

Preface

Recent Progress in Atmospheric Sciences: Applications to the Asia-Pacific Region contains 22 peer-reviewed articles, which cover a spectrum of contemporary subjects relevant to atmospheric sciences, with specific applications to the Asia-Pacific regions. The majority of these papers consist of a review of a scientific subfield in atmospheric sciences, while some contain original contributions. All of the accepted papers were subject to scientific reviews and revisions.

The book is divided into two traditional fields in atmospheric sciences: Atmospheric dynamics and meteorology, and atmospheric physics and chemistry. The authors of these papers are distinguished alumni of the Department of Atmospheric Sciences at the National Taiwan University, residing in the U.S.A and Taiwan. This book is dedicated to the 50th anniversary of the Department of Atmospheric Sciences that occurred in 2004, and to the 80th anniversary of the National Taiwan University, which took place in 2008.

Papers in atmospheric dynamics and metrology cover a range of subjects: EI Niño/Southern Oscillation; ocean-atmosphere-land feedbacks; intraseasonal oscillation and typhoon relationship; convection-radiation-mixing processes in the tropics and climatic impact; analysis of Meiyu frontal systems; modeling and observations of tropical cyclones/typhoons; storm track dynamics; understanding the quasi-equilibria state; assimilation of ocean surface winds for weather forecasting; and mesoscale modeling and applications. In atmospheric physics and chemistry, subjects include: interactions between aerosols and clouds, heat budgets in the context of air/sea interactions, atmospheric radiative transfer, satellite remote sensing of clouds, satellite remote sensing of typhoons and oceans, detection and tracking of Asian dust outbreaks, Doppler radar observations of vortex structures, an understanding of ice cloud microphysics in clouds, a review of zone trends in mega-cities, and analysis of COSMIC data for typhoon studies and weather predictions.

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