1. Record Nr. UNINA9910965168603321

Autore	Wunsch Carl
Titolo	Discrete inverse and state estimation problems : with geophysical fluid applications / / Carl Wunsch
Pubbl/distr/stampa	Cambridge : , : Cambridge University Press, , 2006
ISBN	1-107-16577-6 1-280-48007-6 0-511-22063-4 0-511-22124-X 0-511-21927-X 0-511-53594-5 0-511-31695-X 0-511-21995-4
Edizione	[1st ed.]
Descrizione fisica	1 online resource (xi, 371 pages) : digital, PDF file(s)
Disciplina	551.4601519287
Soggetti	Oceanography - Mathematical models Estimation theory Geophysics - Fluid models
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 and index.
Nota di contenuto	Fundamental machinery -- Basic machinery -- Extensions of methods -- The time-dependent inverse problem : state estimation -- Time-dependent methods 2 -- Applications to steady problems -- Applications to time-dependent fluid problems.
Sommario/riassunto	The problems of making inferences about the natural world from noisy observations and imperfect theories occur in almost all scientific disciplines. This 2006 book addresses these problems using examples taken from geophysical fluid dynamics. It focuses on discrete formulations, both static and time-varying, known variously as inverse, state estimation or data assimilation problems. Starting with fundamental algebraic and statistical ideas, the book guides the reader through a range of inference tools including the singular value decomposition, Gauss-Markov and minimum variance estimates,

Kalman filters and related smoothers, and adjoint (Lagrange multiplier) methods. The final chapters discuss a variety of practical applications to geophysical flow problems. Discrete Inverse and State Estimation Problems is an ideal introduction to the topic for graduate students and researchers in oceanography, meteorology, climate dynamics, and geophysical fluid dynamics. It is also accessible to a wider scientific audience; the only prerequisite is an understanding of linear algebra.