1. Record Nr. UNINA9910811743703321

Autore	Enting I. G
Titolo	Inverse problems in atmospheric constituent transport / / I.G. Enting
Pubbl/distr/stampa	Cambridge ; ; New York, : Cambridge University Press, 2002
ISBN	1-107-12545-6 0-511-06457-8 1-280-41961-X 9786610419616 0-511-17684-8 1-139-14795-1 0-511-05824-1 0-511-32982-2 0-511-53574-0 0-511-07303-8
Edizione	[1st ed.]
Descrizione fisica	1 online resource (xv, 392 pages) : digital, PDF file(s)
Collana	Cambridge atmospheric and space science series
Disciplina	628.5/3/015118
Soggetti	Atmospheric diffusion - Mathematical models Dynamic meteorology - Mathematical models Inverse problems (Differential equations)
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 (p. 352-388) and index.
Nota di contenuto	Principles -- Atmospheric transport and transport models -- Estimation -- Time series estimation -- Observations of atmospheric composition -- The sources and sinks -- Problem formulation -- Ill-conditioning -- Analysis of model error -- Green's functions and synthesis inversion -- Time-stepping inversions -- Non-linear inversion techniques -- Experimental design -- Recent Applications -- Global carbon dioxide -- Global methane -- Halocarbons and other global-scale studies -- Regional inversions -- Constraining atmospheric transport.
Sommario/riassunto	The critical role of trace gases in global atmospheric change makes an improved understanding of these gases imperative. Measurements of the distributions of these gases in space and time provide important

information, but the interpretation of this information often involves ill-conditioned model inversions. A variety of techniques have therefore been developed to analyze these problems. Inverse Problems in Atmospheric Constituent Transport is the first book to give comprehensive coverage of work on this topic. The trace gas inversion problem is presented in general terms and the various different approaches are unified by treating the inversion problem as one of statistical estimation. Later chapters demonstrate the application of these methods to studies of carbon dioxide, methane, halocarbons and other gases implicated in global climate change. This book is aimed at graduate students and researchers embarking upon studies of global atmospheric change, biogeochemical cycles and Earth systems science.