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Altri autori (Persone)	CriscianiFulvio
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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Basic continuum Mechanics -- Kinematics of continua -- Dynamics of fluids -- Basic geophysical fluid dynamics -- Constitutive equations -- Internal gravity waves in adiabatic and frictionless fluids -- Rotating flows -- Large-scale flows -- Quasi-geostrophic single-layer models -- Shallow-water model -- Homogeneous model -- Quasi-geostrophic two-layer model -- Basic QG equations for the two-layer model -- Energetics of the two-layer model -- Quasi-geostrophic models of continuously stratified flows -- QG continuously stratified flows in the ocean -- QG continuously stratified flows in the atmosphere.
Sommario/riassunto	Large scale flows are strong movements in the atmosphere and in the oceans, governed by the balance between Coriolis and pressure gradient forces (geostrophic equilibrium). This book describes the dynamics, mechanics and thermodynamics of these winds and currents. It is written for researchers, but also accessible for students in the field, since it also gives an overview of applied quasi-geostrophic theory suitable to advanced undergraduate and beginning graduate courses. Chapter 1 presents concepts and equations of classical inertial fluid

mechanics. Chapter 2 deals with the equations of thermodynamics that close the governing equations of the fluids. Then, the motion is reformulated in a uniformly rotating reference frame. Chapter 3 deals with the shallow-water model and the homogeneous model of wind-driven circulation. The chapter also describes a classical application of the Ekman layer to the atmosphere. Chapter 4 considers the two-layer model, as an introduction to baroclinic flows, together with the concept of available potential energy. Chapter 5 takes into account continuously stratified flows in the ocean and in the atmosphere.