## **Mountain Weather Research And Forecasting**

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This monograph is the result of a multi-year effort that began with the organization of a workshop designed to bring researchers and forecasters together to discuss current progress and challenges in mountain weather. The chapters in this monograph represent the topics from this workshop, the Mountain Weather Workshop, which took place in Whistler, British Columbia, Canada, August 5-8, 2008. The inspiration for the workshop arose under the guidance of the American Meteorological Society (AMS) Mountain Meteorology Committee. This monograph will provide readers with a broad understanding of the fundamental principles driving flow over complex terrain and provide historical context for recent developments and future direction for researchers and forecasters. For academic researchers, the monograph will provide some insight into issues important to the forecasting community. For the forecasting community, we hope the monograph will provide training on fundamentals of flows specific to mountainous regions which are notoriously difficult to predict, understanding of current research challenges, and an opportunity to learn about the latest contributions and advancements to the field. The monograph begins with an overview of mountain weather and forecasting challenges specific to complex terrain (Chapter 1). This is followed by chapters that focus on diurnal mountain/valley flows that develop under calm conditions (Chapter 2) and dynamically-driven winds under strong forcing (Chapter 3). The focus then shifts to other specific phenomena that are difficult to understand and predict in mountain regions: Alpine foehn (Chapter 4) and boundary layer and air quality issues (Chapter 5). The following two chapters address processes that bring wet mountain weather in the form of rain, snow or other hydrometeors, with a discussion of specific orographic precipitation processes (Chapter 6) and the details of microphysics parameterizations (Chapter 7). Having covered the major physical processes, the monograph shifts to observation and modeling techniques used in mountain regions. First, a detailed discussion of field measurements in complex terrain is given (Chapter 8). Then, the following two chapters describe the basics of mesoscale numerical modeling (Chapter 9) and model configuration and physical parameterizations such as turbulence (Chapter 10). The monograph concludes with a chapter that discusses the current state of research and forecasting in complex terrain, including a vision of how

to bridge the gap in the future (Chapter 12). EAN/ISBN : 9789400740983 Publisher(s): Springer, Berlin, Springer Netherlands Discussed keywords: Meteorologie Format: ePub/PDF Author(s): Chow, Fotini -Snyder, Bradley J. - Wekker, Stephan F. J. de

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