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Nota di contenuto	pt. 1. Principle ideas -- pt. 2. Atmospheric structures -- pt. 3. General circulation modeling.
Sommario/riassunto	General circulation models (GCMs), which define the fundamental dynamics of atmospheric circulation, are nowadays used in various fields of atmospheric science such as weather forecasting, climate predictions and environmental estimations. The Second Edition of this renowned work has been updated to include recent progress of high resolution global modeling. It also contains for the first time aspects of high-resolution global nonhydrostatic models that the author has been studying since the publication of the first edition. Some highlighted results from the Non-hydrostatic ICosahedral Atmospheric Model (NICAM) are also included. The author outlines the theoretical concepts, simple models and numerical methods for modeling the general circulation of the atmosphere. Concentrating on the physical mechanisms responsible for the development of large-scale circulation of the atmosphere, the book offers comprehensive coverage of an important and rapidly developing technique used in the atmospheric science. Dynamic interpretations of the atmospheric structure and their aspects in the general circulation model are described step by step. This book describes the methods used to construct general circulation models of the atmosphere, and how such models perform in applications relating to the real climate or environmental systems. The

book is divided into three parts: Part 1 summarizes the physical processes involved, including basic equations, waves and instabilities; Part 2 covers atmospheric structures, including various types of one- and two-dimensional structures and circulations; and Part 3 describes the basic notions for construction of general circulation models of the atmosphere and their applications. Three appendices incorporate the basic data and mathematical formulae required to enable readers to construct GCMs for themselves.

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