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## **COMPACT MICROPULSE BACKSCATTER LIDAR: AIRBORNE AND GROUND-BASED APPLICATIONS**

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### **Abstract**

The article is a review of the activities with one type of extremely compact elastic backscatter lidar. The reported lidar is based on micro-pulse laser operation and photon counting detection. The starting objective for the development was the automatic operation from stratospheric aircraft for sub-visible clouds detection. The developed lidar proved also optimal for ground-based measurements of Atmospheric Boundary Layer (ABL) development and Aerosol Backscatter Coefficient (ABC). As an illustration of its airborne capabilities selected results of thin clouds detection are presented. As examples for its ground-based operation cases of ABL development and ABC measurements are reported. These include also monitoring of the variation of Eyjafjallajökull volcano debris transport above Neuchâtel (Switzerland), as well as a statistical study on the correlation between the lidar measurements and visual range. The years of operation proved that such lidars answer the demands for operation at remote sites and at field campaigns.

*Key words:* Aerosol Backscatter Coefficient, Atmospheric Boundary Layer, backscatter Lidar, thin clouds

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