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A Comparative Study of Cloud Liquid Water Content from Radiosonde Data at a Tropical Location

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ABSTRACT

In this paper, some features of cloud liquid water content with respect to rain and water vapor are presented. Cloud liquid water density profile is obtained from radiosonde observation with Salonen's model and Karsten's model at Kolkata, a tropical location in the Indian region. Cloud liquid water contents (LWC) are obtained from these profiles which show a prominent seasonal variation. The monsoon months exhibit much higher values of LWC than in other months. However Salonen's model yields higher LWC values than that obtained with Karsten's model. The variation of daily total rainfall with LWC shows a positive relationship indicating the role of LWC in controlling the rainfall. Also the variation pattern of LWC with integrated water vapor (IWV) content of the atmosphere indicates that a threshold value of water vapor is required for cloud to form and once cloud is formed LWC increases with IWV.

KEYWORDS

Cloud Liquid Water Contents (LWC); Integrated Water Vapor (IWV)

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