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LIDAR observations on short time enhancement in aerosol structure during convective periods over a tropical site in India

V. Rajendra kumar and Y Bhavani Kumar

National Atmospheric Research Laboratory, Dept. of Space, Govt. of India, India (tovishnur@gmail.com)

This work represents the technical details and measurement capabilities of an Elastic backscatter LIDAR (Light detection and ranging) instrument developed in indigenously in the LIDAR projects of National atmospheric Research Laboratory (NARL) situated in tropical parts of India. This mobile LIDAR instrument can operate at various angles with high temporal and spatial resolution, and have the capability of measuring the daytime atmospheric boundary layer and aerosol dynamics which makes it a unique system in the country. The LIDAR signal strength is strong enough to probe the elevated aerosol layers and is suitable for conducting the investigations on convective boundary layer (CBL) growths. The lidar system operated for one year in the experimental site and first observation results on cloud aerosol interaction is presented in this work.