Aerosol sources, processes and effects on the urban boundary layer: highlights from the Beijing Air Pollution and Human Health programme

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This paper describes results from the joint UK-China Air Pollution and Human Health Beijing (APHH-Beijing) project that focus on a detailed characterisation of aerosol sources and composition in north central Beijing in the winter of 2016 and the summer of 2017 both including several high pollution episodes. New measurements of the black carbon fluxes by eddy correlation andthe mixing state of black carbon will be used to examine different sources of black carbon and their mixing state. Source apportionment of organic matter measured by an AMS using positive matrix factorization was carried out. We show significant feedbacks occur between aerosols and radiation occur that lead to substantial suppression of boundary layer development and exacerbation of pollution using an LEM with coupled aerosol-water-radiation interactions.