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Studies on Low Altitude Clouds Over New Delhi, India Using Lidar

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Abstract

This study reports the altitude distribution of physical and optical properties of clouds in the lower troposphere over the urban tropical region Delhi using an UV (355 nm) lidar which is capable of operating in both day and night time. Most of the low altitude clouds are observed above the planetary boundary layer during the observation period. The low altitude cloud bottom and top height varies between 0.58 ± 0.21 and 1.5 ± 0.61 km respectively during the observation period. The depolarization ratio of the observed clouds varies from 0.18 ± 0.01 to 1.2 ± 0.58. The role of the atmospheric region below the cloud in the growth process of the cloud cell is studied. Cloud turbulence is derived to show its role in maintaining the strength of the cloud.

Keywords

Lidar; Warm clouds; Backscatter; Extinction; Depolarization; Aerosol; Precipitation