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Nota di contenuto	Machine generated contents note: Foreword to the French edition; Foreword to the English edition; Preface; Acknowledgements; List of symbols; 1. Half a century of numerical weather prediction; 2. Weather prediction equations; 3. Finite differences; 4. Spectral methods; 5. The effects of discretization; 6. Barotropic models; 7. Baroclinic model equations; 8. Some baroclinic models; 9. Physical parameterizations; 10. Operational forecasting; Appendix A. Examples of non-hydrostatic models; Further reading; References; Index.
Sommario/riassunto	Numerical models have become essential tools in environmental science, particularly in weather forecasting and climate prediction. This book provides a comprehensive overview of the techniques used in these fields, with emphasis on the design of the most recent numerical

models of the atmosphere. It presents a short history of numerical weather prediction and its evolution, before describing the various model equations and how to solve them numerically. It outlines the main elements of a meteorological forecast suite, and the theory is illustrated throughout with practical examples of operational models and parameterizations of physical processes. This book is founded on the author's many years of experience, as a scientist at Meteo-France and teaching university-level courses. It is a practical and accessible textbook for graduate courses and a handy resource for researchers and professionals in atmospheric physics, meteorology and climatology, as well as the related disciplines of fluid dynamics, hydrology and oceanography.
