

The SAARC STORM – A Coordinated Field Experiment on Severe Thunderstorm Observations and Regional Modeling over the South Asian Region

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Abstract

This article describes a unique field experiment on Severe Thunderstorms Observations and Regional Modeling (STORM) jointly undertaken by eight South Asian countries. Several pilot field experiments have been conducted so far, and the results are analyzed. The field experiments will continue through 2016. The STORM programme was originally conceived for understanding the Severe Thunderstorms known as Nor'westers that affect West Bengal and the Northeastern parts of India during the pre-monsoon season. The Nor'westers cause loss of human lives and damage to properties worth millions of Dollars annually. Since the neighbouring south Asian countries are also affected by thunderstorms, the STORM programme is expanded to cover the South Asian countries under the South Asian Association for regional Cooperation (SAARC). It covers all the SAARC countries (Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka) in 3 phases. Some of the science plans, viz., monitoring life cycle of Nor'westers/ severe thunderstorms, their three dimensional structure over the region of highest rainfall on earth, to understand the interrelationship among dynamics, cloud microphysics and electrical properties in the thunderstorm environment are new to the severe weather research. This paper describes the general setting of the field experiment and discusses preliminary results based on the pilot field data. Typical lengths of the squall lines, their intensity, and speed of movements, cloud top temperatures, and their heights are discussed based on the pilot field data. The SAARC STORM programme will complement the Severe Weather Forecast Demonstration Project (SWFDP) of WMO. It would also generate large-scale interest for fuelling research among the scientific community, and broaden the perspectives of operational meteorologists and researchers.