

1. Record Nr.	UNINA9910811161003321
Autore	Lim Chjan C. <1959->
Titolo	Vortex dynamics, statistical mechanics, and planetary atmospheres // Chjan C. Lim, Xueru Ding, Joseph Nebus
Pubbl/distr/stampa	Hackensack, NJ, : World Scientific, c2009
ISBN	1-282-44265-1 9786612442650 981-283-914-3
Edizione	[1st ed.]
Descrizione fisica	1 online resource (224 p.)
Altri autori (Persone)	DingXueru NebusJoseph
Disciplina	551.51/509992
Soggetti	Planets - Atmospheres - Statistical methods Planets - Atmospheres - Mathematical models Vortex-motion - Statistical methods Vortex-motion - Mathematical models Monte Carlo method Fluid dynamics Statistical mechanics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references (p. 201-206) and index.
Nota di contenuto	Preface; Contents; 1. Planets and Inspiration; 2. Barotropic and Shallow-Water Models; 3. Dynamic Equilibria of the Barotropic Model - Variational Approach; 4. Statistical Mechanics; 5. The Monte Carlo Approach; 6. Phase Transitions in Energy-Relative Enstrophy Models; 7. Extremal Free Energy in the Mean-Field Theory; 8. Phase Transitions of Barotropic Flow; 9. Phase Transitions to Super-Rotation - Exact Closed-Form Solutions; 10. The Shallow-Water Models - High Energy, Cyclonic Solutions; 11. The Shallow-Water Model - Low-Energy Solutions; Bibliography; Index
Sommario/riassunto	Vortex Dynamics, Statistical Mechanics, and Planetary Atmospheres introduces the reader with a background in either fluid mechanics or statistical mechanics to the modeling of planetary atmospheres by barotropic and shallow-water models. These potent models are

introduced in both analytical and numerical treatments highlighting the ways both approaches inform and enlighten the other. This book builds on Vorticity, Statistical Mechanics, and Monte Carlo Simulations by Lim and Nebus in providing a rare introduction to this intersection of research fields. While the book reaches the cutting edge
