSSO)-Cho-Teng Liu 1997-07-29 This volume contains the proceedings from the COSPAR Colloquium on
"Space Remote Sensing of Subtropical Oceans" which took place between 12 and 16 September, 1996, at the Institute of Oceanography of the National Taiwan University. Included are contributions addressing the issue, from scientific points of views, of why the first scientific satellite of Taiwan, ROCSAT-1, should be equipped with the Ocean Colour Imager (OCI) for oceanographic investigations.

Satellite Observations of the Earth's Environment-National Research Council 2003-07-03

This report addresses the transition of research satellites, instruments, and calculations into operational service for accurately observing and predicting the Earth's environment. These transitions, which take place in large part between NASA and NOAA, are important for maintaining the health, safety, and prosperity of the nation, and for achieving the vision of an Earth Information System in which quantitative information about the complete Earth system is readily available to myriad users. Many transitions have been ad hoc, sometimes taking several years or even decades to occur, and others have encountered roadblocks—lack of long-range planning, resources, institutional or cultural differences, for instance—and never reached fruition. Satellite Observations of Earth's Environment recommends new structures and methods that will allow seamless transitions from research to practice.

Surface Waves-Farzad Ebrahimi 2018-05-02

Surface waves have drawn a significant attention and interest in the recent years in a broad range of commercial applications, while their commercial developments have been supported by fundamental and applied research studies. This book is a result of contributions of experts from international scientific community working in different aspects of surface waves and reports on the state-of-the-art research and development findings on this topic through original and innovative research studies. It contains up-to-date publications of leading
experts, and the edition is intended to furnish valuable recent information to the professionals involved in surface wave analysis and applications. The text is addressed not only to researchers but also to professional engineers, students, and other experts in various disciplines, both academic and industrial, seeking to gain a better understanding of what has been done in the field recently and what kind of open problems are in this area. 

Ocean Remote Sensing with Synthetic Aperture Radar-2018-01-25 The ocean covers approximately 71% of the Earth's surface, 90% of the biosphere and contains 97% of Earth's water. The Synthetic Aperture Radar (SAR) can image the ocean surface in all weather conditions and day or night. SAR remote sensing on ocean and coastal monitoring has become a research hotspot in geoscience and remote sensing. This book--Progress in SAR Oceanography--provides an update of the current state of the science on ocean remote sensing with SAR. Overall, the book presents a variety of marine applications, such as, oceanic surface and internal waves, wind, bathymetry, oil spill, coastline and intertidal zone classification, ship and other man-made objects' detection, as well as remotely sensed data assimilation. The book is aimed at a wide audience, ranging from graduate students, university teachers and working scientists to policy makers and managers. Efforts have been made to highlight general principles as well as the state-of-the-art technologies in the field of SAR Oceanography.

Oceanography in 2025- National Research Council 2009-05-04 On January 8 and 9, 2009, the Ocean Studies Board of the National Research Council, in response to a request from the Office of Naval Research, hosted the "Oceanography in 2025" workshop. The goal of the workshop was to bring together scientists, engineers, and technologists to explore future directions in oceanography, with an emphasis on physical processes. The focus centered on research and technology needs, trends, and barriers.
that may impact the field of oceanography over the next 16 years, and highlighted specific areas of interest: submesoscale processes, air-sea interactions, basic and applied research, instrumentation and vehicles, ocean infrastructure, and education. To guide the white papers and drive discussions, four questions were posed to participants: What research questions could be answered? What will remain unanswered? What new technologies could be developed? How will research be conducted?

Breaking Ocean Waves—Eugene A. Sharkov
2007-10-14 Eugene Sharkov, of the Space Research Institute in Moscow, has here put together the most comprehensive description of the physical findings of an investigation into the spatio-temporal characteristics of the gravity of breaking waves. He’s also described the foam activity in the open sea using methods and instruments of optical and microwave remote sensing. Numerous practical applications and illustrations are provided from air-borne, ship-borne and laboratory up-to-date experiments.

Microwave Radar and Radiometric Remote Sensing—Fawwaz Tayssir Ulaby 2014

Sea Surface Salinity Remote Sensing—Emmanuel P. Dinnat 2019-08-27 This Special Issue gathers papers reporting research on various aspects of remote sensing of Sea Surface Salinity (SSS) and the use of satellite SSS in oceanography. It includes contributions presenting improvements in empirical or theoretical radiative transfer models; mitigation techniques of external interference such as RFI and land contamination; comparisons and validation of remote sensing products with in situ observations; retrieval techniques for improved coastal SSS monitoring, high latitude SSS and the assessment of ocean interactions with the cryosphere; and data fusion techniques combining SSS with sea surface temperature (SST). New instrument technology for the future of SSS remote sensing is also presented.

The Galapagos Marine Reserve—Judith Denkinger
2014-01-24 This book focuses on how marine systems...
respond to natural and anthropogenic perturbations (ENSO, overfishing, pollution, tourism, invasive species, climate-change). Authors explain in their chapters how this information can guide management and conservation actions to help orient and better manage, restore and sustain the ecosystems services and goods that are derived from the ocean, while considering the complex issues that affect the delicate nature of the Islands. This book will contribute to a new understanding of the Galapagos Islands and marine ecosystems.

OECD Handbook on Measuring the Space Economy-OECD 2012-02-27
This publication provides a summary of the key methodological issues surrounding indicators and statistics on the space sector and the larger space economy.

Earth Observations from Space-National Research Council 2008-01-17 Over the past 50 years, thousands of satellites have been sent into space on missions to collect data about the Earth. Today, the ability to forecast weather, climate, and natural hazards depends critically on these satellite-based observations. At the request of the National Aeronautics and Space Administration, the National Research Council convened a committee to examine the scientific accomplishments that have resulted from space-based observations. This book describes how the ability to view the entire globe at once, uniquely available from satellite observations, has revolutionized Earth studies and ushered in a new era of multidisciplinary Earth sciences. In particular, the ability to gather satellite images frequently enough to create "movies" of the changing planet is improving the understanding of Earth's dynamic processes and helping society to manage limited resources and environmental challenges. The book concludes that continued Earth observations from space will be required to address scientific and societal challenges of the future.

Satellite Oceanography-I. S. Robinson 1995-11-09 A broad general introduction to
remote sensing and its applications in oceanography. Designed to provide specialists with a sufficient depth of information necessary to understand oceanographic remote sensing processes and applications and non-specialists with the breadth of information necessary to understand how remote sensing makes a contribution to marine science. Provides an overview of all types of satellite remote sensing in ocean study: visible, infrared and microwave frequencies and both active and passive sensors. Also offers remote-sensing specialists the information required to assess the needs and perspectives of oceanographers.

Environmental Applications of Remote Sensing-Maged Marghany 2016-06-08 Nowadays, the innovation in space technologies creates a new trend for the Earth observation and monitoring from space. This book contains high quality and compressive work on both microwave and optical remote sensing applications. This book is divided into five sections: (i) remote sensing for biomass estimation, (ii) remote sensing-based glacier studies, (iii) remote sensing for coastal and ocean applications, (iv) sewage leaks and environment disasters, and (v) remote sensing image processing. Each chapter offers an opportunity to expand the knowledge about various remote sensing techniques and persuade researchers to deliver new research novelty for environment studies.


Handbook of Frequency Allocations and Spectrum Protection for Scientific Uses-National Academies of Sciences, Engineering, and Medicine 2015-11-02 The electromagnetic spectrum is a vital part of our environment. Measures of radio frequency emissions from natural phenomena enable both practical applications, such as weather predictions and studies of the changing of
Earth’s climate here at home, and reveal the physical properties of cosmic sources. The spectrum is therefore a resource to be used wisely now and to be protected for future generations. Handbook of Frequency Allocations and Spectrum Protection for Scientific Uses: Second Edition sets forth the principles for the allocation and protection of spectral bands for services using the radio spectrum for scientific research. This report describes the radio frequency bands used by scientific services and includes relevant regulatory information and discussion of scientific use of frequency bands. This reference will guide spectrum managers and spectrum regulatory bodies on science issues and serve as a resource to scientists and other spectrum users. Hyperspectral Satellites and System Design-Shen-En Qian 2020-04-22 Hyperspectral Satellites and System Design is the first book on this subject. It provides a systematic analysis and detailed design of the entire development process of hyperspectral satellites. Derived from the author’s 25-year firsthand experience as a technical lead of space missions at the Canadian Space Agency, the book offers engineers, scientists, and decision-makers detailed knowledge and guidelines on hyperspectral satellite system design, trade-offs, performance modeling and simulation, optimization from component to system level, subsystem design, and implementation strategies. This information will help reduce the risk, shorten the development period, and lower the cost of hyperspectral satellite missions. This book is a must-have reference for professionals in developing hyperspectral satellites and data applications. It is also an excellent introductory book for early practitioners and students who want to learn more about hyperspectral satellites and their applications. The Normalized Difference Vegetation Index-Nathalie Pettorelli 2013-10-10 There has been a recent surge of interest in remote sensing and its use in ecology and conservation but this is the
first book to focus explicitly on the NDVI (Normalised Difference Vegetation Index), a simple numerical indicator and powerful tool that can be used to assess spatio-temporal changes in green vegetation. The NDVI opens the possibility of addressing questions on scales inaccessible to ground-based methods alone; it is mostly freely available with global coverage over several decades. This novel text provides an authoritative overview of the principles and possible applications of the NDVI in ecology, environmental and wildlife management, and conservation. NDVI data can provide valuable information about temporal and spatial changes in vegetation distribution, productivity, and dynamics; allowing monitoring of habitat degradation and fragmentation, or assessment of the ecological effects of climatic disasters such as drought or fire. The NDVI has also provided ecologists with a promising way to couple vegetation with animal distribution, abundance, movement, survival and reproductive parameters. Over the last few decades, numerous studies have highlighted the potential key role of satellite data and the NDVI in macroecology, plant ecology, animal population dynamics, environmental monitoring, habitat selection and habitat use studies, and paleoecology. The chapters are organised around two sections: the first detailing vegetation indices and the NDVI, the principles behind the NDVI, its correlation with climate, the available NDVI datasets, and the possible complications and errors associated with the use of this satellite-based vegetation index. The second section discusses the possible applications of the NDVI in ecology, environmental and wildlife management, and conservation.

Measuring The Oceans From Space The Principles And Methods Of Satellite Oceanography Springer Praxis Books