Public Abstract

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Title:THE INTERANNUAL AND INTERDECADAL VARIABILITY OF THE BORNEO VORTEX DURING BOREAL WINTER MONSOON

The boreal winter monsoon over the Malaysian region has long been associated with heavy rainfall activity and flood disaster. One of the main features that characterized this monsoon is the presence of the Borneo vortices. The main purpose of this study is to identify these vortices and determine their long-term climatological behavior over 41 winter monsoon seasons that ran between November and February from 1970 to 2010. 2,278 of Borneo vortices were identified throughout the study period. Out of this number, 77% was considered as weak vortices, 17% moderate and 5% strong. The vortex long-term mean position was located at 2.4Â°N and 110.6Â°E, which is just off coast of the Borneo Island. In addition, the vortex systems have a mean lifespan of 3.6 days, which suggest that they are a synoptic type of weather event. The first vortex of the season tended to appear in the early of November while the last one was generally left the region by end of February. Through compositing analysis technique, the results reveal that the Borneo vortices demonstrate strong feedback with regard to different phases of the ENSO, TBO and PDO events, but not the QBO. Furthermore, EN (LN) signal is found to be strong in PDO1 (PDO2) period, while the EN (LN) tends to weaken (enhance) the TBO event. This study also examined two selected events in order to identify the differences between the Borneo vortices of different intensities based on their convective parameters.