

1. Record Nr.	UNINA9910781938803321
Autore	Coiffier Jean
Titolo	Fundamentals of numerical weather prediction // Jean Coiffier ; translated by Christopher Sutcliffe [[electronic resource]]
Pubbl/distr/stampa	Cambridge : , : Cambridge University Press, , 2011
ISBN	1-139-17964-0 1-107-22651-1 1-283-38249-0 9786613382498 1-139-18937-9 0-511-73445-X 1-139-18807-0 1-139-19067-9 1-139-18345-1 1-139-18576-4
Descrizione fisica	1 online resource (xxi, 340 pages) : digital, PDF file(s)
Classificazione	SCI042000
Disciplina	551.63/4
Soggetti	Numerical weather forecasting Weather forecasting - Mathematical models
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Title from publisher's bibliographic system (viewed on 05 Oct 2015).
Nota di bibliografia	Includes bibliographical references and index.
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.

---