

Moisture Budget Analysis for Hurricane Precipitation on Texas

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In August 2017, Hurricane Harvey brought the unprecedented amount of rainfall and catastrophic flooding on the Houston metropolitan area, as it stagnated near the coast of Texas for several days after its decline to a tropical storm intensity. The present study compares the moisture budget for rainfall associated with Harvey with those of past hurricanes making landfall on Texas. It seems that the high pressure over the west coast region of the US, along with the meandering of the subtropical jet starting from the periphery of Hawaii and toward the south in Texas, stagnated Hurricane Harvey around the coast of Texas for several days. The meandering of the subtropical jet toward the south in Texas also caused the largest convergence of moisture advected from the Gulf of Mexico efficiently over Texas, although the accompanied high pressure was not extraordinary event. Therefore, it is suggested that surrounding meteorological conditions can greatly affect rainfall related to tropical cyclones.

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