

4.107 The surface aerosol optical properties in urban areas of Nanjing, west Yangtze River Delta of China.

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Abstract:

Observational studies of aerosol optical properties are useful to reducing uncertainties in estimating aerosol radiative forcing and forecasting visibility. In this study, the observed near-surface aerosol optical properties in urban Nanjing are analyzed from Mar 2014 to Feb 2016. Results show that near-surface urban aerosols in Nanjing are mainly from local emissions and the surrounding regions. They have lower loadings but are more scattering than aerosols in most cities in China. The annual mean aerosol extinction coefficient (EC), single scattering albedo (SSA) and asymmetry parameter (ASP) at 550 nm are 381.96 Mm^{-1} , 0.9 and 0.57, respectively. The absorbing aerosol has smaller sizes than the scattering aerosols'. All the aerosol optical properties have substantial seasonality and diurnal variations. ASP has a good quasi-LogNormal growth trend with increasing SC when RH is below 60%. Atmospheric visibility decreases exponentially with increasing EC or SC, more sharply in spring and summer, and it could be further deteriorated with increasing SSA and ASP.