

1 Cirrus climatology using polarization lidar observations over

Gadanki (13.5°N, 79.2° E)

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A climatological study of cirrus occurrence has been carried out using the ground-based polarization lidar at Gadanki (13.5°N, 79.2° E) during 1998-2004. During this period lidar has been operated for 636 nights. About half of the days of operation the cirrus cloud appeared. A statistical study shows a significant enhancement in cirrus appearance during 2001 compared to other years. We discuss cirrus occurrence frequencies for winter, premonsoon, monsoon and autumn. We also present cloud base, cloud top, mean height and vertical thickness frequency of the cloud and also appearance of cirrus cloud top with respect to tropical tropopause. A significant observation from this statistical study over this latitude shows appearance of cirrus at two different altitudes because of its different formation mechanisms. We will also discuss the formation mechanisms for the occurrence of tropical cirrus at this latitude.