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	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.