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KEY=HYDROMECHANICS - HARDY AGUIRRE

PRACTICAL RESEARCH

PLANNING AND DESIGN

For undergraduate or graduate courses that include planning, conducting, and evaluating research. A do-it-yourself, understand-it-yourself manual designed to help students understand the fundamental structure of research and the methodical process that leads to valid, reliable results. Written in uncommonly engaging and elegant prose, this text guides the reader, step-by-step, from the selection of a problem, through the process of conducting authentic research, to the preparation of a completed report, with practical suggestions based on a solid theoretical framework and sound pedagogy. Suitable as the core text in any introductory research course or even for self-instruction, this text will show students two things: 1) that quality research demands planning and design; and, 2) how their own research projects can be executed effectively and professionally.

RIVALS IN ARMS

THE RISE OF UK-FRANCE DEFENCE RELATIONS IN THE TWENTY-FIRST CENTURY

McGill-Queen's Press - MQUP As the UK leaves the European Union and as the multilateral order is increasingly under stress, bilateral security links are more important than ever. Among such relationships, the UK-France partnership has become particularly critical in the past decades. Alice Pannier's *Rivals in Arms* reveals the history of the growing special partnership between Europe's two leading military powers in the twenty-first century. Using an innovative analytical framework rooted in theories of cooperation and negotiation, this book exposes the challenges the two countries have faced to develop, equip, and employ their military capabilities together. Through a decade-long study, Pannier highlights how France and the UK have endeavoured to make their partnership more effective and resistant to domestic and international shifts, including Brexit. Building on more than one hundred interviews with key stakeholders and unmatched access to primary sources, *Rivals in Arms* takes the reader behind the scenes, investigating the complicated but crucial defence relationship between France and the UK - a relationship that is critical to the future of Euro-Atlantic security.

AN INTRODUCTION TO COMPUTATIONAL FLUID DYNAMICS THE FINITE VOLUME METHOD, 2/E

Pearson Education India

PRACTICAL SHIP HYDRODYNAMICS

Elsevier **Practical Ship Hydrodynamics** provides a comprehensive overview of hydrodynamic experimental and numerical methods for ship resistance and propulsion, maneuvering, seakeeping and vibration. Beginning with an overview of problems and approaches, including the basics of modeling and full scale testing, expert author Volker Bertram introduces the marine applications of computational fluid dynamics and boundary element methods. Expanded and updated, this new edition includes: Otherwise disparate information on the factors affecting ship hydrodynamics, combined to provide one practical, go-to resource. Full coverage of new developments in computational methods and model testing techniques relating to marine design and development. New chapters on hydrodynamic aspects of ship vibrations and hydrodynamic options for fuel efficiency, and increased coverage of simple design estimates of hydrodynamic quantities such as resistance and wake fraction. With a strong focus on essential background for real-life modeling, this book is an ideal reference for practicing naval architects and graduate students.

CLIMATE CHANGE 2014 - IMPACTS, ADAPTATION AND VULNERABILITY: PART A: GLOBAL AND SECTORAL ASPECTS: VOLUME 1, GLOBAL AND SECTORAL ASPECTS

WORKING GROUP II CONTRIBUTION TO THE IPCC FIFTH ASSESSMENT REPORT

Cambridge University Press This latest Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) will again form the standard reference for all those concerned with climate change and its consequences, including students, researchers and policy makers in environmental science, meteorology, climatology, biology, ecology, atmospheric chemistry and environmental policy.

CARBON DIOXIDE CAPTURE AND STORAGE

SPECIAL REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE

Cambridge University Press IPCC Report on sources, capture, transport, and storage of CO₂, for researchers, policy-makers and engineers.

CLIMATE CHANGE 2014 - IMPACTS, ADAPTATION AND VULNERABILITY: GLOBAL AND SECTORAL ASPECTS

Cambridge University Press This latest Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) will again form the standard reference for all those concerned with climate change and its consequences, including students, researchers and policy makers in environmental science, meteorology, climatology, biology, ecology, atmospheric chemistry and environmental policy.

AIRFRAME AND POWERPLANT MECHANICS POWERPLANT HANDBOOK

HANDBOOK OF MARINE CRAFT HYDRODYNAMICS AND MOTION CONTROL

John Wiley & Sons **Handbook of MARINE CRAFT HYDRODYNAMICS AND MOTION CONTROL** The latest tools for analysis and design of advanced GNC systems **Handbook of Marine Craft Hydrodynamics and Motion Control** is an extensive study of the latest research in hydrodynamics, guidance, navigation, and control systems for marine craft. The text establishes how the implementation of mathematical models and modern control theory can be used for simulation and verification of control systems, decision-support systems, and situational awareness systems. Coverage includes hydrodynamic models for marine craft, models for wind, waves and ocean currents, dynamics and stability of marine craft, advanced guidance principles, sensor fusion, and inertial navigation. This important book includes the latest tools for analysis and design of advanced GNC systems and presents new material on unmanned underwater vehicles, surface craft, and autonomous vehicles. References and examples are included to enable engineers to analyze existing projects before making their own designs, as well as MATLAB scripts for hands-on software development and testing. Highlights of this Second Edition include: Topical case studies and worked examples demonstrating how you can apply modeling and control design techniques to your own designs A Github repository with MATLAB scripts (MSS toolbox) compatible with the latest software releases from Mathworks New content on mathematical modeling, including models for ships and underwater vehicles, hydrostatics, and control forces and moments New methods for guidance and navigation, including line-of-sight (LOS) guidance laws for path following, sensory systems, model-based navigation systems, and inertial navigation systems This fully revised Second Edition includes innovative research in hydrodynamics and GNC systems for marine craft, from ships to autonomous vehicles operating on the surface and under water. **Handbook of Marine Craft Hydrodynamics and Motion Control** is a must-have for students and engineers working with unmanned systems, field robots, autonomous vehicles, and ships. MSS toolbox: <https://github.com/cybergalactic/mss> Lecture notes: <https://www.fossen.biz/wiley> Author's home page: <https://www.fossen.biz>

CLIMATE CHANGE 2007 - IMPACTS, ADAPTATION AND VULNERABILITY

WORKING GROUP II CONTRIBUTION TO THE FOURTH ASSESSMENT REPORT OF THE IPCC

Cambridge University Press The Climate Change 2007 volumes of the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) provide the most comprehensive and balanced assessment of climate change available. This IPCC Working Group II volume provides a completely up-to-date scientific assessment of the impacts of climate change, the vulnerability of natural and human environments, and the potential for response through adaptation. Written by the world's leading experts, the IPCC volumes will again prove to be invaluable for researchers, students, and policymakers, and will form the standard reference works for policy decisions for government and industry worldwide.

COMPUTERS TAKE FLIGHT

A HISTORY OF NASA'S PIONEERING DIGITAL FLY-BY-WIRE PROJECT

United States Government Printing

MINDSTORMS

CHILDREN, COMPUTERS, AND POWERFUL IDEAS

Basic Books In this revolutionary book, a renowned computer scientist explains the importance of teaching children the basics of computing and how it can prepare them to succeed in the ever-evolving tech world. Computers have completely changed the way we teach children. We have Mindstorms to thank for that. In this book, pioneering

computer scientist Seymour Papert uses the invention of LOGO, the first child-friendly programming language, to make the case for the value of teaching children with computers. Papert argues that children are more than capable of mastering computers, and that teaching computational processes like de-bugging in the classroom can change the way we learn everything else. He also shows that schools saturated with technology can actually improve socialization and interaction among students and between students and teachers. Technology changes every day, but the basic ways that computers can help us learn remain. For thousands of teachers and parents who have sought creative ways to help children learn with computers, *Mindstorms* is their bible.

HYDRODYNAMICS OF PUMPS

Cambridge University Press **Hydrodynamics of Pumps** is a reference for pump experts and a textbook for advanced students. It examines the fluid dynamics of liquid turbomachines, particularly pumps, focusing on special problems and design issues associated with the flow of liquid through a rotating machine. There are two characteristics of a liquid that lead to problems and cause a significantly different set of concerns than those in gas turbines. These are the potential for cavitation and the high density of liquids, which enhances the possibility of damaging, unsteady flows and forces. The book begins with an introduction to the subject, including cavitation, unsteady flows and turbomachinery, basic pump design and performance principles. Chapter topics include flow features, cavitation parameters and inception, bubble dynamics, cavitation effects on pump performance, and unsteady flows and vibration in pumps - discussed in the three final chapters. The book is richly illustrated and includes many practical examples.

MARINE HYDRODYNAMICS

MIT Press **A textbook that offers a unified treatment of the applications of hydrodynamics to marine problems.** The applications of hydrodynamics to naval architecture and marine engineering expanded dramatically in the 1960s and 1970s. This classic textbook, originally published in 1977, filled the need for a single volume on the applications of hydrodynamics to marine problems. The book is solidly based on fundamentals, but it also guides the student to an understanding of engineering applications through its consideration of realistic configurations. The book takes a balanced approach between theory and empirics, providing the necessary theoretical background for an intelligent evaluation and application of empirical procedures. It also serves as an introduction to more specialized research methods. It unifies the seemingly diverse problems of marine hydrodynamics by examining them not as separate problems but as related applications of the general field of hydrodynamics. The book evolved from a first-year graduate course in MIT's Department of Ocean Engineering. A knowledge of advanced calculus is assumed. Students will find a previous introductory course in fluid dynamics helpful, but the book presents the necessary fundamentals in a self-contained manner. The 40th anniversary of this pioneering book offers a foreword by John Grue. Contents Model Testing • The Motion of a Viscous Fluid • The Motion of an Ideal Fluid • Lifting Surfaces • Waves and Wave Effects • Hydrodynamics of Slender Bodies

INTRODUCTION TO REPRESENTATION THEORY

American Mathematical Soc. **Very roughly speaking, representation theory studies symmetry in linear spaces. It is a beautiful mathematical subject which has many applications, ranging from number theory and combinatorics to geometry, probability theory, quantum mechanics, and quantum field theory.** The goal of this book is to give a "holistic" introduction to representation theory, presenting it as a unified subject which studies representations of associative algebras and treating the representation theories of groups, Lie algebras, and quivers as special cases. Using this approach, the book covers a number of standard topics in the representation theories of these structures. Theoretical material in the book is supplemented by many problems and exercises which touch upon a lot of additional topics; the more difficult exercises are provided with hints. The book is designed as a textbook for advanced undergraduate and beginning graduate students. It should be accessible to students with a strong background in linear algebra and a basic knowledge of abstract algebra.

SEA LOADS ON SHIPS AND OFFSHORE STRUCTURES

Cambridge University Press **After introducing the theory of the structural loading on ships and offshore structures based on the motions of wind, waves and currents, this text demonstrates its applications to conventional and non-conventional sea vessels, including extensive exercises and examples.**

FOX AND MCDONALD'S INTRODUCTION TO FLUID MECHANICS

John Wiley & Sons **Through ten editions, Fox and McDonald's Introduction to Fluid Mechanics has helped students understand the physical concepts, basic principles, and analysis methods of fluid mechanics.** This market-leading textbook provides a balanced, systematic approach to mastering critical concepts with the proven Fox-McDonald solution methodology. In-depth yet accessible chapters present governing equations, clearly state assumptions, and relate mathematical results to corresponding physical behavior. Emphasis is placed on the use of control volumes to support a practical, theoretically-inclusive problem-solving approach to the subject. Each comprehensive chapter includes numerous, easy-to-follow examples that illustrate good solution technique and explain challenging points. A broad range of carefully selected topics describe how to apply the governing equations to various problems, and explain physical concepts to enable students to model real-world fluid flow situations. Topics include flow measurement, dimensional analysis and similitude, flow in pipes, ducts, and open channels, fluid machinery, and more. To enhance student learning, the book incorporates numerous pedagogical features including chapter summaries and

learning objectives, end-of-chapter problems, useful equations, and design and open-ended problems that encourage students to apply fluid mechanics principles to the design of devices and systems.

WORLDS OF FLOW

A HISTORY OF HYDRODYNAMICS FROM THE BERNOULLIS TO PRANDTL

Oxford University Press This book provides the first fully-fledged history of hydrodynamics, including lively accounts of the concrete problems of hydraulics, navigation, blood circulation, meteorology, and aeronautics that motivated the main conceptual innovations. Richly illustrated, technically competent, and philosophically sensitive, it should attract a broad audience and become a standard reference for any one interested in fluid mechanics.

HEREDITARY GENIUS

AN INQUIRY INTO ITS LAWS AND CONSEQUENCES

CAVITATION AND BUBBLE DYNAMICS

Cambridge University Press Cavitation and Bubble Dynamics deals with fundamental physical processes of bubble dynamics and cavitation for graduate students and researchers.

SMALL-SCALE AQUAPONIC FOOD PRODUCTION

Fao Aquaponics is the integration of aquaculture and soilless culture in a closed production system. This manual details aquaponics for small-scale production--predominantly for home use. It is divided into nine chapters and seven annexes, with each chapter dedicated to an individual module of aquaponics. The target audience for this manual is agriculture extension agents, regional fisheries officers, non-governmental organizations, community organizers, government ministers, companies and singles worldwide. The intention is to bring a general understanding of aquaponics to people who previously may have only known about one aspect.

STATISTICAL ANALYSIS IN CLIMATE RESEARCH

Cambridge University Press Climatology is, to a large degree, the study of the statistics of our climate. The powerful tools of mathematical statistics therefore find wide application in climatological research. The purpose of this book is to help the climatologist understand the basic precepts of the statistician's art and to provide some of the background needed to apply statistical methodology correctly and usefully. The book is self contained: introductory material, standard advanced techniques, and the specialised techniques used specifically by climatologists are all contained within this one source. There are a wealth of real-world examples drawn from the climate literature to demonstrate the need, power and pitfalls of statistical analysis in climate research. Suitable for graduate courses on statistics for climatic, atmospheric and oceanic science, this book will also be valuable as a reference source for researchers in climatology, meteorology, atmospheric science, and oceanography.

HANDBOOK OF HYDRAULIC RESISTANCE

Product Dimensions: 9.7 x 6.6 x 2.1 inches The Handbook has been composed on the basis of processing, systematization, and classification of the results of a great number of investigations published at different time. The essential part of the book is the outcome of investigations carried out by the author. The present edition of this Handbook should assist in increasing the quality and efficiency of the design and usage of industrial power engineering and other constructions and also of the devices and apparatus through which liquids and gases move.

AIAA GUIDE FOR THE VERIFICATION AND VALIDATION OF COMPUTATIONAL FLUID DYNAMICS SIMULATIONS

Amer Inst of Aeronautics & This document presents for guidelines for assessing the credibility of modeling and simulation in computational fluid dynamics. The two main principles that are necessary for assessing credibility are verification and validation. Verification is the process of determining if a computational simulation accurately represents the conceptual model, but no claim is made of the relationship of the simulation to the real world. Validation is the process of determining if a computational simulation represents the real world. This document defines a number of key terms, discusses fundamental concepts, and specifies general procedures for conducting verification and validation of computational fluid dynamics simulations. The document's goal is to provide a foundation for the major issues and concepts in verification and validation. However, this document does not recommend standards in these areas because a number of important issues are not yet resolved. It is hoped that the guidelines will aid in the research, development, and use of computational fluid dynamics simulations by establishing common terminology and methodology for verification and validation. The terminology and methodology should also be useful in other engineering and science disciplines.

FUNDAMENTALS OF BIOMECHANICS

Springer Science & Business Media Fundamentals of Biomechanics introduces the exciting world of how human movement is created and how it can be improved. Teachers, coaches and physical therapists all use biomechanics to help people improve movement and decrease the risk of injury. The book presents a comprehensive review of the major concepts of biomechanics and summarizes them in nine principles of biomechanics. Fundamentals of Biomechanics concludes by

showing how these principles can be used by movement professionals to improve human movement. Specific case studies are presented in physical education, coaching, strength and conditioning, and sports medicine.

CLASSICAL AERODYNAMIC THEORY

UNLIMITED HORIZONS

DESIGN AND DEVELOPMENT OF THE U-2

Designed as a stopgap measure to provide overhead reconnaissance capability during the early years of the Cold War, the versatile U-2 has since evolved to meet changing requirements well into the 21st century. Though many authors have documented the airplane's operational history, few have made more than a cursory examination of its technical aspects or its role as a NASA research platform. This volume includes an overview of the origin and development of the Lockheed U-2 family of aircraft with early National Advisory Committee for Aeronautics (NACA) and National Aeronautics and Space Administration (NASA) involvement, construction and materials challenges faced by designers and builders, releasable performance characteristics and capabilities, use of U-2 and ER-2 airplanes as research platforms, and technical and programmatic lessons learned.

LATTICE-GAS CELLULAR AUTOMATA AND LATTICE BOLTZMANN MODELS

AN INTRODUCTION

Springer Lattice-gas cellular automata (LGCA) and lattice Boltzmann models (LBM) are relatively new and promising methods for the numerical solution of nonlinear partial differential equations. The book provides an introduction for graduate students and researchers. Working knowledge of calculus is required and experience in PDEs and fluid dynamics is recommended. Some peculiarities of cellular automata are outlined in Chapter 2. The properties of various LGCA and special coding techniques are discussed in Chapter 3. Concepts from statistical mechanics (Chapter 4) provide the necessary theoretical background for LGCA and LBM. The properties of lattice Boltzmann models and a method for their construction are presented in Chapter 5.

MEMBRANE TECHNOLOGY AND APPLICATIONS

John Wiley & Sons Table of Contents Preface Acknowledgments for the first edition Acknowledgments for the second edition 1 Overview of Membrane Science and Technology 1 2 Membrane Transport Theory 15 3 Membranes and Modules 89 4 Concentration Polarization 161 5 Reverse Osmosis 191 6 Ultrafiltration 237 7 Microfiltration 275 8 Gas Separation 301 9 Pervaporation 355 10 Ion Exchange Membrane Processes - Electrodialysis 393 11 Carrier Facilitated Transport 425 12 Medical Applications of Membranes 465 13 Other Membrane Processes 491 Appendix 523 Index 535.

PERSPECTIVES ON ATMOSPHERIC SCIENCES

Springer This book provides the proceedings of the 13th International Conference of Meteorology, Climatology and Atmospheric Physics (COMECAP 2016) that is held in Thessaloniki from 19 to 21 September 2016. The Conference addresses fields of interest for researchers, professionals and students related to the following topics: Agricultural Meteorology and Climatology, Air Quality (Indoor and Outdoor), Applied Meteorology and Climatology, Applications of Meteorology in the Energy sector, Atmospheric Physics and Chemistry, Atmospheric Radiation, Atmospheric Boundary layer, Biometeorology and Bioclimatology, Climate Dynamics, Climatic Changes, Cloud Physics, Dynamic and Synoptic Meteorology, Extreme Events, Hydrology and Hydrometeorology, Mesoscale Meteorology, Micrometeorology-Urban Microclimate, Remote Sensing- Satellite Meteorology and Climatology, Weather Analysis and Forecasting. The book includes all papers that have been accepted after peer review for presentation in the conference.

NASA CONTRIBUTIONS TO FLUIDIC SYSTEMS

A SURVEY

HYDRAULIC RESEARCH IN THE UNITED STATES

SUBMARINE HYDRODYNAMICS

Springer This book covers specific aspects of submarine hydrodynamics in a very practical manner. The author reviews basic concepts of ship hydrodynamics and goes on to show how they are applied to submarines, including a look at the use of physical model experiments. The book is intended for professionals working in submarine hydrodynamics, as well as for advanced students in the field. This revised edition includes updated information on empirical methods for predicting the hydrodynamic manoeuvring coefficients, and for predicting the resistance of a submarine. It also includes new material on how to assess propulsors, and includes measures of wake distortion, which has a detrimental influence on propulsor performance. Additional information on safe manoeuvring envelopes is also provided. The wide range of references has been updated to include the latest material in the field.

GROUNDWATER AROUND THE WORLD

A GEOGRAPHIC SYNOPSIS

CRC Press This book presents a unique and up-to-date summary of what is known about groundwater on our planet, from a global perspective and in terms of area-specific factual information. Unlike most textbooks on groundwater, it does not deal with theoretical principles, but rather with the overall picture that emerges as a result of countless observations,

OPEN-CHANNEL HYDRAULICS

Open-Channel Hydraulics, originally published in 1959, deals with the design for flow in open channels and their related structures. Covering both theory and practice, it attempts to bridge the gap that generally exists between the two. Theory is introduced first and is then applied to design problems. In many cases the application of theory is illustrated with practical examples. Theory is frequently simplified by adopting theoretically less rigorous treatments with sound concepts, by avoiding use of advanced mathematical manipulations, or by replacing such manipulations with practical numerical procedures. To facilitate understanding of the subject matter, the treatment is mostly based on the condition of one- or two-dimensional flow. The book deals mainly with American practice but also includes related information from many countries throughout the world. Material is divided into five main sections for an orderly and logical treatment of the subject: Basic Principles, Uniform Flow, Varied Flow, Rapidly Varied Flow, and Unsteady Flow. There are 67 illustrative examples, 282 illustrations, 319 problems, and 810 references. This classic textbook was the first English-language book on the subject in two decades. **Open-Channel Hydraulics** is a valuable text for students of engineering mechanics, hydraulics, civil, agricultural, sanitary, and mechanical engineering, and a helpful compendium for practicing engineers. Dr. Ven Te Chow was a Professor of Hydraulic Engineering and led the hydraulic engineering research and teaching programs at the University of Illinois. Through many years of experience as a teacher, engineer, researcher, writer, lecturer, and consultant, he became an internationally recognized leader in the fields of hydraulics, hydrology and hydraulic engineering. Dr. Ven Te Chow authored two technical books and more than 60 articles and papers in scientific and engineering magazines and journals. He was a member of IAHR, ASCE, AGU, AAAS, SEE, and Sigma Xi, and had been Chairman of the American Geophysical Union's Permanent Research Committee on Runoff.

THERAPEUTIC EXERCISE

FOUNDATIONS AND TECHNIQUES

F.A. Davis Here is all the guidance you need to customize interventions for individuals with movement dysfunction. You'll find the perfect balance of theory and clinical technique— in-depth discussions of the principles of therapeutic exercise and manual therapy and the most up-to-date exercise and management guidelines.

SCHAUM'S OUTLINE OF FLUID MECHANICS

McGraw Hill Professional Study faster, learn better--and get top grades with Schaum's Outlines Millions of students trust Schaum's Outlines to help them succeed in the classroom and on exams. Schaum's is the key to faster learning and higher grades in every subject. Each Outline presents all the essential course information in an easy-to-follow, topic-by-topic format. You also get hundreds of examples, solved problems, and practice exercises to test your skills. Use Schaum's Outlines to: Brush up before tests Find answers fast Study quickly and more effectively Get the big picture without spending hours poring over lengthy textbooks Fully compatible with your classroom text, Schaum's highlights all the important facts you need to know. Use Schaum's to shorten your study time--and get your best test scores! This Schaum's Outline gives you: A concise guide to the standard college course in fluid dynamics 480 problems with answers or worked-out solutions Practice problems in multiple-choice format like those on the Fundamentals of Engineering Exam

EFFECTS OF EMFS FROM UNDERSEA POWER CABLES ON ELASMOBRANCHS AND OTHER MARINE SPECIES: FINAL REPORT

DIANE Publishing

WAVES IN OCEANIC AND COASTAL WATERS

Cambridge University Press **Waves in Oceanic and Coastal Waters** describes the observation, analysis and prediction of wind-generated waves in the open ocean, in shelf seas, and in coastal regions with islands, channels, tidal flats and inlets, estuaries, fjords and lagoons. Most of this richly illustrated book is devoted to the physical aspects of waves. After introducing observation techniques for waves, both at sea and from space, the book defines the parameters that characterise waves. Using basic statistical and physical concepts, the author discusses the prediction of waves in oceanic and coastal waters, first in terms of generalised observations, and then in terms of the more theoretical framework of the spectral energy balance. He gives the results of established theories and also the direction in which research is developing. The book ends with a description of SWAN (Simulating Waves Nearshore), the preferred computer model of the engineering community for predicting waves in coastal waters.

ATMOSPHERIC AND OCEANIC FLUID DYNAMICS

FUNDAMENTALS AND LARGE-SCALE CIRCULATION

Cambridge University Press **Fluid dynamics is fundamental to our understanding of the atmosphere and oceans. Although many of the same principles of fluid dynamics apply to both the atmosphere and oceans, textbooks tend to concentrate on the atmosphere, the ocean, or the theory of geophysical fluid dynamics (GFD). This textbook provides a comprehensive unified treatment of atmospheric and oceanic fluid dynamics. The book introduces the fundamentals of geophysical fluid dynamics, including rotation and stratification, vorticity and potential vorticity, and scaling and approximations. It discusses baroclinic and barotropic instabilities, wave-mean flow interactions and turbulence, and the general circulation of the atmosphere and ocean. Student problems and exercises are included at the end of each chapter. Atmospheric and Oceanic Fluid Dynamics: Fundamentals and Large-Scale Circulation will be an invaluable graduate textbook on advanced courses in GFD, meteorology, atmospheric science and oceanography, and an excellent review volume for researchers. Additional resources are available at www.cambridge.org/9780521849692.**