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| ISBN | 1-282-44265-1<br>9786612442650<br>981-283-914-3 |
| Descrizione fisica | 1 online resource (224 p.) |
| Altri autori (Persone) | DingXueru<br>NebusJoseph |
| Disciplina | 551.51/509992 |
| Soggetti | Planets - Atmospheres - Statistical methods<br>Planets - Atmospheres - Mathematical models<br>Vortex-motion - Statistical methods<br>Vortex-motion - Mathematical models<br>Monte Carlo method<br>Fluid dynamics<br>Statistical mechanics |
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| 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