

# The Global Monsoon System

## Research and Forecast

3rd Edition

## World Scientific Series on Asia-Pacific Weather and Climate

This series will continue the collaboration with the Working Group on Tropical Meteorology Research, a component of the World Weather Research Programme, and other international weather and climate programs in publication projects.

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# The Global Monsoon System

## Research and Forecast

3rd Edition

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## Foreword

Monsoons, the seasonal change in the direction of the prevailing, or strongest winds of a region are known to affect the culture and lifestyle of two-thirds of the world's population. Most prominent of the world's monsoon systems is the Indian monsoon which brings the wet and dry season not only to India but to surrounding areas as well. Recent studies have even linked the fall of China's ruling dynasties to the changes in the strength of monsoon rains. Thus, the importance of monsoons on man's activities can not be underestimated.

This book is the third edition of a book series on the state of the science of monsoon research and forecasting. The series is updated approximately every five years based on the invited papers from the World Meteorological Organization's International Workshop on Monsoons (IWM). The third edition is a collection of peer-reviewed papers presented by leading monsoon experts at IWM-V (Macau, China, 28 October–1 November 2013), with manuscripts revised and updated through 2015 and early 2016. As in previous editions, the book builds on the concept that the monsoon in various parts of the globe can be viewed as components of an integrated global monsoon system, while also emphasizing that significant region-specific characteristics are present in individual monsoon regions. In addition to the regional monsoons, the current volume covers contemporary topics with emphasis on intra-seasonal oscillations, extreme weather, decadal variability, climate change, and summary of recent field experiments including CINDY/DYNAMO and the Asian Monsoon Years.

The Quadrennial International Workshop on Monsoons series has always been well supported by WMO's World Weather Research (WWRP) and World Climate Research Programmes (WCRP). The IWM-V has followed the well-established model of previous IWM's (1995 Bali, Indonesia; 2000 New Delhi, India; 2004 Hangzhou, China; and 2008 Beijing, China). The first edition of the Global Monsoon System was published in 2005 by WMO as a Technical Document (WMO TD 1266). This established the tradition of publishing the invited IWM reviews as peer-reviewed articles. The second edition of the book was published in 2011 (from the IWM in 2008) as a WMO sponsored book by World Scientific Publishing Co. and as Volume 5 of the World Scientific Series on Asia-Pacific Weather and Climate.

On behalf of WMO, I would like to express our appreciation to the Chairperson of WWRP's Monsoon Panel, Professor C.P. Chang, to all authors, reviewers and editors, to the chairpersons and members of the Fifth International Workshop on Monsoon's International and Local Organizing Committees, and to the participants of the workshop for their valuable collaboration.

The Global Monsoon System book series have become important references for researchers and forecasters of National Meteorological and Hydrological Services in the monsoon regions and research

institutions. The book has also been adopted as textbooks in leading universities worldwide. I am confident that the third edition in the series will further promote the science of monsoon research and forecasting and bring the science to the attention of a wider community.



Petteri Taalas  
Secretary-General, World Meteorological Organization

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