



Troposphere dust loading detection from Lidar measurements

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The aim of this paper is to use LIDAR (Light Detection and Ranging) measurements, soundings and synoptic maps along with air-mass backward trajectories analysis from HYSPLIT model, to observe the loading of troposphere, above Bucharest area, with dust and to identify the sources of the observed layers. We are using an elastic backscatter lidar, working at 1064nm wavelength to detect in real time aerosol density profiles up to 6 km with a spatial resolution of 6 m. Quick looks at the aerosol layering are done through the RCS (Range Corrected Signal) images. To obtain backscatter coefficients vertical profiles, aerosol optical thickness (AOT) values from a collocated sunphotometer are used in the inversion method developed by the research group in INOE. Meteorological conditions affecting transport of dust were studied and interpreted. We identified and examined significant Saharan dust outbreaks over Bucharest, under cloud free conditions, which were successfully forecasted by the DREAM (Dust REgional Atmospheric Modeling) model of BSC (Barcelona Supercomputer Center).