

Aerosol vertical profiles in Belgrade, Serbia, associated with different surface PM₁₀ concentrations

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The height of the atmospheric boundary layer (ABLH) is an important parameter in studies of air pollution, as it determines the volume available for dispersion of pollutants. Aerosol lidar provides information on temporal changes of ABLH (using aerosols as tracers) and vertical structure of aerosol layer. Coupled with measurements of meteorological parameters, this information is valuable in interpretation of particulate matter (PM) observations at ground level. Knowledge of the temporal changes of aerosol vertical profile is helpful in understanding the formation of PM air pollution and the impact of long-range transport to surface PM concentrations.

Aerosol lidar measurements performed in Belgrade during 2018-2020, were used to derive vertical profiles of aerosol backscatter coefficient at 355 nm (Klett, 1981; Fernald, 1984) and the temporal evolution of ABLH (Ilić et al., 2018). In this study, selected cases of aerosol layer vertical structure, under different thermodynamic stability conditions of ABL and different levels of PM pollution, are discussed.

References

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