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1. Introduction 2. Overview of PIV techniques
; 3. Recent advances in PIV techniques ; 4. PIV data post processing and uncertainty assessment
; 5. Application of PIV in ship velocity fields
; 6. Conclusions and future directions
Chapter 5 The Air-Water Interface: Turbulence and Scalar Exchange
1. Introduction ; 2. Scalar Exchange Models
; 3. Unsheared Air-Water Interface ; 4. Sheared Air-Water Interface ; 5. Calculation of Gas Transfer Coefficients During Low and Moderate Wind Speeds
; 6. Conclusions
Chapter 6 Internal Wave Fields Analyzed by Imaging Velocimetry

Sommario/riassunto

This volume introduces particle image velocimetry (PIV), a technique for water wave measurement in the laboratory and in the open ocean. It discusses the turbulent dissipation, Reynolds stresses and vortical structures in boundary layers of the sea bed, as well as ships, ship wakes, propulsion hydrodynamics, cavitation and free surface waves. Upwelling behind crests of micro-breaking ocean surface waves (important for the exchange of greenhouse gases between air and water) and large amplitude internal solitons in the ocean are measured. The book includes velocities and accelerations in breaki