1.	Record Nr.	UNINA9910483044303321
	Titolo	Modal view of atmospheric variability : applications of normal-mode function decomposition in weather and climate research / / Nedjeljka Zagar, Joseph Tribbia, editors
	Pubbl/distr/stampa	Cham, Switzerland : , : Springer, , [2020] ©2020
	ISBN	3-030-60963-4
	Edizione	[1st ed. 2020.]
	Descrizione fisica	1 online resource (XIII, 318 p. 114 illus., 50 illus. in color.)
	Collana	Mathematics of planet Earth ; ; Volume 8
	Disciplina	551.63
	Soggetti	Weather forecasting - Mathematical models Atmospheric science Environmental sciences
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Nota di contenuto	3D Normal Mode Functions (NMFs) Of a Global Baroclinic Atmospheric Model -- Normal Mode Functions and Initialization -- Normal-Mode Functions and Atmospheric Data Assimilation -- 3D Modal Variability and Energy Transformations On The Sphere -- Generalization of Baroclinic Instability and Rossby Wave Saturation Theory -- Applications to Predictions And Climate Studies.
	Sommario/riassunto	This book reviews the theory and applications of the normal-mode functions in numerical weather prediction and weather and climate dynamics. The normal-mode functions, the eigensolutions of the linearized primitive equations describing the evolution of atmospheric winds and mass variables, have been used for a long time. They have played an important role in the development of data assimilation schemes and the initialization of numerical weather prediction models. Chapters also present how the normal modes can be applied to many theoretical and numerical problems in the atmospheric sciences, such as equatorial wave dynamics, baroclinic instability, energy transfers, and predictability across scales.