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Z-Wave Basics Coral Reef Remote Sensing *Microwave and Millimeter-wave Remote Sensing for Security Applications* **Basic Wave Mechanics Remotely Sensed Data Characterization, Classification, and Accuracies** *Introduction to the Physics and Techniques of Remote Sensing* Tour of the Electromagnetic Spectrum **Ocean Surface Waves: Their Physics and Prediction** **Advances in Passive Microwave Remote Sensing of Oceans** **Precision Agriculture Basics** **Ocean Surface Waves** **Practical Handbook of Remote Sensing** **Scientific and Technical Aerospace Reports** *Polarimetric Microwave Imaging* *Electromagnetic Wave Theory* **Basic Space Plasma Physics (Revised Edition)** *Z-Wave Essentials* *Remote Sensing of the African Seas* Basic Research Program Basic Ship Theory *Remote Sensing of Earth Resources* Electromagnetic Wave Scattering on Nonspherical Particles **Nonlinear Ocean Dynamics** **Basic Sciences for MCEM** Selected Water Resources Abstracts *Geoinformatics* **Earth Resources** Reeds Introductions: Physics Wave Concepts for Marine Engineering Applications **Scattering of Electromagnetic Waves** Basic Ship Theory **Basic and Bedside Electrocardiography** **Electromagnetic Waves** *Space-based Remote Sensing of the Earth* **Technical Abstract Bulletin** **Remote Sensing Applications Guide: Technical guidance** **Electromagnetic Wave Scattering from Random Rough Surfaces** Experimental Vibration Analysis for Civil Engineering Structures *Noise Control Engineering Journal* Basic Electronics: No distinctive title Naval Research Reviews

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This book introduces readers to the polarimetric synthetic aperture radar (PolSAR) system, its information processing, and imaging applications. The content is divided into three main parts: Part I, on the research scope of PolSAR, addresses the underlying theory and system design, polarimetric SAR interferometry (PolInSAR), compact PolSAR, and calibration of PolSAR. Part II, which focuses on information processing, highlights the new theories and methods used in PolSAR, such as statistical properties analysis for images, speckle reduction, image enhancement, polarimetric target decomposition, and classification of PolSAR target detection. In turn, Part III, on the applications of polarimetric SAR, discusses the geophysical parameter retrieval of PolSAR data, polarimetric interferometric SAR information processing, compact polarimetric interferometric SAR information processing, and the effects of terrain tilt in azimuth direction on PolSAR data. The book provides a comprehensive and systematic guide to the system, integrating theory and practice, and has a highly application-oriented focus. Presenting new theories, methods and achievements made in polarimetric microwave imaging in recent years, it offers a valuable asset for researchers, engineers and scientists in the area of remote sensing and radar imaging. It can also be used as a reference book for university educators and graduate students. This textbook begins with a description of the Earth's plasma environment, followed by the derivation of single particle motions in electromagnetic fields, with applications to the Earth's magnetosphere. Also discussed are the origin and effects of collisions and conductivities, formation of the ionosphere, magnetospheric convection and dynamics, and solar wind-magnetosphere coupling.The second half of the book presents a more theoretical foundation of plasma physics, starting with kinetic theory. Introducing moments of distribution function permits the derivation of the fluid equations, followed by an analysis of fluid boundaries, with the Earth's magnetopause and bow shock as examples, and finally, fluid and kinetic theory are applied to derive the relevant wave modes in a plasma.This revised edition seamlessly integrates new sections on magnetopause reconstruction, as well as instability theory and thermal fluctuations based on new developments in space physics. Applications such as the important problems of collisionless reconnection and collisionless shocks are covered, and some problems have also been included at the end of each chapter./a This book demonstrates the capabilities of passive microwave technique for enhanced observations of ocean features, including the detection of (sub)surface events and/or disturbances while laying out the benefits and boundaries of these methods. It represents not only an introduction and complete description of the main principles of ocean microwave radiometry and imagery, but also provides guidance for further experimental studies. Furthermore, it expands the analysis of remote sensing methods, models, and techniques and focuses on a high-resolution multiband imaging observation concept. Such an advanced approach provides readers with a new level of geophysical

information and data acquisition granting the opportunity to improve their expertise on advanced microwave technology, now an indispensable tool for diagnostics of ocean phenomena and disturbances. A timely and authoritative guide to the state of the art of wavescattering Scattering of Electromagnetic Waves offers in three volumes acomplete and up-to-date treatment of wave scattering by randomdiscrete scatterers and rough surfaces. Written by leadingscientists who have made important contributions to wave scatteringover three decades, this new work explains the principles, methods,and applications of this rapidly expanding, interdisciplinaryfield. It covers both introductory and advanced material andprovides students and researchers in remote sensing as well asimaging, optics, and electromagnetic theory with a one-stopreference to a wealth of current research results. Plus, Scatteringof Electromagnetic Waves contains detailed discussions of bothanalytical and numerical methods, including cutting-edge techniquesfor the recovery of earth/land parametric information. The three volumes are entitled respectively Theories andApplications, Numerical Simulation, and Advanced Topics. In thefirst volume, Theories and Applications, Leung Tsang (University ofWashington) Jin Au Kong (MIT), and Kung-Hau Ding (Air ForceResearch Lab) cover: * Basic theory of electromagnetic scattering * Fundamentals of random scattering * Characteristics of discrete scatterers and rough surfaces * Scattering and emission by layered media * Single scattering and applications * Radiative transfer theory and solution techniques * One-dimensional random rough surface scattering For courses in Electromagnetic Fields & Waves. Electromagnetic Waves continues the applied approach used in the authors' successful Engineering Electromagnetics. The second book is appropriate for a second course in Electromagnetics that covers the topic of waves and the application of Maxwell's equations to electromagnetic events. Intended for coastal engineers and marine scientists who desire to develop a fundamental physical understanding of ocean waves and be able to apply this knowledge to ocean and coastal analysis and design. Provides an introduction to the physical processes of ocean wave mechanics, an understanding of the basic techniques for wave analysis, techniques for practical calculation and prediction of waves and applied wave forecasting. Rawson and Tupper's Basic Ship Theory, first published in 1968, is widely known as the standard introductory text for naval architecture students, as well as being a useful reference for the more experienced designer. The fifth edition continues to provide a balance between theory and practice. Volume 1 discusses ship geometry and measurement in its more basic concepts, also covering safety issues, structural strength, flotation, trim and stability. Both volumes feature the importance of considering the environment in design. Basic Ship Theory is an essential tool for undergraduates and national vocational students of naval architecture, maritime studies, ocean and offshore engineering, and will be of great assistance to practising marine engineers and naval architects. Brand new edition of the leading undergraduate textbook in Naval Architecture Provides a basis for more advanced theory Over 500 examples, with answers Scatteringofelectromagneticwavesonthree-dimensional,dielectricstructures is a basic interaction process in physics, which is also of great practical - portance. Most of our visual impressions are caused not by direct but by scattered light, as everybody can experience of looking directly at the sun. Several modern measurement technologies in technical and medical diagn- tics are also based on this interaction process. Atmospheric remote sensing with lidar and radar as well as nephelometer instruments for measuring s- pended particulates in a liquid or gas colloid are only a few examples where scattered electromagnetic waves provide us with information concerning the structure and consistence of the objects under consideration. Using the inf- mation of the elastically scattered electromagnetic wave is a common ground of most of those measuring methods. The phrase “elastically scattered” - presses the restriction that we consider such interaction processes only where the scattered wave possesses the same wavelength as the primary incident wave. This book addresses this special scattering problem. The African Seas include marginal basins of two major oceans, the Atlantic and the Indian, a miniature ocean, the Mediterranean Sea, and an infant ocean, the Red Sea. Understanding the wide spectrum of environmental features and processes of such a varied collection of marine and coastal regions requires that in situ observation systems be integrated and actually guided, by the application of orbital remote sensing techniques. This volume reviews the current potential of Earth Observations to help in the exploration of the marginal seas around Africa, by virtue of both passive and active techniques, working in several spectral ranges – i.e. measuring either reflected visible and near-infrared sunlight, as well as surface emissions in the thermal infrared and microwave spectral regions, or again the surface reflection of transmitted lidar or radar impulses of visible or microwave radiation. The in-depth

evaluation of the advantages offered by each technique and spectral region and in particular by the development of advanced multi-technique systems, contributes to the assessment of the abundant natural resources that the Seas of Africa have to offer, of those in dear need of being – sustainably – exploited and of others that should be protected and maintained in their still pristine conditions. The number of Earth observation satellites launched in recent years is growing exponentially, along with the datasets they gather from free-to-access and commercial providers. The second edition of Practical Handbook of Remote Sensing is updated with new explanations and practical examples using the Copernicus satellite data and new versions of the open-source software. A new chapter and new applications have also been added. Thoroughly revised, the handbook continues to be a practical "how-to" remote sensing guide for those who want to use the technology, understand what is available, how to access it, and answer questions about our planet, but do not necessarily want to become scientific experts. The first book to integrate the basics of ECG interpretation with the most recent clinical guidelines for treating patients with ECG abnormalities, this resource discusses disease states, provides clear illustrations of pathophysiology, and offers guidelines for diagnosis and treatment of specific entities. Reeds Introductions: Physics Wave Concepts for Marine Engineering Applications covers the fundamental theoretical maritime physics concepts which underpin electromagnetic wave and sonar principles as developed in most maritime-related courses, whether Naval, Coastguard or Merchant Marine engineering. For these reasons it is vital that maritime users have a basic understanding of the concepts upon which many essential modern sea-going sensors and communications devices now operate. Knowledge regarding electromagnetic waves and electromagnetic devices is an established merchant navy sea service requirement, particularly for the Standards in Training and Certification in Watchkeeping (STCW95) qualification in various Maritime Coastguard Agency exams, e.g. Marine Electrotechnology (as Chief Engineer and Second Engineer), as mandated by the UK Department for Transport. This short introductory book is written as simply as possible to support growing numbers of overseas students for whom English is not their first language. This volume provides a comprehensive study of maritime physics principles and provides a firm foundation prior to reading and studying of the following Reeds Marine Engineering series: Vols 1, 3, 6, 7, 14 and 15. Students having read this easy-to-read volume will be better prepared for the more in depth study of the other volumes listed. Electromagnetic wave scattering from random rough surfaces is anactive, interdisciplinary area of research with myriad practicalapplications in fields such as optics, acoustics, geoscience andremote sensing. Focusing on the case of random rough surfaces, this book presentsclassical asymptotic models used to describe electromagnetic wavescattering. The authors begin by outlining the basic conceptsrelevant to the topic before moving on to look at the derivation ofthe scattered field under asymptotic models, based on theKirchhoff-tangent plane, in order to calculate both the scatteredfield and the statistical average intensity. More elaborated asymptotic models are also described for dealingwith specific cases, and numerical results are presented toillustrate these models. Comparisons with a reference numericalmethod are made to confirm and refine the theoretical validitydomains. The final chapter derives the expressions of the scatteringintensities of random rough surfaces under the asymptotic models.Its expressions are given for their incoherent contributions, fromstatistical calculations. These results are then compared withnumerical computations using a Monte-Carlo process, as well as withexperimental models, for sea surface backscattering. Contents 1. Electromagnetic Wave Scattering from Random Rough Surfaces:Basics. 2. Derivation of the Scattered Field under Asymptotic Models. 3. Derivation of the Normalized Radar Cross-Section underAsymptotic Models. APPENDIX 1. Far-Field Scattered Fields under the Method ofStationary Phase. APPENDIX 2. Calculation of the Scattering Coefficients under the GOfor 3D Problems. About the Authors Nicolas Pinel worked as a Research Engineer at the IETR(Institut d'Electronique et de Télécommunicationsde Rennes) laboratory at Polytech Nantes (University of Nantes,France) before joining Alyotech Technologies in Rennes, France, inJuly 2013. His research interests are in the areas of radar andoptical remote sensing, scattering and propagation. In particular,he works on asymptotic methods of electromagnetic wave scatteringfrom random rough surfaces and layers. Christophe Bourlier works at the IETR (Institutd'Electronique et de Télécommunications de Rennes)laboratory at Polytech Nantes (University of Nantes, France) and isalso a Researcher at the French National Center for ScientificResearch (CNRS) on electromagnetic wave scattering from roughsurfaces and objects for remote sensing applications and radarsignatures. He is the author of more than 160 journal articles andconference papers. The science and engineering of remote

sensing--theory and applications The Second Edition of this authoritative book offers readers the essential science and engineering foundation needed to understand remote sensing and apply it in real-world situations. Thoroughly updated to reflect the tremendous technological leaps made since the publication of the first edition, this book covers the gamut of knowledge and skills needed to work in this dynamic field, including: * Physics involved in wave-matter interaction, the building blocks for interpreting data * Techniques used to collect data * Remote sensing applications The authors have carefully structured and organized the book to introduce readers to the basics, and then move on to more advanced applications. Following an introduction, Chapter 2 sets forth the basic properties of electromagnetic waves and their interactions with matter. Chapters 3 through 7 cover the use of remote sensing in solid surface studies, including oceans. Each chapter covers one major part of the electromagnetic spectrum (e.g., visible/near infrared, thermal infrared, passive microwave, and active microwave). Chapters 8 through 12 then cover remote sensing in the study of atmospheres and ionospheres. Each chapter first presents the basic interaction mechanism, followed by techniques to acquire, measure, and study the information, or waves, emanating from the medium under investigation. In most cases, a specific advanced sensor is used for illustration. The book is generously illustrated with fifty percent new figures. Numerous illustrations are reproduced in a separate section of color plates. Examples of data acquired from spaceborne sensors are included throughout. Finally, a set of exercises, along with a solutions manual, is provided. This book is based on an upper-level undergraduate and first-year graduate course taught by the authors at the California Institute of Technology. Because of the multidisciplinary nature of the field and its applications, it is appropriate for students in electrical engineering, applied physics, geology, planetary science, astronomy, and aeronautics. It is also recommended for any engineer or scientist interested in working in this exciting field. Nonlinear Ocean Dynamics: Synthetic Aperture Radar delivers the critical tools needed to understand the latest technology surrounding the radar imaging of nonlinear waves, particularly microwave radar, as a main source to understand, analyze and apply concepts in the field of ocean dynamic surface. Filling the gap between modern physics quantum theory and applications of radar imaging of ocean dynamic surface, this reference is packed with technical details associated with the potentiality of synthetic aperture radar (SAR). The book also includes key methods needed to extract the value-added information necessary, such as wave spectra energy, current pattern velocity, internal waves, and more. This book also reveals novel speculation of a shallow coastal front: named as Quantized Marghany's Front. Rounding out with practical simulations of 4-D wave-current interaction patterns using using radar images, the book brings an effective new source of technology and applications for today’s coastal scientists and engineers. Solves specific problems surrounding the nonlinearity of ocean surface dynamics in synthetic aperture radar data Helps develop new algorithms for retrieving ocean wave spectra and ocean current movements from synthetic aperture radar Includes over 100 equations that illustrate how to follow examples in the book Z-Wave is the leading international standard for wireless communication in Smart Homes. Different products from different vendors work together and interoperate in one single network to provide intelligent lighting, safety, security and energy efficiency.This book describes all you need to know about Z-Wave: The radio layer standardized by the international ITU organization, the networking between the device to realize a stable communication and finally the device specific application functions that ensure the interoperability between the different devices. Practical guidance for the installation and trouble shooting of wireless networks is provided as well. A volume in the Remote Sensing Handbook series, Remotely Sensed Data Characterization, Classification, and Accuracies documents the scientific and methodological advances that have taken place during the last 50 years. The other two volumes in the series are Land Resources Monitoring, Modeling, and Mapping with Remote Sensing, and Remote Sensing of Z-Wave is the leading international standard for wireless communication in Smart Homes. Different products from different vendors work together and interoperate in one single network to provide intelligent lighting, safety, security and energy efficiency. This book describes all you need to know about Z-Wave: The radio layer standardized by the international ITU organization, the networking between the device to realize a stable communication and finally the device specific application functions that ensure the interoperability between the different devices. Practical guidance for the installation and trouble shooting of wireless networks is provided as well. This book is intended as a handbook for professionals and researchers in the areas of Physical Oceanography, Ocean and Coastal Engineering and as a text for graduate students in these fields. It presents a

comprehensive study on surface ocean waves induced by wind, including basic mathematical principles, physical description of the observed phenomena, practical forecasting techniques of various wave parameters and applications in ocean and coastal engineering, all from the probabilistic and spectral points of view. The book commences with a description of mechanisms of surface wave generation by wind and its modern modeling techniques. The stochastic and probabilistic terminology is introduced and the basic statistical and spectral properties of ocean waves are developed and discussed in detail. The bulk of material deals with the prediction techniques for waves in deep and coastal waters for simple and complex ocean basins and complex bathymetry. The various prediction methods, currently used in oceanography and ocean engineering, are described and the examples of practical calculations illustrate the basic text. An appendix provides a description of the modern methods of wave measurement, including the remote sensing techniques. Also the wave simulation methods and random data analysis techniques are discussed. In the book a lot of discoveries of the Russian and East European scientists, largely unknown in the Western literature due to the language barrier, are referred to. Contents:IntroductionGeneration of Waves by WindSpectral Properties of Ocean WavesStatistical Properties of Ocean WavesPrediction of Ocean Waves in Deep WaterPrediction of Ocean Waves in Shallow WaterWaves at Islands and Coral ReefsLong-Term Statistics for Ocean Surface WavesMeasurement, Simulation and Data ProcessingReferences Readership: Researchers and graduate students in physical oceanography, ocean and coastal engineering. keywords:Ocean Waves;Spectral Analysis;Statistical Analysis;Stochastic Processes;Measurement Techniques;Data Processing;Remote Sensing Techniques;Wave Modelling;Similarity Laws;Ocean Wave Spectra;Nonlinear Wave Analysis;Long-Term Statistics “The range of topics and applications is far more extensive; there is much more to tie together. The treatment is less discursive and somewhat more demanding, but always clear to a technically-trained reader … should be available to all physical and dynamical oceanographers interested in applications, and should be close at hand to graduate students and practitioners of ocean and coastal engineering.” Applied Mechanics Reviews 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. This is a first year graduate text on electromagnetic field theory emphasizing mathematical approaches, problem solving

and physical interpretation. Examples deal with guidance, propagation, radiation and scattering of electromagnetic waves, metallic and dielectric wave guides, resonators, antennas and radiating structures, Cerenkov radiation, moving media, plasmas, crystals, integrated optics, lasers and fibers, remote sensing, geophysical probing, dipole antennas and stratified media. This book is a dedicated resource for those sitting the Part A of the MCEM (Membership of the College of Emergency Medicine) examination. It forms an essential revision guide for emergency trainees who need to acquire a broad understanding of the basic sciences, which underpin their approach to clinical problems in the emergency department. Common clinical scenarios are used to highlight the essential underlying basic science principles, providing a link between clinical management and a knowledge of the underlying anatomical, physiological, pathological and biochemical processes. Multiple choice questions with reasoned answers are used to confirm the candidates understanding and for self testing. Unlike other recent revision books which provide MCQ questions with extended answers, this book uses clinical cases linked to the most recent basic science aspects of the CEM syllabus to provide a book that not only serves as a useful revision resource for the Part A component of the MCEM examination, but also a unique way of understanding the processes underlying common clinical cases seen every day in the emergency department. This book is essential for trainees sitting the Part A of the MCEM exam and for clinicians and medical students who need to refresh their knowledge of basic sciences relevant to the management of clinical emergencies. With the growing popularity and availability of precision equipment, farmers and producers have access to more data than ever before. With proper implementation, precision agriculture management can improve profitability and sustainability of production. Precision Agriculture Basics is geared at students, crop consultants, farmers, extension workers, and practitioners that are interested in practical applications of site-specific agricultural management. Using a multidisciplinary approach, readers are taught to make data-driven on-farm decisions using the most current knowledge and tools in crop science, agricultural engineering, and geostatistics. Precision Agriculture Basics also features a stunning video glossary including interviews with agronomists on the job and in the field. Microwave and millimeter-wave remote sensing techniques are fast becoming a necessity in many aspects of security as detection and classification of objects or intruders becomes more difficult. This groundbreaking resource offers you expert guidance in this burgeoning area. It provides you with a thorough treatment of the principles of microwave and millimeter-wave remote sensing for security applications, as well as practical coverage of the design of radiometer, radar, and imaging systems. You learn how to design active and passive sensors for intruder detection, concealed object detection, and human activity classification. This detailed book presents the fundamental concepts practitioners need to understand, including electromagnetic wave propagation in free space and in media, antenna theory, and the principles of receiver design. You find in-depth discussions on the interactions of electromagnetic waves with human tissues, the atmosphere and various building and clothing materials. This timely volume explores recently developed detection techniques, such as micro-Doppler radar signatures and correlation radiometry. The book is supported with over 200 illustrations and 1,135 equations. This book presents selected, peer-reviewed contributions from the 9th International Conference on Experimental Vibration Analysis for Civil Engineering Structures (EVACES 2021), organized by the University of Tokyo and Saitama University from September 17-20, 2021 on the Hongo campus of the University of Tokyo, and hosted in an online format. The event brought together engineers, scientists, researchers, and practitioners, providing a forum for discussing and disseminating the latest developments and achievements in all major aspects of dynamic testing for civil engineering structures, including instrumentation, sources of excitation, data analysis, system identification, monitoring and condition assessment, in-situ and laboratory experiments, codes and standards, and vibration mitigation. The topics of EVACES 2021 included but were not limited to: damage identification and structural health monitoring; testing, sensing and modeling; vibration isolation and control; system and model identification; coupled dynamical systems (including human–structure, vehicle–structure, and soil–structure interaction); and application of advanced techniques involving the Internet of Things, robot, UAV, big data and artificial intelligence. 1. Introduction. 1.1. Waves in the ocean and their significance. 1.2. Basic assumptions on seawater and wave motion. 1.3. Methods of description of random waves -- 2. Interaction of wind and ocean waves. 2.1. Introduction. 2.2. Airflow over sea surface. 2.3. Similarity laws for wind-induced waves. 2.4. Wave energy balance in spectral form. 2.5. Generation of waves by wind -- 3. Spectral properties of ocean waves. 3.1. Introduction. 3.2. Frequency spectra of

ocean waves. 3.3. Dispersion relation for ocean waves. 3.4. Directional spectral functions -- 4. Statistical properties of ocean waves. 4.1. Introduction. 4.2. Surface displacement. 4.3. Surface slopes. 4.4. Wave height. 4.5. Wave period. 4.6. Wave orbital velocities and pressure. 4.7. Wave group statistics. 4.8. Surface area of an ocean waves -- 5. Properties of breaking waves. 5.1. Introduction. 5.2. Wave breaking in deep water. 5.3. Wave breaking in shallow water -- 6. Prediction of waves in deep water. 6.1. Introduction. 6.2. Basic wave processes in deep water. 6.3. Wave prediction models -- 7. Prediction of waves in shallow water. 7.1. Introduction. 7.2. Basic wave processes in shallow water. 7.3. Wave prediction models -- 8. Freak waves. 8.1. Introduction. 8.2. Freak wave oboccurrence of freak waves. 8.4. Freak wave generation -- 9. Tsunami. 9.1. Introduction. 9.2. Tsunami generation due to earthquake. 9.3. Tsunami due to landslides. 9.4. Tsunami due to meteorites impact -- 10. Waves at islands and coral reefs. 10.1. Introduction. 10.2. Maximum wave height on shoal flat. 10.3. Sheltering of surface waves by islands. 10.4. Scattering of waves by a group of islands. 10.5. Prediction of waves on island archipelagoes. 10.6. Interaction of waves with coral reef bottoms -- 11. Waves in mangrove forests. 11.1. Introduction. 11.2. Waves in mangrove forest of constant water depth. 11.3. Waves in mangrove forest of changing water depth -- 12. Wave-induced pressure and flow in a porous bottom. 12.1. Introduction. 12.2. Wave-induced pore pressure in sea bottom. 12.3. Pore pressure in sea bottom due to wave set-up. 12.4. Experimental data on pore pressure. 12.5. Spectral properties of wave-induced pore pressure. 12.6. Ciculation in permeable rippled bed -- 13. Wave observations and long-term statistics. 13.1. Introduction. 13.2. Wave observations. 13.3. Wave geography. 13.4. Long-term statistics of sea severity -- 14. Wave measurement techniques. 14.1. Introduction. 14.2. A single point wave data. 14.3. Remote sensing techniques -- 15. Data processing and simulation techniques. 15.1. Introduction. 15.2. Data processing methods. 15.3. Numerical simulation techniques Rawson and Tupper's Basic Ship Theory, first published in 1968, is widely known as the standard introductory text for naval architecture students, as well as being a useful reference for the more experienced designer. The fifth edition continues to provide a balance between theory and practice. Volume 2 expands on the material in Volume 1, covering the dynamics behaviour of marine vehicles, hydrodynamics, manoeuvrability and seakeeping. It concludes with some case studies of particular ship types and a discussion of maritime design. Both volumes feature the importance of considering the environment in design. Basic Ship Theory is an essential tool for undergraduates and national vocational students of naval architecture, maritime studies, ocean and offshore engineering, and will be of great assistance to practising marine engineers and naval architects. Brand new edition of the leading undergraduate textbook in Naval Architecture Provides a basis for more advanced theory Over 500 examples, with answers