

1. Record Nr.	UNINA9910781106703321
Titolo	Factor Separation in the Atmosphere : Applications and Future Prospects // edited by Pinhas Alpert and Tatiana Sholokhman, Tel Aviv University, Israel [[electronic resource]]
Pubbl/distr/stampa	Cambridge : , : Cambridge University Press, , 2011
ISBN	1-139-88578-2 1-283-00603-0 9786613006035 0-511-85911-2 0-511-86085-4 0-511-85824-8 0-511-92141-1 0-511-85998-8 0-511-85737-3
Descrizione fisica	1 online resource (xviii, 274 pages) : digital, PDF file(s)
Classificazione	SCI042000
Disciplina	551.5
Soggetti	Atmospheric diffusion - Mathematical models Meteorology - Mathematical methods Factorization (Mathematics)
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Title from publisher's bibliographic system (viewed on 24 Feb 2016).
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	; 1. Introduction / P. Alpert -- ; 2. The Factor Separation Methodology and the fractional approach / T. Sholokhman and P. Alpert -- ; 3. Investigation of the Factor Separation features for basic mathematical functions / T. Sholokhman and P. Alpert -- ; 4. Factor Separation Methodology and paleoclimates / A. Berger, M. Claussen and Q. Yin -- ; 5. Meso-meteorology: Factor Separation examples in atmospheric meso-scale motions / P. Alpert -- ; 6. Using the Alpert-Stein Factor Separation Methodology for land-use land-cover change impacts on weather and climate process with the Regional Atmospheric Modeling System / A. Beltran-Przekurat, R.A. Pielke Sr., J.L. Eastman, G.T. Narisma, A.J. Pitman, M. Lei, and D. Niyogi -- ; 7. Application of Factor

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### Sommario/riassunto

Modeling atmospheric processes in order to forecast the weather or future climate change is an extremely complex and computationally intensive undertaking. One of the main difficulties is that there are a huge number of factors that need to be taken into account, some of which are still poorly understood. The Factor Separation (FS) method is a computational procedure that helps deal with these nonlinear factors. In recent years many scientists have applied FS methodology to a range of modeling problems, including paleoclimatology, limnology, regional climate change, rainfall analysis, cloud modeling, pollution, crop growth, and other forecasting applications. This book is the first to describe the fundamentals of the method, and to bring together its many applications in the atmospheric sciences. The main audience is researchers and graduate students using the FS method, but it is also of interest to advanced students, researchers, and professionals across the atmospheric sciences.

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