A Premonsoon Onset over the Bengal Plain

 Fumie Murata¹, Taiichi Hayashi², Toru Terao³, Yusuke Yamane⁴, Masashi Kiguchi⁵, Arjumand Habib⁶, Hiambok J. Syiemlieh⁷, and Surendra Singh⁷
¹Department of Applied Science, Kochi University, Japan
²Disaster Prevention Research Institute, Kyoto University, Japan
³Faculty of Education, Kagawa University, Japan
⁴Center for Southeast Asian Studies, Kyoto University, Japan
⁵Institute of Industrial Science, University of Tokyo, Japan
⁶Bangladesh Meteorological Department, Bangladesh
⁷Department of Geography, North-Eastern Hill University, India

Premonsoon season over Bangladesh is recognized as hot summer season. It is also known as the season of the severe storm accompanied by gust wind and tornadoes. Low level (below 1.5km) warm southeries and mid level (1.5-6km) cold northwesterlies make a favorable condition for severe storms. This study focuses on the transition period when such a condition is formed.

Data used in this study are rawinsondes at Dhaka, Bangladesh, surface meteorological data over Bangladesh, and rainfall at Cherrapunji, Meghalaya, India. The analysis period is 2003-2007.

The rainfall at Cherrapunji showed an abrupt increase of rainfall on the 12^{th} week (19-25 March). It was corresponded with the beginning of continuous southerly flow over Bangladesh. The southerly wind acompanied by high equivalent potential temperature air, and the vertical structure over the Bengal plain soon becomes frequently conditional unstable.