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Sommario/riassunto This volume of Climate Change and Environmental Sustainability covers

topics on greenhouse gas emissions, climatic impacts, climate models and prediction, and analytical methods. Issues related to two major greenhouse gas emissions, namely of carbon dioxide and methane, particularly in wetlands and agriculture sector, and radiative energy flux variations along with cloudiness are explored in this volume. Further, climate change impacts such as rainfall, heavy lake-effect snowfall, extreme temperature, impacts on grassland phenology. impacts on wind and wave energy, and heat island effects are explored. A major focus of this volume is on climate models that are of significance to projection and to visualise future climate pathways and possible impacts and vulnerabilities. Such models are widely used by scientists and for the generation of mitigation and adaptation scenarios. However, dealing with uncertainties has always been a critical issue in climate modelling. Therefore, methods are explored for improving climate projection accuracy through addressing the stochastic properties of the distributions of climate variables. addressing variational problems with unknown weights, and improving grid resolution in climatic models. Results reported in this book are

conducive to a better understanding of global warming mechanisms, climate-induced impacts, and forecasting models. We expect the book

to benefit decision makers, practitioners, and researchers in different fields and contribute to climate change adaptation and mitigation.