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An investigation of cloud base height in Chiang Mai

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Clouds play very important role in the variation of surface solar radiation and rain formation. To understand this role, it is necessary to know the physical and geometrical of properties of cloud. However, clouds vary with location and time, which lead to a difficulty to obtain their properties. In this work, a ceilometer was installed at a station of the Royal Rainmaking and Agricultural Aviation Department in Chiang Mai (17.80 N, 98.43 E) in order to measure cloud base height. The cloud base height data from this instrument were compared with those obtained from LiDAR, a more sophisticated instrument installed at the same site. It was found that the cloud base height from both instruments were in reasonable agreement, with root mean square difference (RMSD) and mean bias difference (MBD) of 19.21% and 1.58%, respectively. Afterward, a six-month period (August, 2016-January, 2017) of data from the ceilometer was analyzed. The results show that mean cloud base height during this period is 1.5 km, meaning that most clouds are in the category of low-level cloud.

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