

# Preface

In the 1950s, Professors Herbert Riehl and Clarence Palmer laid the foundations for *Tropical Meteorology*. They recognized the importance of numerous phenomena such as trades, monsoons and tropical cyclones. They were the early teachers for whole generations of students to follow. Dr Joanne Simpson was also a pioneer in bringing out the importance of tropical clouds as a distinctly different entity from the middle latitude stratiform layers. Various meteorological centers in many parts of the tropical world started research and operations going back nearly 100 years. The India Meteorological Department was one of such earliest weather centers. The early history of the monsoon was regularly reported in the memoirs of the India Meteorological Department. The US Weather Service was initiated in 1870 and became the Weather Bureau in 1890. Even that far back tracking hurricanes and providing surface observations had begun. The scientific progress of tropical meteorology has been quite large in the last 50 years. Contributions to this area of science came not only from the tropical countries but also from many scientists at higher latitudes. Field experiments to collect tropical data sets for specific scientific phenomenon of the tropics have been a very active component of research in the last 50 years. This has furthered our knowledge of the structure and processes of the tropical latitudes. The area of numerical weather prediction for the low latitudes also made much progress in recent years. Models have improved with the inclusion of clouds explicitly, and diverse scales and scale interactions have been studied. Low-frequency modes of the tropics have also drawn a lot of attention in recent years with many scientific publications on the Madden Julian and the El Niño Southern Oscillation time scales. This text book recognizes these areas of science, and various chapters are developed by the authors to provide a sequential understanding for these important areas.

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<http://www.springer.com/978-1-4614-7408-1>

Tropical Meteorology

An Introduction

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2013, XVI, 424 p., Hardcover

ISBN: 978-1-4614-7408-1