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Preliminary results on the tropospheric aerosol vertical distribution on the territory of Georgia

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The lidar M-10 system was implemented in the Abastumani Astrophysical Observatory (41.75°N, 42.82°E) in 2006. First observations of the tropospheric aerosol distribution had been carried out in three regions on the territory of Georgia characterized by different climatic environment: Abastumani (far from industrial sites, 1600m above sea level), Tbilisi airport (suburban polluted site) and David Gareji (semi-arid region). Profiles of the aerosol backscatter coefficient were obtained which demonstrate peculiarities of the temporal variability of the aerosol vertical distribution in different regions. The aerosol density in the boundary layer over the Tbilisi airport site was higher by an order of magnitude than over Abastumani. Multilayer structures in the tropospheric aerosols above Abastumani within 1-4 km were detected. Preliminary results show the importance of observations of aerosol vertical distributions in this region in order to separate the influences of global and regional physico-chemical processes on their formation.